HSBC HOLDINGS PLC
Form 20-F
February 21, 2017
As filed with the Securities and Exchange Commission on February 21, 2017.

SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549
FORM 20-F
¨REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR 12(g) OF THE SECURITIES EXCHANGE ACT OF 1934
Or
þANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2016
Or
¨TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
Or
¨SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
Date of event requiring this shell company report ____________
For the transition period from N/A to N/A
Commission file number: 001-14930
HSBC Holdings plc
(Exact name of Registrant as specified in its charter)

N/A	United Kingdom
(Translation of Registrant's name into English)	(Jurisdiction of incorporation or organisation)

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(Name, Telephone, Email and/or Facsimile number and Address of Company Contact Person)
Securities registered or to be registered pursuant to Section 12(b) of the Securities Exchange Act of 1934:

Title of each class	Name of each exchange on which registered
Ordinary Shares, nominal value US$0.50 each.	London Stock Exchange Hong Kong Stock Exchange Euronext Paris Bermuda Stock Exchange New York Stock Exchange*
American Depository Shares, each representing 5 Ordinary Shares of nominal value US$0.50 each.	New York Stock Exchange
6.20% Non-Cumulative Dollar Preference Shares, Series A	New York Stock Exchange*

American Depositary Shares evidenced by American Depositary receipts, each representing one-fortieth of a Share of 6.20% Non-Cumulative Dollar Preference Shares, Series A	New York Stock Exchange
5.10% Senior Unsecured Notes Due 2021	New York Stock Exchange
4.00% Senior Unsecured Notes Due 2022	New York Stock Exchange
4.875% Senior Unsecured Notes Due 2022	New York Stock Exchange
7.625% Subordinated Notes due 2032	New York Stock Exchange
7.35% Subordinated Notes due 2032	New York Stock Exchange
6.5% Subordinated Notes 2036	New York Stock Exchange
6.5% Subordinated Notes 2037	New York Stock Exchange

6.8% Subordinated Notes Due 2038	New York Stock Exchange
6.100% Senior Unsecured Notes due 2042	New York Stock Exchange
8.125% Perpetual Subordinated Capital Securities Exchangeable at the Issuer's Option into Non-Cumulative Dollar Preference Shares	New York Stock Exchange
8.00% Perpetual Subordinated Capital Securities Exchangeable at the Issuer's Option into Non-Cumulative Dollar Preference Shares, Series 2	New York Stock Exchange
4.250% Subordinated Notes due 2024	New York Stock Exchange
5.250% Subordinated Notes due 2044	New York Stock Exchange
4.250% Subordinated Notes due 2025	New York Stock Exchange
3.400% Senior Unsecured Notes due 2021	New York Stock Exchange
4.300% Senior Unsecured Notes due 2026	New York Stock Exchange
Floating Rate Senior Unsecured Notes due 2021	New York Stock Exchange
2.950% Senior Unsecured Notes due 2021	New York Stock Exchange
3.600% Senior Unsecured Notes due 2023	New York Stock Exchange
3.900% Senior Unsecured Notes due 2026	New York Stock Exchange
Floating Rate Senior Unsecured Notes due 2021	New York Stock Exchange
2.650% Senior Unsecured Notes due 2022	New York Stock Exchange
Floating Rate Senior Unsecured Notes due 2022	New York Stock Exchange
4.375% Subordinated Notes due 2026	New York Stock Exchange

Securities registered or to be registered pursuant to Section 12(g) of the Securities Exchange Act of 1934: None

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Securities Exchange Act of 1934: None

Indicate the number of outstanding shares of each of the issuer's classes of capital or common stock as of the close of the period covered by the annual report:

Ordinary Shares, nominal value US$0.50 each 20,191,586,214

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

þ Yes ¨ No

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.

¨ Yes þ No.

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

þ Yes ¨ No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).

¨ Yes ¨ No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, or a non-accelerated filer. See definition of "accelerated filer and large accelerated filer" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer þ	Accelerated filer ¨	Non-accelerated filer ¨

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

U.S. GAAP ¨	International Financial Reporting Standards as issued by the International Accounting Standards Board þ	Other ¨

If "Other" has been checked in response to the previous question indicate by check mark which financial statement item the registrant has elected to follow.

¨ Item 17 ¨ Item 18

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

¨ Yes þ No

* Not for trading, but only in connection with the registration of American Depositary Shares.

Connecting customers to opportunities
Our purpose is to be where the growth is, enabling businesses to thrive and economies to prosper, and ultimately helping people to fulfil their hopes and realise their ambitions.

Contents

As a reminder

Reporting currency

We use US dollars.

Adjusted measures

We supplement our IFRS figures with adjusted measures used by management internally. These measures are highlighted with the following symbol:

Further explanation may be found on page 30.

Unless stated otherwise, risk-weighted assets and capital are calculated and presented on a transitional CRD IV basis as implemented by the Prudential Regulation Authority.

Strategic Report

An overview of how we are structured, what we do and where, our strategic actions, the principal risks we face, and high-level performance information. The section is introduced by both the Group Chairman and the Group Chief Executive, and also explains the role of the Board.

This Strategic Report was approved by the Board on 21 February 2017. Douglas Flint, Group Chairman

Financial Review

Detailed reporting of our financial performance, at Group level as well as within our matrix structure. It also includes our full risk report and reporting on how we manage capital.

Corporate Governance

Details of our Board of Directors and senior management, and our approach to corporate governance and remuneration.

Financial Statements

Our financial statements and related notes and reports.

Other Information

Important information for our shareholders, including contact information. Like any industry and company, we have our set of abbreviations and terminology. Accordingly, we provide an explanation of the abbreviations used. A glossary of key terms is available online at www.hsbc.com/investor-relations.

None of the websites referred to in this Annual Report on Form 20-F for the year ended December 31, 2016 (the ‘Form 20-F’), including where a link is provided, nor any of the information contained on such websites, is incorporated by reference in the Form 20-F.

Our photo competition winners

In 2016, we ran a Group-wide photo competition which attracted over 6,200 submissions from 1,100 employees. The joint overall winning photos are featured in this report. The image on the inside front cover shows a rice farmer at harvest time in north-east Vietnam, and the photo on the inside back cover was taken at sunrise at Situ (Lake) Patenggang, West Java, Indonesia.

Cover image

The Hong Kong-Zhuhai-Macau Bridge is one of the most ambitious infrastructure projects in the Pearl River Delta. It will link three key cities, cutting transport costs and travelling times, and boosting economic development. HSBC has extended a HK$700m receivables finance facility to one of the companies building the bridge. Receivables finance is an area where HSBC has particular expertise, and this facility is the largest it has provided for infrastructure in the region.

Cautionary statement regarding forward-looking statements

The Annual Report and Accounts 2016 contains certain forward-looking statements with respect to HSBC's financial condition, results of operations and business.

Statements that are not historical facts, including statements about HSBC's beliefs and expectations, are forward-looking statements. Words such as 'expects', 'targets', 'anticipates', 'intends', 'plans', 'believes', 'seeks', 'estimates', 'potential' and 'reasonably possible', variations of these words and similar expressions are intended to identify forward-looking statements. These statements are based on current plans, estimates and projections, and therefore undue reliance should not be placed on them. Forward-looking statements speak only as of the date they are made. HSBC makes no commitment to revise or update any forward-looking statements to reflect events or circumstances occurring or existing after the date of any forward-looking statements.

Written and/or oral forward-looking statements may also be made in the periodic reports to the US Securities and Exchange Commission, summary financial statements to shareholders, proxy statements, offering circulars and prospectuses, press releases and other written materials, and in oral statements made by HSBC's Directors, officers or employees to third parties, including financial analysts.

Forward-looking statements involve inherent risks and uncertainties. Readers are cautioned that a number of factors could cause actual results to differ, in some instances materially, from those anticipated or implied in any forward-looking statement. These include, but are not limited to:

- Changes in general economic conditions in the markets in which we operate, such as continuing or deepening recessions and fluctuations in employment beyond those factored into consensus forecasts; changes in foreign exchange rates and interest rates; volatility in equity markets; lack of liquidity in wholesale funding markets; illiquidity and downward price pressure in national real estate markets; adverse changes in central banks' policies with respect to the provision of liquidity support to financial markets; heightened market concerns over sovereign creditworthiness in over-indebted countries; adverse changes in the funding status of public or private defined benefit pensions; and consumer perception as to the continuing availability of credit and price competition in the market segments we serve.
- Changes in government policy and regulation, including the monetary, interest rate and other policies of central banks and other regulatory authorities; initiatives to change the size, scope of activities and interconnectedness of financial institutions in connection with the implementation of stricter regulation of financial institutions in key markets worldwide; revised capital and liquidity benchmarks which could serve to deleverage bank balance sheets and lower returns available from the current business model and portfolio mix; imposition of levies or taxes designed to change business mix and risk appetite; the practices, pricing or responsibilities of financial institutions serving their consumer markets; expropriation, nationalisation, confiscation of assets and changes in legislation relating to foreign ownership; changes in bankruptcy legislation in the principal markets in which we operate and the consequences thereof; general changes in government policy that may significantly influence investor decisions; extraordinary government actions as a result of current market turmoil; other unfavourable political or diplomatic developments producing social instability or legal uncertainty which in turn may affect demand for our products and services; the costs, effects and outcomes of product regulatory reviews, actions or litigation, including any additional compliance requirements; and the effects of competition in the markets where we operate including increased competition from non-bank financial services companies, including securities firms.
- Factors specific to HSBC, including our success in adequately identifying the risks we face, such as the incidence of loan losses or delinquency, and managing those risks (through account management, hedging and other techniques). Effective risk management depends on, among other things, our ability through stress testing and other techniques to prepare for events that cannot be captured by the statistical models it uses; and our success in addressing operational, legal and regulatory, and litigation challenges, notably compliance with the US DPA; and other risks and uncertainties we identify in 'top and emerging risks' on pages 89 to 92.

Certain defined terms

Unless the context requires otherwise, 'HSBC Holdings' means HSBC Holdings plc and 'HSBC', the 'Group', 'we', 'us' and 'our' refer to HSBC Holdings together with its subsidiaries. Within this document the Hong Kong Special Administrative Region of the People's Republic of China is referred to as 'Hong Kong'. When used in the terms 'shareholders' equity' and 'total shareholders' equity', 'shareholders' means holders of HSBC Holdings ordinary shares and those preference shares and capital securities issued by HSBC Holdings classified as equity. The abbreviations '$m', '$bn' and '$tn' represent millions, billions (thousands of millions) and trillions of US dollars, respectively.

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Highlights
We are one of the most international banking and financial services organisations in the world.
Group
For year ended 31 Dec 2016

Reported revenue
(2015: $59.8bn)
$48.0bn

Reported profit before tax
(2015: $18.9bn)
$7.1bn
At 31 Dec 2016

Adjusted profit before tax
(2015: $19.5bn)
$19.3bn

Risk-weighted assets
(2015: $1,103bn)
$857bn
Common equity tier 1 ratio
(2015: 11.9%)
13.6%

Total assets
(2015: $2,410bn)
$2,375bn

Our operating model consists of four global businesses, a Corporate Centre and five geographical regions, supported by 11 global functions.

During the year, we changed our reportable segments from regions to global businesses. We also moved certain business portfolios and functions into the newly created Corporate Centre. For further details, see page 19.

Performance highlights for 2016

Strategy execution

- Following our sale of operations in Brazil, we completed a $2.5bn share buy-back.
- We further reduced our risk-weighted assets (‘RWAs’) as a result of our sale of operations in Brazil and other management actions.
- Investment in costs to achieve of $4.0bn to date has generated annual run rate savings of $3.7bn.
- We now expect to deliver annualised cost savings of around $6bn by the end of 2017, around $1bn above the top end of our original target, while continuing to invest in regulatory programmes and compliance. We will invest an equivalent total of around $6bn over the same timeframe.
- We increased market share in a number of key markets and international product areas, including trade finance in Hong Kong and Singapore.

Financial performance

- Reported profit before tax of $7.1bn was $11.8bn lower than in 2015, and was adversely impacted by significant items of $12.2bn. These included a $3.2bn write-off of goodwill in our Global Private Banking (‘GPB’) business in Europe, costs to achieve of $3.1bn, adverse fair value movements of $1.8bn arising from changes in credit spreads on our own debt designated at fair value, and the impact of our sale of operations in Brazil.
- Reported revenue of $48.0bn was down $11.8bn. Loan impairment charges and other credit risk provisions (‘LICs’) fell by $0.3bn and reported operating expenses rose by $40m.
- Adjusted profit before tax of $19.3bn, down $0.2bn, reflected lower revenue and higher LICs, partly offset by a reduction in operating expenses. In 2016, we achieved positive adjusted jaws of 1.2%.
- Adjusted revenue fell by $1.3bn or 2% despite improved performance in Commercial Banking (‘CMB’) and Global Banking and Markets (‘GB&M’). Retail Banking and Wealth Management ('RBWM') and GPB were impacted by challenging market conditions.
- Adjusted operating expenses fell by $1.2bn or 4%, reflecting our cost-saving initiatives and focus on cost management. We continued to invest in regulatory programmes and compliance.

Capital

- Our capital position further strengthened during the year, with a common equity tier 1 (‘CET1’) ratio at 31 December 2016 of 13.6%, up from 11.9% at 31 December 2015, mainly due to RWA reduction initiatives and the change in the regulatory treatment of our holding in Bank of Communications Co., Limited (‘BoCom’).

0.8%
Return on equity
1.2%
Adjusted jaws (see page 17)
$0.51

Dividends per ordinary share in respect of 2016

Our global businesses

Retail Banking and Wealth Management (‘RBWM’)	Commercial Banking (‘CMB’)	Global Banking and Markets (‘GB&M’)	Global Private Banking (‘GPB’)
We help millions of people across the world to manage their finances, buy their homes, and save and invest for the future. Our Insurance and Asset Management businesses support all our global businesses in meeting their customers’ needs.	We support approximately two million business customers in 54 countries with banking products and services to help them operate and grow. Our customers range from small enterprises focused primarily on their domestic markets, through to large companies operating globally.	We provide financial services and products to companies, governments and institutions. Our comprehensive range of products and solutions, across capital financing, advisory and transaction banking services, can be combined and customised to meet clients’ specific objectives.	We help high net worth individuals and their families to grow, manage and preserve their wealth.
Adjusted profit before tax			
$5.3bn	$6.1bn	$5.6bn	$0.3bn
Risk-weighted assets			
$115.1bn	$275.9bn	$300.4bn	$15.3bn

Geographical regions

1 Europe
2 Asia
3 Middle East and North Africa
4 North America
5 Latin America

* RWAs are non-additive across geographical regions due to market risk diversification effects within the Group.

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Group Chairman’s Statement

The Group has improved its productivity, embraced technological change and continues to reinforce its standards of business conduct. It has a strong capital position and is gaining market share in important areas.

2016 will be long remembered for its significant and largely unexpected economic and political events. These foreshadowed changes to the established geopolitical and economic relationships that have defined interactions within developed economies and between them and the rest of the world. The uncertainties created by such changes temporarily influenced investment activity and contributed to volatile financial market conditions. Against this background, HSBC’s performance in 2016 was broadly satisfactory. Encouragingly, operating performance in the second half of the year was much stronger than expected and compared with the prior year, as businesses and financial markets responded more optimistically than predicted to these events.

‘Greater focus on the trade and investment corridors where HSBC has strong market positioning generated solid market share gains and broader product penetration’

The Group’s reported profit before tax amounted to $7.1bn, some 62% lower than the prior year. This decline principally reflected the impact of significant items, most of which had no impact on capital, even though they were material in accounting terms. On the adjusted basis used to measure management and business performance, profit before tax was $19.3bn, broadly in line with the $19.5bn achieved in the prior year. This outcome was largely driven by improved cost performance as prior year initiatives gained traction and substantially offset lower revenues, while loan impairment charges were marginally higher. Earnings per share of $0.07 compared with $0.65 in 2015.

The Group’s core capital position improved materially. A change to the regulatory treatment of our associate in mainland China, continued run-off of legacy assets, planned reduction in certain segments of our trading books and inadequately remunerated assets, together with capital released from business disposals, notably our operations in Brazil, drove this improvement. This created the capacity to return $2.5bn of capital by way of a share buy-back, which was completed in December. We met our objective of maintaining the annual dividend in respect of the year at $0.51, as indicated at the interim stage. This was delivered through the declaration today of a fourth interim dividend of $0.21. Reflecting on the strength of the Group’s capital position, the Board also approved a further share buy-back of up to $1bn, which is expected to commence shortly.

Strategic actions are now bearing fruit

In reviewing performance in 2016, the Board noted with approval the traction now evidenced from management actions to reshape the Group and address the challenges brought about by the continuing low interest rate environment.

Greater focus on the trade and investment corridors where HSBC has strong market positioning generated solid market share gains and broader product penetration, particularly in servicing outbound China investment flows. This is recognised in the leading industry awards highlighted in Stuart Gulliver’s review.

Significant investment in technology and process redesign is now not only delivering greater cost efficiency but also is poised to markedly enhance our ability to detect and prevent financial crime. In addition, 2017 will see the progressive launch of applications that will materially improve our customers' digital experience, enhance their online security and bring greater personalisation of product offerings.

While there is still a long way to go, it was encouraging to see the significant improvement in performance across all business units in Mexico following the substantial repositioning of the Group's operations there. This contributed to the Group's success in replacing substantially all of the revenues given up through continuing run-off of legacy portfolios, risk mitigation in areas exposed to higher threat of financial crime and reduction in trading books.

Furthermore, HSBC is safer today from the threat of financial crime because of the investments we have been making in our Global Standards programme. The Board remains fully committed to our work in this area in 2017 and beyond.

Regulatory matters

It was extremely disappointing that the regulatory community was unable to achieve its targeted completion of the Basel III framework in January 2017 on the consensual basis expected. It is now almost 10 years since the commencement of the global financial crisis and it is time to draw a line under further regulatory changes, particularly since there is no doubt that our industry is more strongly capitalised, better governed and more risk aware than it was a decade ago. Finalisation of the structure and calibration of the capital framework is crucial to give banks certainty over prospective capital allocations in support of lending and market activities. This is particularly important at this time when public policy is focusing on encouraging greater support for longer-dated assets, including infrastructure, and seeking to build out the capital markets of Europe and emerging markets. It is hugely important that regulators and policy makers now move as quickly as possible to finalise the capital framework in line with their stated commitment to deliver that framework without a significant, broad-based increase in capital requirements. Equally important is the avoidance of fragmentation in the global regulatory architecture as the new US administration reconsiders its participation in international regulatory forums. The best outcome would be early global agreement on unresolved issues, followed by an extended period of regulatory stability to allow familiarity and experience to be gained from what has been put in place.

We made further progress in 2016 on completing the resolution planning required of us as a global systemically important bank ('G-SIB'). This involved removing or mitigating residual constraints on the clarity of the Group's core college of regulators' approach to winding down the Group, should this ever be necessary. While clearly we do not envisage such circumstances as other than extremely remote, completion of a comprehensive resolution framework is a necessary pillar supporting HSBC's ability to continue to operate as one of the world's G-SIBs. Indeed, our strategy is built around maintaining the scale and the reach of our international network, which in 2016 again demonstrated its resilience and competitive advantages.

Tangible benefits accrue to our shareholders from the detailed work done with our regulators to demonstrate the strength of our capital position and the effectiveness of our resolution planning. Beyond supporting the maintenance of our dividend, in 2016 management's efforts created the capacity to return capital to shareholders by way of a share buy-back and demonstrated justification for a reduction in the additional capital buffer applied to HSBC as a G-SIB.

UK referendum on EU membership

Not a great deal has changed since we reported at the interim stage, given that the UK has still to trigger its formal exit notice and so no negotiations have taken place. We welcomed, however, the additional clarity given to the Government's position in the recent speech by the Prime Minister. The scale of the challenge of negotiating across the entire economic landscape, as well as addressing the legislative and other public policy adjustments that will be required, has become clearer. We believe there is now, as a consequence, a widely shared recognition that an implementation phase between the current position and the one that is ultimately negotiated will be necessary; we strongly endorse this view.

Since the referendum we have focused on advising clients on the implications of leaving the EU for their businesses. We have also been responding to UK Government outreach seeking guidance on which elements of the current EU-based legal and regulatory arrangements it should focus on to preserve the essential role that financial markets based in the UK play in supporting European trade and investment activity.

For our own part, we have broadly all the licences and infrastructure needed to continue to support our clients once the UK leaves the EU. This largely derives from our position in France where we are the sixth largest bank with a full range of capabilities. Current contingency planning suggests we may need to relocate some 1,000 roles from London to Paris progressively over the next two years, depending on how negotiations develop.

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Board changes

We welcomed Jackson Tai to the Board on 12 September last year. Jack brings a rare combination of hands-on banking expertise, top level governance experience and a deep knowledge of Asia and China. These attributes were accumulated in a 25-year career at J.P. Morgan & Co., both in the US and in Asia, and subsequently in senior roles at DBS, the leading Singapore-based regional banking group, where Jack latterly led its regional expansion as Vice Chairman and CEO. Jack was appointed a member of the Financial System Vulnerabilities Committee and the Group Risk Committee.

At the forthcoming AGM we shall bid farewell to our two longest-serving independent directors, namely, our Senior Independent Director, Rachel Lomax, and Sam Laidlaw. Rachel during her tenure has served on the Audit, Risk and Nomination Committees, and took responsibility as the first Chair of the Conduct & Values Committee to establish its terms of reference and its agenda. Sam served on, and latterly chaired, both the Remuneration and Nomination Committees. Together, Rachel and Sam have also been leading the process to manage my own succession. Their combined knowledge of regulatory and public policy, business leadership, corporate governance and consumer issues has been invaluable to the Board. On behalf of all shareholders, I want to thank them for their dedication and commitment.

Chairman succession

In the Circular inviting shareholders to the 2016 AGM, I indicated that the process to find my own successor had been initiated with the intention of having this concluded during 2017. This process remains on track and an announcement will be made in due course.

Outlook

We have recently upgraded our forecasts for global economic growth reflecting the likelihood of a shift in US fiscal policy and a broader based cyclical recovery. As in recent years, incremental growth is expected to be driven by emerging economies in which HSBC is well represented. Risks to this central scenario, however, remain high. In particular, we highlight the threat of populism impacting policy choices in upcoming European elections, possible protectionist measures from the new US administration impacting global trade, uncertainties facing the UK and the EU as they enter Brexit negotiations, and the impact of a stronger dollar on emerging economies with high debt levels.

Countering these factors are signs of a cyclical upturn. Global purchasing manager indices are at their strongest for some time, the US economy looks robust and growth in China has held up well, defying the concerns reflected in the market retrenchment seen in the first quarter of 2016. Additionally, commodity prices have risen, reflecting optimism regarding growth in infrastructure investment as well as agreement reached to cut oil supply. These factors also imply reflation across the major economies and rising interest rates, which would benefit HSBC's conservative balance sheet structure.

'We enter 2017 with the restructuring of the Group essentially completed, and with a strong capital position and a conservative balance sheet'

However, it is fair to reflect that the upgrades to economic growth we are now forecasting are largely the partial reversal of downgrades made last year when uncertainty was elevated as a result of the unexpected political events. Forecast global growth remains slightly lower than its long-term trend with risks largely to the downside.

We enter 2017 with the restructuring of the Group essentially completed, and with a strong capital position and a conservative balance sheet. We are gaining market share in areas of importance to HSBC as others scale back and our offerings become more competitive. Much of the heavy investment in reshaping the Group to improve productivity, embrace technological change and reinforce global standards of business conduct has been made.

As ever, we owe a huge amount to our 235,000 colleagues who have delivered this change at the same time as working tirelessly to meet customers' expectations of them. On behalf of the Board, I want to thank them all for their dedication and commitment.

Group Chief Executive's Review

The strength of our network gives us an unrivalled ability to help clients navigate complexity and uncover new opportunities.

We made good progress in 2016. The implementation of our strategic actions is well advanced and our global universal business model performed well in challenging conditions. Our reported profit before tax reflected a number of large significant items, including a write-off of all the remaining goodwill in Global Private Banking in Europe, an accounting loss on the sale of our Brazil business, and investments to achieve our cost-saving target. Our adjusted profits were broadly unchanged year-on-year following solid performances by our global businesses. These enabled us to capture market share in strategic product areas and build a platform for future growth. We delivered positive adjusted jaws in 2016.

Performance

Global Banking and Markets recovered from a sector-wide slow start to generate higher adjusted revenue than for 2015. Our Markets businesses performed well in challenging conditions, particularly in Fixed Income products. Our transaction banking businesses also grew revenue, especially Global Liquidity and Cash Management. We made market share gains in Fixed Income in Europe, and achieved our best ever league table rankings in global debt capital markets and cross-border mergers and acquisitions. HSBC was recognised as the 'World's Best Investment Bank' and 'World's Best Bank for Corporates' at the Euromoney Awards for Excellence 2016.

Commercial Banking performed well, particularly in the UK and Hong Kong, growing adjusted revenue in spite of a slow-down in global trade. Gains in Global Liquidity and Cash Management, and Credit and Lending, exceeded the reduction in trade finance revenue. Global Trade and Receivables Finance continued to capture market share in major markets including Hong Kong and Singapore, maintaining our position as the world's number one trade finance bank.

Retail Banking and Wealth Management performance was mixed. Overall adjusted revenue was down, due largely to the impact of reduced client activity in Hong Kong on our Wealth Management businesses. At the same time, strong mortgage balance growth in the UK, Hong Kong and mainland China, and higher current account and savings balances in the UK and Hong Kong, helped increase revenue in Retail Banking. These increased balances should support revenue growth in 2017 and beyond.

We have considered it appropriate to write off the remaining goodwill in the European private banking business. This goodwill relates principally to the original purchase of Safra Republic Holdings in 1999. The restructuring of Global Private Banking is now largely complete, and although Global Private Banking is now much smaller than it was three years ago, it is deliberately positioned for sustainable growth with a focus on serving the personal wealth management needs of the leadership and owners of the Group's corporate clients.

Our cost-reduction programmes continue to bring down our adjusted operating expenses. The traction that these programmes have gained in the last 18 months has enabled us to increase the amount of costs that we are able to remove from the business. We now expect to deliver annualised cost savings of around $6bn by the end of 2017, and will invest an equivalent total of around $6bn over the same time-frame in order to achieve this.

These savings should more than compensate for additional investment in regulatory programmes and compliance.
We continue to make strong progress in implementing our strategic actions to improve returns and gain maximum value from our international network. We are on course to complete the majority of these actions by the end of 2017 (see page 12), in line with our targets. Our targeted reduction of risk-weighted assets is 97% complete, and the success of our cost saving programmes means that we now expect to exceed our cost reduction target.
The turnaround of our Mexico business continues to accelerate. Improved lending and deposit balances, interest rate rises and better collaboration between businesses helped generate significantly higher profits compared with 2015. We also made significant market share gains, particularly in consumer lending.
We have continued to enhance our business in Asia-Pacific, launching our first exclusively HSBC-branded credit card in mainland China, growing assets under management and insurance new business premiums, and increasing loans in the Pearl River Delta. We also extended our leadership of the offshore renminbi bond market and achieved our best ranking for China outbound mergers and acquisitions since 2003.
We are better protected from financial crime because of the investment we have made in our Global Standards programme. Our Monitor has raised certain concerns, but we have continued to progress and our commitment remains unwavering. By the end of this year, we are on track to have our anti-money laundering and sanctions policy framework in place and to have introduced major compliance IT systems across the Group. Beyond 2017, we will continue to work to fine tune those systems and to ensure that our improvements are fully integrated into our day-to-day risk management practices.
Our strong common equity tier 1 ratio of 13.6% reinforces our ability to support the dividend, invest in the business and manage the continuing uncertain regulatory environment.

Delivering value for shareholders

In December, we completed the $2.5bn equity buy-back that we commenced at the half-year. We are also now in a position to retire more of the capital that previously supported the Brazil business. Having received the appropriate regulatory clearances, we will therefore execute a further share buy-back of up to $1bn in the first half of 2017. This will bring the total value of shares repurchased since last August to $3.5bn.
We will continue to contemplate further share buy-backs as circumstances permit, and we remain confident of sustaining the annual dividend at the current level for the foreseeable future through the long-term earnings capacity of the business.

A business fit for the future

While our strategic actions are improving our network, we are also anticipating and adapting to the social, economic and technological trends that are changing our operating environment and our customers' needs and expectations.
The adoption of rapidly evolving digital technologies by our customers is arguably the most transformative force for the financial services industry. Through our global network, we are able to identify and respond to digital trends across 70 countries and territories, applying the technologies that provide the greatest benefit to our customers. We are investing $2.1bn in digital transformation in Retail Banking and Wealth Management, Commercial Banking, and Global Banking and Markets between 2015 and the end of 2020, and we have already launched innovative ways to make banking faster, easier and safer. HSBC is now the biggest financial services user of biometrics globally, and we continue to roll out voice recognition and fingerprint technology across our network. In 2016, we enhanced our internet and mobile banking platforms in several of our key markets, including the UK and Hong Kong, and launched innovation labs around the world dedicated to the application of artificial intelligence, data management and improvements in cybersecurity. These labs, together with our fintech partnerships, will help us use technology to deliver better banking for our customers.
If digital technology is mankind's greatest opportunity, preventing climate change is its greatest challenge. The Paris Agreement of December 2015 reflected a new consensus on the need to strengthen the global response to climate change. Major injections of capital are now required to finance new technologies, infrastructure and the transition of traditional

industries from high to low carbon, and to cover the costs of climate adaptation. As the principal intermediaries between entrepreneurs, businesses and investors, banks have a responsibility to help direct this flow of capital. We are already working with our clients and with investors to help them allocate capital and direct finance towards lower-carbon, carbon-resilient activities, and in 2016 we established a Sustainable Financing Unit to coordinate this work across business lines. Headquartered in London, but with resources in New York and Hong Kong, this new unit will support colleagues tasked with creating and delivering innovative climate products, and help them uncover new sources of sustainable finance.

“The changes we have made since 2011 have equipped HSBC to improve returns and gain maximum value from our international network"

We are also seeking to influence client practices and to build the data, the tools and the transparency necessary to embed understanding of climate risk into the way that markets function. In 2016, HSBC Global Research expanded its coverage of environment, social and corporate governance factors to give our clients the information they need to inform their investment decisions. This builds on the work of the world-leading HSBC Climate Change Centre for Excellence, which in 2017 celebrates 10 years of delivering market-leading information on climate policy to clients across the globe. Work is also underway to expand the Group’s disclosure of non-financial data to meet the needs of shareholders and other stakeholders.

We are investing to adapt to the changing face of trade. As the world’s largest trade finance bank with more than 150 years’ experience at both ends of the world’s busiest trade routes, we are perfectly placed to help modernise and digitise long-standing trade finance methods, many of which would still be recognisable to HSBC’s founders. We are already working with a broad coalition of partners around the world to make the promise of blockchain technology a reality with regards to trade finance. HSBC has already helped develop a blockchain prototype for a letter of credit that confirms the possibility of sharing information between all parties on a private distributed ledger. In early 2017, we signed a memorandum of understanding with six other banks to make domestic and cross-border commerce easier for European SMEs using blockchain technology. We are also seeking to create ways of financing the growing services trade, which we estimate will account for a quarter of global trade by 2030. At a time when international politics threaten to increase rather than decrease the cost of trade, we will continue to invest both time and resources to find ways of making trade finance cheaper, faster, simpler and more secure for our customers.

Looking forward

We anticipate new challenges in 2017 from geopolitical developments, heightened trade barriers and regulatory uncertainty. However, the changes we have made since 2011 have equipped HSBC to manage the complexity of today’s global business environment. HSBC is a strong and resilient business with a global universal business model geared to find growth opportunities in a low-growth world. If globalisation continues to retreat, as seems likely, we are in a strong position to capitalise on the regional opportunities that this will present, particularly in Asia and Europe. Most importantly, the strength of our network gives us an unrivalled ability to help our clients navigate that same complexity and overcome their own challenges, whether exploring new markets or making the transition to a low-carbon economy.

Our strategy
We have developed a long-term strategy that reflects our purpose and enables us to capture value from our international network.
Two-part long-term strategy
Develop our international network
To facilitate international trade and capital flows and serve our clients, with potential to help them grow from small enterprises into large multinationals.
Invest in wealth and retail businesses with local scale
To make the most of global social mobility, wealth creation and long-term demographic changes in our priority markets.
Value of the network and our strategy
Access to global growth opportunities
Our unparalleled network covers countries accounting for more than 90% of global GDP, trade and capital flows. We have a leading presence in large and fast-growing economies.
Our priority markets cover both sides of 11 of the world's 15 largest trade corridors for goods and services forecast for 2030, and represent at least one side of the other four corridors. Six of the 15 corridors are within Asia and five connect countries between two geographical regions.
Lower risk profile and volatility from our diversified, universal banking model
Our 10-year profit before tax volatility of 0.9x compares favourably with our peers.
Transaction banking product revenue of $14.7bn on an adjusted basis leads the industry. More than 45% of our client revenue comes from businesses and individuals with an international presence.
Business synergies of $10.5bn, equivalent to 22% of reported revenue, reflect products and services provided across our global businesses.
Strong capital and funding base
CET1 ratio of 13.6%, supported by increased shareholders' equity to meet new regulatory requirements since the end of 2010.
Four interconnected, global businesses share balance sheets and liquidity in addition to strong commercial links.
Stable shareholder returns
Industry leading dividend – approximately $55bn declared from 2011 to 2016, as well as circa $2.5bn of share repurchases.

Long-term trends
Our strategy positions us to capitalise on several long-term trends.

Increasing connectivity and global flows of trade, finance and data are key drivers of GDP growth.

Source: McKinsey Global Institute, Digital globalization: The new era of global flows (2016)

Economic weight is shifting to Asian and Middle Eastern economies, which are expected to grow GDP threefold by 2050.
Shipping volumes, measured by weight of goods unloaded

Source: United Nations Conference on Trade and Development

The middle class is expected to grow from one-third to two-thirds of the world's population by 2030, while the number of people over age 60 is expected to more than double by 2050.

Source: OECD Development Centre, Emerging Middle Class in Developing Countries (2010)

Client examples
ATN International ('ATNI'): US, telecommunications and renewable energy
International portfolio of businesses in US and elsewhere. ATNI sought out HSBC's international capabilities while pursuing renewable energy investments in India. In 2016, we helped ATNI with custodian services and provided finance structuring advice for its Singaporean and Indian subsidiaries. We provide ATNI with trade, cash management, foreign exchange and other services.

Mubea: Germany, automotive
Automotive parts manufacturer operating across 20 countries in Europe, Asia and the Americas. HSBC expanded its relationship with Mubea to also serve its subsidiaries in the US and Mexico, and provide centralised international cash and liquidity management.
Tangle Teezer: UK, consumer goods
UK-based hairbrush manufacturer with its first product launch in 2008, and a range of products now sold in more than 70 markets. Since 2009, HSBC has helped Tangle Teezer expand internationally through our knowledge and capabilities around the world. In 2016, we assisted it in developing its presence in the US, China and Hong Kong.
Grupo Aeroportuario ('GACM'): Mexico, infrastructure
Responsible for the construction, administration and operation of Mexico City's new international airport. In 2016, we advised and coordinated financing for GACM including a $1bn 30-year green bond issuance, the largest green bond in Latin America, and the first emerging market green bond to receive a Green Bond Assessment grade from Moody's.

Strategic actions
We are well on our way towards achieving the actions outlined in our June 2015 Investor Update.
Capturing value from our international network
In June 2015, we outlined a series of strategic actions to make the most of our competitive advantages and respond to a changing environment.
These actions are focused on improving efficiency in how we use our resources, and on investing for growth in line with our strategy. Each action has targets defined to the end of 2017. Additional details are provided below.
Resizing and simplifying our business
We have made significant progress in resizing and simplifying our business. In 2016, management actions reduced RWAs in GB&M and legacy credit by $46bn and we completed asset sales totalling $10.1bn from our US consumer and mortgage lending ('CML') run-off portfolio.
As part of our initiative to optimise our network, we completed the sale of HSBC Bank Brazil on 1 July 2016. We will continue to serve the international and cross-border needs of our large corporate clients in Brazil through HSBC Brasil S.A. – Banco de Investimento.
In the NAFTA region, we grew adjusted revenue in Mexico by 18% compared with 2015, supported by market share gains in RBWM across key lending products and a doubling of personal loans issued. In the US, we grew adjusted revenue in GB&M and RBWM compared with 2015 and continued to support our clients internationally. Revenues from international subsidiaries of our US clients increased by 11% compared with 2015.
We have made good progress in our cost-saving programme and are on track to exceed our exit rate target set for the end of 2017. We expect to achieve total cost savings of $6.0bn through one-off investments ('costs to achieve') of $6.0bn. The additional savings will fund increased costs related to regulatory programmes and compliance. In 2016, operating expenses fell by 4% on an adjusted basis compared with 2015, facilitated by increased efficiency in our processes. For example, we launched a new customer-facing digital portal to standardise and accelerate the onboarding process in 26 markets covering more than 70% of CMB corporate clients, and we decreased the number of manual payments by 80%.
Redeploying capital to grow our business
At the heart of our business is our international network. We are focusing efforts to grow our businesses by looking at customers' needs across products, geographies and supply chains. In 2016, revenue from transaction banking products was up 2% despite difficult macroeconomic conditions. We grew revenues in our Global Liquidity and Cash Management (GLCM) business. In 2016, we were named 'Best Bank for Corporates' by Euromoney and 'Best Supply-Chain Finance Bank Global' by the Trade Finance Awards.
We continue to invest for growth in Asia. In December, we launched our own HSBC-branded credit cards in mainland China with a full range of digital features. We increased the number of new RBWM clients in China's Pearl River Delta by 51% compared with 2015, and grew our mortgage loan books by more than 51%. We grew revenues from international subsidiaries of our ASEAN-region commercial banking clients, and in Singapore our innovation lab is developing cloud-based treasury services for businesses and exploring blockchain technology to support documentary trade transactions.
We remain recognised as the leading bank for international renminbi ('RMB') products and services. We were the first bank to facilitate overseas institutional investment into the China interbank bond market since access was expanded in early 2016. We were also the first to be appointed custodian bank in the two newly active RMB qualified foreign institutional investor ('RQFII') markets of the US and Thailand this year.
Finally, we continue to strengthen our efforts to protect customers and the wider financial system from financial crime. In 2016, this included further upgrades to our systems, as well as additional training for our employees. Further detail can be found under the Financial Crime Risk section of www.hsbc.com/financial-crime-risk.
Selected awards and recognition 2016

Euromoney Awards for Excellence 2016
Best Bank for Corporates
Best Investment Bank

Euromoney Cash Management Survey 2016
Best Global Cash Manager (Non-Financial Institutions)
#1 Global For All Transactions (Financial Institutions)

Trade Finance Awards 2016
Best Supply-Chain Finance Bank Global

Asiamoney Offshore RMB Poll 2016
Best Overall Offshore RMB Products / Services
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Financial overview

Reported results

Reported results	2016 $m	2015 $m	2014 $m
Net interest income	29,813	32,531	34,705
Net fee income	12,777	14,705	15,957
Net trading income	9,452	8,723	6,760
Other income	(4,076)	3,841	3,826
Net operating income before loan impairment charges and other credit risk provisions (‘revenue’)	47,966	59,800	61,248
Loan impairment charges and other credit risk provisions (‘LICs’)	(3,400)	(3,721)	(3,851)
Net operating income	44,566	56,079	57,397
Total operating expenses	(39,808)	(39,768)	(41,249)
Operating profit	4,758	16,311	16,148
Share of profit in associates and joint ventures	2,354	2,556	2,532
Profit before tax	7,112	18,867	18,680

This table shows our reported results for the last three years, ended 31 December 2016, 2015 and 2014.

Reported profit before tax

Reported profit before tax of $7.1bn was $11.8bn or 62% lower than in 2015. This was primarily due to net adverse movements relating to significant items and the unfavourable effects of foreign currency translation, which are described in more detail on page 30. Excluding significant items and currency translation, profit before tax fell by $0.2bn.

Reported revenue

Reported revenue of $48.0bn was $11.8bn or 20% lower than in 2015, in part due to a net unfavourable movement in significant items of $7.6bn, which included:

- adverse fair value movements of $1.8bn arising from changes in credit spreads on our own debt designated at fair value, compared with favourable movements of $1.0bn in 2015;
- a $3.6bn reduction in revenue resulting from our sale of operations in Brazil to Banco Bradesco S.A., which includes a $1.7bn accounting loss recognised on the sale; and
- the non-recurrence of a $1.4bn gain on the sale of part of our shareholding in Industrial Bank Co. Limited ('Industrial Bank') in 2015; partly offset by
- a $0.6bn gain on the disposal of our membership interest in Visa Europe in the second quarter of 2016 and a $0.1bn gain on disposal of our membership interest in Visa US in the fourth quarter of 2016.

In addition, foreign currency translation differences between the periods had an adverse effect of $3.0bn.

These factors contributed to a fall in reported revenue in all our global businesses and Corporate Centre. Excluding significant items and the adverse effects of foreign currency translation differences between the periods, revenue fell by $1.3bn or 2%.

Reported LICs

Reported LICs of $3.4bn were $0.3bn lower than in 2015 as reductions in RBWM and CMB more than offset an increase in GB&M. The reduction included favourable effects of foreign currency translation differences between the periods of $0.2bn, and the impact of LICs incurred in the disposed Brazil operations of $0.7bn compared with $0.9bn in 2015.

Reported operating expenses

Reported operating expenses of $39.8bn were $40m or 0.1% higher than in 2015. This includes favourable effects of currency translation differences of $2.1bn between the periods, and an increase in significant items of $3.3bn, including:

- a $3.2bn write-off of goodwill in our GPB business in Europe; and
- costs to achieve of $3.1bn compared with $0.9bn in 2015; partly offset by
- a reduction of $1.0bn in settlements and provisions in connection with legal matters.

In addition, the reported results include the operating expenses incurred in our Brazil business of $1.1bn compared with $2.5bn in 2015.

Excluding significant items and the adverse effects of foreign currency translation differences between the periods, operating expenses fell by $1.2bn. Reductions in all our global businesses reflected the effects of our cost-saving initiatives.

Reported income from associates
Reported income from associates and joint ventures of $2.4bn decreased by $0.2bn.
On 21 February 2017, the Board announced a fourth interim dividend of $0.21 per ordinary share.

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Adjusted performance

Our reported results are prepared in accordance with IFRSs as detailed in the Financial Statements on page 226. We also present adjusted performance measures to align internal and external reporting, identify and quantify items management believes to be significant, and provide insight into how management assesses period-on-period performance. Adjusted performance measures are highlighted with the following symbol:

To derive adjusted performance, we adjust for:

- the year-on-year effects of foreign currency translation differences; and
- the effect of significant items that distort year-on-year comparisons and are excluded in order to understand better the underlying trends in the business.

For reconciliations of our reported results to an adjusted basis, including lists of significant items, see page 62.

Adjusted results

This table shows our adjusted results for 2016 and 2015. These are discussed in more detail on the following pages.

Adjusted results	2016 $m	2015 $m
Net operating income before loan impairment charges and other credit risk provisions (revenue)	50,153	51,419
Loan impairment charges and other credit risk provisions ('LICs')	(2,652)	(2,604)
Total operating expenses	(30,556)	(31,730)
Operating profit	16,945	17,085
Share of profit in associates and joint ventures	2,355	2,443
Profit before tax	19,300	19,528

Adjusted profit before tax

On an adjusted basis, profit before tax of $19.3bn was $0.2bn or 1.2% lower than in 2015. This primarily reflected lower revenue, higher LICs and a reduction in our share of profits from associates. This was partly offset by a decrease in operating expenses.

Movement in adjusted profit before tax compared with 2015

	2016	Change ($m)	%
Revenue	50,153	See below for graph	(2)
LICs	(2,652)		(2)
Operating expenses	(30,556)		4
Share of profits in associates and joint ventures	2,355		(4)
Profit before tax	19,300		(1)

Adjusted revenue

Adjusted revenue of $50.2bn was $1.3bn or 2% lower. The reduction reflected the following:

- In RBWM, lower revenue (down $0.3bn) was mainly a result of a fall in income in our Wealth Management business. The reduction resulted from lower investment distribution income compared with a strong performance in 2015, notably in the first half of the year, and adverse market impacts in Insurance Manufacturing. By contrast, revenue grew in savings and deposits, as we grew balances in Hong Kong, the UK and Mexico, and from wider spreads in Hong Kong and Latin America.
- In GPB, lower revenue (down $0.2bn) reflected reduced brokerage and trading activity due to the continued repositioning of the business, together with adverse market sentiment and unfavourable market conditions.
- In Corporate Centre, revenue fell (down $1.2bn), partly due to the US CML portfolio (down $0.5bn) as a result of continued run-off and portfolio sales. Revenue also fell in Central Treasury as a result of higher adverse fair value movements relating to the economic hedging of our long-term debt ($0.2bn) and higher interest expense on our debt ($0.2bn).

These were partly offset:

- In GB&M, revenue increased (up $0.4bn) despite adverse movements in credit and funding valuation adjustments of $0.3bn. In Rates and Credit, higher revenue reflected growth in market share in Europe. We also increased revenue in Global Liquidity and Cash Management ('GLCM') from balance growth and wider spreads. By contrast lower trading volumes in Europe and Asia resulted in a reduction in Equities revenue.
- In CMB, revenue rose (up $0.1bn), notably in GLCM reflecting balance growth and wider spreads in Hong Kong. Revenue also increased in Credit and Lending as a result of loan growth in the UK.

For further details on the performance of our global businesses, see page 18.

Movement in adjusted revenue compared with 2015

	2016	2015	Variance	
	$m	$m	$m	%
RBWM	18,925	19,242	(317)	(2)%
CMB	12,887	12,753	134	1%
GB&M	14,919	14,566	353	2%
GPB	1,757	1,965	(208)	(11)%
Corporate Centre	1,665	2,893	(1,228)	(42)%
Total	50,153	51,419	(1,266)	(2)%

Adjusted LICs

Adjusted LICs of $2.7bn were $48m higher than in 2015, reflecting increases in GB&M resulting from a small number of individually assessed LICs within the oil and gas, and metals and mining sectors, notably in the first half of 2016 in the US. LICs also increased in RBWM, particularly in Mexico. These increases were largely offset by a reduction in LICs in CMB.

Adjusted operating expenses

Adjusted operating expenses of $30.6bn were $1.2bn or 4% lower than in 2015. This primarily reflected cost savings of $2.2bn realised in 2016, with run-rate savings of around $3.7bn since the commencement of our cost-saving programme. The fall in operating expenses also included a reduction of $0.5bn in the UK bank levy. These reductions were partly offset by the impact of inflation and our continued investment in regulatory programmes and compliance.

Run-the-bank costs of $26.9bn were $0.3bn lower, and change-the-bank costs of $2.7bn were $0.4bn lower, both compared with 2015. Within these, our total expenditure on regulatory programmes and compliance, comprising both run-the-bank and change-the-bank elements, was $3.0bn, up $0.4bn or 14% compared with 2015. This reflected the ongoing implementation of our Global Standards programme to enhance our financial crime risk controls and capabilities, and to meet our external commitments.

In the fourth quarter of 2016, our adjusted operating expenses increased compared with the third quarter reflecting a small number of specific items. This included the write-off of software.

The number of employees expressed in full-time equivalent staff ('FTEs') at 31 December 2016 was 235,175, a decrease of 20,028 from 31 December 2015. This included a 19,145 reduction following our disposal of operations in Brazil. Excluding Brazil, the decrease in FTEs was 883, as a reduction of 17,855 FTEs realised across global businesses and global functions was partly offset by investment in our Global Standards Programme of 5,694 FTEs, costs to achieve FTEs of 8,073 and investment for growth.

For further details on the categorisation of run-the-bank and change-the-bank costs, see page 38.

Adjusted income from associates and joint ventures
Adjusted income from associates and joint ventures of $2.4bn fell by $0.1bn compared with 2015.

Key

Bank Levy

Adjusted operating expenses (excluding bank levy)

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Balance sheet and capital

Balance sheet strength

Total reported assets were $2.4tn, 1% lower than at 31 December 2015 on a reported basis, and 5% higher on a constant currency basis. We have maintained the strength of our balance sheet, as targeted asset growth was partly offset by reductions in our legacy portfolios and the completion of our sale of operations in Brazil to Banco Bradesco S.A. We also issued more than $30bn of senior debt during the year from HSBC Holdings plc ('HSBC Holdings') to build up the Group's total loss absorbing capacity in line with anticipated regulatory requirements.

Distributable reserves

The distributable reserves of HSBC Holdings at 31 December 2016 were $42bn, and at 31 December 2015 were $47bn. The reduction was driven by our share buy-back ($2.5bn) and the effects of dividends paid ($11bn), which more than offset profits of $7bn.

Capital strength

We manage our capital in an effort to ensure we exceed current regulatory requirements and are well placed to meet those expected in the future. We monitor our position using capital ratios. These measure capital relative to a regulatory assessment of risks taken. We quantify how these risks relate to our businesses using RWAs.

Details of these risks are included on page 165.

Our CET1 ratio at 31 December 2016 was 13.6%, up from 11.9% at 31 December 2015.

Delivery against Group financial targets

Return on equity

Our medium-term target is to achieve a return on equity ('RoE') of more than 10%. In 2016, we achieved an RoE of 0.8% compared with 7.2% in 2015. In 2016, significant items, which included a write-off of goodwill in GPB in Europe, costs to achieve and adverse fair value movements arising from changes in credit spread on our own debt designated at fair value, had a significant effect on our reported RoE. Together with the UK bank levy, significant items reduced the return achieved by 6.9 percentage points.

Adjusted jaws

Jaws measures the difference between the rates of change for revenue and costs. Positive jaws occurs when the figure for the annual percentage change in revenue is higher than, or less negative than, the corresponding rate for costs. We calculate adjusted jaws using adjusted revenue and costs. Our target is to maintain positive adjusted jaws.

In 2016, adjusted revenue fell by 2.5%, whereas our adjusted operating expenses reduced by 3.7%. Adjusted jaws was therefore positive 1.2%.

Adjusted revenue down 2.5%	Adjusted jaws + 1.2%
Adjusted costs down 3.7%	

Dividends

In the current uncertain environment, we plan to sustain the annual dividend in respect of the year at its current level for the foreseeable future. Growing our dividend in the future will depend on the overall profitability of the Group, delivering further release of less efficiently deployed capital and meeting regulatory capital requirements in a timely manner. Actions to address these points were core elements of our Investor Update in June 2015.

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Global businesses

We manage our products and services globally through our global businesses.

Commentary is on an adjusted basis, which is the GAAP measure for our global businesses The comparative period has been restated to reflect changes to reportable segments, as described on page 59.

Retail Banking and Wealth Management (‘RBWM’)

RBWM serves close to 36 million customers worldwide through four main business areas: Retail Banking, Wealth Management, Asset Management and Insurance.

RBWM provides services to individuals under the HSBC Premier and Advance propositions aimed at mass affluent and emerging affluent customers who value international connectivity and benefit from our global reach and scale. For customers who have simpler everyday banking needs, RBWM offers a full range of banking products and services reflecting local requirements.

Higher Retail Banking revenue, but challenging market conditions in Wealth Management

- Adjusted profit before tax of $5.3bn was $0.4bn or 6% lower compared with 2015. This was driven by lower revenue in our Wealth Management business, together with higher LICs. By contrast, lower operating expenses reflected our continued focus on cost management.
- Adjusted revenue of $18.9bn was $0.3bn or 2% lower, as growth in Retail Banking revenue was more than offset by a fall in Wealth Management. The reduction in Wealth Management (down $0.5bn) was driven by decreased investment distribution revenue as a result of lower mutual fund and retail securities turnover due to weaker market sentiment. This compared with a strong performance in the first half of 2015. In addition, insurance manufacturing revenue fell, reflecting adverse market impacts ($345m), although this was partly offset by the value of new business. However, in Retail Banking revenue rose $0.2bn or 1%, as revenue increased in current accounts and savings (up $0.4bn) from growth in balances, notably in Hong Kong and the UK. We also benefited from wider deposit spreads in Hong Kong and Mexico. By contrast, revenue in personal lending fell (down $0.2bn) despite growth in balances of $9bn or 3%, notably in Hong Kong, the UK and Mexico, driven by spread compression (mainly in the UK).
- LICs increased by $0.1bn, notably in Mexico, reflecting growth in unsecured lending balances.
- Operating expenses were 1% lower as inflation and investments were more than offset by transformation and other cost-saving initiatives.

Key events:

- Our retail banking revenue rose by 1%, with increases in current account and savings partly offset by falls in credit card and mortgage revenue, reflecting spread compression, mainly in the UK.
- In the UK, growth in mortgage balances was facilitated by our expansion into the mortgage intermediary market, with 12 brokers added in 2016, which accounted for 7% of our new mortgage originations during 2016.

Change in adjusted profit before tax

-6%

Commercial Banking ('CMB')

CMB serves approximately two million customers in 54 countries and territories. Our customers range from small enterprises focused primarily on their domestic markets through to corporates operating globally.

It supports our customers with tailored financial products and services to allow them to operate efficiently and to grow.

Services provided include working capital, term loans, payment services and international trade facilitation, among other services, as well as expertise in mergers and acquisitions, and access to financial markets.

Revenue growth in a challenging market

- Adjusted profit before tax of $6.1bn was 12% higher than in 2015 primarily because of lower LICs, and revenue growth despite challenges in global trade.
- Adjusted revenue rose by $0.1bn or 1%. This included growth of $0.2bn in GLCM driven by increased balances and wider spreads in Hong Kong. Revenue in Credit and Lending also increased (up $0.1bn), reflecting continued loan growth in the UK. This was partly offset by lower revenue in Global Trade and Receivables Finance ('GTRF').
- LICs reduced by $0.4bn as 2016 included lower levels of individually assessed LICs, as well as a net release of collective allowances primarily relating to charges made in the fourth quarter of 2015, notably in the oil and gas sector.
- Operating expenses reduced compared with 2015 as the effect of inflation was more than offset by ongoing cost discipline and the impact of our transformation initiatives. This helped us achieve positive jaws of 2.1%.
- Management initiatives drove a further reduction in RWAs of $23bn in 2016, leading to a cumulative reduction of $46bn since our Investor Update in 2015, $18bn above our target.

Key events:

- Despite the fall in global trade, we gained market share in key markets, including trade finance in Hong Kong and Singapore, and Receivables Finance in the UK.
- HSBC was named ‘2016 Best Trade Bank in the World’ by Trade and Forfaiting Review, and won the ‘Best Global Cash Manager for Non-Financial Institutions’ at the Euromoney Awards 2016.

Change in adjusted profit before tax
12%

18

Global Banking and Markets (‘GB&M’)

GB&M serves approximately 4,100 clients in more than 50 countries and territories. It supports major government, corporate and institutional clients worldwide. Our product specialists continue to deliver a comprehensive range of transaction banking, financing, advisory, capital markets and risk management services.

Markets revenue up despite challenging market conditions

- Adjusted profit before tax of $5.6bn was $63m higher than in 2015, as revenue increased and operating expenses decreased, reflecting transformational cost savings, partly offset by an increase in LICs.
- Adjusted revenue of $14.9bn rose $353m or 2%, despite adverse movements in Credit and Funding valuation adjustments compared with favourable movements in 2015 (net effect, down $297m), primarily relating to movements on our own credit spreads on structured liabilities. Excluding these, revenue rose $650m or 5%, mainly in Rates and Credit, as we gained market share in Europe. In GLCM, revenue increased as we grew average balances and benefited from wider spreads. By contrast, revenue fell in Equities, reflecting lower trading volumes in Europe and Asia.
- LICs increased (up $0.4bn), predominantly driven by a small number of individually assessed exposures within the oil and gas, and metals and mining sectors, notably in the first half of 2016 in the US.
- Operating expenses fell by $93m, reflecting reduced performance-related pay, disciplined cost management, efficiency improvements including technology delivery rationalisation, and FTE reductions. These reductions more than offset the investments we made in the business.

Key events:

- Through 2016, we continued to focus on delivery of our RWA reductions, and achieved a reduction of $8bn, which included $39bn through management initiatives, partly offset by business growth.
- ‘World’s Best Investment Bank’ – Euromoney Awards for Excellence 2016

Change in adjusted profit before tax

1%

Global Private Banking (‘GPB’)

GPB serves high net worth individuals and families, including those with international banking needs, through 13 booking centres covering our priority markets.

Our products and services include Investment Management, incorporating advisory, discretionary and brokerage services; Private Wealth Solutions, comprising trusts and estate planning, designed to protect wealth and preserve it for future generations; and a full range of private banking services.

Lower revenue reflecting repositioning and adverse market conditions

- Adjusted profit before tax of $0.3bn fell by $0.1bn as revenue decreased, partly offset by a reduction in costs.
- Adjusted revenue of $1.8bn fell by $0.2bn or 11%, as brokerage and trading activity in both Europe and Asia decreased. This reflected the continued impact of client repositioning, in addition to adverse market sentiment and unfavourable market conditions throughout the year.
- Operating expenses decreased by $0.1bn, primarily as a result of reduced FTEs and cost-saving initiatives.

Key events:

- There was negative net new money of $17bn reflecting the repositioning of the business. However, we attracted positive net new money in key markets targeted for growth, notably in the UK, Channel Islands and Hong Kong.
- We recognised a $3.2bn write-off relating to the goodwill of the business in Europe, which is not reflected in the adjusted performance. For additional information, refer to Note 20 on page 270.

Change in adjusted profit before tax

-25%

Corporate Centre

During 2016, we established the Corporate Centre, to better reflect the way we manage our businesses. Corporate Centre comprises Central Treasury, including Balance Sheet Management ('BSM'), our legacy businesses, interests in associates and joint ventures, central stewardship costs that support our businesses and the UK bank levy.

Lower revenue due to continued disposal of legacy portfolios and Central Treasury, partly offset by a reduction in costs

- Adjusted profit before tax of $2.0bn was $0.5bn or 19% lower, driven by a fall in revenue and lower income from associates, partly offset by lower operating expenses, notably a reduced charge relating to the UK bank levy.
- Revenue fell by $1.2bn, partly driven by reductions in our US CML portfolio ($0.5bn) as a result of lower average lending balances and portfolio sales. Revenue also fell in Central Treasury as a result of higher adverse fair value movements relating to the economic hedging of our long-term debt ($0.2bn) and higher interest expense ($0.2bn).
- LICs were broadly unchanged as increased charges in the US CML portfolio were broadly offset by higher releases of credit risk provisions in the legacy credit portfolio.
- Operating expenses were $0.8bn lower, partly reflecting the benefits of transformational savings in our technology, operations and other functions, and a lower UK bank levy charge (down $0.5bn).
- Income from associates was $0.1bn lower, primarily in Saudi Arabia.

Key events:

- Completed asset sales of $10bn from our US CML run-off portfolio. As at 31 December 2016, gross lending balances in this portfolio were $5.7bn.

Change in adjusted profit before tax

-19%

For further details on the financial performance of our global businesses, see pages 60 to 66.

Regions

We coordinate activities across global businesses and supporting functions through a regional structure.

Europe

We serve clients in Europe with a broad range of services, and facilitate international trade and investment. London is the strategic hub for GB&M.

Reported loss before tax included significant items of $8.4bn

- Reported loss before tax was $6.8bn. This compared with a reported profit before tax of $688m in 2015, with the fall driven by a net adverse movement in significant items, including the write-off of goodwill relating to our GPB business, adverse fair value movements arising from changes in credit spreads on our own debt designated at fair value compared with favourable movements in 2015, and higher costs to achieve.
- On an adjusted basis, profit before tax of $1.6bn fell by $0.5bn or 26%, as revenue decreased by $0.9bn (5%), partly offset by lower costs (down by $369m or 2%), which included a reduction of $0.5bn related to the UK bank levy, and a reduction in LICs of $37m (8%).
- Reported revenue fell by $5.0bn, primarily as a result of adverse movements of $1.8bn arising from changes in credit spread on our own debt, compared with favourable movements of $0.8bn in 2015, and the adverse effects of currency translation differences ($1.6bn). Adjusted revenue fell by $945m or 5%, reflecting a reduction in RBWM of $465m (7%), notably in life insurance manufacturing in France as a result of adverse market updates, and in GPB reflecting the repositioning of the business. In Corporate Centre, lower adjusted revenue (down $0.8bn), partly reflected higher adverse fair value movements of $0.2bn relating to the economic hedging of our long-term debt, and higher interest expense of $0.2bn. These reductions were partly offset by growth in revenue in GB&M ($0.2bn), notably in Rates, GLCM and Global Banking, and in CMB ($0.2bn), in Credit and Lending.
- Reported costs rose by $2.6bn, primarily reflecting a write-off of goodwill relating to our GPB business of $3.2bn and an increase of $1.5bn in costs to achieve, partly offset by the favourable effects of currency translation of $1.3bn. Adjusted costs fell by $0.4bn (2%). Excluding the reduction in the UK bank levy ($0.5bn), costs rose by 1% driven by higher charges from our global service and technology centres due to increased transformation activities relating to IT transformation and process improvement.

Key

2016

2015

Asia

HSBC's history is founded on financing trade with Asia, and the continent remains central to our strategy. We aim to grow our business in China's Pearl River Delta and the ASEAN region, and we continue to strengthen our leadership position in the internationalisation of China's renminbi currency.

Lower revenue, notably in Wealth Management, offset by cost management initiatives

- Reported profit before tax was $13.8bn, $2.0bn lower than for 2015, notably due to the non-recurrence of a gain of $1.4bn on the disposal of part of our shareholding in Industrial Bank.
- On an adjusted basis, profit before tax was broadly unchanged, as a decrease in revenue was offset by a reduction in costs.
- Reported revenue fell by $2.0bn, driven by the non-recurrence of the gain on Industrial Bank, as noted above, and the adverse effects of currency translation differences of $0.3bn. Adjusted revenue decreased by $253m (1%). Lower adjusted revenue in RBWM resulted from investment distribution income falling, reflecting weaker market sentiment compared with a strong performance in the first half of 2015. This was partly offset by wider deposit spreads and deposit balance growth. In GB&M, adjusted revenue also declined, mainly in Equities and Foreign Exchange, partly offset by increases in Rates. By contrast, revenue in Corporate Centre increased, notably as income from Balance Sheet Management, within Central Treasury, rose.

- Reported costs decreased by $104m, as an increase in costs to achieve of $354m was partly offset by the favourable effects of currency translation differences of $177m. Adjusted costs decreased by $227m (2%), notably as a result of cost management initiatives, which more than offset the effects of inflation and our investment growing our business in China's Pearl River Delta and the ASEAN region.

Key

2016

2015

20

Middle East and North Africa

HSBC is the longest-serving international bank in the region, with one of the largest networks there, offering a universal banking model and playing a vital role in facilitating international trade. Our priority markets in the region are Saudi Arabia, Egypt and the United Arab Emirates ('UAE').

Strong performance reflecting robust cost management and lower LICs

- Reported profit before tax was $1.5bn, and was broadly unchanged from 2015.
- On an adjusted basis, profit before tax increased by $178m (13%), primarily reflecting a reduction in costs of $142m, and a decrease in LICs of $135m, partly offset by lower share of profit in associates and joint ventures.
- Reported revenue fell by $210m, primarily due to the adverse effects of currency translation differences ($182m). Adjusted revenue decreased marginally, mainly reflecting reductions in RBWM in Turkey as we restructured our business there, and in CMB in the UAE, mainly within GTRF, in part reflecting customer exits. This was partly offset by GB&M with growth in GLCM, which benefited from interest rate rises across the region, in Global Banking mainly driven by infrastructure and real estate fee income in the UAE and Egypt, and Securities Services due to higher balances and spreads.
- Reported LICs fell by $154m with adjusted LICs decreasing by $135m, mainly in CMB in the UAE due to lower charges and the release of provisions taken in 2015, notably relating to exposures in the oil and gas sector.
- Costs were $137m lower on a reported basis, and $142m (9%) lower on an adjusted basis, mainly in the UAE and Turkey due to cost-saving initiatives, which more than offset our continued investment in compliance.
- Share of profit in associates and joint ventures fell by $70m (14%), mainly due to higher impairment charges in Saudi British Bank and lower revenue in HSBC Saudi Arabia reflecting lower asset management and investment banking revenues. This was partly offset by revenue growth in Saudi British Bank and well-managed costs in both associates.

Key

2016

2015

North America

The US is a key partner in global trade, and the US dollar remains the primary currency for global trade and payments. We support our North American customers within the NAFTA region and around the world, helping them grow their businesses.

Continued run-off of the US CML portfolio led to a fall in revenue, partly offset by cost reductions across all businesses

- Reported profit before tax was $185m, and fell by $429m from 2015, partly reflecting the net adverse effects of significant items, notably higher costs to achieve of $298m.
- Adjusted profit before tax fell by $208m (14%) from the continued reduction in our US CML run-off portfolio.
- Reported revenue fell $592m, and included the adverse effects of significant items ($57m) and currency translation of $59m. Movements in significant items were primarily driven by minimal fair value movements arising from changes in credit spread on our own debt in 2016, compared with favourable movements of $219m in 2015, although these movements were partly offset by a gain of $116m recorded on our sale of Visa US shares in 2016 and lower losses on disposal in our CML run-off portfolio of $77m. Adjusted revenue was $475m lower, primarily from a decrease in income in the US CML run-off portfolio in Corporate Centre. By contrast, adjusted revenue in GB&M increased by 6%, notably as a result of increased income in Rates and Credit driven by higher client flows and collateralised financing activity.
- LICs increased by $188m on a reported basis and $191m on an adjusted basis, primarily as a result of a small number of individually assessed charges in the mining sector in GB&M, as well as higher charges in the US CML run-off portfolio. In CMB, there were net collectively assessed releases in 2016, compared with charges in 2015, relating to exposures in the oil and gas sector.
-

Reported costs fell by $353m, although this included a rise of $298m in costs to achieve in significant items, partly offset by a reduction in fines, penalties and charges in relation to legal matters of $128m. Adjusted costs fell by $460m, reflecting lower staff costs across all businesses.

Key

2016

2015

Latin America

We are focusing on growing our business in Mexico, where we are among the top five banks by assets and our branch network has a market share of more than 10%. On 1 July 2016, we completed our sale of operations in Brazil, but we will continue to provide access to the region for large multinational companies.

Continued progress in strategic initiatives with a strong business performance

- Reported loss before tax was $1.6bn. This compared with a profit of $310m in 2015, with the loss driven by a number of significant items, primarily the accounting loss on our sale of Brazil operations which totalled $1.7bn.
- On an adjusted basis, profit before tax rose by $0.4bn due to higher revenue, partly offset by higher LICs and costs.
- Reported revenue fell by $3.9bn, partly driven by the accounting loss on our sale of Brazil operations ($1.7bn). The reported results also include the revenue earned in our Brazil business of $1.5bn in 2016, compared with $3.3bn in 2015, and the adverse effects of currency translation differences of $0.9bn. However, adjusted revenue was $0.7bn (29%) higher than for 2015. We increased revenue in RBWM in Mexico with lending growth and an increase in market share across core retail portfolios, and in Argentina, reflecting wider spreads and growth in deposits, together with higher income from insurance. Revenue also increased in GB&M, partly due to increased client activity, and in CMB from lending and deposit balance growth.
- Reported LICs fell by $266m, primarily driven by a reduction in Brazil ($184m) and favourable effects of currency translation ($120m). By contrast, adjusted LICs rose by $38m due to higher LICs in RBWM in Mexico of $124m reflecting growth in unsecured lending and a rise in delinquency rates, partly offset by lower LICs in CMB and GB&M.
- Reported costs fell by $1.7bn, and included $1.1bn of costs relating to Brazil in 2016, compared with $2.5bn in 2015. These also included the favourable effects of currency translation differences ($0.6bn). Excluding these factors, adjusted costs increased by $0.3bn (or 16%), although this was below the average rate of inflation in the region as we continued to control our costs.

Key

2016

2015

21

How we do business

We conduct our business intent on supporting the sustained success of our customers, people and communities.

Building lasting business relationships

We serve more than 37 million customers around the world, ranging from individuals to the largest companies. We are committed to conducting our business in a way that delivers fair value to customers and supports them in realising their ambitions.

Conduct and ensuring fair outcomes

Operating with high standards of conduct is central to our long-term success and ability to serve customers. In 2016, we continued to embed good conduct practice across all our businesses, with a range of initiatives to further improve the service and experience we offer to customers.

For example, in the UK we have introduced a simplified overdraft charging structure with real time notifications to prompt customers whenever they are at risk of incurring unarranged overdraft charges. In the UAE, we automated pricing for foreign exchange to provide clients with consistent and competitive rates for cross-currency payments. We also enhanced our investment advice processes and introduced tools and guidelines to make all our customer communication clear and easy to understand.

These and related initiatives are guided by our Conduct Framework, which focuses on delivering fair customer outcomes and improved market integrity through our behaviours. The Conduct Framework guides activities to strengthen our business, and increases our understanding and awareness of how the decisions we make affect customers and other stakeholders.

Additional detail on the Conduct Framework is available online at www.hsbc.com/conduct. For further details on regulatory compliance risk and on conduct-related costs included in significant items, see pages 114 and 78, respectively.

Our values

Our values define who we are as an organisation and make us distinctive.

Open

We are open to different ideas and cultures, and value diverse perspectives.

Connected

We are connected to our customers, communities, regulators and each other, caring about individuals and their progress.

Dependable

We are dependable, standing firm for what is right and delivering on commitments.

Increasing quality of service

We rely on customer feedback to help determine where we can make improvements. In RBWM, we conducted more than 1.6 million customer surveys in 2016 across multiple points of customer interaction, including live online chat. We also improved the speed and quality of complaint resolution, with more than two-thirds of retail customer complaints resolved on first contact, an improvement of 9% compared with 2015.

Customer feedback helps us to identify and address root causes of complaints. For example, we increased capacity in our call centres in response to concerns about long waiting times in the UK. We also addressed the most common complaints related to fees and charges through increased staff training and customer communication. As a result, complaints of this type reduced significantly in a number of our markets, including a 35% reduction in Hong Kong and a 27% reduction in France.

Innovation and technology

Our customers increasingly use digital channels to interact, including mobile banking. We are investing in innovation and technology to serve customers better and enhance security around financial transactions and customer data. In 2016, we introduced voice biometric identification technology for retail customers globally. HSBC is one of the first large-scale global users of this technology.

In the UK, we also launched a mobile application for commercial banking customers that allows them to digitally verify their identity. Since its launch, nearly 80% of the customers able to use this digital channel have chosen to do so. We have also adjusted our branch network to reflect changing customer needs and concluded our retail branch review in the UK, with a further reduction of 117 branches in 2016.

In Hong Kong, we launched a research and development lab in partnership with the government to promote technology development for the financial sector. Areas of focus include biometrics, data analytics, cybersecurity and internet finance. Separately, we are developing a mobile application to help retail customers manage all of their finances more effectively through a single interface.

Sustainable finance

We recognise that reducing global carbon dioxide emissions is a critical challenge for society. We seek to be a leader in managing climate change risk while developing opportunities with our customers. We continue to facilitate investment in areas such as infrastructure and renewable energy that help lower carbon dioxide emissions.

In 2016, for example, we helped issue the largest-ever renewable energy bond in Canada to support a solar power farm. In the UK, we provided financing and asset management expertise to support deployment of energy smart meters throughout the country. In December, we established a team dedicated to sustainable finance within the business in order to engage clients more effectively in assessing and responding to potential impacts from climate change.

255,000
workday hours volunteered
$137m
charitable giving in 2016

Empowering people

Valuing diversity

Building a more diverse and inclusive workforce is critical to developing a sustainable and successful business. Our approach aims to increase and leverage diversity of thought to improve workforce agility, enhance our risk management capability, drive innovation and grow markets.

Our diversity and inclusion ambitions focus on attracting, developing and retaining talent that reflects our customers and the communities where we do business, and deploying that talent effectively to anticipate and address expectations. Our seven global employee networks support this strategy and focus on gender, age, ethnicity, LGBT+, faith, working parents and carers, and ability. We have continued our focus on improving gender balance within senior leadership.

Supporting our employees

We believe that if someone is worth talking to, they are worth listening to. Exchange meetings are our way of doing that: meetings with no agendas and where managers are participants rather than leaders. These meetings bring people together to listen to each other, and allow people to express themselves without interruption or rebuttal. Our employee surveys indicate that Exchange participants respond positively by 11% more than others when asked if there is honest, two-way communication.

Similarly, our At Our Best programme reinforces the habits required for a strong culture, including asking for feedback, being mindful of one's own emotions and deploying tools for making better decisions. In 2016, nearly 100,000 employees attended an At Our Best training course, and a further 18,000 managers attended similar training centred on managing teams. The programme is supported through a behaviour recognition scheme and the launch of Our Charter, a framework for good decision-making.

To further strengthen our culture and promote positive behaviours, we have developed culture change plans that are regularly discussed in global and local management forums. The plans emphasise enabling a speak-up culture, principles-based judgement and other behaviours that are key to supporting the Group's strategic objectives, such as managing financial crime risk. In 2016, our employees completed more than eight million courses in person or through online learning in order to build skills and reinforce behaviours more broadly.

We have a wellbeing programme that provides benefits and services to support employees' wellness. For example, we offer free, confidential counselling to address personal issues at home or work. We also allow employees who have been at HSBC for five years or more to apply to take a sabbatical. Above all, we aim to provide a working environment where colleagues can talk openly about wellbeing issues, including anxiety and stress. Such measures are particularly valuable amid the demands of multiple change programmes and financial crime remediation initiatives.

Whistleblowing

We operate a global whistleblowing platform, HSBC Confidential, which allows staff to report matters of concern confidentially. During 2016, employees have raised more than 1,100 cases. Common themes among the cases raised included concerns regarding staff behaviour and recruitment practices, allegations of fraud perpetrated by staff, and weaknesses in incentive arrangements and information security.

Exchange meeting insights
(% of employees who believe Exchange allows them to talk freely about issues important to them)
84%
Employee retention
81.7%
24

Ensuring sustainable outcomes

Our Global Sustainability function works with our global businesses, global functions and our regions to manage environmental and social issues that affect the Group and on which we can have an impact. Key issues are reviewed below and further details are available online at www.hsbc.com/sustainability. Sustainability performance data for 2016 will be available in spring 2017.

Climate change

We have committed to supporting the global shift to a low-carbon economy. Our award-winning Global Research team published 60 reports on sustainability topics in 2016. These included the implications of the Paris Agreement on climate change.

In light of the Paris Agreement, we reviewed our mining and metals policy, and included restrictions on lending to new thermal coal mines, in addition to our existing policies on coal-fired power plants and deforestation. We also added more specific guidance on human rights impacts that could arise in the mining sector.

For more information about our sustainability risk policies see page 117.

We completed a number of GB&M and CMB client transactions that help lower carbon dioxide emissions in areas including infrastructure and renewable energy. In 2016, HSBC was the third-ranked bookrunner for green, social and sustainability bonds that exceeded $250m excluding self-led transactions by Dealogic. We also published a report on our own green bond, issued in 2015.

We scored the highest grade in a global index run by CDP, a not-for-profit organisation that rates companies and governments on how they are tackling the climate change challenge. We also published an HSBC Statement on Climate Change, providing a summary of our approach and initiatives.

We are reducing the amount of energy we consume, and increasing the proportion from renewable sources. By the end of 2016, more than 17% of our electricity was from wind or solar farms, compared with 9% in 2015. We signed additional agreements in 2016 to increase the percentage of the electricity we use from new wind and solar sources. In total, we have agreements in place to meet 23% of our global electricity needs from these sources by 2018.

We report our carbon dioxide emissions on page 78.

Sustainable investment

Our Global Research team has expanded its environmental, social and governance research offering, hiring analysts to specifically cover social and governance drivers, and to cover the fast-growing green bond market.

Our Global Asset Management business published a new climate change policy to encourage the transition to a low-carbon economy and increase the climate resilience of clients' investments.

Human rights

We have issued our first statement as required by the UK's Modern Slavery Act, which can be found at www.hsbc.com.

We updated our supplier code of conduct to take account of revised legislation on modern slavery and human rights. More than 240 of our largest suppliers have already accepted this code.

Community investment

In 2016, we contributed $137m to charitable programmes, and our employees volunteered 255,000 hours in community activities during the working day.

Our flagship environmental partnership, the HSBC Water Programme, exceeded its five-year targets at the end of 2016. Building on this success, we are extending the programme for a further three years.

In 2016, we renewed our commitments to our two flagship global education programmes, the HSBC Youth Opportunities Programme and Junior Achievement More than Money, for another three years. These programmes help young people access education and realise their potential.

Tax

Taxes paid by HSBC relate to HSBC's own tax liabilities including tax on profits earned, employer taxes, bank levy and other duties/levies such as stamp duty.

Our approach to tax

We apply the spirit and the letter of the law in all territories where we operate. We have adopted the UK Code of Practice for the Taxation of Banks. As a consequence, we pay our fair share of tax in the countries in which we operate. We continue to strengthen our processes to help ensure our banking services are not associated with any arrangements known or suspected to facilitate tax evasion. HSBC continues to apply global initiatives to improve tax transparency such as:

- the US Foreign Account Tax Compliance Act ('FATCA');
- the OECD Standard for Automatic Exchange of Financial Account Information (also known as the Common Reporting Standard);
- the Capital Requirements Directive IV ('CRD IV') Country by Country Reporting; and
- the OECD Base Erosion and Profit Shifting ('BEPS') initiative.

We do not expect BEPS or similar initiatives adopted by national governments to adversely impact HSBC's results. Further financial and tax information for the countries in which we operate will be published in 2017 in a CRD IV Country by Country report at www.hsbc.com/tax.

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Risk overview

We actively manage risk to protect and enable the business.

Managing risk

HSBC has maintained a conservative and consistent approach to risk throughout its history, helping to ensure we protect customers' funds, lend responsibly and support economies. By carefully aligning our risk appetite to our strategy, we aim to deliver long-term shareholder returns.

All employees are responsible for the management of risk, with the ultimate accountability residing with the Board. We have a strong risk culture, which is embedded through clear and consistent communication and appropriate training for all employees. A comprehensive risk management framework is applied throughout the Group, with effective governance and corresponding risk management tools. This framework is underpinned by our risk culture and reinforced by the HSBC Values and our Global Standards programme.

Our Global Risk function oversees the framework, and is led by the Group Chief Risk Officer, an executive Director. It is independent from the global businesses, including our sales and trading functions, to provide challenge, appropriate oversight, and balance in risk/reward decisions.

HSBC's risk appetite defines its desired forward-looking risk profile, and informs the strategic and financial planning process.

It is articulated in our Risk Appetite Statement, which is approved by the Board. Key elements include:

- risks that we accept as part of doing business, such as credit risk and market risk;
- risks that we incur as part of doing business, such as operational risk, which are actively managed to remain below an acceptable tolerance; and
- risks for which we have zero tolerance, such as knowingly engaging in activities where foreseeable reputational risk has not been considered.

We operate a comprehensive stress testing programme to help ensure the strength and resilience of HSBC, taking part in regulators' as well as our own internal stress tests. In 2016, we participated in the annual stress test by the Bank of England, our lead regulator, and again exceeded its requirements comfortably. This reflected our conservative risk appetite, and our diversified geographical and business mix. It also reflected our ongoing strategic actions, including the sale of our operations in Brazil, RWA reductions in GB&M and continued sales from our US CML run-off portfolio. Our internal stress test scenarios include potential macroeconomic, geopolitical and operational risk events, and events that are applicable to HSBC. The results help management understand material risks and consider potential mitigants.

Key risk appetite metrics

Component	Measure	Risk appetite	2016
Returns	Return on average ordinary shareholders' equity	≥10.0%	0.8
Capital	Common equity tier 1 ratio – CRD IV end point basis	≥11.0%	13.6 %
Liquidity	HSBC consolidated balance sheet advances-to-deposits ratio	≤90%	67.7 %
Loan impairment charges	Loan impairment charges as % of advances: RBWM	≤0.50%	0.37%
	Loan impairment charges as % of advances: wholesale (CMB, GB&M and GPB)	≤0.45%	0.27%

Our risk management framework and risks associated with our banking and insurance manufacturing operations are described on pages 101 and 115 respectively.

Top and emerging risks

Our top and emerging risks framework helps enable us to identify current and forward-looking risks so that we may take action to either prevent them materialising or limit their effect.

Top risks are those that may have a material impact on the financial results, reputation or business model of the Group in the year ahead. Emerging risks are those that have large unknown components and may form beyond a one-year horizon. If these risks were to occur, they could have a material effect on HSBC.

During 2016, we made two changes to our top and emerging risks to reflect our assessment of their effect on HSBC. Firstly, 'IT systems infrastructure and resilience' was added as a new risk due to the need to ensure core banking systems remain robust as digital and mobile banking services continue to evolve. Secondly, 'Dispute risk' was removed as the key drivers of this thematic issue have already materialised and are therefore reported through other reporting channels. In addition, three thematic risks were renamed to better reflect the challenges facing HSBC. We use the new names in the table that follows.

Our current top and emerging risks are summarised on the next page and discussed in more detail on page 89.

Our approach to identifying and monitoring top and emerging risks is described on page 103.

Risk	Trend	Mitigants
Externally driven		
Economic outlook and capital flows	^	We are actively monitoring our wholesale credit and trading portfolios to identify areas of stress following the UK electorate's vote to leave the European Union. We have also undertaken stress tests on our businesses and portfolios to assess potential impacts under a range of possible exit scenarios.
Geopolitical risk	^	We have increased physical security at our premises where the risk of terrorism is heightened and have enhanced our major incident response capabilities.
Turning of the credit cycle	>	A number of sectors remain under enhanced monitoring with risk appetite and new lending significantly curtailed, including our oil and gas and commodities lending portfolios.
Cyber threat and unauthorised access to systems	^	We have brought all cybersecurity initiatives together under one programme in order to strengthen our resilience and defence capabilities. We have revised our cybersecurity risk appetite to reflect our evolving defence approach.
• Regulatory and technological developments with adverse impact on business model and profitability	>	We are actively engaged with regulators and policy makers to help ensure that new regulatory requirements are considered fully and can be implemented in an effective manner. We have established a specialist digital solutions team to lead our response to new technologies.
Regulatory focus on conduct of business and financial crime	>	We created a new function, Financial Crime Risk, which brings together all areas of financial crime risk management at HSBC and continued to enhance our management of conduct in areas including the treatment of potentially vulnerable customers, market surveillance, employee training and performance management.
US deferred prosecution agreement and related agreements and consent orders	>	We are continuing to take concerted action to remediate anti-money laundering and sanctions compliance deficiencies and to implement Global Standards.
Internally driven		
IT systems infrastructure and resilience	^	We have invested in specialist teams and are upgrading our systems capability to enhance data and digital capabilities and help ensure strong delivery quality and resilience to customers.
• Impact of organisational change and regulatory demands on employees	>	We have increased our focus on resource planning and employee retention and well-being, and are developing initiatives to equip line managers with skills to both manage change and support their employees.
Execution risk	>	The Group Change Committee monitored the progress of the high priority programmes across the Group that support the strategic actions, reviewing progress on deliverables and addressing resource prioritisation issues as they arose.
Third-party risk management	>	To help enable a consistent risk assessment of the third-party services that the Group utilises, we are implementing a framework to provide a holistic view of third-party risks, which assesses third parties against key criteria, combined with associated control monitoring, testing and assurance throughout the third-party lifecycle.
• Enhanced model risk management expectations	^	We have implemented a new global policy on model risk management and updated the model governance framework to address key internal and regulatory requirements. Additional resources have also been recruited to support the independent model review function.

Data management	>	We continued to enhance our data governance, quality and architecture to help enable consistent data aggregation, reporting and management.

^ Risk heightened during 2016
> Risk remained at the same level as 2015
• Thematic risk renamed during 2016

Remuneration

Our remuneration policy supports the achievement of our strategic objectives by balancing reward for short- and long-term sustainable performance.

Remuneration principles

The remuneration strategy for our employees is based on a series of key principles.

What we do

- Focus on total compensation with a strong link between pay and performance
- Judge not only what is achieved, but also how it is achieved, in line with the HSBC Values
- Operate a thorough performance management and HSBC Values assessment process
- Recognise and reward our employees for outstanding positive behaviour
- Design our policy to align compensation with long-term stakeholder interests
- Apply consequence management to strengthen the alignment between risk and reward

What we don't do

- Reward inappropriate or excessive risk taking or short-term performance at the expense of long-term company sustainability
- Use only a formulaic approach to determine bonuses for our executives
- Award discretionary bonuses to employees rated unacceptable against the HSBC Values and behaviours
- Allow our employees to hedge against their unvested or retained awards
- Offer employment contracts with a notice period of more than 12 months
- Have pre-arranged individual severance agreements

Embedding our values in our remuneration framework

Instilling the right behaviours, and driving and encouraging actions that are aligned to organisational values and expectations, are essential. We therefore have a number of programmes to reinforce our values.

Pay	Outcomes
Positive adjustments	- Individuals who exhibit exceptional conduct and behaviours are awarded positive variable pay adjustments during the year.
Global consequence management policy	- Ensures clear messaging to employees on the impact of any inappropriate conduct as part of reward communications, with consistency in approach and actions taken depending on the severity of the misconduct.
Global recognition programme	- Our global recognition programme is now available in more than 50 countries. - In 2016, approximately 600,000 recognitions were made with a total value of $8.1m.
Performance management	- Employees set objectives, which connect business, team and individual goals, and are guided by expected behaviours aligned to our core values. - All employees receive a behaviour rating based on their adherence to HSBC Values to ensure performance is judged not only on what is achieved, but also on how it is achieved. - Employees and managers are encouraged to hold frequent conversations throughout the year, exploring alternative ways to stay connected outside the regular performance management cycle using a mix of informal and formal check-ins on a range of topics, including performance, development and wellbeing.

How we set our variable pay pool

When deciding on the variable pay pool, the Remuneration Committee considers a number of factors, which are set out in the following table:

Performance and risk appetite statement	– Our variable pay pool takes into account our performance in the context of our risk appetite.
Countercyclical funding methodology	– To dampen effects of economic cycles, the variable pay pool's size has a floor and a ceiling, and we also limit the payout ratio as performance increases to prevent the risk of inappropriate behaviour.
Distribution of profits	– Our funding methodology ensures that the distribution of post-tax profit between capital, shareholders and variable pay is appropriate, and that the majority of post-tax profit is allocated to capital and shareholders.
Commerciality and affordability	– We face challenges arising from being headquartered in the UK, which has more stringent reward practices. We take into account these challenges in determining the size of the variable pay pool to ensure we can continue to attract and retain talent in key markets.

Our variable pay pool for 2016

Our variable pay pool is $3,035m, a decrease of 12.3% compared with 2015.

Remuneration for our executive Directors

Our remuneration policy for executive Directors was approved at our 2016 Annual General Meeting and implemented for the first time in 2016. Full details of our remuneration policy can be found online in our Directors' Remuneration Policy Supplement 2016.

The table below shows the amount our executive Directors earned in 2016.

For details of Directors' pay and performance for 2016, see the Directors' Remuneration Report on page 191.

(Audited – in £000)		Base salary	Fixed pay allowance	Pension	Annual incentive	GPSP/LTI [1]	Sub-total	Taxable benefits	Non-taxable benefits	Notional returns	Total
Douglas Flint	2016	1,500	—	450	—	—	1,950	100	86	—	2,136
	2015	1,500	—	750	—	—	2,250	151	95	—	2,496
Stuart Gulliver	2016	1,250	1,700	375	1,695	—	5,020	557	71	27	5,675
	2015	1,250	1,700	625	1,072	1,969	6,616	662	53	9	7,340
Iain Mackay	2016	700	950	210	987	—	2,847	52	37	17	2,953
	2015	700	950	350	1,068	1,101	4,169	54	28	5	4,256
Marc Moses	2016	700	950	210	1,005	—	2,865	15	38	18	2,936
	2015	700	950	350	827	1,101	3,928	6	29	5	3,968

[1] Executive Directors received Group Performance Share Plan ('GPSP') awards for 2015. For 2016, executive Directors will receive a long-term incentive ('LTI') award, with a performance period ending in 2019, which will be included in the single figure table for the financial year ending on 31 December 2019. If target performance is achieved for this award, LTI payout would be 50% of grant value. In this case, the 2016 total single figure for year-on-year comparison would be (in £000) £7,670 for Stuart Gulliver, £4,069 for Iain Mackay and £4,052 for Marc Moses.

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Financial summary

The management commentary included in the Strategic Report, the Report of the Directors: 'Financial Review', together with the 'Employees' and 'Corporate sustainability' sections of 'Corporate Governance' and the 'Directors' Remuneration Report' is presented in compliance with the IFRSs Practice Statement 'Management Commentary' issued by the IASB.

Use of non-GAAP financial measures

Our reported results are prepared in accordance with IFRSs as detailed in the Financial Statements starting on page 215. In measuring our performance, the financial measures that we use include those derived from our reported results in order to eliminate factors that distort period-on-period comparisons. These are considered non-GAAP financial measures.

Non-GAAP financial measures that we use throughout the Annual Report and Accounts 2016 are described below. Non-GAAP financial measures are described and reconciled to the closest reported financial measure when used.

The global business segmental results on pages 60 to 76 are presented on an adjusted basis in accordance with IFRS 8 'Operating Segments' as detailed in 'Basis of preparation' on page 59.

Adjusted performance

Adjusted performance is computed by adjusting reported results for the year-on-year effects of foreign currency translation differences and significant items, which distort year-on-year comparisons.

We use 'significant items' to describe collectively the group of individual adjustments excluded from reported results when arriving at adjusted performance. These items, which are detailed below, are ones that management and investors would ordinarily identify and consider separately when assessing performance to understand better the underlying trends in the business.

These items include the operating results for our Brazil operations sold to Banco Bradesco S.A. on 1 July 2016, as well as the loss recognised on disposal.

We consider adjusted performance provides useful information for investors by aligning internal and external reporting, identifying and quantifying items management believes to be significant and providing insight into how management assesses year-on-year performance.

Foreign currency translation differences

Foreign currency translation differences reflect the movements of the US dollar against most major currencies during 2016. We exclude our reporting currency translation differences when deriving constant currency data because using these data allows us to assess balance sheet and income statement performance on a like-for-like basis to understand better the underlying trends in the business.

Foreign currency translation differences

Foreign currency translation differences for 2016 are computed by retranslating into US dollars for non-US dollar branches, subsidiaries, joint ventures and associates:

- the income statements for 2015 and 2014 at the average rates of exchange for 2016; and
- the balance sheets at 31 December 2015 and 31 December 2014 at the prevailing rates of exchange on 31 December 2016.

No adjustment has been made to the exchange rates used to translate foreign currency denominated assets and liabilities into the functional currencies of any HSBC branches, subsidiaries, joint ventures or associates. When reference is made to foreign currency translation differences in tables or commentaries, comparative data reported in the functional currencies of HSBC's operations have been translated at the appropriate exchange rates applied in the current period on the basis described above.

Significant items

The tables on pages 70 to 76 detail the effects of significant items on each of our global business segments and geographical regions in 2016, 2015 and 2014.

Critical accounting estimates
and judgements

The results of HSBC reflect the choice of accounting policies, assumptions and estimates that underlie the preparation of HSBC's consolidated financial statements. The significant accounting policies, including the policies which include critical accounting estimates and judgements, are described in Note 1.2 on the Financial Statements. The accounting policies listed below are highlighted as they involve a high degree of uncertainty and have a material impact on the financial statements:

- Impairment of loans and advances: For collective impairment allowances, estimation methods include the use of historical information supplemented by significant management judgement about whether current economic and credit conditions are such that actual incurred losses are likely to be greater or less than experienced in the past. For individually assessed loans, judgements are made about the financial condition of individual borrowers, which can involve a wide range of factors relating to their business and the value of any security. The exercise of judgement requires the use of assumptions that are highly subjective and sensitive, in particular to changes in economic and credit conditions across a large number of geographical areas. See Note 1.2(d) on page 230.
- Deferred tax assets: The most significant judgements relate to those made in respect of expected future profitability. See Note 1.2(h) on page 234.
- Valuation of financial instruments: In determining the fair value of financial instruments a variety of valuation

techniques are used, some of which feature significant unobservable inputs and are subject to substantial uncertainty. See Note 1.2(c) on page 229.

- Impairment of interests in associates: Impairment testing involves significant judgement in determining the value in use, and in particular estimating the present values of cash flows expected to arise from continuing to hold the investment, based on a number of management assumptions. See Note 1.2(a) on page 228.
- Goodwill impairment: A high degree of uncertainty is involved in estimating the future cash flows of the cash generating units ('CGUs') and the rates used to discount these cash flows. See Note 1.2(a) on page 228.
- Provisions: A high degree of judgement may be required due to the high degree of uncertainty associated with determining whether a present obligation exists, and estimating the probability and amount of any outflows that may arise. See Note 1.2(i) on page 234.

Given the inherent uncertainties and the high level of subjectivity involved in the recognition or measurement of the items above, it is possible that the outcomes in the next financial year could differ from the expectations on which management's estimates are based, resulting in the recognition and measurement of materially different amounts from those estimated by management in these Financial Statements.

Consolidated income statement

Summary consolidated income statement

	2016	2015	2014	2013	2012
	$m	$m	$m	$m	$m
Net interest income	29,813	32,531	34,705	35,539	37,672
Net fee income	12,777	14,705	15,957	16,434	16,430
Net trading income	9,452	8,723	6,760	8,690	7,091
Net income/(expense) from financial instruments designated at fair value	(2,666)	1,532	2,473	768	(2,226)
Gains less losses from financial investments	1,385	2,068	1,335	2,012	1,189
Dividend income	95	123	311	322	221
Net insurance premium income	9,951	10,355	11,921	11,940	13,044
Gains on disposal of US branch network, US cards business and Ping An Insurance (Group) Company of China, Ltd	—	—	—	—	7,024
Other operating income/(expense)	(971)	1,055	1,131	2,632	2,100
Total operating income	59,836	71,092	74,593	78,337	82,545
Net insurance claims and benefits paid and movement in liabilities to policyholders	(11,870)	(11,292)	(13,345)	(13,692)	(14,215)
Net operating income before loan impairment charges and other credit risk provisions	47,966	59,800	61,248	64,645	68,330
Loan impairment charges and other credit risk provisions	(3,400)	(3,721)	(3,851)	(5,849)	(8,311)
Net operating income	44,566	56,079	57,397	58,796	60,019
Total operating expenses	(39,808)	(39,768)	(41,249)	(38,556)	(42,927)
Operating profit	4,758	16,311	16,148	20,240	17,092
Share of profit in associates and joint ventures	2,354	2,556	2,532	2,325	3,557
Profit before tax	7,112	18,867	18,680	22,565	20,649
Tax expense	(3,666)	(3,771)	(3,975)	(4,765)	(5,315)
Profit for the year	3,446	15,096	14,705	17,800	15,334
Attributable to:					
– ordinary shareholders of the parent company	1,299	12,572	13,115	15,631	13,454
– preference shareholders of the parent company	90	90	90	90	90
– other equity holders	1,090	860	483	483	483
– non-controlling interests	967	1,574	1,017	1,596	1,307
Profit for the year	3,446	15,096	14,705	17,800	15,334

Five-year financial information

	Footnotes	2016 $	2015 $	2014 $	2013 $	2012 $
Basic earnings per share		0.07	0.65	0.69	0.84	0.74
Diluted earnings per share		0.07	0.64	0.69	0.84	0.74
Dividends per ordinary share	1	0.51	0.50	0.49	0.48	0.41
		%	%	%	%	%
Dividend payout ratio	2	728.6	76.5	71.0	57.1	55.4
Post-tax return on average total assets		0.1	0.6	0.5	0.7	0.6
Return on risk-weighted assets	3	0.7	1.6	1.5	2.0	1.8
Return on average ordinary shareholders' equity		0.8	7.2	7.3	9.2	8.4
Average foreign exchange translation rates to $:						
$1: £		0.741	0.654	0.607	0.639	0.631
$1: €		0.904	0.902	0.754	0.753	0.778

For footnotes, see page 79.

Unless stated otherwise, all tables in the Annual Report and Accounts 2016 are presented on a reported basis.

For a summary of our financial performance in 2016, see page 14.

For further financial performance data for each global business and geographical region, see pages 60 to 66 and 70 to 76, respectively.

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Group performance by income and expense item

Net interest income

	Footnotes	2016 $m	2015 $m	2014 $m
Interest income		42,414	47,189	50,955
Interest expense		(12,601)	(14,658)	(16,250)
Net interest income	4	29,813	32,531	34,705
Average interest-earning assets		1,723,702	1,726,949	1,786,536
		%	%	%
Gross interest yield	5	2.46	2.73	2.85
Less: cost of funds		(0.87)	(1.00)	(1.05)
Net interest spread	6	1.59	1.73	1.80
Net interest margin	7	1.73	1.88	1.94

For footnotes, see page 79.

In 2016, we earned net interest income of $0.9bn in Brazil (2015: $2.1bn) from average interest earning assets in Brazil of

$25.8bn (2015: $40.0bn). Our net interest margin excluding Brazil was 1.70% (2015: 1.79%).

Summary of interest income by type of asset

	Footnotes	2016 Average balance $m	Interest income $m	Yield %	2015 Average balance $m	Interest income $m	Yield %	2014 Average balance $m	Interest income $m	Yield %
Short-term funds and loans and advances to banks		203,799	1,510	0.74	221,924	2,277	1.03	237,148	3,068	1.29
Loans and advances to customers		865,356	29,272	3.38	909,707	33,104	3.64	931,311	37,429	4.02
Reverse repurchase agreements – non-trading		168,207	1,227	0.73	162,308	1,301	0.80	198,273	1,800	0.91
Financial investments		430,775	7,248	1.68	396,113	7,508	1.90	399,816	8,323	2.08
Other interest-earning assets		55,565	3,157	5.68	36,897	2,999	8.13	19,988	335	1.68
Total interest-earning assets		1,723,702	42,414	2.46	1,726,949	47,189	2.73	1,786,536	50,955	2.85
Trading assets and financial assets designated at fair value	8, 9	179,780	3,897	2.17	195,285	4,626	2.37	238,958	5,596	2.34
Impairment allowances		(9,127)			(10,606)			(14,015)		
Non-interest-earning assets		653,115			682,143			668,564		
Year ended 31 Dec		2,547,470	46,311	1.82	2,593,771	51,815	2.00	2,680,043	56,551	2.11

For footnotes, see page 79.

Summary of interest expense by type of liability and equity

	Footnotes	2016 Average balance $m	Interest expense $m	Cost %	2015 Average balance $m	Interest expense $m	Cost %	2014 Average balance $m	Interest expense $m	Cost %
Deposits by banks	10	49,782	342	0.69	55,863	378	0.68	61,217	481	0.79
Financial liabilities designated at fair value – own debt issued	11	62,042	942	1.52	58,489	717	1.23	66,374	837	1.26
Customer accounts	12	1,074,661	5,492	0.51	1,075,901	7,401	0.69	1,088,493	9,131	0.84

Repurchase agreements – non-trading	118,789	626	0.53	117,947	355	0.30	190,705	652	0.34
Debt securities in issue	114,343	2,807	2.45	129,039	3,521	2.73	129,724	4,554	3.51
Other interest-bearing liabilities	22,387	2,392	10.68	28,396	2,286	8.05	10,120	595	5.88
Total interest-bearing liabilities	1,442,004	12,601	0.87	1,465,635	14,658	1.00	1,546,633	16,250	1.05
Trading liabilities and financial liabilities designated at fair value (excluding own debt issued)	138,486	1,986	1.43	151,294	2,071	1.37	178,518	2,856	1.60
Non-interest bearing current accounts	184,016			190,914			185,990		
Total equity and other non-interest bearing liabilities	782,964			785,928			768,902		
Year ended 31 Dec	2,547,470	14,587	0.57	2,593,771	16,729	0.64	2,680,043	19,106	0.71

For footnotes, see page 79.

Significant items and currency translation

	2016	2015
	$m	$m
Significant items	951	2,104
– releases/(provisions) arising from the ongoing review of compliance with the UK Consumer Credit Act	2	(10)
– acquisitions, disposals and dilutions	949	2,114
Currency translation		1,808
Year ended 31 Dec	951	3,912

Net interest income of $29.8bn decreased by $2.7bn or 8% compared with 2015. This was partly the impact of the disposal of our operations in Brazil on 1 July 2016, which reduced net interest income by ($1.2bn), and adverse effects of currency translation differences. These decreases were partly offset by growth in net interest income in Asia, notably in Hong Kong, and in Mexico, partly offset by a decrease in the UK and the US.

Net interest margin in 2016 of 1.73% was 15 basis points (‘bps’) lower than 2015. This reflected the effects of the disposal and currency translation noted above, which had an adverse effect of 8bps. The remainder of the decrease was primarily as a result of lower yields on customer lending, which had an adverse effect of 9bps on our net interest margin, partly reflecting the continuing run-off of our US CML portfolio. In addition, we recorded an increase in the cost of debt, partly offset by a lower cost of funds on customer accounts, notably in Hong Kong.

Interest income

Interest income decreased by $4.8bn compared with 2015, notably driven by our sale of Brazil operations ($3.1bn) and currency translation. Excluding these factors, total interest income increased marginally.

Interest income on loans and advances to customers decreased by $3.8bn, driven by a reduction of $1.9bn relating to our operations in Brazil, and the adverse effects of currency translation. Excluding these factors, interest income on customer lending was broadly unchanged. The effects of growth in balances in Europe and Mexico, together with central bank rate rises in Mexico and Argentina, were broadly offset by the run-off of our US CML portfolio and the effect of lower average balances in Asia.

Income growth in Mexico was driven by growth in average balances, reflecting gains in market share and higher yields, notably on term lending due to central bank rate increases. Income increased in Europe as the effect of growth in average balances, primarily an increase in term lending volumes, more than offset the effect of lower yields on both term lending and mortgages, reflecting competitive pricing in the market and lower interest rates in the eurozone. By contrast, interest income decreased in Asia, as a result of lower average balances in term lending, despite increased mortgage balances, notably in Hong Kong. Yields in Asia also decreased marginally as a result of central bank rate cuts in China during 2015, although these were partly offset by rate rises in Hong Kong.

Interest income on short-term funds and financial investments decreased by $1.0bn in 2016, including a decrease of $0.7bn relating to Brazil. Excluding the effect of currency translation and Brazil, interest income on short-term funds and financial investments increased by $0.2bn. The movement predominantly reflected increases in available-for-sale debt securities in Asia, reflecting growth in our surplus liquidity. In North America income increased, driven by higher balances primarily due to net purchase of US Treasury securities, and a higher yield, following the US rate rise at the end of 2015.

Interest income on reverse repurchase agreements – non-trading was $0.1bn lower, including a decrease relating to Brazil ($0.4bn). Excluding currency translation and Brazil, income increased primarily in North America, reflecting higher balances and improved market rates.

Interest expense

Reported interest expense decreased by $2.1bn, driven by the reductions relating to Brazil ($1.8bn) and currency translation. Excluding these factors, interest expense rose by $0.4bn, as increases in the cost of debt and repurchase agreements were partly offset by decreases in interest expense on customer accounts.

Interest expense on customer accounts decreased by $1.9bn, including amounts relating to Brazil ($0.8bn) and currency translation. Excluding these factors, interest expense on customer accounts decreased by $0.5bn, driven by Asia and Europe, partly offset by Mexico, Argentina and North America. In Asia, the effect of an increase in balances was more than offset by a lower cost of funds, partly a change in portfolio mix towards lower-cost accounts in Hong Kong, which more than offset the effect of central bank rate rises. In addition to these factors, the central bank rate cuts in a number of markets, including mainland China, Australia and India, further lowered our cost of funds. In Europe, interest expense decreased as a result of a reduction in the cost of funds, partly due to a negative rate environment, although the average balances increased, notably in the UK. These decreases were partly offset by higher interest expense on customer accounts in the US, Mexico and Argentina, reflecting promotional deposit offerings and the central bank rate rises.

Interest expense on debt securities in issue and own debt designated at fair value decreased by $0.5bn, including the impact of Brazil ($0.8bn). Excluding currency translation and the effect of Brazil, interest expense increased by $0.4bn. This was driven by an increase in the cost of funds and an increase in average balances, as redemptions across the Group were more than offset by issuances of senior debt from HSBC Holdings plc (‘HSBC Holdings’). The increase in the cost of debt designated at fair value was as a result of longer maturities and the structural subordination of our new issuances from HSBC Holdings.

Interest expense increased on repurchase agreements by $0.3bn, notably in North America, reflecting higher balances and market rates.

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Net fee income

	2016	2015	2014
	$m	$m	$m
Account services	2,417	2,745	3,407
Funds under management	2,076	2,570	2,658
Cards	1,970	2,281	2,460
Credit facilities	1,795	1,919	1,890
Broking income	1,060	1,441	1,371
Unit trusts	863	1,007	1,005
Imports/exports	820	971	1,115
Remittances	766	772	833
Underwriting	705	762	872
Global custody	662	721	726
Insurance agency commission	419	519	516
Other	2,116	2,308	2,692
Fee income	15,669	18,016	19,545
Less: fee expense	(2,892)	(3,311)	(3,588)
Year ended 31 Dec	12,777	14,705	15,957

Significant items and currency translation

	2016	2015
	$m	$m
Significant items		
– acquisitions, disposals and dilutions	233	533
Currency translation		574
Year ended 31 Dec	233	1,107

Net fee income fell by $1.9bn compared with 2015, partly as a result of the adverse effects of currency translation of $0.6bn, primarily in the UK, Argentina and Mexico, which notably affected account services, cards and fee expense. The sale of our operations in Brazil to Banco Bradesco S.A. reduced net fee income by a further $0.3bn. In addition, the decrease was driven by RBWM in Hong Kong, reflecting risk-averse retail investor sentiment in Asia.

Fee income from broking and unit trusts decreased by $525m, largely due to a strong performance in Hong Kong in the first half of 2015. The decrease was mainly in RBWM in Hong Kong, from lower securities broking income resulting from a reduction in stock market turnover.

In addition, fee income from cards decreased by $311m, primarily reflecting lower interchange fees in the UK, following regulatory change in late 2015.

Fee income from funds under management decreased by $0.5bn, partly driven by a reclassification between fee income from funds under management and fee expense in Germany ($0.2bn). In addition, fee income from funds under management decreased in RBWM's Global Asset Management business, driven by a change in the product mix towards lower margin fixed income products, as well as in GPB in Switzerland.

The reduction in fee income from funds under management was partly offset by a fall in fee expense of $419m, primarily reflecting lower brokerage fees, and the reclassification noted above.

Net trading income

		2016	2015	2014
	Footnote	$m	$m	$m
Trading activities		8,702	7,285	5,419

Net interest income on trading activities		1,386	1,775	1,907
Gain/(loss) on termination of hedges		1	(11)	1
Other trading income – hedge ineffectiveness				
– on cash flow hedges		(5)	15	34
– on fair value hedges		23	(11)	19
Fair value movement on non-qualifying hedges	13	(655)	(330)	(620)
Year ended 31 Dec		9,452	8,723	6,760

For footnote, see page 79.

Significant items and currency translation

	Footnote	2016 $m	2015 $m
Significant items			
Included within trading activities		26	230
– favourable debit valuation adjustment on derivative contracts		26	230
Included in other net trading income		(508)	(42)
– fair value movement on non-qualifying hedges	13	(687)	(327)
– acquisitions, disposals and dilutions		179	285
Total significant items		(482)	188
Currency translation			596
Year ended 31 Dec		(482)	784

For footnote, see page 79.

Net trading income of $9.5bn was $0.7bn higher than in 2015, despite the net adverse effects of $1.3bn of significant items and currency translation summarised in the table above. The increase (excluding the movements tabulated above) was driven by:

- favourable movements on assets held as economic hedges of foreign currency debt designated at fair value of $1.7bn in 2016 compared to minimal movements in 2015. These movements were offset by adverse movements in foreign currency debt designated at fair value in 'Net income/(expense) from financial instruments designated at fair value'; and
- increases in GB&M ($0.2bn), notably in Rates and in Credit, as we gained market share in Europe, partly offset by a decrease in Equities, reflecting lower trading volumes in Europe and Asia. In addition, we recorded adverse movements of $70m in credit and funding valuation adjustments compared with favourable movements of $227m in the prior year, primarily relating to movements in our own credit spread on structured liabilities.

Net income/(expense) from financial instruments designated at fair value

	2016 $m	2015 $m	2014 $m
Net income/(expense) arising from:			
Financial assets held to meet liabilities under insurance and investment contracts	1,480	531	2,300
Liabilities to customers under investment contracts	(218)	34	(435)
HSBC's long-term debt issued and related derivatives	(3,975)	863	508
– change in own credit spread on long-term debt (significant item)	(1,792)	1,002	417
– other changes in fair value	(2,183)	(139)	91
Other instruments designated at fair value and related derivatives	47	104	100
Year ended 31 Dec	(2,666)	1,532	2,473

The majority of our financial liabilities designated at fair value are fixed-rate, long-term debt issuances, and are managed in conjunction with interest rate swaps as part of our interest rate management strategy.

These liabilities are discussed further on page 274.

Significant items and currency translation

	2016 $m	2015 $m
Significant items	(1,488)	1,426
– own credit spread	(1,792)	1,002
– acquisitions, disposals and dilutions	304	424
Currency translation		24
Year ended 31 Dec	(1,488)	1,450

We recorded a net expense from financial instruments designated at fair value of $2.7bn in 2016, compared with net income of $1.5bn in 2015. In 2016, there were unfavourable movements of $1.8bn in the fair value of our own long-term debt reflecting changes in credit spread, compared with favourable movements of $1.0bn in 2015.

The decrease was also as a result of 'Other changes in fair value' on our long-term debt and related derivatives, which reflected:

- higher adverse movements of $1.7bn in 2016 compared with minimal movements in 2015 on foreign currency debt designated at fair value and issued as part of our overall funding strategy (offset by assets held as economic hedges in 'Net trading income'); and
- higher adverse movements of $0.2bn relating to the economic hedging of interest and exchange rate risk on our long-term debt.

By contrast, net income from financial assets held to meet liabilities under insurance and investment contracts of $1.5bn was $0.9bn higher than in 2015. This was primarily driven by improved equity market performance in Asia and Europe in 2016, partly offset by the disposal of our operations in Brazil in July 2016.

Net income arising from financial assets held to meet liabilities under insurance and investment contracts results in a corresponding movement in liabilities to customers, reflecting the extent to which they participate in the investment performance of the associated asset portfolio. These offsetting movements are recorded in 'Net income/(expense) arising from liabilities to customers under investment contracts' and 'Net insurance claims and benefits paid and movement in liabilities to policyholders'.

In 2016, the majority of the variance arose in unit-linked contracts where the policyholder bears the investment risk, and was therefore offset by movements in liabilities to customers.

Gains less losses from financial investments

	2016	2015	2014
	$m	$m	$m
Net gains from disposal	1,421	2,179	1,708
– debt securities	357	345	665
– equity securities	1,058	1,829	1,037
– other financial investments	6	5	6
Impairment of available-for-sale equity securities	(36)	(111)	(373)
Year ended 31 Dec	1,385	2,068	1,335

Significant items and currency translation

	2016	2015
	$m	$m
Significant items	701	1,385
– gain on disposal of our membership interest in Visa – Europe	584	—
– gain on disposal of our membership interest in Visa – US	116	—
– gain on the partial sale of shareholding in Industrial Bank	—	1,372
– acquisitions, disposals and dilutions	1	13
Currency translation		34
Year ended 31 Dec	701	1,419

In 2016, gains less losses from financial investments decreased by $0.7bn compared with 2015. This was largely due to the significant items and currency translation tabulated above, notably the non-recurrence of the gain on the partial sale of

our shareholding in Industrial Bank of $1.4bn in 2015, partly offset by gains on disposal of our membership interests in Visa Europe of $0.6bn and in Visa US of $0.1bn in 2016.

Net insurance premium income

	2016	2015	2014
	$m	$m	$m
Gross insurance premium income	10,588	11,012	12,370
Reinsurance premiums	(637)	(657)	(449)
Year ended 31 Dec	9,951	10,355	11,921

Significant items and currency translation

	2016	2015
	$m	$m
Significant items		
– acquisitions, disposals and dilutions	362	764
Currency translation		169
Year ended 31 Dec	362	933

Net insurance premium income was $0.4bn lower than in 2015, and included reductions due to the disposal of our operations in Brazil ($0.4bn) and currency translation movements of $0.2bn. Net insurance premium income increased in Hong Kong, partly offset by reductions in France in response to low interest rates

and market volatility, and in the UK, following the disposal of our pension business in 2015.

Other operating income

	2016	2015	2014
	$m	$m	$m
Rent received	157	171	162
Gains/(losses) recognised on assets held for sale	(1,949)	(244)	220
Gains on investment properties	4	61	120
Gain on disposal of property, plant and equipment, intangible assets and non-financial investments	35	53	32
Losses arising from dilution of interest in Industrial Bank and other associates and joint ventures	—	—	(32)
Change in present value of in-force long-term insurance business	902	799	261
Other	(120)	215	368
Year ended 31 Dec	(971)	1,055	1,131

Change in present value of in-force long-term insurance business

	2016	2015	2014
	$m	$m	$m
Value of new business	900	809	870
Expected return	(532)	(552)	(545)
Assumption changes and experience variances	513	504	(116)
Other adjustments	21	38	52
Year ended 31 Dec	902	799	261

Significant items and currency translation

	2016	2015
	$m	$m
Significant items		
Included within gains/(losses) recognised on assets held for sale:	(163)	(214)
– portfolio disposals	(163)	(214)
Included within the remaining line items:	(1,763)	157
– acquisitions, disposals and dilutions	(1,763)	157
Total significant items	(1,926)	(57)
Currency translation		71
Year ended 31 Dec	(1,926)	14

Other operating income decreased by $2.0bn from 2015. This was as a result of the loss on the sale of our operations in Brazil of $1.7bn and the effects of the other significant items recorded in the table above. In addition, we recorded lower revaluation gains on investment properties.

These decreases were partly offset by higher favourable movements of $0.1bn in present value of in-force ('PVIF') long-term insurance business, which was primarily driven by an

increase in the value of new business written in Hong Kong, partly offset by a reduction in France and the impact of the disposal of our operations in Brazil.

In 2016, we recognised $513m of income in 'Assumption changes and experience variances', which was broadly unchanged from the $504m recognised in 2015. For further details, please see Note 20.

Net insurance claims and benefits paid and movement in liabilities to policyholders

	Footnote	2016	2015	2014
		$m	$m	$m
Net insurance claims and benefits paid and movement in liabilities to policyholders:				
– gross		12,508	11,872	13,723
– less reinsurers' share		(638)	(580)	(378)
Year ended 31 Dec	14	11,870	11,292	13,345

For footnote, see page 79.

Significant items and currency translation

	2016	2015
	$m	$m
Significant items		
– acquisitions, disposals and dilutions	538	962
Currency translation		246
Year ended 31 Dec	538	1,208

Net insurance claims and benefits paid and movement in liabilities to policyholders were $0.6bn higher compared with 2015, and included reductions due to the disposal of our operations in Brazil ($0.4bn) and currency translation movements of $0.2bn.

This increase was primarily due to improved returns on financial assets supporting unit-linked contracts, where the policyholder bears the investment risk, reflecting improved equity market performance in Hong Kong compared to 2015. In addition, movements in liabilities to policyholders were higher due to

increased premium income, and interest rate-driven changes to liability valuations in Hong Kong.

These increases were partly offset by decreased premiums and reducing investment returns in France.

The gains or losses recognised on the financial assets designated at fair value that are held to support these insurance contract liabilities are reported in 'Net income/(expense) from financial instruments designated at fair value' on page 235.

Loan impairment charges and other credit risk provisions

	2016	2015	2014
	$m	$m	$m
New allowances net of allowance releases	3,977	4,400	5,010
Recoveries of amounts previously written off	(627)	(808)	(955)
Loan impairment charges:	3,350	3,592	4,055
– individually assessed allowances	1,831	1,505	1,780
– collectively assessed allowances	1,519	2,087	2,275
Releases of impairment on available-for-sale debt securities	(63)	(17)	(319)
Other credit risk provisions	113	146	115
Year ended 31 Dec	3,400	3,721	3,851
Impairment charges on loans and advances to customers as a percentage of average gross loans and advances to customers	0.39 %	0.39 %	0.43 %

Significant items and currency translation

	2016	2015
	$m	$m
Significant items	748	933
– acquisitions, disposals and dilutions	748	933
Currency translation		184
Year ended 31 Dec	748	1,117

Loan impairment charges and other credit risk provisions ('LICs') of $3.4bn were $0.3bn lower than in 2015. This was partly as a result of favourable currency translation differences of $0.2bn, notably in Mexico and the UK. In addition, our sale of operations in Brazil resulted in a $0.2bn reduction.

Collectively assessed LICs of $1.5bn were down $568m compared with 2015. This reduction included the net favourable effect of $230m as a result of our sale of operations in Brazil and favourable currency translation of $95m. The remaining variance reflected the following:

- In CMB (down $226m), a net release of collectively assessed LICs compared with a net charge in 2015. The net release of allowances in 2016 was primarily on exposures related to the oil and gas sector, notably in the US and Canada, the UAE and Asia. This reflected a more positive outlook for this sector. By contrast, in 2015 we increased our collective allowances on exposures related to the oil and gas sector. The reduction in collectively assessed LICs was partly offset by an increase in the UK, primarily reflecting new allowances against exposures in the oil and gas sector.
- In GB&M, a net release of collectively assessed LICs, notably in the UK and US, compared with a net charge in 2015.

This was partly offset:

- In RBWM, where collectively assessed LICs rose by $75m. The increase was mainly in Mexico reflecting our strategic focus on growing unsecured lending, as well as an increase in delinquency rates. By contrast, collectively assessed LICs decreased in a small number of markets in the Middle East and North Africa and Asia.
- In Corporate Centre, LICs increased in our US CML run-off portfolio by $67m.

Individually assessed LICs of $1.8bn increased by $326m compared with 2015. Higher charges in GB&M were partly offset by a reduction in CMB and favourable currency translation of $79m. This primarily reflected the following:

- In GB&M (up $0.6bn), the increase was primarily in the US related to a significant specific charge against a mining-related corporate exposure, as well as charges relating to exposures in the oil and gas sector. Additionally, in Hong Kong, individually assessed LICs in 2016 largely related to a single corporate exposure. This compared with a net release of LICs in 2015.

This was partly offset:

-

In CMB, lower individually assessed LICs (down $261m), included favourable currency translation of $70m and a net favourable effect of $45m attributable to our sale of operations in Brazil. The decrease also reflected lower individually assessed LICs in Indonesia, where charges in 2015 related to a small number of exposures across multiple sectors. Lower charges in both the UK and the UAE also contributed to the reduction. These decreases were partly offset by higher LICs in Hong Kong, related to various sectors, including manufacturing, and in Canada due to a rise in the number of exposures in the oil and gas sector migrating to default. Notably, the increase in individually assessed LICs in Canada was more than offset by the movement in collective allowances related to the oil and gas sector, discussed above.

In 2016, we recorded higher net releases of impairment allowances against available for sale debt securities. These were primarily related to asset-backed securities ('ABSs') in our Legacy Credit business in Corporate Centre.

Operating expenses

In addition to detailing operating expense items by category, as set out in the table below, we also categorise adjusted expenses as follows:

- 'Run-the-bank' costs comprise business-as-usual running costs that keep operations functioning at the required quality and standard year on year, maintain IT infrastructure and support revenue growth. Run-the-bank costs are split between front office and back office, reflecting the way the Group is organised into four global businesses ('front office') supported by global functions ('back office').
- 'Change-the-bank' costs comprise expenses relating to the implementation of mandatory regulatory changes and other investment costs incurred relating to projects to change business-as usual activity to enhance future operating capabilities.
- 'Costs to achieve' comprise those specific costs relating to the achievement of the strategic actions set out in the Investor Update in June 2015. They comprise costs incurred between 1 July 2015 and 31 December 2017, and do not include ongoing initiatives such as Global Standards. Any costs arising within this category have been incurred as part of a significant transformation programme. Costs to achieve are included within significant items and incorporate restructuring costs that were identified as a separate significant item prior to 1 July 2015.
- The UK bank levy is reported as a separate category.

Operating expenses

	2016	2015	2014
	$m	$m	$m
By expense category			
Employee compensation and benefits	18,089	19,900	20,366
Premises and equipment (excluding depreciation and impairment)	3,758	3,830	4,204
General and administrative expenses	12,715	13,832	14,361
Administrative expenses	34,562	37,562	38,931
Depreciation and impairment of property, plant and equipment	1,229	1,269	1,382
Amortisation and impairment of intangible assets	777	937	936
Goodwill impairment	3,240	—	—
Year ended 31 Dec	39,808	39,768	41,249

	2016	2015
	$m	$m
By expense group		
Run-the-bank – front office	13,612	13,711
Run-the-bank – back office	13,275	13,437
Change-the-bank	2,746	3,161
Bank levy	922	1,421
Significant items	9,253	5,947
Currency translation		2,091
Year ended 31 Dec	39,808	39,768

Staff numbers (full-time equivalents)

	2016	2015	2014
Global businesses			
Retail Banking and Wealth Management	124,810	145,868	151,802
Commercial Banking	44,712	48,651	48,650
Global Banking and Markets	46,659	47,894	46,605
Global Private Banking	8,054	8,513	8,775
Corporate Centre	10,940	4,277	1,771
At 31 Dec	235,175	255,203	257,603

Reported operating expenses of $39.8bn were $40m higher than in 2015. This reflected an increase in significant items of $3.3bn which included:

- a $3.2bn write-off of the goodwill in our GPB business in Europe (please see Note 20 for further details);
- costs to achieve of $3.1bn, compared with $0.9bn in 2015; partly offset by

- the operating expenses incurred in our Brazil business of $1.1bn in 2016, compared with $2.5bn in 2015; and
- a reduction of $1.0bn in settlements and provisions in connection with legal matters.

The increase in significant items was partly offset by the favourable effects of currency translation of $2.1bn.

Significant items and currency translation

	2016	2015
	$m	$m
Significant items	9,252	5,947
– costs associated with portfolio disposals	28	—
– costs to achieve	3,118	908
– cost to establish UK ring-fenced bank	223	89
– impairment of GPB – Europe goodwill	3,240	—
– regulatory provisions in GPB	344	172

– restructuring and other related costs	—	117
– settlements and provisions in connection with legal matters	681	1,649
– UK customer redress programmes	559	541
– acquisitions, disposals and dilutions	1,059	2,471
Currency translation	—	2,091
Year ended 31 Dec	9,252	8,038

Excluding the significant items and currency translation tabulated above, operating expenses of $30.6bn were $1.2bn lower than in 2015. This primarily reflected cost savings of $2.2bn achieved in 2016 and a reduction in the UK bank levy of $0.5bn. This was partly offset by the impact of inflation and continued investment in regulatory programmes and compliance.

Run-the-bank costs of $26.9bn were $0.3bn lower than in 2015 and change-the-bank costs of $2.7bn were $0.4bn lower than in 2015.

Our total investment in regulatory programmes and compliance, comprising both run the-bank and change-the-bank elements, was $3.0bn, up $0.4bn or 14% from 2015. This reflected the ongoing implementation of our Global Standards programme to enhance our financial crime risk controls and capabilities, and to meet our external commitments.

Report of the Directors | Financial summary

We have maintained our transformational efforts and continue to realise the benefit of our cost-saving programme.

- Within RBWM, savings of $0.4bn reflected the impact of our branch optimisation programme enabled by our digital initiatives.
- Within Operations and Technology, savings of $1.2bn reflected migrations to lower cost locations, the simplification of our IT structure and the implementation of target operating models.
- Within our back office functions, savings of $0.4bn were realised as a result of the re-engineering and simplification of processes and the implementation of global operating models.

Taking the 2016 savings into account, our run rate savings are now $3.7bn since the start of our initiatives.
The number of employees expressed in FTEs at 31 December 2016 was 235,175, a decrease of 20,028 since 31 December 2015. This included a 19,145 reduction following our disposal of operations in Brazil. Excluding Brazil, the decrease in FTE was 883 as a reduction of 17,855 FTEs realised across global businesses and global functions was partly offset by investment in our Global Standards Programme of 5,694 FTEs, costs to achieve FTEs of 8,073 and investment for growth.

Share of profit in associates and joint ventures

	2016	2015	2014
	$m	$m	$m
Share of profit in associates	2,326	2,518	2,493
– Bank of Communications Co., Limited	1,892	2,011	1,974
– The Saudi British Bank	415	462	455
– other	19	45	64
Share of profit in joint ventures	28	38	39
Year ended 31 Dec	2,354	2,556	2,532

Our share of profit in associates and joint ventures was $2.4bn, a decrease of $0.2bn or 8%, which included the adverse effects of currency translation of $0.1bn, notably affecting our share of profit in BoCom.
Excluding the impact of currency translation, our share of profit in associates and joint ventures fell by $0.1bn or 4%, relating to higher impairment charges in the Saudi British Bank and lower revenue in HSBC Saudi Arabia, reflecting lower asset management and investment banking revenue. This was partly offset by revenue growth in Saudi British Bank and well-managed costs in both associates.
Our share of profit in BoCom for the year was $1.9bn. At 31 December 2016, we performed an impairment review

of our investment in BoCom and concluded that it was not impaired, based on our value in use calculation (see Note 20 on the Financial Statements for further details).
In future periods, the value in use may increase or decrease depending on the effect of changes to model inputs. It is expected that the carrying amount will increase in 2017 due to retained profits earned by BoCom. At the point where the carrying amount exceeds the value in use, HSBC would continue to recognise its share of BoCom's profit or loss, but the carrying amount would be reduced to equal the value in use, with a corresponding reduction in income, unless the market value has increased to a level above the carrying amount.

Tax expense

	2016	2015	2014
	$m	$m	$m
Profit before tax	7,112	18,867	18,680
Tax expense	(3,666)	(3,771)	(3,975)
Profit after tax for the year ended 31 Dec	3,446	15,096	14,705
Effective tax rate	51.55%	19.99%	21.28%

The effective tax rate for 2016 of 51.6% was higher than the 20.0% in 2015, reflecting events that occurred in 2016 that reduced the reported profit before tax but not taxable profits. These included the non-deductible goodwill impairment and the non-deductible loss on our disposal of operations in Brazil. The

2016 tax charge includes tax losses not recognised, prior year adjustments and the impact of the 8% bank corporation tax surcharge applicable in the UK from 1 January 2016. Further detail is provided in Note 7 of the Financial Statements.

2015 compared with 2014

Net interest income

Reported net interest income of $32.5bn decreased by $2.2bn or 6% compared with 2014.

This was primarily driven by the adverse effects of currency translation differences between 2015 and 2014 ($2.9bn), partly offset by a lower provision of $10m, compared to $632m in 2014, arising from the ongoing review of compliance with the Consumer Credit Act ('CCA') in the UK. Excluding these factors, net interest income was broadly unchanged compared with 2014 as increases in Asia and Latin America were offset by a reduction in North America.

On a reported basis, net interest spread and margin both fell, driven by the factors noted above. Excluding these factors, net interest spread and margin were marginally lower due to reduced yields on customer lending in Europe and North America. However, during the year, we changed the mix of our overall portfolio towards higher yielding customer lending balances. This was through a managed reduction in the average balances of lower yielding short-term funds, reverse repos and financial investments, notably in Europe, reflecting our continued focus on the efficient use of our balance sheet.

Interest income by type of asset and interest expense by type of liability, and the associated average balances as set out in the summary tables above, were affected by the reclassification in June 2015, of our operations in Brazil to 'Assets held for sale' in 'Other interest-earning assets' and liabilities of disposal groups held for sale in 'Other interest-bearing liabilities', respectively.

Interest income

Reported interest income decreased by $3.8bn compared with 2014. This was driven by currency translation differences between 2015 and 2014, notably in Latin America and Europe, although this was partly offset in Europe as 2014 included higher provisions arising from the ongoing review of compliance with the CCA.

Excluding these factors, interest income was broadly unchanged compared with 2014.

Interest income on loans and advances to customers fell by $4.3bn. Excluding the effects of currency translation between 2015 and 2014 and the reclassification of amounts relating to Brazil, interest income on loans and advances to customers was broadly unchanged as lower interest income in Europe and North America was offset by increases in Asia and Latin America.

In Europe, the reduction in interest income was driven by lower yields on mortgages in the UK in line with competitive pricing, and the effect of downward movements in market interest rates in the eurozone. Interest income also fell in North America as the CML portfolio continued to decrease from run-off and sales. In addition, new lending to customers in RBWM and CMB was at reduced yields in the current low interest rate environment, although the effect of this was partly offset by an increase in average term lending balances.

By contrast, in Asia, the rise in interest income was driven by growth in average term lending balances, primarily in Hong Kong and mainland China. This was partly offset by compressed yields on customer lending, notably in mainland China and Australia due to central bank rate reductions, although yields in Hong Kong marginally increased.

In Latin America, the increase was primarily in Argentina, driven by growth in average balances.

Interest income on short-term funds and financial investments in Balance Sheet Management marginally decreased. This was driven by lower interest income in Europe, due to a managed reduction in average balances, and in Asia, reflecting movement in central bank interest rates in mainland China and India. These factors were partly offset in North America by a change in product mix towards higher yielding mortgage-backed securities in order to maximise the effectiveness of the portfolio.

Interest income from other interest-earning assets rose due to the reclassification of our operations in Brazil to 'Assets held for sale' in June 2015. In Brazil, excluding the impact of currency translation, interest income rose due to growth in average term lending balances and financial investments, together with higher yields reflecting successive increases in central bank interest rates in 2014 and 2015.

Interest expense

Reported interest expense decreased by $1.6bn compared with 2014 driven by currency translation, primarily in Latin America and Europe.

Excluding this, interest expense fell driven by a lower cost of customer accounts, debt issued and repos.

Interest expense on customer accounts fell by $1.7bn. Excluding the effects of currency translation between 2015 and 2014 and the reclassification of amounts relating to Brazil, interest expense on customer accounts fell marginally despite growth in average balances on a constant currency basis. This reflected central bank rate reductions in a number of markets, notably Mexico, mainland China, Australia and India. Europe was affected by downward movements in market rates in the eurozone. This was partly offset by rising costs in North America, in line with promotional deposit offerings.

Interest expense on debt issued also fell, primarily in Europe as new debt was issued at lower prevailing rates and average outstanding balances fell as a result of net redemptions. Interest expense also fell on repos, notably in Europe, reflecting the managed reduction in average balances.

Interest expense on other interest-bearing liabilities increased due to the reclassification of our operations in Brazil. In Brazil, excluding currency translation, interest expense rose, primarily on debt securities in issue and also on customer accounts driven by successive increases in central bank rates. Other interest expense also increased in North America, as 2014 benefited from the release of accrued interest associated with uncertain tax positions.

Net fee income

Reported net fee income fell by $1.3bn compared with 2014, primarily reflecting the adverse effects of currency translation differences between 2015 and 2014 of $1.2bn, notably in Europe and Latin America. Excluding currency translation differences, net fee income decreased by $38m. This reflected a reduction in Europe, primarily within RBWM and GB&M, largely offset by increases in Asia in RBWM and North America in GB&M.

Account services fee income fell by $662m, in part due to adverse currency translation differences between 2015 and 2014 of $314m. Excluding currency translation, account services fees decreased mainly in the UK in RBWM where lower overdraft fees reflected repricing and fewer overdrawn balances following the introduction in November 2014 of a text-alert service for customers. Account services fees also fell in Switzerland due to the continuing repositioning of our GPB business.

Import and export fees also fell (by $144m), mainly in Asia reflecting a reduction in trade activity. In addition, our underwriting fee income fell by $110m, mainly in Hong Kong in GB&M, where there was reduced activity in equity capital markets, although this was partly offset by higher debt issuances in the US.

Fees from funds under management decreased by $88m, mainly due to adverse currency translation differences between 2015 and 2014. This was partly offset by growth in our Global Asset Management business, notably in France and the US due to volume growth from fixed income products. In addition, fee income from funds under management increased in Germany from growth in Securities Services in GB&M, and in Hong Kong from increased funds under management in GPB.

By contrast, our fee income from broking and unit trusts grew (up by $72m), mainly in Hong Kong, driven by higher sales of equities and mutual funds in RBWM. This was from increased stock-market turnover, in part facilitated by the Shanghai-Hong Kong Stock Connect platform and greater investor appetite following improvements in Asian equity markets in the first half of the year, however there was weaker investor sentiment in the second half of the year.
Our credit facilities fee income also grew (by $29m) despite adverse currency translation differences between 2015 and 2014 of $161m. Higher credit facilities in North America and, to a lesser extent, in Asia, reflected continued growth in average lending balances, although balances were broadly unchanged in Asia in the second half of the year.
Fee expense decreased by $277m as a rise in brokerage fees, notably in Germany was more than offset by adverse currency translation differences between 2015 and 2014.

Net trading income

Reported net trading income of $8.7bn was $2.0bn higher than in 2014, predominantly in Europe. The movement in net trading income in part reflected the favourable effect of significant items ($0.8bn) and the adverse effect of currency translation differences between 2015 and 2014 of $0.5bn. Excluding these factors, net trading income increased by $1.7bn, mainly in GB&M, notably Equities, Foreign Exchange and Credit. This was primarily in the UK following an increase in volatility and client activity.
Net trading income from trading activities also rose due to a number of other valuation movements. In 2014, we revised our estimation methodology for valuing uncollateralised derivative portfolios by introducing the funding fair value adjustment ('FFVA') which resulted in a charge of $263m. In addition, the Equities and Rates businesses benefited from favourable movements on own credit spreads compared with minimal movements in 2014.
These movements contributed to an increase in net trading income from trading activities in Rates, although client activity remained subdued.

Net income/(expense) from financial instruments designated at fair value

The majority of the financial liabilities designated at fair value are fixed-rate long-term debt issuances and are managed in conjunction with interest rate swaps as part of our interest rate management strategy.
Reported net income from financial instruments designated at fair value was $1.5bn in 2015, compared with $2.5bn in 2014. In 2015, there were favourable movements in the fair value of our own long-term debt of $1.0bn due to changes in credit spread, compared with favourable movements of $417m in 2014.
The increase in these favourable movements was more than offset by a $1.8bn reduction in net income from financial assets held to meet liabilities under insurance and investment contracts. This was primarily driven by weaker equity markets in Hong Kong and the UK, notably in the second half of the year. The fair value movement in 2015 included gains in Brazil and France, partly offset by losses in Hong Kong. These gains and losses are broadly offset by 'Net insurance claims and benefits paid and movements in liabilities to policyholders' and 'Liabilities to customers under investment contracts'.
Other changes in fair value reflected a higher adverse movement relating to the economic hedging of interest and exchange rate risk on our long term debt.

Gains less losses from financial investments

Reported gains less losses from financial investments increased by $733m compared with 2014. This was driven by a net increase significant items of $1.2bn, notably the gain on the partial sale of our shareholding in Industrial Bank Co. Ltd ('Industrial Bank') of $1.4bn in 2015 which was partly offset by a gain on the sale of our shareholding in Bank of Shanghai in 2014. The net favourable impact of significant items was partly offset by lower gains on disposals of available-for-sale debt securities, notably in the UK and US and lower gains on equity securities in Principal Investments in the UK.

In addition, we recorded minor losses on disposals from our legacy credit portfolio compared with gains in 2014. The disposal of these assets reflects our continued efforts to manage down low-returning assets to maximise returns.

Net insurance premium income

Reported net insurance premium income was $1.6bn lower, largely from the adverse effects of currency translation differences between 2015 and 2014 of $930m. Excluding the effect of currency translation, net insurance premium

income fell by $636m or 6%, driven by Asia, primarily in Hong Kong where it declined because of lower unit-linked contract premiums and new reinsurance agreements.
In Europe, premium income fell mainly in the UK, reflecting a decision to exit the commercial pensions market in 2014.
Other operating income
Reported other operating income decreased by $76m from 2014. This reduction reflected losses of $214m in 2015 related to the sale of several tranches of real estate secured accounts in the US. By contrast, we recognised gains of $168m on similar sales in 2014.
Excluding these items and currency translation differences between 2015 and 2014, other operating income increased by $219m. This was primarily from higher favourable movements in present value of in-force ('PVIF') long-term insurance business, partly offset by lower disposal and revaluation gains on investment properties, mainly in Asia.
The higher favourable movement in the PVIF balance was driven by changes in interest rates and investment return assumptions, notably in France and Hong Kong.
Net insurance claims and benefits paid and movement in liabilities to policyholders
Reported net insurance claims and benefits paid and movement in liabilities to policyholders were $2.1bn lower than in 2014, in part reflecting the effect of currency translation differences between 2015 and 2014 of $1.1bn.
Excluding the effects of currency translation, net insurance claims and benefits paid and movements in liabilities to policyholders were $0.9bn lower.
This was primarily driven by a decrease in returns on financial assets supporting liabilities to policyholders, where the policyholder shares in the investment risk. This decrease in returns reflected a weaker equity market performance in Hong Kong in the second half of the year.
The gains or losses recognised on the financial assets designated at fair value that are held to support these insurance contract liabilities are reported in 'Net income from financial instruments designated at fair value'.
In addition, movements in liabilities to policyholders were lower due to a decrease in premiums written in Asia, as explained in 'Net earned insurance premiums'.
Loan impairment charges and other credit risk provisions
Reported loan impairment charges and other credit risk provisions ('LICs') of $3.7bn were $0.1bn lower than in 2014, primarily due to favourable currency translation differences between 2015 and 2014 of $683m. Excluding the effects of currency translation, LICs were $0.6bn higher than in 2014.
In the fourth quarter of 2015, our LICs increased compared with the third quarter following a rise in individually assessed LICs in a small number of countries. This was reflective of specific circumstances associated with those countries with no common underlying theme. In addition, we increased our collectively assessed LICs on exposures related to the oil and gas industry by $0.2bn, notably in North America, Middle East and North Africa, and Asia.
The following paragraphs set out in more detail the factors that contributed to movements in our collectively and individually assessed LICs compared with 2014.
Collectively assessed LICs decreased by $188m, reflecting favourable currency translation differences of $409m between

2015 and 2014, notably in Latin America. Excluding currency translation differences, collectively assessed LICs increased by $221m, mainly in Middle East and North Africa, North America and Asia, partly offset in Europe. It arose from the following:

- in Middle East and North Africa (up by $167m), this was mainly in the UAE in RBWM, where we increased the impairment allowances on our mortgage book following a review of the quality and value of collateral. In addition, LICs grew in our CMB business, notably relating to the oil and gas and foodstuffs industries;
- in North America (up by $132m) and Asia (up by $108m), this reflected an increase in allowances against exposures related to the oil and gas sector. In our US CML portfolio, LICs were higher than in 2014 reflecting lower favourable market value adjustments of underlying properties as improvements in the housing market conditions were less pronounced in 2015. This was partly offset by a fall in LICs from lower levels of newly impaired loans and reduced lending balances from continued run-off and sales. Additionally, collectively assessed LICs rose in Indonesia following credit deterioration; and
- in Europe, collectively assessed LICs were $192m lower, most notably in our GB&M business in the UK, as 2014 included additional impairment charges from revisions to certain estimates used in our corporate collective loan impairment calculation.

Individually assessed LICs were $275m lower compared with 2014, driven by favourable foreign currency translation differences of $273m. Excluding these differences, individually assessed LICs were broadly unchanged from 2014. This reflected decreases in Latin America, Europe and Asia which were offset by increases in Middle East and North Africa and in North America. This included the following:

- in Latin America (down by $95m), Europe (down by $44m) and Asia (down by $44m), we saw reductions in individually assessed LICs in our GB&M business as 2014 included significant impairment charges related to corporate clients in our respective regions. In Asia, the reduction was partly offset by an increase in LICs against a small number of CMB customers in Indonesia; and
- in Middle East and North Africa (up by $134m) and North America (up by $47m), individually assessed LICs increased in our CMB business. In the former, this primarily related to higher LICs on food wholesalers, while in North America LICs rose in the oil and gas sector.

In 2015, there were lower net releases of credit risk provisions than in 2014, down by $0.3bn, mainly on available-for-sale asset-backed securities ('ABSs') in our UK Corporate Centre.

Operating expenses

Reported operating expenses for 2015 of $39.8bn were $1.5bn or 4% lower than in 2014. The reduction in reported expenses was driven by the favourable effects of currency translation between 2015 and 2014 of $3.3bn. Significant items increased by $0.2bn, with a reduction in fines, penalties, redress and associated provisions of $0.7bn, more than offset by transformation costs (costs-to-achieve) of $0.9bn.

Costs-to-achieve, which relate to specific programmes aimed at achieving the cost reduction and productivity outcomes outlined in the Investor Update, comprise:

- severance costs of $0.4bn across a number of areas including CMB ($147m), RBWM ($49m), GB&M ($45m) and our Global Risk function ($44m);
- staff costs for the transformation programme in progress of $0.1bn in the second half of 2015; and
- other costs of $0.4bn, including software write-offs, US portfolio run-off costs and consultancy costs.

Excluding currency translation and significant items, operating expenses of $36.2bn were $1.6bn or 5% higher than in 2014, reflecting increases in both run-the-bank and change-the-bank costs. Run-the-bank costs totalled $31.3bn for 2015, an increase of $0.8bn or 2% on 2014. This was primarily driven by targeted investment in Latin America, Asia and Europe. We

recruited new staff to support growth in targeted areas as follows:

- in GB&M we invested in Global Liquidity and Cash Management ('GLCM') mainly in Europe;
- in CMB, we invested in GLCM revenue-generating full-time equivalent staff ('FTEs') in North America and Asia; and
- in RBWM, we invested in additional FTEs in Asia in our branch network to support revenue growth.

Our total expenditure on regulatory programmes and compliance in 2015, including both run-the-bank and change-the-bank elements, was $2.9bn, up by $0.7bn or 33% from 2014.

Run-the-bank costs associated with regulatory programmes and compliance increased by $0.2bn reflecting the continued implementation of our Global Standards programme to enhance our financial crime risk controls and capabilities, and to meet our external commitments.

Change-the-bank costs totalled $3.5bn in 2015, an increase of $0.5bn or 16% on 2014, primarily driven by regulatory programmes and compliance costs. This reflected investment in strategic IT infrastructure including systems enhancements for customer due diligence, transaction monitoring and sanctions screening as part of the Global Standards programme. There was also further investment in stress testing and other programmes to meet legal and regulatory requirements.

The bank levy totalled $1.4bn, up by $0.4bn or 34% from 2014. Excluding the bank levy, operating expenses in the second half of 2015 were broadly in line with the first half of the year. Investment in regulatory programmes and compliance and inflationary pressures were offset by cost-saving initiatives mainly driven by reduced staff costs. This reflected a reduction in FTEs of 4,585 from 30 June 2015 to 31 December 2015. In addition we reduced travel and entertainment costs through a strong focus on cost management.

The number of employees, expressed in FTEs, at 31 December 2015 was 255,203, a decrease of 4,585 from 30 June 2015 reflecting the initial impact of cost-saving initiatives. Compared with 31 December 2014, FTEs decreased by 2,400. This was driven by reductions in global businesses and global functions, offset by an increase in compliance of 2,419 FTEs.

The average number of FTEs adjusted for business disposals increased by 1.2% compared with 2014 due to additional FTE requirements for regulatory programmes and compliance, and investment in growth areas.

Share of profit in associates and joint ventures

Our reported share of profit in associates and joint ventures was $2.6bn, an increase of $24m or 1%, driven by higher contributions from Bank of Communications Co., Limited ('BoCom') and The Saudi British Bank.

Our share of profit from BoCom rose as a result of balance sheet growth, partly offset by higher operating expenses. Profits from The Saudi British Bank also rose, by $7m, reflecting strong balance sheet growth.

Tax expense

The effective tax rate for 2016 of 51.6% was higher than the 20.0% in 2015, reflecting events that occurred in 2016 that reduced the reported profit before tax but not taxable profits. These included the non-deductible goodwill impairment and the non-deductible loss on disposal of Brazil. The 2016 tax charge includes tax losses not recognised, prior year adjustments and the introduction of the 8% corporation tax surcharge on banking profits from 1 January 2016. Further detail is provided in Note 7 of the Financial Statements.

Consolidated balance sheet

Five-year summary consolidated balance sheet

	Footnote	2016 $m	2015 $m	2014 $m	2013 $m	2012 $m
Assets						
Cash and balances at central banks		128,009	98,934	129,957	166,599	141,532
Trading assets		235,125	224,837	304,193	303,192	408,811
Financial assets designated at fair value		24,756	23,852	29,037	38,430	33,582
Derivatives		290,872	288,476	345,008	282,265	357,450
Loans and advances to banks		88,126	90,401	112,149	120,046	117,085
Loans and advances to customers	15	861,504	924,454	974,660	992,089	962,972
Reverse repurchase agreements – non-trading		160,974	146,255	161,713	179,690	70,112
Financial investments		436,797	428,955	415,467	425,925	421,101
Assets held for sale		4,389	43,900	7,647	4,050	19,269
Other assets		144,434	139,592	154,308	159,032	160,624
Total assets at 31 Dec		2,374,986	2,409,656	2,634,139	2,671,318	2,692,538
Liabilities and equity						
Liabilities						
Deposits by banks		59,939	54,371	77,426	86,507	95,480
Customer accounts		1,272,386	1,289,586	1,350,642	1,361,297	1,311,396
Repurchase agreements – non-trading		88,958	80,400	107,432	164,220	40,567
Trading liabilities		153,691	141,614	190,572	207,025	304,563
Financial liabilities designated at fair value		86,832	66,408	76,153	89,084	87,720
Derivatives		279,819	281,071	340,669	274,284	358,886
Debt securities in issue		65,915	88,949	95,947	104,080	119,461
Liabilities of disposal groups held for sale		2,790	36,840	6,934	2,804	5,018
Liabilities under insurance contracts		75,273	69,938	73,861	74,181	68,195
Other liabilities		106,805	102,961	114,525	117,377	118,123
Total liabilities at 31 Dec		2,192,408	2,212,138	2,434,161	2,480,859	2,509,409
Equity						
Total shareholders' equity		175,386	188,460	190,447	181,871	175,242
Non-controlling interests		7,192	9,058	9,531	8,588	7,887
Total equity at 31 Dec		182,578	197,518	199,978	190,459	183,129
Total liabilities and equity at 31 Dec		2,374,986	2,409,656	2,634,139	2,671,318	2,692,538

For footnote, see page 79.

Five-year selected financial information

	Footnotes	2016 $m	2015 $m	2014 $m	2013 $m	2012 $m
Called up share capital		10,096	9,842	9,609	9,415	9,238
Capital resources	16, 17	172,358	189,833	190,730	194,009	180,806
Undated subordinated loan capital		1,967	2,368	2,773	2,777	2,778
Preferred securities and dated subordinated loan capital	18	42,600	42,844	47,208	48,114	48,260
Risk-weighted assets	16	857,181	1,102,995	1,219,765	1,092,653	1,123,943
Financial statistics						
Loans and advances to customers as a percentage of customer accounts		67.7	71.7	72.2	72.9	73.4
Average total shareholders' equity to average total assets		7.37	7.31	7.01	6.55	6.16
Net asset value per ordinary share at year-end ($)	19	7.91	8.73	9.28	9.27	9.09

Number of $0.50 ordinary shares in issue (millions)	20,192	19,685	19,218	18,830	18,476
Closing foreign exchange translation rates to $:					
$1: £	0.811	0.675	0.642	0.605	0.619
$1: €	0.949	0.919	0.823	0.726	0.758

For footnotes, see page 79.
A more detailed consolidated balance sheet is contained in the Financial Statements on page 218.

Combined view of customer lending and customer deposits

	Footnote	2016 $m	2015 $m
Combined customer lending			
Loans and advances to customers		861,504	924,454
Loans and advances to customers reported in 'Assets held for sale'		3,623	19,021
– Brazil	20	—	17,001
– other		3,623	2,020
At 31 Dec		865,127	943,475
Combined customer deposits			
Customer accounts		1,272,386	1,289,586
Customer accounts reported in 'Liabilities of disposal groups held for sale'		2,713	16,682
– Brazil	20	—	15,094
– other		2,713	1,588
At 31 Dec		1,275,099	1,306,268

For footnote, see page 79.

Movement in 2016

Total reported assets of $2.4tn were 1% lower than at 31 December 2015 on a reported basis, and 5% higher on a constant currency basis.

We have maintained the strength of our balance sheet, as targeted asset growth was partly offset by reductions in our legacy portfolios and the completion of our sale of operations in Brazil to Banco Bradesco S.A. We also issued more than $30bn of senior debt during the year from HSBC Holdings to build up the Group's total loss-absorbing capacity in line with anticipated regulatory requirements.

Our ratio of customer advances to customer accounts was 68%. Loans and advances to customers fell on a reported basis by $63bn and customer accounts fell on a reported basis by $17bn. These changes included:

- adverse currency translation movements of $62bn on loans and advances to customers and $81bn on customer accounts;
- a $9bn reduction in corporate overdraft and current account balances relating to a small number of clients in our Global Liquidity and Cash Management business in the UK that settled their overdraft and deposit balances on a net basis; and
- an $11bn transfer to 'Assets held for sale' of US first lien mortgage balances in Corporate Centre.

Excluding these movements, customer lending increased by $19bn, as a result of strong fourth-quarter growth in Asia and increases in Europe throughout the year.

Assets

Cash and balances at central banks increased by $29bn or 29%, primarily from higher euro denominated balances in continental Europe, and in the US.

Trading assets increased by $10bn, mainly in Hong Kong and the US. This included higher balances in settlement accounts and an increase in debt and equity securities.

Reverse repurchase agreements – non-trading increased by $15bn, primarily in the US, as we managed our surplus liquidity to maximise returns.

Assets held for sale reduced by $40bn, of which $42bn related to our disposal of operations in Brazil.

Loans and advances to customers decreased by $63bn on a reported basis, primarily in Europe (down $48bn) and North America (down $17bn), partly offset by Asia (up $9bn). This included:

- adverse currency translation movements of $62bn;
- a $9bn reduction in corporate overdraft balances in Europe, with a corresponding fall in corporate customer accounts; and
- an $11bn transfer to 'Assets held for sale' of US first lien mortgage balances in Corporate Centre, reflecting our strategic focus on reducing our legacy portfolios. (We sold most of these loans during 2016).

Excluding these factors, customer lending balances increased by $19bn or 2%. We grew balances in Asia by $13bn, notably in Hong Kong in both GB&M ($8bn) and CMB ($4bn) in term lending, although trade lending remained broadly unchanged. We also grew RBWM balances ($4bn), particularly in mortgages in Hong Kong. We recorded particularly strong growth in the fourth quarter ($20bn) in the region. In addition, we increased balances in Europe by $15bn as a result of higher term lending in CMB and mortgages in RBWM, both mainly in the UK. By contrast, US GB&M balances fell, reflecting our active management of overall client returns.

Liabilities

Customer accounts at 31 December 2016 were $17bn lower than at 31 December 2015 and included:

- adverse currency translation movements of $81bn; and
- a $9bn reduction in corporate current account balances, in line with a fall in corporate overdraft positions.

Excluding these factors, customer accounts grew by $73bn, primarily in RBWM and in GLCM in Hong Kong and the UK, with the latter driven by targeted customer mandate acquisition.

Trading liabilities increased by $12bn, mainly in the US, reflecting an increase in settlement accounts and net short positions from increased trading activity at the end of 2016, compared with the same period in 2015.

Financial liabilities designated at fair value increased by $20bn, reflecting new issuances of senior debt by HSBC Holdings.

Debt securities in issue fell by $23bn, mainly in HSBC Bank plc., following reductions in commercial paper issuances. These have been replaced by intra-group funding from HSBC Holdings from total loss-absorbing capacity resources. In the US, balances also fell, reflecting a lower funding requirement as we continued to run off legacy portfolios.

Liabilities of disposal groups held for sale decreased by $34bn, reflecting the completion of our sale of operations in Brazil.

Equity

Total shareholders' equity fell by $13.1bn or 7%. The effects of profits generated in the year were more than offset by dividends paid and an increase in accumulated foreign exchange losses, reflecting the significant appreciation of the US dollar against the British pound and the euro. The net increase in treasury shares, principally reflecting our share buy-back initiative, also reduced shareholders' equity by $2.5bn.

Risk-weighted assets

Risk-weighted assets ('RWAs') were $857.2bn at 31 December 2016, a decrease of $245.8bn compared with 31 December 2015. After foreign currency translation differences, RWAs reduced by $207.7bn in 2016. This reflected targeted RWA-reduction initiatives of $143.2bn and the change of regulatory treatment of our investment in BoCom reducing RWAs by $120.9bn. This was partly offset by book size increases of $38.7bn.

The RWA initiatives included:

- exposure reductions, process improvements and refined calculations, which reduced RWAs by $69.8bn, 55% of which were in GB&M;
- the disposal of our activities in Brazil, which reduced RWAs by $41.8bn; and

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- an accelerated sell-down of our consumer mortgage portfolio in the US and our Legacy Credit book, together contributing $31.6bn to the reduction

The book size increase of $38.7bn primarily came from higher term lending to corporate customers in CMB and higher general lending to customers in GB&M, both mainly in Europe and Asia.

Customer accounts by country

	2016	2015
	$m	$m
Europe	446,615	491,520
– UK	361,278	404,084
– France	35,996	35,635
– Germany	13,925	13,873
– Switzerland	9,474	10,448
– other	25,942	27,480
Asia	631,723	598,620
– Hong Kong	461,626	421,538
– Mainland China	46,576	46,177
– Singapore	39,062	41,307
– Australia	18,030	17,703
– Malaysia	12,904	14,114
– Taiwan	11,731	11,812
– India	11,289	11,795
– Indonesia	5,092	5,366
– other	25,413	28,808
Middle East and North Africa (excluding Saudi Arabia)	34,766	42,824
– United Arab Emirates	16,532	18,281
– Turkey	4,122	6,356
– Egypt	3,790	6,602
– other	10,322	11,585
North America	138,790	135,152
– US	88,751	86,322
– Canada	42,096	39,727
– other	7,943	9,103
Latin America	20,492	21,470
– Mexico	14,423	15,798
– other	6,069	5,672
At 31 Dec	1,272,386	1,289,586

Average balance sheet

Average balance sheet and net interest income

Average balances and related interest are shown for the domestic operations of our principal commercial banks by geographical region. ‘Other operations’ comprise the operations of our principal commercial banking and consumer finance entities outside their domestic markets and all other banking operations, including investment banking balances and transactions.

Average balances are based on daily averages for the principal areas of our banking activities with monthly or less frequent averages used elsewhere. Balances and transactions with fellow subsidiaries are reported gross in the principal commercial

banking and consumer finance entities, and the elimination entries are included within ‘Other operations’.
Net interest margin numbers are calculated by dividing net interest income as reported in the income statement by the average interest-earning assets from which interest income is reported within the ‘Net interest income’ line of the income statement. Total interest-earning assets include loans where the carrying amount has been adjusted as a result of impairment allowances. In accordance with IFRSs, we recognise interest income on assets after the carrying amount has been adjusted as a result of impairment. Fee income that forms an integral part of the effective interest rate of a financial instrument is recognised as an adjustment to the effective interest rate and recorded in ‘Interest income’.

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Assets

		2016 Average balance $m	Interest income $m	Yield %	2015 Average balance $m	Interest income $m	Yield %	2014 Average balance $m	Interest income $m	Yield %
Summary										
Interest-earning assets measured at amortised cost (itemised below)		1,723,702	42,414	2.46	1,726,949	47,189	2.73	1,786,536	50,955	2.85
Trading assets and financial assets designated at fair value		179,780	3,897	2.17	195,285	4,626	2.37	238,958	5,596	2.34
Impairment allowances		(9,127)			(10,606)			(14,015)		
Non-interest-earning assets		653,115			682,143			668,564		
Total assets and interest income		2,547,470	46,311	1.82	2,593,771	51,815	2.00	2,680,043	56,551	2.11
Average yield on all interest-earning assets				2.43			2.70			2.79
Short-term funds and loans and advances to banks										
Europe	HSBC Bank	68,015	276	0.41	79,101	827	1.05	96,638	997	1.03
	HSBC Private Banking Holdings (Suisse)	10,597	—	—	11,498	4	0.03	9,704	10	0.10
	HSBC France	5,705	27	0.47	5,242	40	0.76	7,055	66	0.94
Asia	Hang Seng Bank	10,533	133	1.26	14,379	210	1.46	15,374	279	1.81
	The Hongkong and Shanghai Banking Corporation	50,741	490	0.97	55,951	536	0.96	57,141	822	1.44
	HSBC Bank Malaysia	3,680	99	2.69	3,994	121	3.03	5,060	158	3.12
MENA	HSBC Bank Middle East	3,658	30	0.82	5,038	30	0.60	4,678	29	0.62
North America	HSBC Bank USA	34,858	214	0.61	35,271	134	0.38	28,148	105	0.37
	HSBC Bank Canada	745	2	0.27	767	2	0.26	606	4	0.66
Latin America	HSBC Mexico	2,217	92	4.15	2,463	76	3.09	2,675	86	3.21
	Brazilian operations	—	—	—	1,717	193	11.24	5,416	498	9.19
	HSBC Bank Argentina	818	8	0.98	1,050	4	0.38	1,083	12	1.11
Other operations		12,232	139	1.14	5,453	100	1.83	3,570	2	0.06
		203,799	1,510	0.74	221,924	2,277	1.03	237,148	3,068	1.29
Loans and advances to customers										
Europe	HSBC Bank	277,995	9,203	3.31	291,311	9,916	3.40	302,817	10,423	3.44
	HSBC Private Banking Holdings (Suisse)	10,528	143	1.36	12,006	136	1.13	13,026	159	1.22
	HSBC France	42,676	1,026	2.40	41,257	1,252	3.03	43,736	1,626	3.72
	HSBC Finance	—	—	—	—	—	—	—	—	—
Asia	Hang Seng Bank	87,073	2,540	2.92	86,149	2,579	2.99	79,586	2,410	3.03
	The Hongkong and Shanghai Banking Corporation	253,802	7,630	3.01	261,705	8,082	3.09	263,732	8,517	3.23
	HSBC Bank Malaysia	11,636	546	4.69	12,517	589	4.71	13,548	672	4.96
MENA	HSBC Bank Middle East	23,595	883	3.74	27,240	1,041	3.82	26,618	1,133	4.26
North America	HSBC Bank USA	73,002	2,187	3.00	74,013	1,981	2.68	63,770	1,791	2.81

	HSBC Finance	13,169	1,089	8.27	21,529	1,705	7.92	26,446	2,171	8.21
	HSBC Bank Canada	35,894	1,070	2.98	33,280	1,086	3.26	37,472	1,371	3.66
Latin America	HSBC Mexico	14,050	1,427	10.16	14,304	1,319	9.22	15,770	1,542	9.78
	Brazilian operations	—	—	—	10,388	1,915	18.43	27,275	4,579	16.79
	HSBC Bank Argentina	2,642	715	27.06	3,381	880	26.03	3,078	798	25.93
Other operations		19,294	813	4.21	20,627	623	3.02	14,437	237	1.64
		865,356	29,272	3.38	909,707	33,104	3.64	931,311	37,429	4.02
Reverse repurchase agreements – non-trading										
Europe	HSBC Bank	47,663	305	0.64	53,036	354	0.67	66,360	450	0.68
	HSBC France	10,338	1	0.01	12,986	7	0.05	29,703	62	0.21
Asia	The Hongkong and Shanghai Banking Corporation	33,257	298	0.90	26,714	273	1.02	23,562	333	1.41
	HSBC Bank Malaysia	1,141	35	3.07	1,001	32	3.20	991	31	3.13
MENA	HSBC Bank Middle East	650	9	1.38	272	2	0.74	18	2	11.11
North America	HSBC Bank USA	11,632	131	1.13	4,589	23	0.50	1,196	10	0.84
	HSBC Finance	–	–	–	—	—	—	—	—	—
	HSBC Bank Canada	5,985	30	0.50	5,814	40	0.69	7,169	84	1.17
Latin America	HSBC Mexico	754	33	4.38	877	27	3.08	90	3	3.33
	Brazilian operations	—	—	—	3,248	421	12.96	7,241	753	10.40
	HSBC Bank Argentina	59	13	22.03	42	7	16.67	88	10	11.36
Other operations		56,728	372	0.66	53,729	115	0.21	61,855	62	0.10
		168,207	1,227	0.73	162,308	1,301	0.80	198,273	1,800	0.91

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Assets (continued)

		2016 Average balance $m	Interest income $m	Yield %	2015 Average balance $m	Interest income $m	Yield %	2014 Average balance $m	Interest income $m	Yield %
Financial investments										
Europe	HSBC Bank	71,215	965	1.36	73,043	753	1.03	100,609	867	0.86
	HSBC Private Banking Holdings (Suisse)	5,905	57	0.97	7,479	75	1.00	10,890	114	1.05
	HSBC France	14,753	10	0.07	13,608	17	0.12	12,685	113	0.89
Asia	Hang Seng Bank	49,469	686	1.39	39,891	647	1.62	33,246	655	1.97
	The Hongkong and Shanghai Banking Corporation	154,087	2,079	1.35	128,922	1,909	1.48	118,096	2,109	1.79
	HSBC Bank Malaysia	1,766	61	3.45	2,864	104	3.63	2,749	94	3.42
MENA	HSBC Bank Middle East	6,654	68	1.02	8,186	70	0.86	10,515	104	0.99
North America	HSBC Bank USA	52,479	952	1.81	49,268	893	1.81	47,963	774	1.61
	HSBC Bank Canada	17,769	209	1.18	17,486	199	1.14	17,970	246	1.37
Latin America	HSBC Mexico	4,709	234	4.97	6,301	286	4.54	9,914	409	4.13
	Brazilian operations	—	—	—	3,520	515	14.63	8,350	1,003	12.01
	HSBC Bank Argentina	627	142	22.65	650	149	22.92	518	130	25.10
Other operations		51,342	1,785	3.48	44,895	1,891	4.21	26,311	1,705	6.48
		430,775	7,248	1.68	396,113	7,508	1.90	399,816	8,323	2.08
Other interest-earning assets										
Europe	HSBC Bank	65,884	84	0.13	61,355	100	0.16	85,604	25	0.03
	HSBC Private Banking Holdings (Suisse)	1,874	24	1.28	2,200	24	1.09	5,220	32	0.61
	HSBC France	2,106	45	2.14	2,818	61	2.16	6,016	97	1.61
Asia	Hang Seng Bank	1,828	15	0.82	3,551	14	0.39	2,504	14	0.56
	The Hongkong and Shanghai Banking Corporation	92,650	615	0.66	82,422	451	0.55	86,361	583	0.68
	HSBC Bank Malaysia	242	—	—	92	—	—	152	—	—
MENA	HSBC Bank Middle East	1,942	80	4.12	1,263	37	2.93	2,221	32	1.44
North America	HSBC Bank USA	7,930	130	1.64	4,012	132	3.29	6,936	123	1.77
	HSBC Finance	2,975	6	0.20	5,538	7	0.13	6,081	5	0.08
	HSBC Bank Canada	352	6	1.70	249	5	2.01	292	5	1.71
Latin America	HSBC Mexico	587	1	0.17	517	1	0.19	324	—	—
	Brazilian operations	25,783	2,705	10.49	20,972	2,744	13.08	1,215	136	11.19
	HSBC Bank Argentina	76	—	—	69	—	—	61	—	—
Other operations		(148,664)	(554)		(148,161)	(577)		(182,999)	(717)	
		55,565	3,157	5.68	36,897	2,999	8.13	19,988	335	1.68
Total interest-earning assets										

Europe	HSBC Bank	530,772	10,833	2.04	557,846	11,950	2.14	652,028	12,762	1.96
	HSBC Private Banking Holdings (Suisse)	28,904	224	0.77	33,183	239	0.72	38,840	315	0.81
	HSBC France	75,578	1,109	1.47	75,911	1,377	1.81	99,195	1,964	1.98
Asia	Hang Seng Bank	148,903	3,374	2.27	143,970	3,450	2.40	130,710	3,358	2.57
	The Hongkong and Shanghai Banking Corporation	584,537	11,112	1.90	555,714	11,251	2.02	548,892	12,364	2.25
	HSBC Bank Malaysia	18,465	741	4.01	20,468	846	4.13	22,500	955	4.24
MENA	HSBC Bank Middle East	36,499	1,070	2.93	41,999	1,180	2.81	44,050	1,300	2.95
North America	HSBC Bank USA	179,901	3,614	2.01	167,153	3,163	1.89	148,013	2,803	1.89
	HSBC Finance	16,144	1,095	6.78	27,067	1,712	6.33	32,527	2,176	6.69
	HSBC Bank Canada	60,745	1,317	2.17	57,596	1,332	2.31	63,509	1,710	2.69
Latin America	HSBC Mexico	22,317	1,787	8.01	24,462	1,709	6.99	28,773	2,040	7.09
	Brazilian operations	25,783	2,705	10.49	39,845	5,788	14.53	49,497	6,969	14.08
	HSBC Bank Argentina	4,222	878	20.80	5,192	1,040	20.03	4,828	950	19.68
Other operations		(9,068)	2,555		(23,457)	2,152		(76,826)	1,289	
		1,723,702	42,414	2.46	1,726,949	47,189	2.73	1,786,536	50,955	2.85

Equity and liabilities

		2016			2015			2014		
		Average balance	Interest expense	Cost	Average balance	Interest expense	Cost	Average balance	Interest expense	Cost
	Footnotes	$m	$m	%	$m	$m	%	$m	$m	%
Summary										
Interest-bearing liabilities measured at amortised cost (itemised below)		1,442,004	12,601	0.87	1,465,635	14,658	1.00	1,546,633	16,250	1.05
Trading liabilities and financial liabilities designated at fair value (excluding own debt issued)		138,486	1,986	1.43	151,294	2,071	1.37	178,518	2,856	1.60
Non-interest bearing current accounts		184,016			190,914			185,990		
Total equity and other non-interest bearing liabilities		782,964			785,928			768,902		
Total equity and liabilities		2,547,470	14,587	0.57	2,593,771	16,729	0.64	2,680,043	19,106	0.71
Average cost on all interest-bearing liabilities				0.92			1.03			1.11

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Equity and liabilities (continued)

		Footnotes	2016 Average balance $m	Interest expense $m	Cost %	2015 Average balance $m	Interest expense $m	Cost %	2014 Average balance $m	Interest expense $m	Cost %
Deposits by banks		47									
Europe	HSBC Bank		12,408	49	0.39	16,333	75	0.46	20,508	139	0.68
	HSBC Private Banking Holdings (Suisse)		186	2	1.08	400	1	0.25	354	1	0.28
	HSBC France		7,520	33	0.44	7,323	41	0.56	6,191	53	0.86
Asia	Hang Seng Bank		587	11	1.87	1,098	19	1.73	960	9	0.94
	The Hongkong and Shanghai Banking Corporation		19,867	125	0.63	19,426	80	0.41	19,589	79	0.40
	HSBC Bank Malaysia		360	4	1.11	974	26	2.67	1,095	26	2.37
MENA	HSBC Bank Middle East		492	4	0.81	737	3	0.41	982	3	0.31
North America	HSBC Bank USA		5,316	30	0.56	5,503	17	0.31	6,436	12	0.19
	HSBC Bank Canada		358	1	0.28	319	1	0.31	371	1	0.27
Latin America	HSBC Mexico		1,631	70	4.29	1,506	55	3.65	2,078	73	3.51
	Brazilian operations		—	—	—	1,024	49	4.79	2,309	84	3.64
	HSBC Bank Argentina		2	—	—	10	2	20.00	10	1	10.00
Other operations			1,055	13	1.23	1,210	9	0.74	334	—	—
			49,782	342	0.69	55,863	378	0.68	61,217	481	0.79
Financial liabilities designated at fair value – own debt issued		48									
Europe	HSBC Holdings		26,900	609	2.26	18,816	263	1.40	18,745	234	1.25
	HSBC Bank		15,548	225	1.45	20,758	316	1.52	27,762	421	1.52
	HSBC France		8,821	15	0.17	8,472	31	0.37	8,232	66	0.80
North America	HSBC Bank USA		2,039	38	1.86	2,100	32	1.52	2,032	33	1.62
	HSBC Finance		1,498	19	1.27	5,169	47	0.91	7,195	58	0.81
Other operations			7,236	36	0.50	3,174	28	0.88	2,408	25	1.04
			62,042	942	1.52	58,489	717	1.23	66,374	837	1.26
Customer accounts		49									
Europe	HSBC Bank		352,318	1,613	0.46	364,503	2,051	0.56	372,151	2,268	0.61
	HSBC Private Banking Holdings (Suisse)		6,128	31	0.51	7,201	29	0.40	8,165	31	0.38
	HSBC France		14,697	93	0.63	15,900	116	0.73	20,988	189	0.90
Asia	Hang Seng Bank		111,457	339	0.30	106,783	464	0.43	98,794	472	0.48
	The Hongkong and Shanghai		421,711	1,981	0.47	394,313	2,446	0.62	377,748	2,743	0.73

	Banking Corporation									
	HSBC Bank Malaysia	11,055	228	2.06	11,865	264	2.23	13,457	291	2.16
MENA	HSBC Bank Middle East	10,780	27	0.25	14,360	53	0.37	16,533	75	0.45
North America	HSBC Bank USA	64,546	205	0.32	61,314	147	0.24	57,015	78	0.14
	HSBC Bank Canada	37,125	194	0.52	35,998	197	0.55	40,682	319	0.78
Latin America	HSBC Mexico	10,996	227	2.06	12,568	201	1.60	15,050	300	1.99
	Brazilian operations	—	—	—	6,938	830	11.96	18,542	1,828	9.86
	HSBC Bank Argentina	2,574	351	13.64	2,989	436	14.59	2,758	373	13.52
Other operations		31,274	203	0.65	41,169	167	0.41	46,610	164	0.35
		1,074,661	5,492	0.51	1,075,901	7,401	0.69	1,088,493	9,131	0.84
Repurchase agreements – non-trading										
Europe	HSBC Bank	29,171	88	0.30	31,782	119	0.37	72,481	213	0.29
	HSBC Private Banking Holdings (Suisse)	—	—	—	—	—	—	74	—	—
	HSBC France	7,145	—	—	8,965	2	0.02	29,539	59	0.20
Asia	Hang Seng Bank	410	9	2.20	203	4	1.97	11	—	—
	The Hongkong and Shanghai Banking Corporation	5,130	111	2.16	3,022	70	2.32	1,760	56	3.18
	HSBC Bank Malaysia	23	1	4.35	43	1	2.33	35	1	2.86
MENA	HSBC Bank Middle East	—	—	—	—	—	—	2	—	—
North America	HSBC Bank USA	3,543	30	0.85	6,828	26	0.38	11,485	20	0.17
	HSBC Bank Canada	2,933	14	0.48	2,534	17	0.67	2,167	25	1.15
Latin America	HSBC Mexico	2,085	94	4.51	2,127	62	2.91	4,748	152	3.20
	Brazilian operations	—	—	—	334	6	1.80	910	96	10.55
	HSBC Bank Argentina	7	2	28.57	5	—	—	3	—	—
Other operations		68,342	277	0.41	62,104	48	0.08	67,490	30	0.04
		118,789	626	0.53	117,947	355	0.30	190,705	652	0.34

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Equity and liabilities (continued)

		Footnotes	2016 Average balance $m	Interest expense $m	Cost %	2015 Average balance $m	Interest expense $m	Cost %	2014 Average balance $m	Interest expense $m	Cost %
Debt securities in issue											
Europe	HSBC Holdings		25,145	1,087	4.32	16,230	904	5.57	16,781	945	5.63
	HSBC Bank		27,290	397	1.45	41,413	359	0.87	56,949	589	1.03
	HSBC France		7,471	11	0.15	12,379	40	0.32	10,846	52	0.48
Asia	Hang Seng Bank		208	6	2.88	428	7	1.64	1,155	8	0.69
	The Hongkong and Shanghai Banking Corporation		4,245	88	2.07	5,520	123	2.23	6,365	176	2.77
	HSBC Bank Malaysia		363	15	4.13	385	17	4.42	461	19	4.12
MENA	HSBC Bank Middle East		1,793	20	1.12	2,199	33	1.50	2,262	45	1.99
North America	HSBC Bank USA		35,571	690	1.94	31,089	542	1.74	15,935	414	2.60
	HSBC Finance		4,577	266	5.81	8,961	407	4.54	13,045	483	3.70
	HSBC Bank Canada		8,026	192	2.39	8,718	211	2.42	10,232	257	2.51
Latin America	HSBC Mexico		928	60	6.47	2,005	90	4.49	1,061	57	5.37
	Brazilian operations		—	—	—	4,795	782	16.31	12,707	1,565	12.32
	HSBC Bank Argentina		—	—	—	—	—	—	1	—	—
Other operations			(1,274)	(25)		(5,083)	6		(18,076)	(56)	
			114,343	2,807	2.45	129,039	3,521	2.73	129,724	4,554	3.51
Other interest-bearing liabilities											
Europe	HSBC Bank		79,358	732	0.92	77,583	471	0.61	103,819	646	0.62
	HSBC Private Banking Holdings (Suisse)		6,885	100	1.45	8,347	94	1.13	7,903	23	0.29
	HSBC France		8,371	276	3.30	10,481	112	1.07	12,838	34	0.26
Asia	Hang Seng Bank		1,338	30	2.24	1,899	35	1.84	1,918	45	2.35
	The Hongkong and Shanghai Banking Corporation		81,764	598	0.73	78,630	412	0.52	91,468	635	0.69
	HSBC Bank Malaysia		771	14	1.82	1,158	15	1.30	1,342	14	1.04

MENA	HSBC Bank Middle East	2,994	82	2.74	2,429	46	1.89	2,617	57	2.18
North America	HSBC Bank USA	20,187	152	0.75	16,250	81	0.50	17,632	11	0.06
	HSBC Finance	4,936	173	3.50	5,807	241	4.15	5,817	258	4.44
	HSBC Bank Canada	3,759	63	1.68	2,539	7	0.28	599	4	0.67
Latin America	HSBC Mexico	782	22	2.81	837	16	1.91	1,031	13	1.26
	Brazilian operations	18,936	1,748	9.23	16,943	1,897	11.20	3,927	357	9.09
	HSBC Bank Argentina	53	5	9.43	22	4	18.18	40	7	17.50
Other operations		(207,747)	(1,603)		(194,529)	(1,145)		(240,831)	(1,509)	
		22,387	2,392	10.68	28,396	2,286	8.05	10,120	595	5.88
Total interest-bearing liabilities										
Europe	HSBC Holdings	52,045	1,696	3.26	35,046	1,167	3.33	35,526	1,179	3.32
	HSBC Bank	516,093	3,104	0.60	552,372	3,391	0.61	653,670	4,276	0.65
	HSBC Private Banking Holdings (Suisse)	13,199	133	1.01	15,948	124	0.78	16,496	55	0.33
	HSBC France	54,025	428	0.79	63,520	342	0.54	88,634	453	0.51
Asia	Hang Seng Bank	114,000	395	0.35	110,411	533	0.48	102,927	535	0.52
	The Hongkong and Shanghai Banking Corporation	532,717	2,903	0.54	500,911	3,131	0.63	496,930	3,689	0.74
	HSBC Bank Malaysia	12,572	262	2.08	14,425	323	2.24	16,390	351	2.14
MENA	HSBC Bank Middle East	16,059	133	0.83	20,580	148	0.72	22,994	190	0.83
North America	HSBC Bank USA	131,202	1,145	0.87	123,084	845	0.69	110,535	568	0.51
	HSBC Finance	11,011	458	4.16	19,937	695	3.49	26,057	799	3.07
	HSBC Bank Canada	52,201	464	0.89	50,108	433	0.86	54,051	606	1.12
Latin America	HSBC Mexico	16,422	473	2.88	19,043	424	2.23	23,968	595	2.48
	Brazilian operations	18,936	1,748	9.23	30,034	3,564	11.87	38,395	3,930	10.24
	HSBC Bank Argentina	2,636	358	13.58	3,026	442	14.61	2,812	381	13.55
Other operations		(101,114)	(1,099)		(92,810)	(904)		(142,752)	(1,357)	
		1,442,004	12,601	0.87	1,465,635	14,658	1.00	1,546,633	16,250	1.05

For footnotes, see page 79.

Net interest margin[50]

		2016	2015	2014
		%	%	%
Total		1.73	1.88	1.94
Europe	HSBC Bank	1.46	1.53	1.30
	HSBC Private Banking Holdings (Suisse)	0.31	0.35	0.67
	HSBC France	0.90	1.36	1.52
Asia	Hang Seng Bank	2.00	2.03	2.16
	The Hongkong and Shanghai Banking Corporation	1.40	1.46	1.58
	HSBC Bank Malaysia	2.59	2.56	2.68
MENA	HSBC Bank Middle East	2.57	2.46	2.52
North America	HSBC Bank USA	1.37	1.39	1.51
	HSBC Finance	3.95	3.76	4.23
	HSBC Bank Canada	1.40	1.56	1.74
Latin America	HSBC Mexico	5.89	5.25	5.02
	Brazilian operations	3.71	5.58	6.14
	HSBC Bank Argentina	12.32	11.52	11.79

Distribution of average total assets

		2016	2015	2014
		%	%	%
Europe	HSBC Bank	36.9	37.0	39.2
	HSBC Private Banking Holdings (Suisse)	1.2	1.4	1.5
	HSBC France	6.9	7.4	9.0
Asia	Hang Seng Bank	6.7	6.5	5.7
	The Hongkong and Shanghai Banking Corporation	32.2	30.0	26.3
	HSBC Bank Malaysia	0.8	0.9	0.9
MENA	HSBC Bank Middle East	1.6	1.9	1.9
North America	HSBC Bank USA	10.1	9.6	8.5
	HSBC Finance	0.8	1.2	1.3
	HSBC Bank Canada	2.9	2.8	3.0
Latin America	HSBC Mexico	1.3	1.4	1.5
	Brazilian operations	1.2	2.0	2.4
	HSBC Bank Argentina	—	—	—
Other operations (including consolidation adjustments)		(2.6)	(2.1)	(1.2)
		100.0	100.0	100.0

For footnote, see page 79.

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Analysis of changes in net interest income and net interest expense
The following tables allocate changes in net interest income and net interest expense between volume and rate for 2016

compared with 2015, and for 2015 compared with 2014. We isolate volume variances and allocate any change arising from both volume and rate to rate.

Interest income

			Increase/(decrease) in 2016 compared with 2015			Increase/(decrease) in 2015 compared with 2014		
		2016	Volume	Rate	2015	Volume	Rate	2014
		$m	$m	$m	$m	$m	$m	$m
Short-term funds and loans and advances to banks								
Europe	HSBC Bank	276	(116)	(435)	827	(181)	11	997
	HSBC Private Banking Holdings (Suisse)	—	—	(4)	4	2	(8)	10
	HSBC France	27	4	(17)	40	(17)	(9)	66
Asia	Hang Seng Bank	133	(56)	(21)	210	(18)	(51)	279
	The Hongkong and Shanghai Banking Corporation	490	(50)	4	536	(17)	(269)	822
	HSBC Bank Malaysia	99	(10)	(12)	121	(33)	(4)	158
MENA	HSBC Bank Middle East	30	(8)	8	30	2	(1)	29
North America	HSBC Bank USA	214	(2)	82	134	26	3	105
	HSBC Bank Canada	2	(1)	1	2	1	(3)	4
Latin America	HSBC Mexico	92	(8)	24	76	(7)	(3)	86
	Brazilian operations	—	(193)	—	193	(340)	35	498
	HSBC Bank Argentina	8	(1)	5	4	—	(8)	12
Other operations		139	124	(85)	100	1	97	2
		1,510	(187)	(580)	2,277	(196)	(595)	3,068
Loans and advances to customers								
Europe	HSBC Bank	9,203	(453)	(260)	9,916	(396)	(111)	10,423
	HSBC Private Banking Holdings (Suisse)	143	(17)	24	136	(12)	(11)	159
	HSBC France	1,026	43	(269)	1,252	(92)	(282)	1,626
Asia	Hang Seng Bank	2,540	28	(67)	2,579	199	(30)	2,410
	The Hongkong and Shanghai Banking Corporation	7,630	(244)	(208)	8,082	(65)	(370)	8,517
	HSBC Bank Malaysia	546	(41)	(2)	589	(51)	(32)	672
MENA	HSBC Bank Middle East	883	(139)	(19)	1,041	26	(118)	1,133
North America	HSBC Bank USA	2,187	(27)	233	1,981	288	(98)	1,791
	HSBC Finance	1,089	(662)	46	1,705	(404)	(62)	2,171
	HSBC Bank Canada	1,070	85	(101)	1,086	(153)	(132)	1,371
Latin America	HSBC Mexico	1,427	(23)	131	1,319	(143)	(80)	1,542
	Brazilian operations	—	(1,915)	—	1,915	(2,835)	171	4,579
	HSBC Bank Argentina	715	(192)	27	880	79	3	798
Other operations		813	(40)	230	623	102	284	237
		29,272	(1,614)	(2,218)	33,104	(868)	(3,457)	37,429

Reverse repurchase agreements – non-trading								
Europe	HSBC Bank	305	(36)	(13)	354	(91)	(5)	450
	HSBC France	1	(1)	(5)	7	(35)	(20)	62
Asia	The Hongkong and Shanghai Banking Corporation	298	67	(42)	273	44	(104)	333
	HSBC Bank Malaysia	35	4	(1)	32	—	1	31
MENA	HSBC Bank Middle East	9	3	4	2	28	(28)	2
North America	HSBC Bank USA	131	35	73	23	29	(16)	10
	HSBC Bank Canada	30	1	(11)	40	(16)	(28)	84
Latin America	HSBC Mexico	33	(4)	10	27	26	(2)	3
	Brazilian operations	—	(421)	—	421	(415)	83	753
	HSBC Bank Argentina	13	3	3	7	(5)	2	10
Other operations		372	6	251	115	(8)	61	62
		1,227	47	(121)	1,301	(327)	(172)	1,800
Financial investments								
Europe	HSBC Bank	965	(19)	231	753	(237)	123	867
	HSBC Private Banking Holdings (Suisse)	57	(16)	(2)	75	(36)	(3)	114
	HSBC France	10	1	(8)	17	8	(104)	113
Asia	Hang Seng Bank	686	155	(116)	647	131	(139)	655
	The Hongkong and Shanghai Banking Corporation	2,079	372	(202)	1,909	194	(394)	2,109
	HSBC Bank Malaysia	61	(40)	(3)	104	4	6	94
MENA	HSBC Bank Middle East	68	(13)	11	70	(23)	(11)	104
North America	HSBC Bank USA	952	58	1	893	21	98	774
	HSBC Bank Canada	209	3	7	199	(7)	(40)	246
Latin America	HSBC Mexico	234	(72)	20	286	(149)	26	409
	Brazilian operations	—	(515)	—	515	(580)	92	1,003
	HSBC Bank Argentina	142	(5)	(2)	149	33	(14)	130
Other operations		1,785	271	(377)	1,891	1,204	(1,018)	1,705
		7,248	659	(919)	7,508	(77)	(738)	8,323

Interest expense

			Increase/(decrease) in 2016 compared with 2015			Increase/(decrease) in 2015 compared with 2014		
		2016	Volume	Rate	2015	Volume	Rate	2014
		$m	$m	$m	$m	$m	$m	$m
Deposits by banks								
Europe	HSBC Bank	49	(18)	(8)	75	(19)	(45)	139
	HSBC Private Banking Holdings (Suisse)	2	(1)	2	1	—	—	1
	HSBC France	33	1	(9)	41	10	(22)	53
Asia	Hang Seng Bank	11	(9)	1	19	1	9	9
	The Hongkong and Shanghai Banking Corporation	125	2	43	80	(1)	2	79
	HSBC Bank Malaysia	4	(16)	(6)	26	(3)	3	26
MENA	HSBC Bank Middle East	4	(1)	2	3	(1)	1	3
North America	HSBC Bank USA	30	(1)	14	17	(2)	7	12
	HSBC Bank Canada	1	—	—	1	—	—	1
Latin America	HSBC Mexico	70	5	10	55	(20)	2	73
	Brazilian operations	—	(49)	—	49	(47)	12	84
	HSBC Bank Argentina	—	(2)	—	2	—	1	1
Other operations		13	(1)	5	9	—	9	—
		342	(41)	5	378	(47)	(170)	481
Customer accounts								
Europe	HSBC Bank	1,613	(68)	(370)	2,051	(46)	(171)	2,268
	HSBC Private Banking Holdings (Suisse)	31	(4)	6	29	(4)	2	31
	HSBC France	93	(9)	(14)	116	(46)	(27)	189
Asia	Hang Seng Bank	339	20	(145)	464	38	(46)	472
	The Hongkong and Shanghai Banking Corporation	1,981	170	(635)	2,446	121	(418)	2,743
	HSBC Bank Malaysia	228	(18)	(18)	264	(34)	7	291
MENA	HSBC Bank Middle East	27	(13)	(13)	53	(10)	(12)	75
North America	HSBC Bank USA	205	8	50	147	6	63	78
	HSBC Bank Canada	194	6	(9)	197	(37)	(85)	319
Latin America	HSBC Mexico	227	(25)	51	201	(49)	(50)	300
	Brazilian operations	—	(830)	—	830	(1,144)	146	1,828
	HSBC Bank Argentina	351	(61)	(24)	436	31	32	373
Other operations		203	(41)	77	167	(19)	22	164
		5,492	(9)	(1,900)	7,401	(106)	(1,624)	9,131
Repurchase agreements – non-trading								
Europe	HSBC Bank	88	(10)	(21)	119	(118)	24	213
	HSBC France	—	—	(2)	2	(41)	(16)	59
Asia	Hang Seng Bank	9	4	1	4	—	4	—
	The Hongkong and Shanghai Banking Corporation	111	49	(8)	70	40	(26)	56
	HSBC Bank Malaysia	1	—	—	1	—	—	1
North America	HSBC Bank USA	30	(12)	16	26	(8)	14	20
	HSBC Bank Canada	14	3	(6)	17	4	(12)	25
Latin America	HSBC Mexico	94	(1)	33	62	(84)	(6)	152

	Brazilian operations	—	(6)	—	6	(61)	(29)	96
	HSBC Bank Argentina	2	—	2	—	—	—	—
Other operations		277	5	224	48	(2)	20	30
		626	3	268	355	(247)	(50)	652
Debt securities in issue								
Europe	HSBC Holdings	1,087	497	(314)	904	(31)	(10)	945
	HSBC Bank	397	(123)	161	359	(160)	(70)	589
	HSBC France	11	(16)	(13)	40	7	(19)	52
Asia	Hang Seng Bank	6	(4)	3	7	(5)	4	8
	The Hongkong and Shanghai Banking Corporation	88	(28)	(7)	123	(23)	(30)	176
	HSBC Bank Malaysia	15	(1)	(1)	17	(3)	1	19
MENA	HSBC Bank Middle East	20	(6)	(7)	33	(1)	(11)	45
North America	HSBC Bank USA	690	78	70	542	394	(266)	414
	HSBC Finance	266	(199)	58	407	(151)	75	483
	HSBC Bank Canada	192	(17)	(2)	211	(38)	(8)	257
Latin America	HSBC Mexico	60	(48)	18	90	51	(18)	57
	Brazilian operations	—	(782)	—	782	(975)	192	1,565
Other operations		(25)	—	(31)	6	—	62	(56)
		2,807	(401)	(313)	3,521	(24)	(1,009)	4,554

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Short-term borrowings

Short-term borrowings in the form of repurchase agreements – non-trading are shown separately on the face of the balance sheet. Other forms of short-term borrowings are included within customer accounts, deposits by banks, debt securities in issue and trading liabilities. Short-term borrowings are defined by the US Securities and Exchange Commission as Federal funds purchased and securities sold under agreements to repurchase, commercial paper and other short-term borrowings.

Our only significant short-term borrowings are securities sold under agreements to repurchase and certain debt securities in issue. For securities sold under agreements to repurchase, we run matched repo and reverse repo trading books. We generally observe lower year-end demand in our reverse repo lending business, which results in lower repo balances at the balance sheet date. Additional information on these is provided in the table below.

Repos and short-term bonds

	2016	2015	2014
	$m	$m	$m
Securities sold under agreements to repurchase			
Outstanding at 31 December	90,386	80,842	111,230
Average amount outstanding during the year	119,850	120,241	195,482
Maximum quarter-end balance outstanding during the year	110,362	120,141	227,637
Weighted average interest rate during the year	0.5%	0.4%	0.3%
Weighted average interest rate at the year-end	0.8%	0.8%	0.6%
Short-term bonds			
Outstanding at 31 December	24,580	36,614	38,868
Average amount outstanding during the year	24,359	40,449	39,547
Maximum quarter-end balance outstanding during the year	25,946	42,483	41,117
Weighted average interest rate during the year	1.4%	1.3%	1.7%
Weighted average interest rate at the year-end	1.4%	1.2%	1.6%

Contractual obligations

The table below provides details of our material contractual obligations at 31 December 2016.

	Payments due by period				
	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
	$m	$m	$m	$m	$m
Long-term debt obligations	182,413	33,511	38,303	39,469	71,130
Term deposits and certificates of deposit	95,925	87,271	3,726	3,891	1,037
Capital (finance) lease obligations	30	7	5	4	14
Operating lease obligations	3,893	859	1,237	717	1,080
Purchase obligations	398	305	12	32	49
Short positions in debt securities and equity shares	51,123	51,077	15	9	22
Current tax liability	719	719	—	—	—
Pension/healthcare obligation	15,302	1,341	2,876	3,090	7,995
	349,803	175,090	46,174	47,212	81,327

Loan maturity and interest sensitivity analysis
At 31 December 2016, the geographical analysis of loan

maturity and interest sensitivity by loan type on a contractual repayment basis was as follows.

	Europe	Asia	MENA	North America	Latin America	Total
	$m	$m	$m	$m	$m	$m
Maturity of 1 year or less						
Loans and advances to banks	10,126	56,132	7,387	4,843	3,186	81,674
Commercial loans to customers						
– manufacturing and international trade and services	42,133	81,659	8,858	10,443	3,340	146,433
– real estate and other property related	9,407	22,883	1,535	5,243	428	39,496
– non-bank financial institutions	15,513	13,659	1,691	6,412	423	37,698
– governments	652	276	1,444	55	172	2,599
– other commercial	23,767	17,047	2,988	4,556	1,750	50,108
	91,472	135,524	16,516	26,709	6,113	276,334
Maturity after 1 year but within 5 years						
Loans and advances to banks	1,975	2,631	384	187	—	5,177
Commercial loans to customers						
– manufacturing and international trade and services	31,911	21,657	1,930	13,775	1,421	70,694
– real estate and other property related	16,562	37,988	819	8,707	404	64,480
– non-bank financial institutions	10,762	5,467	603	3,114	132	20,078
– governments	1,308	1,999	175	217	37	3,736
– other commercial	17,155	14,185	2,329	8,614	673	42,956
	77,698	81,296	5,856	34,427	2,667	201,944
Interest rate sensitivity of loans and advances to banks and commercial loans to customers						
Fixed interest rate	13,569	1,954	1,892	4,021	453	21,889
Variable interest rate	66,108	81,974	4,346	30,592	2,214	185,234
	79,677	83,928	6,238	34,613	2,667	207,123
Maturity after 5 years						
Loans and advances to banks	258	974	—	43	—	1,275
Commercial loans to customers						
– manufacturing and international trade and services	8,836	1,414	601	2,165	542	13,558
– real estate and other property related	2,516	9,555	226	2,722	814	15,833
– non-bank financial institutions	5,032	391	305	224	1	5,953
– governments	1,049	644	—	82	332	2,107
– other commercial	6,357	3,541	1,173	1,697	1,059	13,827
	23,790	15,545	2,305	6,890	2,748	51,278
Interest rate sensitivity of loans and advances to banks and commercial loans to customers						
Fixed interest rate	4,999	1,019	686	1,120	592	8,416
Variable interest rate	19,049	15,500	1,619	5,813	2,156	44,137
	24,048	16,519	2,305	6,933	2,748	52,553

Deposits

The following tables summarise the average amount of bank deposits, customer deposits and certificates of deposit ('CDs') and other money market instruments (that are included within 'Debt securities in issue' in the balance sheet), together with the

average interest rates paid thereon for each of the past three years. The geographical analysis of average deposits is based on the location of the office in which the deposits are recorded and excludes balances with HSBC companies.

Deposits by banks

	2016		2015		2014	
	Average balance	Average rate	Average balance	Average rate	Average balance	Average rate
	$m	%	$m	%	$m	%
Europe	32,232		32,297		36,150	
– demand and other – non-interest bearing	11,696		8,076	—	8,795	—
– demand – interest bearing	6,730	0.2	5,412	0.3	5,778	0.4
– time	8,426	0.4	9,833	0.8	13,938	1.0
– other	5,380	0.5	8,976	0.2	7,639	0.4
Asia	26,945		27,618		26,524	
– demand and other – non-interest bearing	5,835		6,114	—	5,189	—
– demand – interest bearing	13,230	0.4	16,107	0.5	13,828	0.5
– time	3,593	1.9	2,209	1.5	3,581	0.7
– other	4,287	0.6	3,188	0.5	3,926	0.3
Middle East and North Africa	1,158		1,548		1,823	
– demand and other – non-interest bearing	391		748	—	587	—
– demand – interest bearing	8	—	3	—	3	—
– time	742	2.2	775	0.8	1,191	0.8
– other	17	—	22	—	42	—
North America	7,594		9,327		10,497	
– demand and other – non-interest bearing	1,916		3,499	—	3,686	—
– demand – interest bearing	2,402	0.3	1,956	0.2	2,557	0.1
– time	3,185	0.8	3,746	0.4	3,308	0.3
– other	91	—	126	—	946	0.1
Latin America	1,820		2,719		4,642	
– demand and other – non-interest bearing	129		88	—	162	—
– demand – interest bearing	313	5.4	205	7.8	837	3.8
– time	1,378	5.7	1,905	4.5	2,244	3.0
– other	—	—	521	10.4	1,399	4.4
Total	69,749		73,509		79,636	
– demand and other – non-interest bearing	19,967		18,525	—	18,419	—
– demand – interest bearing	22,683	0.4	23,683	0.5	23,003	0.6
– time	17,324	1.3	18,468	1.2	24,262	1.0
– other	9,775	0.5	12,833	0.6	13,952	0.7

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Customer accounts

	2016		2015		2014	
	Average balance	Average rate	Average balance	Average rate	Average balance	Average rate
	$m	%	$m	%	$m	%
Europe	449,033		469,799		482,219	
– demand and other – non-interest bearing	64,779		72,841	—	72,762	0
– demand – interest bearing	312,808	0.3	316,055	0.4	313,214	0.4
– savings	39,032	0.5	44,010	0.6	52,588	0.8
– time	31,309	0.7	35,198	0.8	41,830	0.9
– other	1,105	2.4	1,695	2.0	1,825	2.4
Asia	613,303		590,436		566,595	
– demand and other – non-interest bearing	68,772		67,460	—	62,988	0
– demand – interest bearing	433,656	0.1	399,209	0.2	374,026	0.2
– savings	90,175	2.0	100,801	2.3	108,074	2.3
– time	19,530	0.8	22,035	0.9	21,381	0.9
– other	1,170	0.4	931	3.7	126	2.4
Middle East and North Africa	40,036		44,826		47,368	
– demand and other – non-interest bearing	19,548		19,989	—	18,736	0
– demand – interest bearing	9,558	0.3	11,303	0.3	12,747	0.3
– savings	10,034	3.5	12,178	3.9	12,850	4.6
– time	896	4.1	1,356	4.1	3,004	3.2
– other	—	—	—	—	31	6.5
North America	140,491		136,773		135,692	
– demand and other – non-interest bearing	30,350		29,390	—	27,361	0
– demand – interest bearing	37,382	0.2	37,234	0.2	38,843	0.3
– savings	64,464	0.4	60,157	0.4	60,075	0.5
– time	8,251	0.5	9,927	0.4	9,290	0.2
– other	44	—	65	—	123	0.8
Latin America	20,699		32,097		50,918	
– demand and other – non-interest bearing	5,454		8,349	—	12,452	0
– demand – interest bearing	6,629	1.3	6,848	0.9	7,412	1.2
– savings	3,451	32.9	10,896	18.3	22,062	10.0
– time	5,145	3.2	5,952	2.5	8,850	2.8
– other	20	10.0	52	9.6	142	5.6
Total	1,263,562		1,273,931		1,282,792	
– demand and other – non-interest bearing	188,903		198,029	—	194,299	0
– demand – interest bearing	800,033	0.2	770,649	0.3	746,242	0.3
– savings	207,156	1.8	228,042	2.3	255,649	2.3
– time	65,131	1.0	74,468	0.9	84,355	1.1
– other	2,339	1.9	2,743	1.9	2,247	2.6

Certificates of deposit and other money market instruments

	2016		2015		2014	
	Average balance	Average rate	Average balance	Average rate	Average balance	Average rate
	$m	%	$m	%	$m	%
Europe	22,188	0.5	22,539	0.5	20,970	0.4
Asia	609	2.3	1,275	2.4	2,441	1.6

North America	12,387	0.9	11,336	0.4	5,406	0.3
Latin America	1,135	6.2	6,971	12.0	12,035	12.1
	36,319	0.9	42,121	2.4	40,852	3.9

Report of the Directors | Financial summary

Certificates of deposit and other time deposits
The maturity analysis of certificates of deposit ('CDs') and other wholesale time deposits is expressed by remaining maturity.

The majority of CDs and time deposits are in amounts of $100,000 and over or the equivalent in other currencies.

	At 31 December 2016				
	3 months or less	After 3 months but within 6 months	After 6 months but within 12 months	After 12 months	Total
	$m	$m	$m	$m	$m
Europe	30,567	4,616	5,823	6,846	47,852
– certificates of deposit	2,085	1,273	3,077	—	6,435
– time deposits:					
banks	3,834	1,120	487	5,059	10,500
customers	24,648	2,223	2,259	1,787	30,917
Asia	20,475	1,107	1,036	159	22,777
– certificates of deposit	552	18	473	149	1,192
– time deposits:					
banks	2,605	588	292	—	3,485
customers	17,318	501	271	10	18,100
Middle East and North Africa	924	52	102	432	1,510
– certificates of deposit	—	—	—	—	—
– time deposits:					
banks	198	50	101	227	576
customers	726	2	1	205	934
North America	12,345	2,583	2,587	198	17,713
– certificates of deposit	3,509	2,111	1,112	—	6,732
– time deposits:					
banks	2,516	1	—	—	2,517
customers	6,320	471	1,475	198	8,464
Latin America	5,806	522	66	1,020	7,414
– certificates of deposit	211	132	14	330	687
– time deposits:					
banks	903	—	—	689	1,592
customers	4,692	390	52	1	5,135
Total	70,117	8,880	9,614	8,655	97,266
– certificates of deposit	6,357	3,534	4,676	479	15,046
– time deposits:					
banks	10,056	1,759	880	5,975	18,670
customers	53,704	3,587	4,058	2,201	63,550

Ratio of earnings to fixed charges

	2016	2015	2014	2013	2012
	%	%	%	%	%
Ratio of earnings to fixed charges					
– excluding interest on deposits	1.79	3.68	3.39	3.84	3.03
– including interest on deposits	1.37	2.00	1.86	2.09	1.76

Ratio of earnings to combined fixed charges and preference share dividends					
– excluding interest on deposits	1.31	3.05	3.07	3.50	2.79
– including interest on deposits	1.17	1.85	1.79	2.01	1.71

For the purpose of calculating the ratios, earnings consist of income from continuing operations before taxation and non-controlling interests, plus fixed charges, and after deduction of the unremitted pre-tax income of associated undertakings. Fixed charges consist of total interest expense, including or excluding interest on deposits, as appropriate, dividends on preference shares and other equity instruments, as applicable, and the proportion of rental expense deemed representative of the interest factor.

Global businesses and
geographical regions

Change in reportable segments

(Audited)

The Group Chief Executive as supported by the GMB is considered to be the CODM for the purposes of identifying the Group's reportable segments.

They review operating activity on a number of bases, including by global business and geographical region. While in 2015 we considered the reportable segments to be the geographical regions, over time the focus of internal management reporting provided to the GMB and CODM has moved towards global business. The shift in internal reporting was further augmented in 2016 to include financial information and metrics on the consumption of, and returns on, capital by global business to support the GMB assessment of business performance and the allocation of capital resources. As a result global business is now the most prominent view used by management to allocate resources and assess performance, and is considered to be the Group's reportable segment.

In addition, we made the following realignments within our internal reporting to the GMB and CODM:

- Creation of a Corporate Centre: Certain functions were combined to create a Corporate Centre. These include Balance Sheet Management, legacy businesses and interests in associates and joint ventures. The Corporate Centre also includes the results of our financing operations, central support costs with associated recoveries and the UK bank levy, previously reported within Other.
- Reallocation of Head Office costs: We have reviewed central costs previously reported in Other and reallocated them to

the global businesses where appropriate. Residual costs are reported within the Corporate Centre.

- Customer realignment: We conducted a number of internal reviews aligning customer requirements to those global businesses best suited to service their respective needs, resulting in the transfer of a portfolio of customers from CMB to GB&M and the transfer of certain policyholders in Asia from CMB to RBWM during the year.

Comparative data have been represented accordingly.

In addition, geographical comparative data for Europe and Middle East and North Africa have been re-presented to reflect the management oversight provided by our Middle East and North Africa region following the management services agreement entered between HSBC Bank plc and HSBC Bank Middle East Limited in 2016 in respect of HSBC Bank A.S. (Turkey).

Basis of preparation

Following the changes in internal reporting to the CODM, analysis by global business is considered more prominent than the geographical region view in the way the CODM assesses performance and allocates resources. The global businesses are therefore considered our reportable segments under IFRS 8.

Global business results are assessed by the CODM on the basis of adjusted performance that removes the effects of significant items and currency translation from reported results. We therefore present these results on an adjusted basis

as required by IFRSs. The 2015 and 2014 adjusted performance comparative information is presented on a constant currency basis as described on page 60.
As required by IFRS 8, reconciliations of the total adjusted global business results of the Group reported results are presented on page 46. Supplementary reconciliations from reported to adjusted results by global business are presented on pages 62 to 66 for information purposes.
Our operations are closely integrated and, accordingly, the presentation of data includes internal allocations of certain items of income and expense. These allocations include the costs of certain support services and global functions to the extent that they can be meaningfully attributed to operational business lines and geographical regions. While such allocations have been made on a systematic and consistent basis, they necessarily involve a degree of subjectivity. Costs which are not allocated to global businesses are included in the Corporate Centre.
Where relevant, income and expense amounts presented include the results of inter-segment funding along with inter-company and inter-business line transactions. All such transactions are undertaken on arm's length terms. The intra-Group elimination items for the global businesses are presented in the Corporate Centre.
The expense of the UK bank levy is included in the Europe geographical region as HSBC regards the levy as a cost of being headquartered in the UK. For the purposes of the presentation by global business, the cost of the levy is included in the Corporate Centre.
The results of geographical regions are presented on a reported basis.
A description of the global businesses is provided in the Strategic Report, pages 3, 18 and 19.

Report of the Directors | Global businesses

Analysis of adjusted results by global business
(Audited)
HSBC adjusted profit before tax and balance sheet data

		2016					
		Retail Banking and Wealth Management	Commercial Banking	Global Banking and Markets	Global Private Banking	Corporate Centre	Total
	Footnotes	$m	$m	$m	$m	$m	$m
Profit before tax							
Net interest income		13,198	8,689	4,923	809	1,243	28,862
Net fee income/(expense)		4,839	3,627	3,392	749	(63)	12,544
Net trading income	21	435	447	6,327	183	2,542	9,934
Other income/(expenses)	34	453	124	277	16	(2,057)	(1,187)
Net operating income before loan impairment charges and other credit risk provisions	22	18,925	12,887	14,919	1,757	1,665	50,153
– external		16,319	12,953	17,798	1,498	1,585	50,153
– inter-segment		2,606	(66)	(2,879)	259	80	—
Loan impairment (charges)/recoveries and other credit risk provisions		(1,171)	(1,000)	(457)	1	(25)	(2,652)
Net operating income		17,754	11,887	14,462	1,758	1,640	47,501
Total operating expenses		(12,441)	(5,835)	(8,865)	(1,469)	(1,946)	(30,556)
Operating profit/(loss)		5,313	6,052	5,597	289	(306)	16,945
Share of profit in associates and joint ventures		20	—	—	—	2,335	2,355
Adjusted profit before tax		5,333	6,052	5,597	289	2,029	19,300
		%	%	%	%	%	%
Share of HSBC's adjusted profit before tax		27.6	31.4	29.0	1.5	10.5	100.0
Adjusted cost efficiency ratio		65.7	45.3	59.4	83.6	116.9	60.9
Adjusted balance sheet data		$m	$m	$m	$m	$m	$m
Loans and advances to customers (net)		306,056	281,930	225,855	35,456	12,207	861,504
Interests in associates and joint ventures		395	—	—	—	19,634	20,029
Total external assets		413,287	306,256	925,187	41,459	688,797	2,374,986
Customer accounts		590,502	341,729	256,095	69,850	14,210	1,272,386
Adjusted risk-weighted assets (unaudited)	37	111,899	274,893	299,629	15,213	150,327	851,961
		2015[35]					
Profit before tax							
Net interest income		12,579	8,461	4,514	824	2,241	28,619
Net fee income/(expense)		5,545	3,739	3,500	933	(119)	13,598
Net trading income	21	443	462	6,175	204	655	7,939
Other income	34	675	91	377	4	116	1,263
	22	19,242	12,753	14,566	1,965	2,893	51,419

Net operating income before loan impairment charges and other credit risk provisions						
– external	16,763	12,863	17,055	1,690	3,048	51,419
– inter-segment	2,479	(110)	(2,489)	275	(155)	—
Loan impairment charges and other credit risk provisions	(1,060)	(1,434)	(74)	(11)	(25)	(2,604)
Net operating income	18,182	11,319	14,492	1,954	2,868	48,815
Total operating expenses	(12,514)	(5,896)	(8,958)	(1,567)	(2,795)	(31,730)
Operating profit	5,668	5,423	5,534	387	73	17,085
Share of profit in associates and joint ventures	22	—	—	—	2,421	2,443
Adjusted profit before tax	5,690	5,423	5,534	387	2,494	19,528
	%	%	%	%	%	%
Share of HSBC's adjusted profit before tax	29.1	27.8	28.3	2.0	12.8	100.0
Adjusted cost efficiency ratio	65.0	46.2	61.5	79.7	96.6	61.7
Adjusted balance sheet data	$m	$m	$m	$m	$m	$m
Loans and advances to customers (net)	296,607	269,758	231,215	41,161	23,451	862,192
Interests in associates and joint ventures	393	—	—	—	18,080	18,473
Total external assets	399,866	296,380	842,437	49,241	625,813	2,213,737
Customer accounts	548,835	327,285	240,971	78,318	13,337	1,208,746
Adjusted risk-weighted assets (unaudited)[37]	113,268	270,915	308,189	17,121	305,691	1,015,184

HSBC adjusted profit before tax and balance sheet data (continued)

		2014[35]					
		Retail Banking and Wealth Management	Commercial Banking	Global Banking and Markets	Global Private Banking	Corporate Centre	Total
	Footnotes	$m	$m	$m	$m	$m	$m
Profit before tax							
Net interest income		12,400	8,094	4,148	861	3,103	28,606
Net fee income/(expense)		5,572	3,809	3,412	971	(115)	13,649
Net trading income/(expense)	21	380	479	5,261	243	(18)	6,345
Other income	34	623	216	757	4	929	2,529
Net operating income before loan impairment charges and other credit risk provisions	22	18,975	12,598	13,578	2,079	3,899	51,129
– external		17,050	13,103	15,406	1,799	3,771	51,129
– inter-segment		1,925	(505)	(1,828)	280	128	—
Loan impairment (charges)/recoveries and other credit risk provisions		(901)	(894)	(408)	11	291	(1,901)
Net operating income		18,074	11,704	13,170	2,090	4,190	49,228
Total operating expenses		(11,964)	(5,576)	(8,246)	(1,551)	(2,723)	(30,060)
Operating profit		6,110	6,128	4,924	539	1,467	19,168
Share of profit in associates and joint ventures		40	—	—	—	2,342	2,382
Adjusted profit before tax		6,150	6,128	4,924	539	3,809	21,550
		%	%	%	%	%	%
Share of HSBC's adjusted profit before tax		28.6	28.4	22.8	2.5	17.7	100.0
Adjusted cost efficiency ratio		63.1	44.3	60.7	74.6	69.8	58.8
Adjusted balance sheet data		$m	$m	$m	$m	$m	$m
Loans and advances to customers (net)		287,496	259,053	228,323	40,928	28,844	844,644
Interests in associates and joint ventures		383	—	—	—	16,801	17,184
Total external assets		385,926	288,755	928,215	51,283	640,404	2,294,583
Customer accounts		514,074	309,152	261,110	78,592	23,681	1,186,609
Adjusted risk-weighted assets (unaudited)	37	109,526	262,634	349,661	17,660	343,882	1,083,363

For footnotes, see page 79.

Reconciliation of reported and adjusted items
(Audited)
Adjusted results reconciliation

		2016			2015				2014		
		Adjusted	Significant items	Reported	Adjusted	Currency translation	Significant items	Reported	Adjusted	Currency translation	Signi items
	Footnote	$m	$m	$m	$m	$m	$m	$m	$m	$m	$m
Revenue	22	50,153	(2,187)	47,966	51,419	3,001	5,380	59,800	51,129	7,612	2,507
LICs		(2,652)	(748)	(3,400)	(2,604)	(184)	(933)	(3,721)	(1,901)	(918)	(1,03
Operating expenses		(30,556)	(9,252)	(39,808)	(31,730)	(2,091)	(5,947)	(39,768)	(30,060)	(5,433)	(5,75
Share of profit in associates and joint ventures		2,355	(1)	2,354	2,443	114	(1)	2,556	2,382	150	—
Profit/(loss) before tax		19,300	(12,188)	7,112	19,528	840	(1,501)	18,867	21,550	1,411	(4,28

Adjusted balance sheet reconciliation

	2016			2015				2014			
	Adjusted	Brazil operations	Reported	Adjusted	Currency translation	Brazil operations	Reported	Adjusted	Currency translation	Brazil operations	Reporte
	$m	$m	$m	$m	$m	$m	$m	$m	$m	$m	$m
Loans and advances to customers (net)	861,504	—	861,504	862,192	62,262	—	924,454	844,644	110,001	20,015	974,660
Interests in associates and joint ventures	20,029	—	20,029	18,473	666	—	19,139	17,184	990	7	18,181
Total external assets	2,374,986	—	2,374,986	2,213,737	145,747	50,172	2,409,656	2,294,583	289,936	49,620	2,634,13
Customer accounts	1,272,386	—	1,272,386	1,208,746	80,840	—	1,289,586	1,186,609	145,084	18,949	1,350,64

Adjusted profit reconciliation

		2016	2015	2014
	Footnotes	$m	$m	$m
For the year ended 31 Dec				
Adjusted profit before tax		19,300	19,528	21,550
DVA on derivative contracts		26	230	(332)
Fair value movements on non-qualifying hedges	23	(687)	(327)	(541)
Gain on disposal of our membership interest in Visa – Europe		584	—	—

Gain on disposal of our membership interest in Visa – US		116	—	—
Gain on sale of shareholding in Bank of Shanghai		—	—	428
Gain on the partial sale of shareholding in Industrial Bank		—	1,372	—
(Loss)/gain and trading results from disposals and changes in ownership levels		(2,081)	(78)	(163)
Impairment of our investment in Industrial Bank		—	—	(271)
Own credit spread	24	(1,792)	1,002	417
Portfolio disposals		(163)	(214)	168
Releases/(provisions) arising from the ongoing review of compliance with the UK Consumer Credit Act		2	(10)	(632)
Charge in relation to the settlement agreement with the Federal Housing Finance Authority		—	—	(550)
Costs associated with portfolio disposals		(28)	—	—
Costs to achieve		(3,118)	(908)	—
Costs to establish UK ring-fenced bank		(223)	(89)	—
Impairment of GPB – Europe goodwill		(3,240)	—	—
Regulatory provisions in GPB		(344)	(172)	(65)
Restructuring and other related costs		—	(117)	(278)
Settlements and provisions in connection with legal matters		(681)	(1,649)	(1,187)
UK customer redress programmes		(559)	(541)	(1,275)
Currency translation			840	1,411
Reported profit before tax		7,112	18,867	18,680

For footnotes, see page 79.

Reconciliation of reported and adjusted items – global businesses
Supplementary unaudited analysis of significant items by global business is presented below.
2016 compared with 2015 and 2014

	Footnotes	2016 Retail Banking and Wealth Management $m	Commercial Banking $m	Global Banking and Markets $m	Global Private Banking $m	Corporate Centre $m	Total $m
Revenue	22						
Reported		20,338	13,405	15,213	1,745	(2,735)	47,966
Significant items		(1,413)	(518)	(294)	12	4,400	2,187
– DVA on derivative contracts		—	—	(26)	—	—	(26)
– fair value movements on non-qualifying hedges	23	—	—	—	—	687	687
– gain on disposal of our membership interest in Visa – Europe		(354)	(230)	—	—	—	(584)
– gain on disposal of our membership interest in Visa – US		(72)	—	—	—	(44)	(116)
– own credit spread	24	—	—	—	—	1,792	1,792
– portfolio disposals		—	—	—	26	137	163
– releases arising from the ongoing review of compliance with the UK Consumer Credit Act		—	—	—	(2)	—	(2)
– loss and trading results from disposed-of operations in Brazil		(987)	(288)	(268)	(12)	1,828	273
Adjusted		18,925	12,887	14,919	1,757	1,665	50,153
Loan impairment charge and other credit risk provisions ('LICs')							
Reported		(1,633)	(1,272)	(471)	1	(25)	(3,400)
Significant items		462	272	14	—	—	748
– trading results from disposed-of operations in Brazil		462	272	14	—	—	748
Adjusted		(1,171)	(1,000)	(457)	1	(25)	(2,652)
Operating expenses							
Reported		(14,138)	(6,087)	(9,302)	(5,074)	(5,207)	(39,808)
Significant items		1,697	252	437	3,605	3,261	9,252
– costs associated with portfolio disposals		—	—	—	10	18	28
– costs to achieve		393	62	233	6	2,424	3,118
– costs to establish UK ring-fenced bank		2	1	—	—	220	223
– impairment of GPB – Europe goodwill		—	—	—	3,240	—	3,240
– regulatory provisions in GPB		—	—	—	341	3	344
– settlements and provisions in connection with legal matters		—	—	94	—	587	681
– UK customer redress programmes		497	34	28	—	—	559
– trading results from disposed-of operations in Brazil		805	155	82	8	9	1,059

Adjusted	(12,441)	(5,835)	(8,865)	(1,469)	(1,946)	(30,556)
Share of profit in associates and joint ventures						
Reported	20	—	—	—	2,334	2,354
Significant items	—	—	—	—	1	1
– trading results from disposed-of operations in Brazil	—	—	—	—	1	1
Adjusted	20	—	—	—	2,335	2,355
Profit/(loss) before tax						
Reported	4,587	6,046	5,440	(3,328)	(5,633)	7,112
Significant items	746	6	157	3,617	7,662	12,188
– revenue	(1,413)	(518)	(294)	12	4,400	2,187
– LICs	462	272	14	—	—	748
– operating expenses	1,697	252	437	3,605	3,261	9,252
– share of profit in associates and joint ventures	—	—	—	—	1	1
Adjusted	5,333	6,052	5,597	289	2,029	19,300

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Reconciliation of reported and adjusted items (continued)

		2015[35]					
		Retail Banking and Wealth Management	Commercial Banking	Global Banking and Markets	Global Private Banking	Corporate Centre	Total
	Footnotes	$m	$m	$m	$m	$m	$m
Revenue	22						
Reported		22,624	14,198	15,972	2,076	4,930	59,800
Currency translation		(1,288)	(790)	(724)	(54)	(145)	(3,001)
Significant items		(2,094)	(655)	(682)	(57)	(1,892)	(5,380)
– DVA on derivative contracts		—	—	(230)	—	—	(230)
– fair value movements on non-qualifying hedges	23	—	—	—	—	327	327
– gain on the partial sale of shareholding in Industrial Bank		—	—	—	—	(1,372)	(1,372)
– own credit spread	24	—	—	—	—	(1,002)	(1,002)
– portfolio disposals		—	—	—	—	214	214
– provisions/(releases) arising from the ongoing review of compliance with the UK Consumer Credit Act		22	18	—	(30)	—	10
– trading results from disposed-of operations in Brazil		(2,116)	(673)	(452)	(27)	(59)	(3,327)
Adjusted		19,242	12,753	14,566	1,965	2,893	51,419
LICs							
Reported		(1,878)	(1,761)	(47)	(13)	(22)	(3,721)
Currency translation		105	76	4	2	(3)	184
Significant items		713	251	(31)	—	—	933
– trading results from disposed-of operations in Brazil		713	251	(31)	—	—	933
Adjusted		(1,060)	(1,434)	(74)	(11)	(25)	(2,604)
Operating expenses							
Reported		(15,970)	(6,852)	(10,767)	(1,840)	(4,339)	(39,768)
Currency translation		1,015	352	573	46	105	2,091
Significant items		2,441	604	1,236	227	1,439	5,947
– costs to achieve		153	163	69	16	507	908
– costs to establish UK ring-fenced bank		—	—	—	—	89	89
– regulatory provisions in GPB		—	—	—	171	1	172
– restructuring and other related costs		9	5	22	18	63	117
– settlements and provisions in connection with legal matters		—	—	949	—	700	1,649
– UK customer redress programmes		541	18	(19)	—	1	541
– trading results from disposed-of operations in Brazil		1,738	418	215	22	78	2,471
Adjusted		(12,514)	(5,896)	(8,958)	(1,567)	(2,795)	(31,730)
Share of profit in associates and joint ventures							

Reported	23	—	—	—	2,533	2,556
Currency translation	(1)	—	—	—	(113)	(114)
Significant items	—	—	—	—	1	1
– trading results from disposed-of operations in Brazil	—	—	—	—	1	1
Adjusted	22	—	—	—	2,421	2,443
Profit/(loss) before tax						
Reported	4,799	5,585	5,158	223	3,102	18,867
Currency translation	(169)	(362)	(147)	(6)	(156)	(840)
Significant items	1,060	200	523	170	(452)	1,501
– revenue	(2,094)	(655)	(682)	(57)	(1,892)	(5,380)
– LICs	713	251	(31)	—	—	933
– operating expenses	2,441	604	1,236	227	1,439	5,947
– share of profit in associates and joint ventures	—	—	—	—	1	1
Adjusted	5,690	5,423	5,534	387	2,494	19,528

Reconciliation of reported and adjusted items (continued)

		2014[35]					
		Retail Banking and Wealth Management	Commercial Banking	Global Banking and Markets	Global Private Banking	Corporate Centre	Total
	Footnotes	$m	$m	$m	$m	$m	$m
Revenue	22						
Reported		24,056	15,197	15,392	2,248	4,355	61,248
Currency translation		(3,490)	(1,967)	(1,725)	(185)	(245)	(7,612)
Significant items		(1,591)	(632)	(89)	16	(211)	(2,507)
– DVA on derivative contracts		—	—	332	—	—	332
– fair value movements on non-qualifying hedges	23	—	—	—	—	541	541
– gain on sale of shareholding in Bank of Shanghai		—	—	—	—	(428)	(428)
– impairment of our investment in Industrial Bank		—	—	—	—	271	271
– own credit spread	24	—	—	—	—	(417)	(417)
– portfolio disposals		—	—	—	—	(168)	(168)
– provisions arising from the ongoing review of compliance with the UK Consumer Credit Act		568	24	—	40	—	632
– (gain)/loss and trading results from disposals and changes in ownership levels		(2,159)	(656)	(421)	(24)	(10)	(3,270)
Adjusted		18,975	12,598	13,578	2,079	3,899	51,129
LICs							
Reported		(1,905)	(1,551)	(721)	8	318	(3,851)
Currency translation		488	318	139	—	(27)	918
Significant items		516	339	174	3	—	1,032
– trading results from disposals and changes in ownership levels		516	339	174	3	—	1,032
Adjusted		(901)	(894)	(408)	11	291	(1,901)
Operating expenses							
Reported		(17,670)	(7,115)	(11,257)	(1,780)	(3,427)	(41,249)
Currency translation		2,869	976	1,455	136	(3)	5,433
Significant items		2,837	563	1,556	93	707	5,756
– charge in relation to the settlement agreement with the Federal Housing Finance Authority		—	—	—	—	550	550
– regulatory provisions in GPB		—	—	—	65	—	65
– restructuring and other related costs		86	37	27	6	122	278
– settlements and provisions in connection with legal matters		—	—	1,187	—	—	1,187
– UK customer redress programmes		992	138	145	—	—	1,275
– trading results from disposals and changes in ownership levels		1,759	388	197	22	35	2,401
Adjusted		(11,964)	(5,576)	(8,246)	(1,551)	(2,723)	(30,060)

Share of profit in associates and joint ventures						
Reported	41	—	—	—	2,491	2,532
Currency translation	(1)	—	—	—	(149)	(150)
Significant items	—	—	—	—	—	—
– trading results from disposals and changes in ownership levels	—	—	—	—	—	—
Adjusted	40	—	—	—	2,342	2,382
Profit/(loss) before tax						
Reported	4,522	6,531	3,414	476	3,737	18,680
Currency translation	(134)	(673)	(131)	(49)	(424)	(1,411)
Significant items	1,762	270	1,641	112	496	4,281
– revenue	(1,591)	(632)	(89)	16	(211)	(2,507)
– LICs	516	339	174	3	—	1,032
– operating expenses	2,837	563	1,556	93	707	5,756
– share of profit in associates and joint ventures	—	—	—	—	—	—
Adjusted	6,150	6,128	4,924	539	3,809	21,550

For footnotes, see page 79.

Reconciliation of reported and adjusted risk-weighted assets

	Retail Banking and Wealth Management	Commercial Banking	Global Banking and Markets	Global Private Banking	Corporate Centre	Total
2016	$bn	$bn	$bn	$bn	$bn	$bn
Risk-weighted assets						
Reported	115.1	275.9	300.4	15.3	150.5	857.2
Brazil operations	(3.2)	(1.0)	(0.8)	—	(0.2)	(5.2)
Adjusted	111.9	274.9	299.6	15.3	150.3	852.0
2015[35]						
Risk-weighted assets						
Reported	130.7	302.2	330.3	18.0	321.8	1,103.0
Currency translation	(3.8)	(14.9)	(9.0)	(0.7)	(13.0)	(41.4)
Brazil operations	(13.6)	(16.4)	(13.1)	(0.2)	(3.1)	(46.4)
Adjusted	113.3	270.9	308.2	17.1	305.7	1,015.2
2014[35]						
Risk-weighted assets						
Reported	133.7	312.1	385.8	18.9	369.3	1,219.8
Currency translation	(12.0)	(32.6)	(23.2)	(1.1)	(24.2)	(93.1)
Brazil operations	(12.2)	(16.9)	(12.9)	(0.1)	(1.2)	(43.3)
Adjusted	109.5	262.6	349.7	17.7	343.9	1,083.4

For footnote, see page 79.

Management view of adjusted revenue

The tables below provide a breakdown of revenue by major products for RBWM, CMB, GB&M and Corporate Centre. These reflect the basis on which revenue performance of the businesses is assessed and managed.

For GPB, the key measure of business performance is client assets, which is presented below.

Adjusted return on risk-weighted assets ('RoRWA') is used to measure performance of RBWM, CMB, GB&M and GPB and is presented below.

Further information on the global businesses can be found in the Strategic Report on pages 18 to 19.

A reconciliation of changes in the global businesses is available in the re-segmentation data pack which can be found online at www.hsbc.com/investor-relations.

Retail Banking and Wealth Management

Management view of adjusted revenue

	Footnotes	2016 $m	2015 $m	2014 $m
Net operating income	22			
Retail Banking		12,979	12,806	13,041
Current accounts, savings and deposits		5,359	4,941	4,881
Personal lending		7,620	7,865	8,160
– mortgages		2,590	2,694	2,758
– credit cards		3,111	3,312	3,438
– other personal lending	26	1,919	1,859	1,964
Wealth Management		5,288	5,799	5,331
– investment distribution	25	2,926	3,262	3,030
– life insurance manufacturing		1,404	1,553	1,384
– asset management		958	984	917

Other	27	658	637	603
Year ended 31 Dec		18,925	19,242	18,975
		%	%	%
RoRWA	38	4.6	4.9	5.4

For footnotes, see page 79.

2016 compared with 2015

Adjusted profit before tax of $5.3bn was $0.4bn or 6% lower compared with 2015. This was driven by lower revenue in our Wealth Management business, together with higher LICs. By contrast, lower operating expenses reflected our continued focus on cost management.

Adjusted revenue of $18.9bn was $0.3bn or 2% lower, as growth in Retail Banking revenue was more than offset by a fall in Wealth Management. The reduction in Wealth Management (down $0.5bn) was driven by decreased investment distribution revenue as a result of lower mutual fund and retail securities turnover due to weaker market sentiment. This compared with a strong performance in the first half of 2015. In addition, insurance manufacturing revenue fell, reflecting adverse market impacts ($345m), although this was partly offset by the value of new business. However, in Retail Banking revenue rose $0.2bn or 1%, as revenue increased in current accounts and savings (up $0.4bn) from growth in balances, notably in Hong Kong and the UK. We also benefited from wider deposit spreads in Hong Kong and Mexico. By contrast, revenue in personal lending fell (down $0.2bn) despite growth in balances of $9bn or (3)%, notably in Hong Kong, the UK and Mexico, driven by spread compression (mainly in the UK).

Adjusted LICs increased by $0.1bn, notably in Mexico, reflecting growth in unsecured lending balances.

Adjusted operating expenses were 1% lower as inflation and investments were more than offset by transformation and other cost-saving initiatives.

2015 compared with 2014

Adjusted profit before tax of $5.7bn was $0.5bn or 7% lower than 2014 as revenue growth from Wealth Management was more than offset by an increase in our operating expenses and higher LICs.

Our adjusted revenue rose by $0.3bn to $19.2bn. This was driven by our Wealth Management business, where in Hong Kong investment distribution was higher reflecting higher sales of equities as a result of increased stock market turnover in the first half of the year, which offset weaker investor sentiment in the second half of 2015. Wealth Management income in Europe also grew as insurance manufacturing increased. This was partly offset by lower revenue in personal lending, notably in the

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UK due to lower overdraft fees and lower cards revenue due to reduced balances.
Adjusted LICs were $0.2bn higher than in 2014. LICs increased notably in the UAE reflecting increased charges on mortgages,

in part due to higher write-offs and additional provisions following a review of portfolio collateral.
Adjusted operating expenses rose by $0.6bn or 5% primarily due to investment in regulatory programmes and compliance, together with inflationary pressures in Asia and Latin America. In addition, staff costs increased in Hong Kong and the UK.

RBWM – summary

			Consists of		
		Total RBWM	Banking operations	Insurance manufacturing	Asset management
	Footnote	$m	$m	$m	$m
Year ended 31 Dec 2016					
Net operating income before loan impairment charges and other credit risk provisions	22	18,925	16,437	1,531	957
– net interest income		13,198	11,292	1,898	8
– net fee income/(expense)		4,839	4,474	(539)	904
– other income/(loss)		888	671	172	45
LICs		(1,171)	(1,171)	—	—
Net operating income		17,754	15,266	1,531	957
Total operating expenses		(12,441)	(11,415)	(380)	(646)
Operating profit/(loss)		5,313	3,851	1,151	311
Income from associates		20	—	20	—
Profit/(loss) before tax		5,333	3,851	1,171	311
Year ended 31 Dec 2015					
Net operating income before loan impairment charges and other credit risk provisions	22	19,242	16,548	1,709	985
– net interest income		12,579	10,807	1,763	9
– net fee income/(expense)		5,545	5,081	(493)	957
– other income		1,118	660	439	19
LICs		(1,060)	(1,060)	—	—
Net operating income		18,182	15,488	1,709	985
Total operating expenses		(12,514)	(11,484)	(364)	(666)
Operating profit/(loss)		5,668	4,004	1,345	319
Income from associates		22	—	22	—
Profit/(loss) before tax		5,690	4,004	1,367	319

For footnote, see page 79.
Insurance manufacturing for RBWM excluded other global businesses which contributed net operating income of $167m (2015: $171m) and profit before tax of $117m (2015: $108m) to overall insurance manufacturing. In 2016 insurance manufacturing net operating income for RBWM included $1,404m within Wealth Management (2015: $1,553m) and $127m within other products (2015: $156m).
In total insurance manufacturing generated $2,634m of annualised new business premiums (2015: $2,349m) of which $2,519m (2015: $2,230m) related to RBWM.

Distribution of insurance products by HSBC channels contributed $1,048m of net fee income (2015: $994m) of which RBWM channels earned $922m (2015: $896m). Of this total income, $615m was in respect of HSBC manufactured products (2015: $568m) and a corresponding fee expense is therefore recognised within the Insurance manufacturing.

Commercial Banking

Management view of adjusted revenue

	Footnotes	2016 $m	2015 $m	2014 $m
Net operating income	22			
Global Trade and Receivables Finance		1,879	2,077	2,125
Credit and Lending		5,102	5,019	4,688
Global Liquidity and Cash Management		4,345	4,164	4,014
Markets products, Insurance and Investments and Other	30	1,561	1,493	1,771
Year ended 31 Dec		12,887	12,753	12,598
		%	%	%
RoRWA	38	2.1	1.9	2.4

2016 compared with 2015

Adjusted profit before tax of $6.1bn was 12% higher than in 2015 primarily because of lower LICs, and revenue growth despite challenges in global trade.

Adjusted revenue rose by $0.1bn or 1%. This included growth of $0.2bn in GLCM driven by increased balances and wider spreads in Hong Kong. Revenue in Credit and Lending also increased (up $0.1bn), reflecting continued loan growth in the UK. This was partly offset by lower revenue in Global Trade and Receivables Finance (‘GTRF’).

Adjusted LICs reduced by $0.4bn as 2016 included lower levels of individually assessed LICs, as well as a net release of collective allowances primarily relating to charges made in the fourth quarter of 2015, notably in the oil and gas sector.

Adjusted operating expenses reduced compared with 2015 as the effect of inflation was more than offset by ongoing cost discipline and the impact of our transformation initiatives.

2015 compared with 2014

Adjusted profit before tax of $5.4bn was $0.7bn lower than for 2014, as revenue growth was more than offset by an increase in LICs and costs.

Adjusted revenue increased by $0.2bn to $12.8bn, driven by Credit and Lending and GLCM. This was primarily in Hong Kong and the UK reflecting average balance sheet growth although demand for credit in Hong Kong was subdued in the second half of 2015, with balances remaining broadly unchanged.

Adjusted LICs were $0.5bn or 60% higher, reflecting enhanced credit risk in the oil and gas sector, notably in North America, Asia and Middle East and North Africa. In addition, we raised LICs against a small number of specific clients in Indonesia, the UAE and the UK.

Adjusted operating expenses increased by $0.3bn or 6%, primarily in Asia and the US due to growth initiatives, regulatory and compliance programmes and wage inflation.

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Global Banking and Markets

Management view of adjusted revenue

	Footnotes	2016 $m	2015 $m	2014 $m
Net operating income	22			
Global Markets		6,775	6,140	5,488
– Credit		803	631	669
– Rates		2,149	1,391	1,172
– Foreign Exchange		2,813	2,714	2,519
– Equities		1,010	1,404	1,128
Global Banking		3,820	3,801	3,521
Global Liquidity and Cash Management		1,951	1,798	1,699
Securities Services		1,585	1,620	1,508
Global Trade and Receivables Finance		702	691	693
Principal Investments		218	226	467
Credit and funding valuation adjustments	28	(70)	227	127
Other	29	(62)	63	75
Year ended 31 Dec		14,919	14,566	13,578
		%	%	%
RoRWA	38	1.8	1.6	1.5

The table above has been re-presented. In 2016, 'Credit and funding valuation adjustments' of $(70)m is a separate line previously included within 'Markets' (2015: $227m).

2016 compared with 2015

Adjusted profit before tax of $5.6bn was $63m higher than in 2015, as revenue increased and operating expenses decreased, reflecting transformational cost savings, partly offset by an increase in LICs.

Adjusted revenue of $14.9bn rose $353m or 2%, despite adverse movements in credit and funding valuation adjustments compared with favourable movements in 2015 (net effect, down $297m), primarily relating to movements on our own credit spreads on structured liabilities. Excluding these, revenue rose $650m or 5%, mainly in Rates and Credit, as we gained market share in Europe. In GLCM, revenue increased as we grew average balances and benefited from wider spreads. By contrast, revenue fell in Equities, reflecting lower trading volumes in Europe and Asia.

Adjusted LICs increased (up $0.4bn), predominantly driven by a small number of individually assessed exposures within the oil and gas, and metals and mining sectors, notably in the first half of 2016 in the US.

Adjusted operating expenses fell by $93m, reflecting reduced performance-related pay, disciplined cost management, efficiency improvements including technology delivery rationalisation, and FTE reductions. These reductions more than offset the investments we made in the business.

2015 compared with 2014

Adjusted profit before tax of $5.5bn was $0.6bn or 12% higher than prior year as revenue rose and LICs decreased, partly offset by increased costs.

Adjusted revenue grew by $1.0bn or 7% to $14.6bn with higher revenue in all businesses except Principal Investments. This was primarily driven by increased client flows and volatility in Equities (up by $0.3bn) and transaction banking products (up by $0.2bn).

Adjusted LICs were $0.3bn lower, reflecting a significant reduction in impairments compared with 2014.

Adjusted operating expenses increased by $0.7bn or 9% primarily due to wage inflation and higher performance-related costs. We continued to invest in GLCM and Foreign Exchange businesses as well as regulatory and compliance programmes.

Global Private Banking

Management view of adjusted revenue

	2016	2015	2014
	$m	$m	$m
Net operating income			
Investment Revenue	725	899	954
Lending	414	416	425
Deposit	343	355	381
Other	275	295	319
Year ended 31 Dec	1,757	1,965	2,079

Reported client assets[31]

		2016	2015	2014
	Footnote	$bn	$bn	$bn
At 1 Jan		349	365	382
Net new money		(17)	1	(3)
– of which: areas targeted for growth		2	14	14
Value change		1	1	8
Disposals		(24)	—	(11)
Exchange and other		(11)	(18)	(11)
At 31 Dec		298	349	365
		%	%	%
RoRWA	38	1.7	2.1	2.9

Reported client assets by geography

		2016	2015	2014
	Footnote	$bn	$bn	$bn
Europe		147	167	177
Asia		108	112	112
North America		40	61	63
Latin America		3	8	11
Middle East	40	—	1	2
At 31 Dec		298	349	365

For footnotes, see page 79.

2016 compared with 2015

Adjusted profit before tax of $0.3bn fell by $0.1bn as revenue decreased, partly offset by a reduction in costs.

Adjusted revenue of $1.8bn fell by $0.2bn or 11%, as brokerage and trading activity in both Europe and Asia decreased. This reflected the continued impact of client repositioning, in addition to adverse market sentiment and unfavourable market conditions throughout the year.

Adjusted operating expenses decreased by $0.1bn, primarily as a result of reduced FTEs and cost-saving initiatives.

2015 compared with 2014

Adjusted profit before tax decreased by 28% to $387m, reflecting continued repositioning, partly offset by revenue growth in Asia.

Our adjusted revenue fell by $114m to $2.0bn primarily from the repositioning of the business, notably in Switzerland. This was partly offset by increased revenue in Hong Kong and Singapore due to higher transaction volumes and higher market turnover in the first half of 2015, which more than offset weaker investor sentiment in the second half of the year.

Adjusted operating expenses rose by 1% to $1.6bn reflecting investment in the UK and Hong Kong. This was partly offset by lower staff costs in Switzerland.

Corporate Centre

Management view of adjusted revenue

	Footnotes	2016 $m	2015 $m	2014 $m
Net operating income	22			
Central Treasury	42	1,504	1,905	1,938
Legacy portfolios		715	1,234	1,571
– US run-off portfolio		692	1,164	1,548
– Legacy credit		23	70	23
Other	43	(554)	(246)	390
Year ended 31 Dec		1,665	2,893	3,899

2016 compared with 2015

Adjusted profit before tax of $2.0bn was $0.5bn or 19% lower, driven by a fall in revenue and lower income from associates, partly offset by lower operating expenses, notably a reduced charge relating to the UK bank levy.

Adjusted revenue fell by $1.2bn, partly driven by reductions in our US CML portfolio ($0.5bn) as a result of lower average lending balances and portfolio sales. Revenue also fell in Central Treasury as a result of higher adverse fair value movements relating to the economic hedging of our long-term debt ($0.2bn) and higher interest expense ($0.2bn).

Adjusted LICs were broadly unchanged as increased charges in the US CML portfolio were broadly offset by higher releases of credit risk provisions in the legacy credit portfolio.

Adjusted operating expenses were $0.8bn lower, partly reflecting the benefits of transformational savings in our technology, operations and other functions, and a lower UK bank levy charge (down $0.5bn).

Adjusted income from associates was $0.1bn lower, primarily in Saudi Arabia.

2015 compared with 2014

Adjusted profit before tax of $2.5bn was $1.3bn lower, mainly due to a fall in revenue.

Adjusted revenue fell $1.0bn. This was driven by a decrease in our US CML run-off portfolio, as we continued to reduce lending balances. We also recorded adverse net fair value movements relating to the hedging of our long-term debt with long-term derivatives compared to favourable movements in the prior year (a net adverse movement of $0.2bn). In addition, revenue was affected by the non-recurrence of a gain on the external hedging of an intra-Group financing transaction
($0.2bn).

Adjusted LICs in 2015 were $25m. This compared with a net release of adjusted LICs of $0.3bn in 2014. This reflected lower net releases on available-for-sale asset-backed securities in Legacy Credit.

Adjusted operating expenses were $0.1bn higher. This reflected a $0.4bn rise in the UK bank levy and higher regulatory programmes and compliance costs. These factors were partly offset by the initial effects of our cost-saving initiatives and a strong focus on cost management.

Income from associates was $0.1bn higher, reflecting an increase in contributions from BoCom.

Report of the Directors | Geographical regions

Analysis of reported results by geographical regions

HSBC reported profit/(loss) before tax and balance sheet data

		2016						
		Europe[35]	Asia	MENA[35]	North America	Latin America	Intra-HSBC items	Total
	Footnotes	$m	$m	$m	$m	$m	$m	$m
Profit/(loss) before tax								
Net interest income		8,346	12,490	1,831	4,220	3,006	(80)	29,813
Net fee income/(expense)		4,247	5,200	709	1,898	723	—	12,777
Net trading income/(expense)	21	4,949	3,127	385	462	449	80	9,452
Other income/(expense)	34	(2,026)	2,503	44	485	(1,492)	(3,590)	(4,076)
Net operating income before loan impairment charges and other credit risk provisions	22	15,516	23,320	2,969	7,065	2,686	(3,590)	47,966
Loan impairment charges and other credit risk provisions		(446)	(677)	(316)	(732)	(1,229)	—	(3,400)
Net operating income		15,070	22,643	2,653	6,333	1,457	(3,590)	44,566
Total operating expenses		(21,845)	(10,785)	(1,584)	(6,147)	(3,037)	3,590	(39,808)
Operating profit/(loss)		(6,775)	11,858	1,069	186	(1,580)	—	4,758
Share of profit/(loss) in associates and joint ventures		1	1,921	434	(1)	(1)	—	2,354
Profit/(loss) before tax		(6,774)	13,779	1,503	185	(1,581)	—	7,112
		%	%	%	%	%		%
Share of HSBC's profit before tax		(95.2)	193.7	21.1	2.6	(22.2)		100.0
Cost efficiency ratio		140.8	46.2	53.4	87.0	113.1		83.0
Balance sheet data	20	$m	$m	$m	$m	$m	$m	$m
Loans and advances to customers (net)		336,670	365,430	30,740	111,710	16,954	—	861,504
– reported in held for sale		1,057	—	474	2,092	—	—	3,623
Total external assets		1,068,446	965,730	60,472	409,021	43,137	(171,820)	2,374,986
Customer accounts		446,615	631,723	34,766	138,790	20,492	—	1,272,386
– reported in held for sale		2,012	—	701	—	—	—	2,713
Risk-weighted assets (unaudited)	33	298,384	333,987	59,065	150,714	34,341	—	857,181

		2015						
Profit/(loss) before tax								
Net interest income		9,686	12,184	1,849	4,532	4,318	(38)	32,531
Net fee income/(expense)		4,702	6,032	822	2,018	1,131	—	14,705
Net trading income/(expense)	21	3,968	3,090	418	545	664	38	8,723
Other income/(expense)	34	2,116	3,997	90	562	479	(3,403)	3,841
Net operating income before loan impairment charges and other credit risk provisions	22	20,472	25,303	3,179	7,657	6,592	(3,403)	59,800
		(519)	(693)	(470)	(544)	(1,495)	—	(3,721)

Loan impairment charges and other credit risk provisions								
Net operating income		19,953	24,610	2,709	7,113	5,097	(3,403)	56,079
Total operating expenses		(19,274)	(10,889)	(1,721)	(6,501)	(4,786)	3,403	(39,768)
Operating profit/(loss)		679	13,721	988	612	311	—	16,311
Share of profit/(loss) in associates and joint ventures		9	2,042	504	2	(1)	—	2,556
Profit/(loss) before tax		688	15,763	1,492	614	310	—	18,867
		%	%	%	%	%		%
Share of HSBC's profit before tax		3.6	83.5	7.9	3.3	1.7		100.0
Cost efficiency ratio		94.1	43.0	54.1	84.9	72.6		66.5
Balance sheet data	20	$m	$m	$m	$m	$m	$m	$m
Loans and advances to customers (net)		385,037	356,375	36,898	128,851	17,293	—	924,454
– reported in held for sale		—	—	—	2,020	17,001	—	19,021
Total external assets		1,121,401	889,747	70,157	393,960	86,262	(151,871)	2,409,656
Customer accounts		491,520	598,620	42,824	135,152	21,470	—	1,289,586
– reported in held for sale		—	—	—	1,588	15,094	—	16,682
Risk-weighted assets (unaudited)	33	327,219	459,680	70,585	191,611	73,425	—	1,102,995

		2014						
		Europe	Asia	MENA	North America	Latin America	Intra-HSBC items	Total
	Footnotes	$m	$m	$m	$m	$m	$m	$m
Net interest income		10,115	12,273	2,014	5,015	5,310	(22)	34,705
Net fee income		5,738	5,910	954	1,940	1,415	—	15,957
Net trading income/(expense)	21	2,557	2,622	292	411	856	22	6,760
Other income/(expense)	34	2,394	2,872	79	786	691	(2,996)	3,826
Net operating income before loan impairment charges and other credit risk provisions	22	20,804	23,677	3,339	8,152	8,272	(2,996)	61,248
Loan impairment charges and other credit risk provisions		(518)	(647)	(240)	(322)	(2,124)	—	(3,851)
Net operating income		20,286	23,030	3,099	7,830	6,148	(2,996)	57,397
Total operating expenses		(19,633)	(10,427)	(1,824)	(6,429)	(5,932)	2,996	(41,249)
Operating profit/(loss)		653	12,603	1,275	1,401	216	—	16,148
Share of profit in associates and joint ventures		6	2,022	488	16	—	—	2,532
Profit/(loss) before tax		659	14,625	1,763	1,417	216	—	18,680
		%	%	%	%	%		%
Share of HSBC's profit before tax		3.6	78.3	9.4	7.6	1.1		100.0
Cost efficiency ratio		94.4	44.0	54.6	78.9	71.7		67.3
Balance sheet data	20	$m	$m	$m	$m	$m	$m	$m
Loans and advances to customers (net)		401,642	362,955	37,154	129,787	43,122	—	974,660
– reported in held for sale		91	—	—	486	—	—	577
Total external assets		1,279,817	878,723	76,609	436,859	115,354	(153,223)	2,634,139
Customer accounts		538,104	577,491	47,575	138,884	48,588	—	1,350,642
– reported in held for sale		145	—	—	—	—	—	145
Risk-weighted assets (unaudited)	33	363,473	499,846	74,785	221,378	88,781	—	1,219,765

For footnotes, see page 79.

Report of the Directors | Geographical regions

Reconciliation of reported and adjusted items – geographical regions

2016 compared with 2015 and 2014

		2016							
		Europe	Asia	MENA	North America	Latin America	Total	UK	Hong Kong
	Footnotes	$m	$m	$m	$m	$m	$m	$m	$m
Revenue	22								
Reported	32	15,516	23,320	2,969	7,065	2,686	47,966	10,893	14,014
Significant items		1,740	(6)	(11)	155	309	2,187	1,795	(1)
– DVA on derivative contracts		(56)	(15)	—	9	36	(26)	(63)	(22)
– fair value movements on non-qualifying hedges	23	563	17	—	107	—	687	532	26
– gain on disposal of our membership interest in Visa – Europe		(573)	—	(11)	—	—	(584)	(441)	—
– gain on disposal of our membership interest in Visa – US		—	—	—	(116)	—	(116)	—	—
– own credit spread	24	1,782	(8)	—	18	—	1,792	1,769	(5)
– portfolio disposals		26	—	—	137	—	163	—	—
– releases arising from the ongoing review of compliance with the UK Consumer Credit Act		(2)	—	—	—	—	(2)	(2)	—
– loss and trading results from disposed-of operations in Brazil		—	—	—	—	273	273	—	—
Adjusted	32	17,256	23,314	2,958	7,220	2,995	50,153	12,688	14,013
LICs									
Reported		(446)	(677)	(316)	(732)	(1,229)	(3,400)	(245)	(321)
Significant items		—	—	—	—	748	748	—	—
– trading results from disposed-of operations in Brazil		—	—	—	—	748	748	—	—
Adjusted		(446)	(677)	(316)	(732)	(481)	(2,652)	(245)	(321)
Operating expenses									
Reported	32	(21,845)	(10,785)	(1,584)	(6,147)	(3,037)	(39,808)	(14,562)	(5,646)
Significant items		6,632	430	103	989	1,098	9,252	2,670	183
– costs associated with portfolio disposals		28	—	—	—	—	28	—	—
– costs to achieve		2,098	476	103	402	39	3,118	1,838	229
– costs to establish UK ring-fenced bank		223	—	—	—	—	223	223	—
– impairment of GPB – Europe goodwill		3,240	—	—	—	—	3,240	—	—
– regulatory provisions in GPB		390	(46)	—	—	—	344	—	(46)
– settlements and provisions in connection with legal matters		94	—	—	587	—	681	50	—
– UK customer redress programmes		559	—	—	—	—	559	559	—

– trading results from disposed-of operations in Brazil		—	—	—	—	1,059	1,059	—	—
Adjusted	32	(15,213)	(10,355)	(1,481)	(5,158)	(1,939)	(30,556)	(11,892)	(5,463)
Share of profit in associates and joint ventures									
Reported		1	1,921	434	(1)	(1)	2,354	1	22
Significant items		—	—	—	—	1	1	—	—
– trading results from disposed-of operations in Brazil		—	—	—	—	1	1	—	—
Adjusted		1	1,921	434	(1)	—	2,355	1	22
Profit/(loss) before tax									
Reported		(6,774)	13,779	1,503	185	(1,581)	7,112	(3,913)	8,069
Significant items		8,372	424	92	1,144	2,156	12,188	4,465	182
– revenue		1,740	(6)	(11)	155	309	2,187	1,795	(1)
– LICs		—	—	—	—	748	748	—	—
– operating expenses		6,632	430	103	989	1,098	9,252	2,670	183
– share of profit in associates and joint ventures		—	—	—	—	1	1	—	—
Adjusted		1,598	14,203	1,595	1,329	575	19,300	552	8,251

Reconciliation of reported and adjusted items (continued)

		2015							
		Europe	Asia	MENA	North America	Latin America	Total	UK	Hong Kong
	Footnotes	$m	$m	$m	$m	$m	$m	$m	$m
Revenue	22								
Reported	32	20,472	25,303	3,179	7,657	6,592	59,800	15,493	15,616
Currency translation	32	(1,613)	(305)	(182)	(60)	(896)	(3,001)	(1,577)	(20)
Significant items		(656)	(1,431)	(10)	98	(3,381)	(5,380)	(595)	(1,383)
– DVA on derivative contracts		(95)	(58)	(1)	(21)	(55)	(230)	(78)	(13)
– fair value movements on non-qualifying hedges	23	200	2	—	124	1	327	204	6
– gain on the partial sale of shareholding in Industrial Bank		—	(1,372)	—	—	—	(1,372)	—	(1,372)
– own credit spread	24	(771)	(3)	(9)	(219)	—	(1,002)	(731)	(4)
– portfolio disposals		—	—	—	214	—	214	—	—
– provisions arising from the ongoing review of compliance with the UK Consumer Credit Act		10	—	—	—	—	10	10	—
– trading results from disposed-of operations in Brazil		—	—	—	—	(3,327)	(3,327)	—	—
Adjusted	32	18,203	23,567	2,987	7,695	2,315	51,419	13,321	14,213
LICs									
Reported		(519)	(693)	(470)	(544)	(1,495)	(3,721)	(248)	(155)
Currency translation		36	6	19	3	120	184	39	—
Significant items		—	—	—	—	933	933	—	—
– trading results from disposed-of operations in Brazil		—	—	—	—	933	933	—	—
Adjusted		(483)	(687)	(451)	(541)	(442)	(2,604)	(209)	(155)
Operating expenses									
Reported	32	(19,274)	(10,889)	(1,721)	(6,501)	(4,786)	(39,768)	(15,555)	(5,686)
Currency translation	32	1,287	177	83	32	567	2,091	1,253	7
Significant items		2,405	130	15	851	2,546	5,947	2,151	49
– costs to achieve		600	122	14	103	69	908	536	43
– costs to establish UK ring-fenced bank		89	—	—	—	—	89	89	—
– regulatory provisions in GPB		172	—	—	—	—	172	—	—
– restructuring and other related costs		68	8	1	34	6	117	50	6
– settlements and provisions in connection with legal matters		935	—	—	714	—	1,649	935	—
– UK customer redress programmes		541	—	—	—	—	541	541	—
– trading results from disposed-of operations in Brazil		—	—	—	—	2,471	2,471	—	—
Adjusted	32	(15,582)	(10,582)	(1,623)	(5,618)	(1,673)	(31,730)	(12,151)	(5,630)
Share of profit in associates and joint ventures									
Reported		9	2,042	504	2	(1)	2,556	10	31
Currency translation		—	(113)	—	(1)	—	(114)	(1)	—
Significant items		—	—	—	—	1	1	—	—

– trading results from disposed-of operations in Brazil	—	—	—	—	1	1	—	—
Adjusted	9	1,929	504	1	—	2,443	9	31
Profit/(loss) before tax								
Reported	688	15,763	1,492	614	310	18,867	(300)	9,806
Currency translation	(290)	(235)	(80)	(26)	(209)	(840)	(286)	(13)
Significant items	1,749	(1,301)	5	949	99	1,501	1,556	(1,334)
– revenue	(656)	(1,431)	(10)	98	(3,381)	(5,380)	(595)	(1,383)
– LICs	—	—	—	—	933	933	—	—
– operating expenses	2,405	130	15	851	2,546	5,947	2,151	49
– share of profit in associates and joint ventures	—	—	—	—	1	1	—	—
Adjusted	2,147	14,227	1,417	1,537	200	19,528	970	8,459

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Reconciliation of reported and adjusted items (continued)

		2014							
		Europe	Asia	MENA	North America	Latin America	Total	UK	Hong Kong
	Footnotes	$m	$m	$m	$m	$m	$m	$m	$m
Revenue	22								
Reported	32	20,804	23,677	3,339	8,152	8,272	61,248	15,727	13,844
Currency translation	32	(3,404)	(964)	(367)	(311)	(2,703)	(7,612)	(2,574)	(17)
Significant items		708	(48)	(3)	116	(3,280)	(2,507)	353	(119)
– DVA on derivative contracts		234	69	5	16	8	332	203	26
– fair value movements on non-qualifying hedges	23	235	4	—	302	—	541	(8)	11
– gain on sale of shareholding in Bank of Shanghai		—	(428)	—	—	—	(428)	—	(428)
– impairment of our investment in Industrial Bank		—	271	—	—	—	271	—	271
– own credit spread	24	(393)	4	6	(34)	—	(417)	(474)	1
– portfolio disposals		—	—	—	(168)	—	(168)	—	—
– provisions arising from the ongoing review of compliance with the UK Consumer Credit Act		632	—	—	—	—	632	632	—
– (gain)/loss and trading results from disposals and changes in ownership levels		—	32	(14)	—	(3,288)	(3,270)	—	—
Adjusted	32	18,108	22,665	2,969	7,957	2,289	51,129	13,506	13,708
LICs									
Reported		(518)	(647)	(240)	(322)	(2,124)	(3,851)	(214)	(320)
Currency translation		137	38	71	16	656	918	81	1
Significant items		—	—	(2)	—	1,034	1,032	—	—
– trading results from disposals and changes in ownership levels		—	—	(2)	—	1,034	1,032	—	—
Adjusted		(381)	(609)	(171)	(306)	(434)	(1,901)	(133)	(319)
Operating expenses									
Reported	32	(19,633)	(10,427)	(1,824)	(6,429)	(5,932)	(41,249)	(15,576)	(5,424)
Currency translation	32	2,797	509	212	158	1,894	5,433	2,165	6
Significant items		2,600	58	34	578	2,486	5,756	2,553	56
– charge in relation to the settlement agreement with the Federal Housing Finance Authority		—	—	—	550	—	550	—	—
– regulatory provisions in GPB		16	49	—	—	—	65	—	49
– restructuring and other related costs		122	9	3	28	116	278	91	7
– settlements and provisions in connection with legal matters		1,187	—	—	—	—	1,187	1,187	—
– UK customer redress programmes		1,275	—	—	—	—	1,275	1,275	—
– trading results from disposals and changes in ownership levels		—	—	31	—	2,370	2,401	—	—
Adjusted	32	(14,236)	(9,860)	(1,578)	(5,693)	(1,552)	(30,060)	(10,858)	(5,362)

Share of profit in associates and joint ventures								
Reported	6	2,022	488	16	—	2,532	7	42
Currency translation	(1)	(147)	—	(2)	—	(150)	(1)	1
Significant items	—	—	—	—	—	—	—	—
– trading results from disposals and changes in ownership levels	—	—	—	—	—	—	—	—
Adjusted	5	1,875	488	14	—	2,382	6	43
Profit/(loss) before tax								
Reported	659	14,625	1,763	1,417	216	18,680	(56)	8,142
Currency translation	(471)	(564)	(84)	(139)	(153)	(1,411)	(329)	(9)
Significant items	3,308	10	29	694	240	4,281	2,906	(63)
– revenue	708	(48)	(3)	116	(3,280)	(2,507)	353	(119)
– LICs	—	—	(2)	—	1,034	1,032	—	—
– operating expenses	2,600	58	34	578	2,486	5,756	2,553	56
– share of profit in associates and joint ventures	—	—	—	—	—	—	—	—
Adjusted	3,496	14,071	1,708	1,972	303	21,550	2,521	8,070

For footnotes, see page 79.

Analysis of reported results by country

Profit/(loss) before tax by priority markets within global businesses

	Footnotes	Retail Banking and Wealth Management	Commercial Banking	Global Banking and Markets	Global Private Banking	Corporate Centre	Total
		$m	$m	$m	$m	$m	$m
Europe		524	2,129	1,009	(3,695)	(6,741)	(6,774)
– UK		338	1,834	385	86	(6,556)	(3,913)
– of which: HSBC Holdings	36, 41	(676)	(379)	(425)	(63)	(3,748)	(5,291)
– France		147	198	289	9	(53)	590
– Germany		23	68	142	7	13	253
– Switzerland		—	9	—	(493)	(7)	(491)
– other		16	20	193	(3,304)	(138)	(3,213)
Asia		4,115	2,920	3,211	268	3,265	13,779
– Hong Kong		3,796	2,191	1,298	221	563	8,069
– Australia		108	74	156	—	31	369
– India		15	123	355	10	240	743
– Indonesia		(9)	66	110	—	11	178
– Mainland China		(72)	68	456	(3)	2,158	2,607
– Malaysia		65	65	172	—	53	355
– Singapore		107	43	170	42	77	439
– Taiwan		24	10	102	(1)	13	148
– other		81	280	392	(1)	119	871
Middle East and North Africa		20	290	652	—	541	1,503
– Egypt		58	104	213	—	79	454
– UAE		83	94	298	—	5	480
– Saudi Arabia		1	—	—	—	434	435
– other		(122)	92	141	—	23	134
North America		64	648	259	90	(876)	185
– US		(28)	336	86	67	(932)	(471)
– Canada		46	292	155	—	47	540
– other		46	20	18	23	9	116
Latin America		(136)	59	309	9	(1,822)	(1,581)
– Mexico		94	84	79	5	(15)	247
– other		(230)	(25)	230	4	(1,807)	(1,828)
– of which: Brazil		(281)	(139)	176	4	(1,836)	(2,076)
Year ended 31 Dec 2016		4,587	6,046	5,440	(3,328)	(5,633)	7,112

Report of the Directors | Geographical regions / Other information

Profit/(loss) before tax by priority markets within global businesses (continued)

		Retail Banking and Wealth Management	Commercial Banking	Global Banking and Markets	Global Private Banking	Corporate Centre	Total
		$m	$m	$m	$m	$m	$m
Europe		914	1,953	122	(93)	(2,208)	688
– UK		560	1,722	(361)	126	(2,347)	(300)
– of which: HSBC Holdings	36, 41	(530)	(399)	(274)	(91)	(2,892)	(4,186)
– France		357	130	84	14	54	639
– Germany		23	66	137	20	(7)	239
– Switzerland		—	8	—	(267)	43	(216)
– other		(26)	27	262	14	49	326
Asia		4,154	2,843	3,653	252	4,861	15,763
– Hong Kong		3,811	2,317	1,629	177	1,872	9,806
– Australia		60	51	232	—	30	373
– India		(25)	79	321	14	217	606
– Indonesia		(6)	(128)	76	—	51	(7)
– Mainland China		32	97	574	(3)	2,360	3,060
– Malaysia		118	78	196	—	50	442
– Singapore		105	81	193	65	63	507
– Taiwan		10	17	113	—	15	155
– other		49	251	319	(1)	203	821
Middle East and North Africa							
– Egypt		50	92	179	—	89	410
– UAE		85	(24)	270	—	36	367
– Saudi Arabia		2	—	—	—	498	500
– other		(138)	120	161	2	70	215
North America		(23)	445	444	59	(311)	614
– US		(112)	194	319	64	(424)	41
– Canada		57	240	101	—	87	485
– other		32	11	24	(5)	26	88
Latin America		(245)	156	329	3	67	310
– Mexico		70	(8)	(70)	(2)	42	32
– other		(315)	164	399	5	25	278
– of which: Brazil		(344)	13	341	6	(11)	5
Year ended 31 Dec 2015		4,799	5,585	5,158	223	3,102	18,867
Europe		352	2,238	(1,010)	181	(1,102)	659
– UK		283	1,917	(1,655)	154	(755)	(56)
– of which: HSBC Holdings	36, 41	(335)	(321)	(206)	(22)	(1,965)	(2,849)
– France		6	215	319	—	(326)	214
– Germany		28	70	139	26	15	278
– Switzerland		—	5	2	(46)	81	42
– other		35	31	185	47	(117)	181
Asia		4,239	3,123	3,102	212	3,949	14,625
– Hong Kong		3,727	2,217	1,163	145	890	8,142
– Australia		78	99	222	—	33	432
– India		4	101	378	11	206	700

– Indonesia	10	42	101	—	45	198
– Mainland China	31	86	449	(3)	2,388	2,951
– Malaysia	155	108	165	—	68	496
– Singapore	162	120	181	57	69	589
– Taiwan	18	29	130	—	44	221
– other	54	321	313	2	206	896
Middle East and North Africa	84	379	695	—	605	1,763
– Egypt	64	84	136	—	51	335
– UAE	162	158	363	—	(21)	662
– Saudi Arabia	1	—	—	—	485	486
– other	(143)	137	196	—	90	280
North America	19	799	388	87	124	1,417
– US	(99)	323	215	84	9	532
– Canada	95	479	140	—	115	829
– other	23	(3)	33	3	—	56
Latin America	(172)	(8)	239	(4)	161	216
– Mexico	4	(27)	11	(2)	65	51
– other	(176)	19	228	(2)	96	165
– of which: Brazil	(230)	(97)	79	(2)	3	(247)
Year ended 31 Dec 2014	4,522	6,531	3,414	476	3,737	18,680

For footnotes, see page 79.

Other information

Funds under management and assets held in custody

Funds under management

	Footnote	2016 $bn	2015 $bn
Funds under management	44		
At 1 Jan		896	954
Net new money		(8)	(3)
Value change		25	2
Exchange and other		(40)	(57)
Disposals		(42)	–
At 31 Dec		831	896
Funds under management by business			
Global Asset Management		410	419
Global Private Banking		222	261
Affiliates		2	4
Other		197	212
At 31 Dec		831	896

For footnote, see page 79.

Funds under management ('FuM') represents assets managed, either actively or passively, on behalf of our customers. At 31 December 2016, FuM amounted to $831bn, a decrease of 7% as a result of adverse foreign exchange movements and disposals, which included our sale of operations in Brazil, partly offset by favourable market performance.

Global Asset Management FuM decreased by 2% to $410bn compared with 31 December 2015. Excluding currency translation, FuM increased by 3% primarily as a result of positive market performance, with net new money from our retail and institutional customers in Asia into fixed income products being offset by outflows from our customers in Europe and the Americas.

GPB FuM decreased by 15% to $222bn compared with 31 December 2015. Excluding currency translation, FuM decreased by 13%, reflecting the ongoing repositioning of our client base. This was partly offset by positive net new money in areas targeted for growth, notably in the UK, the Channel Islands and Hong Kong.

Other FuM, of which the main element is a corporate trust business in Asia, decreased by 7% to $197bn.

Assets held in custody[44] and under administration

Custody is the safekeeping and servicing of securities and other financial assets on behalf of clients. At 31 December 2016, we held assets as custodian of $6.3tn, 1% higher than the $6.2tn held at 31 December 2015. The increase was driven by favourable foreign exchange movements in Asia, together with the onboarding of new clients in Europe and Asia. This was partly offset by adverse foreign exchange movements in the UK.

Our Assets Under Administration business, which includes the provision of bond and loan administration services and the valuation of portfolios of securities and other financial assets on behalf of clients, complements the Custody business. At 31 December 2016, the value of assets held under administration by the Group amounted to $2.9tn. This was 7% lower than the $3.1tn held at 31 December 2015. The decrease primarily reflected net asset outflows in the Corporate Trust and Loan Agency business in North America, together with adverse foreign exchange movements in the UK.

Taxes paid by region and country

The following tables reflect a geographical view of HSBC's operations.

Taxes paid by HSBC relate to HSBC's own tax liabilities including tax on profits earned, employer taxes, bank levy and other duties/levies such as stamp duty. Numbers are reported on a cash flow basis.

Taxes paid by country

		2016	2015	2014
	Footnote	$m	$m	$m
Europe	45	3,151	3,644	3,550
Home and priority markets		3,096	3,346	3,391
– UK		2,385	2,526	2,363
– France		553	620	790
– Germany		124	108	131
– Switzerland		34	92	107
Other markets		55	298	159
Asia		2,755	2,780	2,687
Home and priority markets		2,470	2,458	2,418
– Hong Kong		1,488	1,415	1,273
– Mainland China		241	277	278
– India		315	285	290
– Australia		147	173	204
– Malaysia		99	92	133
– Indonesia		46	70	76
– Singapore		85	80	101
– Taiwan		35	53	44
– Japan		14	13	19
Other markets		285	322	269
Middle East and North Africa		293	449	369
Priority markets		267	407	246
– Saudi Arabia		60	151	84
– UAE		89	120	102
– Egypt		97	136	60
– Turkey		21	16	75
Other markets		26	26	48
North America		276	353	(108)
Priority markets		276	353	(108)
– US		135	127	(377)
– Canada		141	226	269
Other markets		—	—	—
Latin America		965	1,184	1,384
Priority markets		303	431	534
– Argentina		224	340	333
– Mexico		79	91	201
Brazil		658	735	804
Other markets		4	18	46
Total		7,440	8,410	7,882

For footnote, see page 79.

Conduct-related matters

Conduct-related costs included in significant items

	2016	2015	2014
	$m	$m	$m
Income statement			
Net interest income/(expense)	2	(10)	(632)
provisions arising from the ongoing review of compliance with the UK Consumer Credit Act	2	(10)	(632)
Operating expenses			
Comprising:			
Legal proceedings and regulatory matters	1,025	1,821	1,802
– charge in relation to the settlement agreement with the Federal Housing Finance Authority	—	—	550
– regulatory provisions in GPB	344	172	65
– settlements and provisions in connection with legal matters	681	1,649	1,187
Customer remediation	559	541	1,275
Total operating expenses	1,584	2,362	3,077
Total charge for the year relating to significant items	1,582	2,372	3,709
– of which:			
total provisions charge for the year	1,584	2,362	2,500
total provisions utilised during the year	2,265	1,021	2,503
Balance sheet at 31 Dec			
Total provisions	3,056	3,926	2,545
– legal proceedings and regulatory matters	2,060	2,729	1,154
– customer remediation	996	1,197	1,391
Accruals, deferred income and other liabilities	106	168	379

The table above provides a summary of conduct-related costs incurred and included within significant items (see pages 33 and 39).

The HSBC approach to conduct is designed to ensure that through our actions and behaviours we deliver fair outcomes for our customers and do not disrupt the orderly and transparent operation of financial markets. The Board places a strong emphasis on conduct, requiring adherence to high behavioural standards and adhering to the HSBC Values. Board oversight of conduct matters is provided by the Conduct & Values Committee, which oversees the embedding of HSBC Values and our required global conduct outcomes, and the Remuneration Committee, which considers conduct and compliance-related matters relevant to remuneration. These committees' reports may be found on pages 181 to 183.

The management of business conduct and the steps taken to raise standards are described on page 114. 'Regulatory focus on conduct of business and financial crime' is one of the Group's top and emerging risks and is discussed on page 91.

Provisions relating to significant items raised for conduct costs in 2016 resulted from the ongoing consequences of a small number of historical events.

Operating expenses included significant items related to conduct matters in respect of legal proceedings and regulatory matters of $1.0bn and customer remediation costs in respect of the mis-selling of payment protection insurance of $0.5bn. These are discussed in Note 27 and Note 35 of the Financial Statements.

Carbon dioxide emissions

To report carbon emissions, we use the revised edition of the Greenhouse Gas Protocol's A Corporate Accounting and Reporting Standard guideline for disclosure that incorporates the Scope 2 market-based methodology.

We report carbon dioxide emissions resulting from energy use in our buildings and employees' business travel.

For 29 countries where we operated in 2016, which accounted for approximately 92% of our full-time employees ('FTEs'), we collect data on energy use and business travel. For the other countries where we have financial control and a small presence, we estimate emissions by scaling up from 92% to 100% of FTEs.

We then apply emission uplift rates to reflect uncertainty concerning the quality and coverage of emission measurement and estimation. The rates are 4% for electricity, 10% for other energy and 6% for business travel. This is consistent both with the Intergovernmental Panel on Climate Change's Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories and our internal analysis of data coverage and quality.

Figures for 2016 and the previous year are in the following tables.

Carbon dioxide emissions in tonnes

	Footnote	2016	2015
	46		
Total		617,000	771,000
From energy		529,000	662,000
From travel		88,000	109,000

Carbon dioxide emissions in tonnes per FTE

	Footnote	2016	2015
Total	46	2.63	2.97
From energy		2.25	2.54
From travel		0.38	0.42

For footnote, see page 79.

Our greenhouse gas reporting year runs from October to September. For the year from 1 October 2015 to 30 September 2016, carbon dioxide emissions from our global operations were 617,000 tonnes. Independent assurance of our carbon dioxide emissions will be available in the first half of 2017 on our website.

Disclosure controls

The Group Chief Executive and Group Finance Director, with the assistance of other members of management, carried out an evaluation of the effectiveness of the design and operation of HSBC Holdings' disclosure controls and procedures as at 31 December 2016. Based upon that evaluation, the Group Chief Executive and Group Finance Director concluded that our disclosure controls and procedures at 31 December 2016 were effective to provide reasonable assurance that information required to be disclosed in the reports that the company files and submits under the US Securities Exchange Act of 1934, as amended, is recorded, processed, summarised and reported as and when required. There are inherent limitations to the effectiveness of any system of disclosure controls and procedures, including the possibility of human error and the circumvention or overriding of the controls and procedures. Accordingly, even effective disclosure controls and procedures can only provide reasonable assurance of achieving their control objectives.

In 2015, deficiencies in the design and operational effectiveness of a number of controls associated with IT privileged access were identified. Significant improvement in the control environment has been observed as a result of management's progress on the execution of the IT privileged access remediation programme. Management has assessed the effectiveness of relevant IT, business, monitoring and period-end mitigating controls for 2016. Please see 'Internal controls' on page 183.

There have been no changes in HSBC Holdings' internal control over financial reporting during the year ended 31 December 2016, that have materially affected, or are reasonably likely to materially affect, HSBC Holdings' internal control over financial reporting.

Management's assessment of internal controls over financial reporting

Management is responsible for establishing and maintaining an adequate internal control structure and procedures for financial reporting, and has completed an assessment of the effectiveness of the Group's internal controls over financial reporting for the year ended 31 December 2016. In making the assessment, management used the framework for internal control evaluation contained in the Financial Reporting Council's Guidance on Risk Management, Internal Control and Related Financial and Business Reporting (September 2014), as well as the criteria established by the Committee of Sponsoring Organisations of the Treadway Commission ('COSO') in 'Internal Control-Integrated Framework (2013)'.

Based on the assessment performed, management concluded that for the year ended 31 December 2016, the Group's internal controls over financial reporting were effective.

PricewaterhouseCoopers LLP, which has audited the consolidated financial statements of the Group for the year ended 31 December 2016, has also audited the effectiveness of the Group's internal control over financial reporting under Auditing Standard No. 5 of the Public Company Accounting Oversight Board (United States) as stated in their report on pages 212 and 212.

Footnotes to financial summary and other information

Consolidated income statement/ Group performance by income and expense item

1 Dividends recorded in the financial statements are dividends per ordinary share declared in a year and are not dividends in respect of, or for, that year.
2 Dividends per ordinary share expressed as a percentage of basic earnings per share.
3 Return on risk-weighted assets ('RoRWA') is calculated using pre-tax return and reported average RWAs.
4 Net interest income includes the cost of internally funding trading assets, while the related external revenues are reported in 'Trading income'. In our global business results, the cost of funding trading assets is included with Global Banking and Market's net trading income as interest expense.
5 Gross interest yield is the average annualised interest rate earned on average interest-earning assets ('AIEA').
6 Net interest spread is the difference between the average annualised interest rate earned on AIEA, net of amortised premiums and loan fees, and the average annualised interest rate paid on average interest-bearing funds.
7 Net interest margin is net interest income expressed as an annualised percentage of AIEA.
8 Interest income on trading assets is reported as 'Net trading income' in the consolidated income statement.
9 Interest income on financial assets designated at fair value is reported as 'Net income/(expense) from financial instruments designated at fair value' in the consolidated income statement.
10 Including interest-bearing bank deposits only.
11 Interest expense on financial liabilities designated at fair value is reported as 'Net income on financial instruments designated at fair value' in the consolidated income statement, other than interest on own debt, which is reported in 'Interest expense'.
12 Including interest-bearing customer accounts only.

13 Trading income also includes movements on non-qualifying hedges. These hedges are derivatives entered into as part of a documented interest rate management strategy for which hedge accounting was not, nor could be, applied. They are principally cross-currency and interest rate swaps used to economically hedge fixed rate debt issued by HSBC Holdings and floating rate debt issued by HSBC Finance. The size and direction of the changes in the fair value of non-qualifying hedges that are recognised in the income statement can be volatile from year-to-year, but do not alter the cash flows expected as part of the documented interest rate management strategy for both the instruments and the underlying economically hedged assets and liabilities if the derivative is held to maturity.

14 Net insurance claims and benefits paid and movement in liabilities to policyholders arise from both life and non-life insurance business. For non-life business, amounts reported represent the cost of claims paid during the year and the estimated cost of incurred claims. For life business, the main element of claims is the liability to policyholders created on the initial underwriting of the policy and any subsequent movement in the liability that arises, primarily from the attribution of investment performance to savings-related policies. Consequently, claims rise in line with increases in sales of savings-related business and with investment market growth.

Consolidated balance sheet

15 Net of impairment allowances.

16 On 1 January 2014, CRD IV came into force and the calculation of capital resources and RWAs for 2014 to 2016 are calculated and presented on this basis. 2012 and 2013 comparatives are on a Basel 2.5 basis.

17 Capital resources are regulatory capital, the calculation of which is set out on page 165.

18 Including perpetual preferred securities, details of which can be found in Note 28 on the Financial Statements.

19 The definition of net asset value per ordinary share is total shareholders' equity, less non-cumulative preference shares and capital securities, divided by the number of ordinary shares in issue excluding shares the company has purchased and are held in treasury.

20 In the first half of 2015 our operations in Brazil were classified as held for sale. As a result, balance sheet accounts were classified as 'Assets held for sale' and 'Liabilities of disposal groups held for sale'. There was no separate income statement classification. The sale completed on 1 July 2016.

Global businesses and geographical regions

21 Net interest income includes the cost of internally funding trading assets, while the related revenues are reported in net trading income. In our global business results, the total cost of funding trading assets is included within Corporate Centre net trading income as an interest expense. In the statutory presentation, internal interest income and expense are eliminated.

22 Net operating income before loan impairment charges and other credit risk provisions, also referred to as revenue.

23 Excludes items where there are substantial offsets in the income statement for the same year.

24 'Own credit spread' includes the fair value movements on our long-term debt attributable to credit spread where the net result of such movements will be zero upon maturity of the debt. This does not include fair value changes due to own credit risk in respect of trading liabilities or derivative liabilities.

25 'Investment distribution' includes Investments, which comprises mutual funds (HSBC manufactured and third party), structured products and securities trading, and Wealth Insurance distribution, consisting of HSBC manufactured and third-party life, pension and investment insurance products.

26 'Other personal lending' includes personal non-residential closed-end loans and personal overdrafts.

27 'Other' mainly includes the distribution and manufacturing (where applicable) of retail and credit protection insurance.

28 In 2016, credit and funding valuation adjustments included an adverse fair value movement of $110m on the widening of own credit spreads on structured liabilities (2015: favourable fair value movement of $179m; 2014: favourable fair value movement of $12m).

29 'Other' in GB&M includes net interest earned on free capital held in the global business not assigned to products, allocated funding costs and gains resulting from business disposals. Within the management view of total operating income, notional tax credits are allocated to the businesses to reflect the economic benefit generated by certain

activities which is not reflected within operating income; for example, notional credits on income earned from tax-exempt investments where the economic benefit of the activity is reflected in tax expense. In order to reflect the total operating income on an IFRS basis, the offset to these tax credits are included within 'Other'.

30 'Markets products, Insurance and Investments and Other' includes revenue from Foreign Exchange, insurance manufacturing and distribution, interest rate management and GCF products.

31 'Client assets' are translated at the rates of exchange applicable for their respective period-ends, with the effects of currency translation reported separately. The main components of client assets were funds under management ($222bn at 31 December 2016) which were not reported on the Group's balance sheet, and customer deposits ($76bn at 31 December 2016), of which $70bn was reported on the Group's balance sheet and $6bn were off-balance sheet deposits.

32 Amounts are non-additive across geographical regions due to inter-company transactions within the Group.

33 Risk-weighted assets are non-additive across geographical regions due to market risk diversification effects within the Group.

34 Other income in this context comprises where applicable net income/expense from other financial instruments designated at fair value, gains less losses from financial investments, dividend income, net insurance premium income and other operating income less net insurance claims and benefits paid and movement in liabilities to policyholders.

35 2015 and 2014 figures are restated for the changes explained on page 59.

36 For the purposes of the analysis of reported results by country table, HSBC Holdings profit/(loss) is presented excluding the effect of the early adoption of the requirements of IFRS 9 'Financial Instruments' relating to the presentation of gains and losses on financial liabilities designated at fair value', which was early adopted in the separate financial statements of HSBC Holdings but not in the consolidated financial statements of HSBC.

37 Adjusted RWAs are calculated using reported RWAs adjusted for the effects of currency translation differences and significant items.

38 Adjusted RoRWA is calculated using adjusted profit before tax and adjusted average risk-weighted assets.

39 Includes Head Office costs attributable to Global Business operations.

40 Client assets related to our Middle East clients are booked across to various other regions, primarily in Europe.

41 Excludes intra-Group dividend income.

42 Central Treasury includes revenue relating to BSM of $3,060m (2015: $2,885m; 2014:$2,794m), interest expense of $948m (2015: $710m; 2014: $484m) and adverse valuation differences on issued long-term debt and associated swaps of $278m (2015: loss of $64m; 2014: gain of $33m). Revenue relating to BSM includes other internal allocations, including notional tax credits to reflect the economic benefit generated by certain activities which is not reflected within operating income, for example notional credits on income earned from tax-exempt investments where the economic benefit of the activity is reflected in tax expense. In order to reflect the total operating income on an IFRS basis, the offset to these tax credits are included in other Central Treasury.

43 Other miscellaneous items in Corporate Centre includes internal allocations relating to Legacy Credit.

Other information

44 Funds under management and assets held in custody are not reported on the Group's balance sheet, except where it is deemed that we are acting as principal rather than agent in our role as investment manager, and these assets are consolidated as Structured entities (see Note 19 on the Financial Statements).

45 Taxes paid by HSBC relate to HSBC's own tax liabilities, including tax on profits earned, employer taxes, bank levy and other duties/levies such as stamp duty. Numbers are reported on a cash flow basis.

46 In the Annual Report and Accounts 2015, we applied our own internal methodology which did not contain the Greenhouse Gas Protocol's Scope 2 quality criteria verification and the residual mix factors which are recommended in the Scope 2 market-based methodology.

Average balance sheet

47 This includes interest-bearing bank deposits only. See page 52 for an analysis of all bank deposits

48 Interest expense on financial liabilities designated at fair value is reported as 'Net income on financial instruments designated at fair value' in the consolidated income statement, other than interest on own debt, which is reported in 'Interest Expense'

49 This includes interest-bearing customer accounts only. See page 56 for an analysis of all customer accounts.

50 Net interest margin is calculated as net interest income divided by average interest earning assets.

Regulation and supervision

With listings of its ordinary shares in London, Hong Kong, New York, Paris and Bermuda, HSBC Holdings complies with the relevant requirements for listing and trading on each of these exchanges. In the UK, these are the Listing Rules of the Financial Conduct Authority ('FCA') in its role as the UK Listing Authority; in Hong Kong, The Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited ('HKSE'); in the US, where the shares are traded in the form of ADS, HSBC Holdings' shares are registered with the US Securities and Exchange Commission ('SEC'). As a consequence of its US listing, HSBC Holdings is also subject to the reporting and other requirements of the US Securities Act of 1933, as amended; the Securities Exchange Act of 1934, as amended; and the New York Stock Exchange's ('NYSE') Listed Company Manual, in each case as applied to foreign private issuers. In France and Bermuda, HSBC Holdings is subject to the listing rules of Euronext, Paris and the Bermuda Stock Exchange, respectively, applicable to companies with secondary listings.

A statement of our compliance with the provisions of the UK Corporate Governance Code issued by the Financial Reporting Council and with the Hong Kong Corporate Governance Code set out in Appendix 14 to the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited can be found in the 'Report of the Directors: Corporate Governance Codes' on page 170.

Our operations throughout the world are regulated and supervised by approximately 400 different central banks and other regulatory authorities in those jurisdictions in which we have offices, branches or subsidiaries. These authorities impose a variety of requirements and controls designed to provide financial stability, transparency in financial markets and a contribution to economic growth. The regulations include capital requirements, disclosure standards and restrictions

on certain types of products or transaction structures, requirements on recovery and resolutions, market liquidity, governance standards and financial crime.

The Prudential Regulation Authority ('PRA') is the HSBC Group's consolidated lead regulator. The other UK regulator, the FCA, supervises 11 HSBC-regulated entities in the UK, including six where the PRA is responsible for prudential supervision. The FCA also supervises the Group globally in relation to financial crime matters. Additionally, both the PRA and FCA have certain limited direct supervisory powers over our unregulated qualifying parent company, HSBC Holdings, including (in the FCA's case) pursuant to the FCA Direction in connection with HSBC Holdings and HSBC North America Holdings, Inc. having entered into agreements as part of a global settlement with a number of US authorities in relation to the Group's failure to comply with anti-money laundering ('AML') rules, US sanctions requirements and related matters. In addition, each operating bank, finance company or insurance operation within HSBC is regulated by local supervisors.

The Group's primary regulatory authorities are those in the UK, Hong Kong and the US, our principal jurisdictions of operation. However, and in addition, with the implementation of the EU's Single Supervisory Mechanism ('SSM') in 2014, the European Central Bank ('ECB') assumed direct supervisory responsibility for HSBC France and HSBC Malta as 'significant supervised entities' within the eurozone for the purposes of the EU's SSM Regulation and HSBC Germany may also come under ECB supervision in the near future. Under the SSM, the ECB increasingly engages with the relevant 'National Competent Authorities' in relation to HSBC's businesses in other eurozone countries and more widely with other HSBC regulators. It is therefore expected that we will continue to see changes in how the Group is regulated and supervised on a day-to-day basis in the eurozone and, more generally, as the ECB and other of our regulators develop their powers having regard to some of the regulatory initiatives highlighted in this report.

UK regulation and supervision

The UK financial services regulatory structure is comprised of three regulatory bodies: the Financial Policy Committee ('FPC'), a committee of the Bank of England ('BoE'), the PRA, a subsidiary of the BoE, and the FCA.

The FPC is responsible for macro-prudential supervision, focusing on systemic risk that may affect the UK's financial stability. The PRA and the FCA are micro-prudential supervisors. The Group's banking subsidiaries, such as HSBC Bank plc (our principal authorised institution in the UK), are 'dual-regulated' firms, subject to prudential regulation by the PRA and to conduct regulation by the FCA. Other (generally smaller, non-bank) UK-based Group subsidiaries are 'solo regulated' by the FCA (i.e. the FCA is responsible for both prudential and conduct regulation of those subsidiaries). HSBC Group is subject to consolidated supervision by the PRA.

UK banking and financial services institutions are subject to multiple regulations. The primary UK statute in this context is the Financial Services and Markets Act 2000 ('FSMA'), as amended by subsequent legislation. Other UK financial services legislation currently includes that derived from EU directives and regulations relating to banking, securities, insurance, investments and sales of personal financial services.

The PRA and FCA are together responsible for authorising and supervising all our operating businesses in the UK that require authorisation under FSMA. These include deposit-taking, retail banking, consumer credit, life and general insurance, pensions, investments, mortgages, custody and share-dealing businesses, and treasury and capital markets activity. The FCA is also responsible for promoting effective competition in the interests of consumers and an independent subsidiary of the FCA, The Payment Systems Regulator, regulates payment systems in the UK.

PRA and FCA rules establish the minimum criteria for the authorisation of banks and other financial sector entities that carry out regulated activities. In the UK, the PRA and FCA have the right to object, on prudential grounds, to persons who hold, or intend to hold, 10% or more of the voting power or shares of a financial institution that it regulates, or of its parent undertaking. In its capacity as our supervisor on a consolidated basis, the PRA receives information on the capital adequacy of, and sets requirements for, the Group as a whole, as well as conducting stress tests both on HSBC's UK entities and more widely on the Group, including in conjunction with other regulators. Individual banking subsidiaries in the Group are directly regulated by their local banking supervisors, who set and monitor, inter alia, their capital adequacy requirements.

The Group is subject to capital requirements as set out in CRD IV and implemented by the PRA. The Pillar 1 regulatory capital framework has been, and continues to be, significantly enhanced. It is also envisaged that existing capital requirements will be complemented by a specification of total loss absorbing capacity ('TLAC'). TLAC parallels European requirements for entities in the EU to meet minimum requirements for eligible liabilities (although the latter are expected to be revised for greater consistency with TLAC requirements), that can absorb losses in the event of a failure of a bank or be bailed in to provide additional capital resources.

The Group is also subject to liquidity requirements as set out in CRD IV and implemented by the PRA, and will in due course become subject to the quantitative leverage and net stable funding requirements prescribed under Basel III and expected to be implemented in or around 2019 through changes to CRD IV or otherwise.

The PRA and FCA monitor authorised institutions through ongoing supervision and the review of routine and ad hoc reports relating to financial, prudential and conduct of business matters. They may also obtain independent reports from a skilled person on the adequacy of procedures and systems covering internal control and governing records and accounting. The PRA meet regularly with the Group's senior executives to discuss our adherence to the PRA's prudential guidelines. In addition, both the PRA and FCA regularly discuss fundamental matters relating to our business in the UK and internationally with relevant management, including areas such as strategic and operating plans, risk control, loan portfolio composition and organisational changes, including succession planning and recovery and resolution arrangements.

There are a substantial number of other ongoing regulatory initiatives affecting the Group driven by or from the UK. Current and anticipated areas of particular focus for the UK regulators include:

- changes to UK law and regulation following the decision to leave the EU;
- ongoing implementation of requirements regarding resolution plans (see further details outlined below under 'Recovery and resolution');
- implementation of the ring-fencing requirements to separate retail banking activities;
- implementation of the revised EU Markets in Financial Instruments Directive and Regulation (MiFID II) in January 2018, which will result in substantial changes to market transparency requirements and other obligations for trading in financial instruments, as well as enhanced client conduct of business obligations;
- implementation of the Senior Managers and Certification Regime, aimed at strengthening accountability in banking. In October 2015, HM Treasury announced that the Senior Managers and Certification Regime would be extended to all authorised firms by 2018;
- standards issued by the Fixed Income, Currencies and Commodities Market Standards Board aimed at improving conduct in the fixed income, commodities and currency markets. The FCA expects firms to adhere to these standards, many of which have global application;
- proposed plans to increase consumer access to financial advice;
- proposals driven by the UK Competition and Markets Authority's ('CMA') investigation into the supply of retail banking services that are designed to deliver increased transparency and innovation; and
- continued high level of focus by the FCA on management of conduct of business and customer outcomes.

We have started making changes to our corporate structure to mitigate or remove critical interdependencies to further facilitate the resolution of the Group. In particular, in order to remove operational dependencies (where one subsidiary bank provides critical services to another), we are in the process of transferring critical services from our subsidiary banks to a separately incorporated group of service companies ('ServCo group').

The Group presented a ring-fencing project plan to regulators in January 2016. The plan provides for the transfer into a separate subsidiary of the HSBC Group, the qualifying components of HSBC Bank plc's UK RBWM, CMB and GPB businesses. We continue to work with regulators as we prepare to implement the ring-fencing requirements by 1 January 2019.

The FCA also continues to apply close scrutiny to the Group's financial crime control framework both generally in conjunction with the exercise of its wider powers under FSMA and more specifically under the FCA Direction as described above. This includes ongoing consideration of the Group's progress in meeting its obligations under the US DPA and other commitments outlined below.

As a result of the decision of the UK to leave the EU following the referendum on 23 June 2016, there could be significant changes to those EU laws applicable in the UK (depending on whether the UK will subsequently be readmitted to the European Free Trade Association and European Economic Area ('EEA'), and therefore remain subject to EU legislation applicable to the EEA). While leaving the EU should not in and of itself affect existing UK laws, such as the FSMA and the Banking Act, it is possible that significant changes to UK law and regulation concerning banking and financial services could take place before or following departure from the EU.

Hong Kong regulation and supervision

Banking in Hong Kong is subject to the provisions of the Banking Ordinance and to the powers, functions and duties ascribed by the Banking Ordinance to the Hong Kong Monetary Authority (the 'HKMA'). The HKMA is the government authority in Hong Kong responsible for maintaining monetary and banking stability. One of the principal functions of the HKMA is to promote the stability and integrity of the financial system, including the banking system in Hong Kong. The HKMA is responsible for regulating and supervising banking business and the business of taking deposits in Hong Kong. Under the Banking Ordinance, the HKMA is the licensing authority responsible for the authorisation, suspension and revocation of authorised institutions. To provide checks and balances, the HKMA is required under the Ordinance to consult with the Financial Secretary on important authorisation decisions, such as suspension and revocation.

The HKMA follows international practices as recommended by the Basel Committee on Banking Supervision ('Basel Committee') to supervise authorised institutions. The HKMA adopts a risk-based supervisory approach based on a policy of 'continuous supervision' through on-site examinations, off-site reviews, prudential meetings, cooperation with external auditors and sharing information with other supervisors. The HKMA requires all authorised institutions to have adequate systems of internal control and requires the institutions' external auditors, upon request, to report on those systems and other matters, such as the accuracy of information provided to the HKMA. In addition, the HKMA may from time to time conduct tripartite discussions with banks and their external auditors.

The HKMA has the power to serve a notice of objection on persons if they are no longer deemed to be fit and proper to be controllers of the bank, if they may otherwise threaten the interests of depositors or potential depositors, or if they have contravened any conditions specified by the HKMA. The HKMA may revoke authorisation in the event of an institution's non-compliance with the provisions of the Banking Ordinance. These provisions require, among other things, the furnishing of accurate reports.

To enhance the exchange of supervisory information and cooperation, the HKMA has entered into Memoranda of Understanding or other formal arrangements with a number of banking supervisory authorities within and outside Hong Kong.

The marketing of, dealing in and provision of advice and asset management services in relation to securities and futures in Hong Kong are subject to the provisions of the Securities and Futures Ordinance of Hong Kong. Entities engaging in activities regulated by the Ordinance are required to be licensed or registered with the Securities and Futures Commission ('SFC'). The HKMA is the frontline regulator for banks involved in the securities and futures business. Among other functions, the Securities and Futures Ordinance vested the SFC with powers to set and enforce market regulations, including investigating breaches of rules and market misconduct and taking appropriate enforcement action. The SFC is responsible for licensing and supervising intermediaries conducting SFC- regulated activities; for example investment advisors, fund managers and brokers. Additionally, the SFC sets standards for the authorisation and regulation of investment products, and reviews and authorises offering documents of retail investment products to be marketed to the public.

On 30 June 2016, the Hong Kong Government gazetted the Financial Institutions (Resolution) Ordinance (the 'Resolution Ordinance'), which establishes a resolution regime in Hong Kong to mitigate the risks posed by the non-viability of systemically important financial institutions to the stability and effective working of the financial system of Hong Kong. Under the Resolution Ordinance, the HKMA, the Insurance Authority ('IA') and the SFC are designated as resolution authorities. They are vested with a range of necessary powers to effect orderly resolution of a failed systemically important financial institution, which means maintaining continuity of access to the essential financial services it provides by imposing losses on creditors, while minimising the risks posed to public funds.

The Resolution Ordinance was passed by the Legislative Council on 22 June 2016 and will commence operation on a date to be appointed by the Secretary for Financial Services and the Treasury pending the Legislative Council's passing of certain of the regulations to be made as subsidiary legislation under the Resolution Ordinance.

The Government, along with the HKMA, the IA and the SFC, will maintain close liaison with the industry and the relevant stakeholders in the formulation of regulations, rules and codes of practice. They will also carry out publicity through their respective websites and publications to explain the work being undertaken to make the regime operational and the implications of resolution for relevant stakeholders.

US regulation and supervision

The Group is subject to federal and state supervision and regulation in the US. Banking laws and regulations of the Federal Reserve Board ('FRB'), the Office of the Comptroller of the Currency (the 'OCC') and the Federal Deposit Insurance Corporation (the 'FDIC') (collectively, the 'US banking regulators') govern all aspects of our US business. Furthermore, since we have substantial operations outside the US that conduct many of their day-to-day transactions with the US, HSBC entities' operations outside the US are also subject to the extra-territorial effects of US regulation in many respects. The requirements of the US DPA entered into by HSBC in December 2012 and described in this section under 'Anti-money laundering and related regulation' should also be noted in this context.

HSBC Holdings and its US operations are subject to supervision, regulation and examination by the FRB because HSBC is a 'bank holding company' under the US Bank Holding Company Act of 1956, as a result of its control of HSBC Bank USA, N.A., McLean, Virginia ('HSBC Bank USA') and HSBC Trust Company (Delaware), N.A., Wilmington, Delaware ('HTCD'). HSBC North America Holdings Inc. ('HNAH') is also a 'bank holding company'. Both HSBC and HNAH have elected to be financial holding companies pursuant to the provisions of the Gramm-Leach-Bliley Act (the 'GLB Act') and, accordingly, may affiliate with securities firms and insurance companies, and engage in other activities that are financial in nature or incidental or complementary to activities that are financial in nature.

Under regulations implemented by the FRB, if any financial holding company, or any depository institution controlled by a financial holding company, ceases to meet certain capital or management standards, the FRB may impose corrective capital and/or managerial requirements on the financial holding company and place limitations on its ability to conduct the broader financial activities permissible for financial holding companies. In addition, the FRB may require divestiture of the holding company's depository institutions or its affiliates engaged in broader financial activities in reliance on financial holding company status under the GLB Act if the deficiencies persist. The regulations also provide that if any depository institution controlled by a financial holding company fails to maintain a satisfactory rating under the Community Reinvestment Act of 1977, the FRB must prohibit the financial holding company and its subsidiaries from engaging in any additional activities other than those permissible for bank holding companies that are not financial holding companies. See page 91 for further information on the regulatory consent orders with which HSBC Bank USA must comply in accordance with the agreement entered into with the OCC in December 2012 (the 'GLBA' Agreement).

The two US banks, HSBC Bank USA and HTCD, are subject to regulation and examination primarily by the OCC. HSBC Bank USA and HTCD are subject to additional regulation and supervision, secondly by the FDIC, and by the FRB and the Consumer Financial Protection Bureau ('CFPB'). Banking laws and regulations restrict many aspects of their operations and administration, including the establishment and maintenance of branch offices, capital and reserve requirements, deposits and borrowings, investment and lending activities, payment of dividends and numerous other matters.

In the US, parent company insolvencies are governed by the US Bankruptcy Code, 11 U.S.C. § 101 et seq. (the 'Bankruptcy Code'). Chapter 7 of the Bankruptcy Code sets forth the procedures for liquidation of a debtor company's assets for distribution to creditors, whereas Chapter 11 permits the operation of the debtor's business while either negotiating

a plan of reorganisation with the company's creditors or liquidating the business. Subsidiary banks are subject to the Federal Deposit Insurance Act (the 'FDIA'). Under the FDIA, the FDIC has the authority as receiver to liquidate and wind up a bank's affairs and to succeed to all rights, titles, powers and privileges of the bank and relevant associated persons.

Under a special regime introduced by Title II of the Dodd-Frank Wall Street Reform and Consumer Protection Act ('Dodd-Frank'), the US Secretary of the Treasury has the authority to appoint the FDIC as receiver of certain qualifying parent companies and their subsidiaries under specified conditions. The FDIC's powers under what is referred to as the Orderly Liquidation Authority ('OLA') incorporate elements of both the FDIA and the Bankruptcy Code, and are intended to minimise the adverse effects of a complex financial group's failure on the financial stability of the US. In respect of a banking group with a parent company not organised under the laws of the US, any actions under the OLA would likely be directed at the US-based intermediate holding company.

In January 2014, the FRB implemented the Basel III capital framework for bank holding companies such as HNAH, which will be required to phase in many of the requirements, including a minimum supplementary leverage ratio of 3% and an effective minimum total risk-based capital ratio of 10.5% over a transition period from 2014 to 2019. The 10.5% ratio includes the capital conservation buffer, which is not a minimum requirement, per se, but rather a necessary condition to allow capital distributions. A counter-cyclical capital buffer requirement, applicable to banking organisations that meet the advanced approaches thresholds, also applies to HNAH and HSBC Bank USA, and the buffer has been currently set at 0%. Additionally, failure to maintain minimum regulatory ratios in simulated stress conditions, as required by the FRB's Comprehensive Capital Analysis and Review ('CCAR') programme, would restrict HNAH from engaging in capital distributions such as dividends or share repurchases. In addition to the CCAR stress testing requirements, the Dodd-Frank Act Stress Test ('DFAST') requires HNAH and HSBC Bank USA to undergo regulatory stress tests conducted by the FRB annually, and to conduct and publish the results of its own internal stress tests semi-annually.

As part of the CCAR process, the FRB undertakes a supervisory assessment of the capital adequacy of bank holding companies, including HNAH, based on a review of a comprehensive capital plan submitted by each participating bank holding company to the FRB that describes the company's planned capital actions, such as plans to pay or increase common stock dividends, reinstate or increase common stock repurchase programs, or redeem preferred stock or other regulatory capital instruments, during the nine-quarter review period, as well as the results of stress tests conducted by both the company and the FRB under different hypothetical macroeconomic scenarios, including a supervisory adverse scenario and severely adverse scenario provided by the FRB. The FRB can object to a capital plan for qualitative or quantitative reasons, in which case the company cannot make capital distributions without specific FRB approval.

HNAH submitted its latest CCAR capital plan and annual company-run DFAST results in April 2016. HSBC Bank USA is subject to the OCC's DFAST requirements, which require certain banks to conduct annual company-run DFAST, and submitted its latest annual DFAST results in April 2016. The company-run stress tests are forward-looking exercises to assess the impact of hypothetical macroeconomic baseline, adverse and severely adverse scenarios provided by the FRB and the OCC for the annual exercise, and internally developed scenarios for both the annual and mid-cycle exercises, on the financial condition and capital adequacy of a bank-holding company or bank over a nine-quarter planning horizon.

In June 2016, the FRB informed HNAH that it did not object to HNAH's capital plan or the planned capital distributions included in its 2016 CCAR submission.

HSBC Holdings is also required to file resolution plans with regard to its US operations describing what strategy would be followed to resolve the institution. If the FRB and the FDIC both determine that these resolution plans are not 'credible' (which, although not defined, is generally believed to mean the regulators do not believe the plans are feasible or would otherwise allow for the rapid and orderly resolution of the US businesses in a way that protects systematically important functions without severe systematic disruption and without exposing taxpayers to loss), our failure to cure deficiencies in a resolution plan required by Dodd-Frank to be filed by HSBC Holdings would enable the FRB and the FIDC, acting jointly, to impose more stringent prudential limits or require the divestiture of assets or operations.

In March 2015, the FRB and the FDIC announced the completion of their reviews of the second round of resolution plans submitted in 2014 by three foreign banking organisations, including the HSBC Holdings resolution submitted in 2014 (the '2014 Plan'). Although the agencies noted some improvements in the 2014 Plan, they jointly identified specific shortcomings that were to be addressed with the 2015 annual submission. In addition, the FDIC board of directors stated in a press release that the 2014 resolution plans submitted by these filers are not credible and do not facilitate an orderly resolution under the US Bankruptcy Code. HSBC and HSBC Bank USA submitted their 2015 resolution plans to the FDIC and the FRB in December 2015, and have not received formal feedback on the 2015 resolution plans. During the third quarter of 2016, the next annual submission date for both the HSBC Plan and the HSBC Bank USA Plan was extended to 31 December 2017.

In February 2014, the FRB adopted a rule requiring enhanced supervision of the US operations of non-US banks such as HSBC Holdings. The rule requires certain large non-US banks with significant operations in the United States to establish a single intermediate holding company ('IHC') to hold their US bank and non-bank subsidiaries. The HSBC Group has been operating in the United States through such an IHC structure (i.e., HNAH), and, therefore, the implementation of this requirement did not have a significant impact on our US operations.

In March 2016, the FRB, issued a re-proposal of its requirements relating to single counterparty credit limits that would apply to IHCs, such as HNAH. The re-proposal is still under consideration. In addition, the FRB is still considering an 'early remediation' framework under which the FRB would implement prescribed restrictions and penalties against banking organisations, such as HNAH and HSBC, if certain risk-based capital, leverage, liquidity, stress testing or other risk management requirements are not met, and would authorise limitations on, or possible termination of, their US operations under certain circumstances.

An IHC may calculate its capital requirements under the US standardised approach, even if it meets the asset thresholds that would require a bank holding company to use advanced approaches. HNAH and HSBC Bank USA received regulatory approval to opt out of the advanced approach in 2015. In 2016, HSBC Bank USA submitted a request to the OCC to renew the opt-out and received approval. HNAH and HSBC Bank USA remain subject to the other capital requirements applicable to advanced approaches banking organisations, such as the supplementary leverage ratio, the countercyclical capital buffer, stress testing requirements, enhanced risk management standards, enhanced governance and stress testing requirements for liquidity management, and other applicable prudential standards. Most of these requirements became effective on 1 July 2016.

The US banking regulators adopted a final rule in September 2014 that implements a quantitative liquidity requirement consistent with the liquidity coverage ratio standard established by the Basel Committee. The final rule establishes a liquidity coverage ratio ('LCR'), which is designed to ensure that a banking organisation maintains an adequate level of unencumbered high-quality liquid assets equal to the entity's expected net cash outflow for a 30-day time horizon under an acute liquidity stress scenario. The rule, which applies to HNAH, is more stringent than the Basel III LCR in several respects. Starting on 1 January 2015, covered companies, including HNAH and HSBC Bank USA, were required to maintain an LCR of 80%, increasing annually by 10% increments and reaching 100% on 1 January 2017.

In April 2016, the US banking regulators proposed a rule to implement the Basel Committee's final standard for NSFR

calculated by dividing the level of a banking organisation's available stable funding by its required stable funding. The minimum NSFR requirement for HNAH and HSBC Bank USA under the NSFR proposal would be 100%. A banking organisation's available stable funding would be calculated as the sum of the banking organisation's liabilities and regulatory capital elements, which are first multiplied by factors determined based on their tenor, funding type and counterparty type. The required stable funding would be calculated as the sum of the banking organisation's assets, commitments and derivatives, which are first multiplied by factors based on their relative liquidity. Consistent with the Basel Committee's NSFR final standard, the FRB's NSFR proposal would become effective 1 January 2018. The potential effects of the NSFR continue to be evaluated.

In November 2015, the Financial Stability Board ('FSB') issued final standards for TLAC requirements for global systemically important banks ('G-SIB's), which will apply to HSBC Holdings once implemented in the UK. The new standards also permit authorities in host jurisdictions to require 'internal' TLAC to be prepositioned (issued by local entities to either parent entities or third parties). The purpose of these new standards is to ensure that G-SIBs have sufficient loss absorbing and recapitalisation capacity available to implement an orderly resolution with continuity of critical functions and minimal impact on financial stability and to ensure cooperation between home and host authorities during resolution. The new standards call for all G-SIBs to be subject to TLAC requirements starting 1 January 2019, to be fully phased in by 1 January 2022. In the US, the FRB adopted final rules on 15 December 2016 implementing the FSB's TLAC standard in the US. The rules require, among other things, the US intermediate holding companies of non US G-SIBs, including HNAH, to maintain minimum amounts of TLAC that would include minimum levels of tier 1 capital and long-term debt satisfying certain eligibility criteria, and a related TLAC buffer commencing 1 January 2019 without the benefit of a phase-in period. The TLAC rules also include 'clean holding company requirements' that impose limitations on the types of financial transactions HSBC's US intermediate holding company, HNAH, could engage in.

HSBC Bank USA and HTCD are subject to risk-based assessments from the FDIC, which insures deposits generally to a maximum of $250,000 per depositor for domestic deposits. Dodd-Frank changed the FDIC's risk-based deposit insurance assessment framework primarily by basing assessments on an FDIC-insured institution's total assets less tangible equity rather than US domestic deposits, which is expected to shift a greater portion of the aggregate assessments to large FDIC-insured institutions. In March 2016, the FDIC imposed an additional temporary surcharge on the quarterly assessments of insured depository institutions with total consolidated assets of $10bn or more, including HSBC Bank USA. The new large bank pricing system will result in higher assessment rates for banks with high-risk asset concentrations, less stable balance sheet liquidity or potentially higher loss severity in the event of failure.

HSBC's US consumer finance operations are subject to extensive state-by-state regulation in the US, and to laws relating to consumer protection (both in general, and in respect of sub-prime lending operations, which have been subject to enhanced regulatory scrutiny); discrimination in extending credit; use of credit reports; privacy matters; disclosure of credit terms; and correction of billing errors. These operations are subject to regulations and legislation that limit operations in certain jurisdictions.

In December 2013, US regulators finalised the 'Volcker Rule', which limits the ability of banking entities to sponsor or invest in certain private equity or hedge funds or to engage in certain types of proprietary trading. During 2015, the Group implemented its conformance plans related to its businesses and risk management and control frameworks both in the US and elsewhere, including establishing a defined Volcker compliance programme and related CEO attestation processes to ensure compliance with the final rule by the relevant effective dates.

Title VII of Dodd-Frank provides for an extensive framework for the regulation of over-the-counter ('OTC') derivatives by the

Commodity Futures Trading Commission (‘CFTC’) and the SEC, including mandatory clearing, exchange trading, and public and regulatory transaction reporting of certain OTC derivatives, as well as rules regarding the registration of swap dealers and major swap participants, and related capital, margin, business conduct, record keeping and other requirements applicable to such entities.

The CFTC has adopted many of the most significant provisions of Title VII, which came into effect in 2013 and 2014. In particular, HSBC Bank USA and HSBC Bank plc are provisionally registered as swap dealers with the CFTC. Because HSBC Bank plc is a non-US swap dealer, the CFTC generally limits its direct regulation of HSBC Bank plc to swaps with US persons and certain affiliates of US persons. However, the CFTC continues to consider whether to apply mandatory clearing, exchange trading, public transaction reporting, margin and business conduct rules to swaps with non-US persons arranged, negotiated or executed by US personnel or agents. The CFTC is also considering whether to apply regulatory transaction reporting requirements on all swaps entered into by a non-US swap dealer or instead to permit reliance on transaction reporting under comparable EU rules. The application of CFTC rules to HSBC Bank plc’s swaps with non-US persons could have an adverse effect on the willingness of non-US counterparties to trade swaps with HSBC Bank plc, and we continue to assess how developments in these areas will affect our business. On 4 August 2016, the CFTC extended by a year (to 30 September 2017) pre-existing relief from the requirement for non-US swap dealers (e.g., HSBC Bank plc) to comply with clearing, trade execution, margin, reporting, and conduct rules for trades with non-US counterparties, when using personnel located in the US to arrange, negotiate, or execute

In June 2014, the SEC finalised rules regarding the cross-border application of the security-based swap dealer and major security-based swap participant definitions. These rules share many similarities with parallel guidance finalised by the CFTC in July 2013. In January 2015, the SEC also finalised rules regarding reporting and public dissemination requirements for security-based swap transaction data. In August 2015, the SEC also finalised rules for the registration of security-based swap (‘SBS’) dealers and major SBS participants. The SEC has not yet finalised the implementation dates for these rules or finalised several related Title VII rules. Because our equity and credit derivatives businesses are also subject to the CFTC’s jurisdiction under Title VII, material differences between the final SEC rules and existing CFTC rules could materially increase our costs of compliance with Title VII by requiring the implementation of significant additional policies, procedures, documentation, systems and controls for those businesses. On 13 July 2016, the SEC delayed its SBS reporting requirement to one month after its SBS dealer registration rule takes effect. SBS dealer registration won’t be required until six months after the SEC finalises a number of additional rules, including on capital, margin and segregation. Previously, the timelines for SBS reporting and registration were independent of each other, raising the prospect of pre-registration reporting followed by significant post-registration changes to reporting hierarchies. The CFTC also finalised rules in 2016 that will require additional interest rate swaps to be cleared, which are expected to come into effect in phases based on the implementation of parallel clearing requirements in non-US jurisdictions, and in any event by October 2018, and has also proposed rules that would apply position limits to certain physical commodity swaps.

In November 2015, the OCC, jointly with other US banking regulators, adopted final rules establishing margin requirements. The final margin rules will require HSBC Bank USA and HSBC Bank plc to collect and post initial and variation margin for certain non-cleared swaps and security-based swaps entered into with other swap dealers and financial end-users that exceed a minimum threshold of transactional activity. For certain non-cleared swaps and security-based swaps entered into with financial end-users that do not meet the minimum transactional activity threshold, HSBC Bank USA and HSBC Bank plc will only be required to collect and post variation margin (but not initial margin). The US banking regulators’ final rules do not impose margin requirements for non-cleared swaps and security-based swaps entered into with non-financial end-

users, certain sovereigns and multilateral development banks or qualifying hedging transactions with certain small depository institutions.

The final margin rules also limit the types of assets that are eligible to satisfy initial and variation margin requirements, require initial margin to be segregated at a third-party custodian, impose requirements on internal

models used to calculate initial margin requirements and contain specific provisions for cross-border transactions and inter-affiliate transactions. The final margin rules follow a phased implementation schedule, with variation margin requirements coming into effect in March 2017 and initial margin requirements phased in on an annual basis from September 2016 through September 2020, with the relevant compliance dates depending on the transactional volume of the parties and their affiliates. These final rules, as well as parallel margin rules from the CFTC, the SEC and certain non-US regulators will increase the costs and liquidity burden associated with trading non-cleared swaps and security-based swaps, and may adversely affect our business in such products. In particular, the imposition of initial margin requirements on inter-affiliate transactions will significantly increase the cost of certain consolidated risk management activities and may adversely affect HSBC to a greater extent than some of our competitors.
Dodd-Frank also included a 'swaps push-out' provision that would have effectively limited the range of OTC derivatives activities in which an insured depository institution, including HSBC Bank USA, could engage. The scope of this provision was significantly reduced in December 2014, and now effectively only restricts HSBC Bank USA's ability to enter into certain 'structured finance swaps' after 16 July 2015 that are not entered into for hedging or risk mitigation purposes.
Dodd-Frank grants the SEC discretionary rule-making authority to modify the standard of care that applies to brokers, dealers and investment advisers when providing personalised investment advice to retail customers and to harmonise other rules applying to these regulated entities. Dodd-Frank also expands the extra-territorial jurisdiction of US courts over actions brought by the SEC or the US with respect to violations of the anti-fraud provisions in the Securities Act, the Securities Exchange Act of 1934 and the Investment Advisers Act of 1940. In addition, regulations which the FSOC, the CFPB or other regulators may adopt could affect the nature of the activities that our FDIC-insured depository institution subsidiaries may conduct, and may impose restrictions and limitations on the conduct of such activities.
The implementation of the remaining Dodd-Frank provisions, including those related to the recommended imposition of the fiduciary standard on broker-dealers, could result in additional costs or limit or restrict the way we conduct our business in the US.
Global and regional prudential and other regulatory developments
The Group is subject to regulation and supervision by a large number of regulatory bodies and other agencies. In addition to changes being introduced at a country level, changes are often driven by global bodies such as the G-20, the FSB and Basel Committee, which are then implemented at country level or regionally through the EU sometimes with modifications and with separate additional measures. Key areas include the work of the FSB on G-SIBs, the Basel Committee's ongoing consultations on revised approaches across a number of risk areas and the FSB's final standard for requirements for total loss-absorbing capacity.
We are also subject to regulatory stress testing in many jurisdictions. These have increased both in frequency and in the granularity of information required by supervisors. They include the programmes of the BoE, the FRB (as explained in the 'US regulation and supervision' section), the OCC, the EBA, the ECB, the HKMA and other regulators. For further details, see 'Stress testing' on page 103.
There are a number of consultations that have been issued by the Basel Committee and are yet to be finalised. These are likely to have an impact on measurement of credit and operational risk and will determine whether a floor to modelled capital

calculations will be included in the Basel capital framework. Changes in local regimes will result from the final Basel agreement. Further details can be found in the 'Regulatory Developments' on page 3 of the Pillar 3 Disclosures 2016 report.

Recovery and resolution

Globally, there have been a number of developments relating to banking structural reform and the introduction of recovery and resolution regimes.

As recovery and resolution planning has developed, some regulators and national authorities have also required changes to the corporate structures of banks. These include requiring the local incorporation of banks or ring-fencing of certain businesses.

We are working with our primary regulators to develop and agree a resolution strategy for HSBC. It is our view that a strategy by which the Group breaks up at a subsidiary bank level at the point of resolution (referred to as a multiple point of entry) is the optimal approach, as it is aligned to our existing legal and business structure. Similarly to all G-SIBs, we are working with our regulators to mitigate or remove critical inter-dependencies between our subsidiaries to further facilitate the resolution of the Group. In particular, in order to remove operational dependencies (where one subsidiary bank provides critical services to another), we are in the process of transferring critical services from our subsidiary banks to a separate internal ServCo group.

To date, more than 18,000 employees performing shared services in the UK were transferred to the ServCo group. Further transfers of employees, critical shared services and assets, Hong Kong and other jurisdictions will occur in due course.

European regulation

Through the UK's membership of the EU, HSBC is currently both directly and indirectly subject to European financial services regulation.

As part of the SSM, a Single Resolution Mechanism ('SRM') was also established to apply to all banks covered by the SSM. This is intended to ensure that bank resolution is managed effectively through a Single Resolution Board and a Single Resolution Fund financed by the banking sector. Non-eurozone countries within the EU may opt to join the Banking Union, but the UK has indicated that it will not do so.

In January 2014, the European Commission published legislative proposals on the structural reform of the European banking sector that would prohibit proprietary trading and give supervisors discretion to require trading activities to be undertaken in a separate subsidiary from deposit taking activities. Although limited progress has been made on these proposals in the past year, they remain under consideration.

In the EU, the Bank Recovery and Resolution Directive ('BRRD')
provides the framework and introduces requirements for banks to maintain at all times a sufficient aggregate amount of own funds and 'eligible liabilities' (that is, liabilities that may be bailed in using the bail-in tool) known as the minimum requirements for eligible liabilities ('MREL'). The Bank of England has set out how MREL requirements will be applied in the UK in a manner that is also consistent with the FSB's global proposals on TLAC.

On 23 November 2016, the European Commission published proposals for amendments to the BRRD and CRD IV, designed to implement (among other changes) global standards for TLAC and certain changes to the global capital standards prescribed by the Basel Committee, as well as various related changes to the EU prudential framework. Of particular concern in the latter category is a proposed requirement for G-SIBs and certain other banking groups with two or more institutions in the EU, but whose ultimate parent is outside the EU, to establish an EU intermediate financial holding company, that would be subject to consolidated prudential supervision in the EU. These proposals are yet to be finalised, and it is unclear, particularly in light of the vote to leave the EU, how these requirements (including the intermediate holding requirement for non-EU banking groups) will affect the HSBC group.

The EU also continues to pursue the development of markets, and conduct-related EU regulations. This includes completing implementation of the European Markets Infrastructure Regulation, and implementing measures such as Markets in Financial Instrument Regulation/Directive ('MiFID II'), the EU's Framework for Benchmarks and Indices, the Packaged Retail Investment and Insurance Products Regulation, the Second Payment Services Directive, Money

Markets Fund Regulation, Securities Financing Transactions Regulation, and the Fourth Money Laundering Directive. The Market Abuse Regulation which came into force July 2016 will also continue to be embedded into the regulatory framework. The Group continues to enhance and strengthen its governance and resourcing more generally around regulatory change management and the implementation of required measures, actively to address this ongoing and significant agenda of regulatory change.

Anti-money laundering and sanctions regulation

HSBC places a high priority on its obligations to deter money laundering and terrorist financing and to enforce global sanctions. The European Commission has published a Fourth Directive on the prevention of the use of the financial system for money laundering and terrorist financing. Member States are required to incorporate the Fourth Directive into national laws by 26 June 2017 and financial institutions are required to comply with these laws from this date. HSBC policy requires that all Group companies adhere to the letter and spirit of all applicable laws and regulations and we have policies, procedures and training intended to ensure that our employees know and understand our criteria for deciding when a client relationship or business should be evaluated as higher risk.

Risk mitigation measures aimed at deterring money laundering, terrorist and weapons proliferation financing (collectively referred to as ‘AML’) and enforcing sanctions have been focused on three key areas:

- managing risk;
- transitioning to a new operating and governance model; and
- meeting HSBC’s regulatory obligations.

During 2016, our global businesses and countries continued to focus on embedding the AML and sanctions procedures required to effect our AML and Sanctions policies in these areas. This supported our ongoing effort to address the US DPA requirements. These actions were in line with our strategic target to implement the highest or most effective standards globally. The work of the Monitor, who was appointed to assess the effectiveness of our AML and sanctions compliance programme, is discussed on page 115. Conducting customer due diligence is one of the fundamental ways in which we know our customers and understand and manage financial crime risk. A key enhancement during 2016 was the deployment of our global customer due diligence system to 35 markets for RBWM, 52 for CMB, 36 for GB&M and 2 for GPB.

As part of our continuing evaluation of AML and sanctions risk, we also monitor activities relating to the countries subject to

US economic sanctions programmes administered by the Office of Foreign Assets Control, as well as those subject to United Nations, UK and EU sanctions, as well as complying with local lists as required in the jurisdictions in which we operate. HSBC policy requires all Group companies to comply to the extent applicable with US sanctions laws. This means that not only must US subsidiaries and US nationals comply with US sanctions, but that HSBC subsidiaries outside the US which are not US persons must not participate in transactions within US jurisdictions (including most US dollar transactions) that would contravene US sanctions. We do not consider that our business activities with counterparties with whom transactions are restricted or prohibited under US sanctions are material to our business, and such activities represented a very small part of the Group’s total assets at 31 December 2016 and total revenues for the year ended 31 December 2016.

Other

HSBC Bank USA entered into a consent cease and desist order with the Office of the Comptroller of the Currency, and HSBC North American Holdings entered into a consent cease and desist order with the Federal Reserve Board in October 2010. These Orders require improvement of our compliance risk management programme, including AML controls across our US businesses. Steps continue to be taken to address the requirements of these Orders and to ensure that compliance and effective policies and procedures are maintained.

Disclosures pursuant to Section 13(r) of the Securities Exchange Act

Section 13(r) of the Securities Exchange Act requires each issuer registered with the SEC to disclose in its annual or quarterly reports whether it or any of its affiliates have knowingly engaged in specified activities or transactions with persons or entities targeted by US sanctions programmes relating to Iran, terrorism, or the proliferation of weapons of mass destruction, even if those activities are not prohibited by US law and are conducted outside the US by non-US affiliates in compliance with local laws and regulations.

To comply with this requirement, HSBC Holdings plc (together with its affiliates, 'HSBC') has requested relevant information from its affiliates globally. The following activities conducted by HSBC are disclosed in response to Section 13(r).

Loans in repayment

Between 2001 and 2005, the Project and Export Finance business of HSBC arranged or participated in a portfolio of loans to Iranian energy companies and banks. All of these loans were guaranteed by European and Asian export credit agencies and have varied maturity dates with final maturity in 2018. For those loans that remain outstanding, we continue to seek repayment in accordance with our obligations to the supporting export credit agencies. Details of these loans follow.

At 31 December 2016, we had five loans outstanding to an Iranian petrochemical company. These loans are supported by the official export credit agencies of the following countries: the UK, South Korea and Japan. We continue to seek repayments from the Iranian company under the outstanding loans in accordance with their original maturity profiles. Two repayments were made under each loan in 2016.

Five loans to the same Iranian petrochemical company matured in 2016. Bank Melli acted as a sub-participant in two of these loans, although a number of the payments due to Bank Melli in 2016 are yet to be remitted by HSBC.

Estimated gross revenue to HSBC generated by the loans in repayment for 2016, which includes interest and fees, was approximately $464,000, and net estimated profit was approximately $432,000. While we intend to continue to seek repayment under the existing loans, all of which were entered into before the petrochemical sector of Iran became a target of US sanctions, we do not currently intend to extend any new loans.

Legacy contractual obligations related to guarantees

Between 1996 and 2007, we provided guarantees to a number of our non-Iranian customers in Europe and the Middle East for various business activities in Iran. In a number of cases, we issued counter indemnities in support of guarantees issued by Iranian banks as the Iranian beneficiaries of the guarantees required that they be backed directly by Iranian banks. The Iranian banks to which we provided counter indemnities included Bank Tejarat, Bank Melli, and the Bank of Industry and Mine.

There was no measurable gross revenue in 2016 under those guarantees and counter indemnities. We do not allocate direct costs to fees and commissions and, therefore, have not disclosed a separate net profit measure. We are seeking to cancel all relevant guarantees and counter-indemnities and do not currently intend to provide any new guarantees or counter indemnities involving Iran. One was cancelled during the fourth quarter of 2016 and approximately 19 remain outstanding.

Other relationships with Iranian banks

Activity related to US-sanctioned Iranian banks not covered elsewhere in this disclosure includes the following:

- We maintain several accounts in the UK for an Iranian-owned, UK-regulated financial institution. Prior to Implementation Day of the Joint Comprehensive Plan of Action, these accounts were frozen and transactions relating to these accounts were carried out under UK Government license. These accounts are generally no longer restricted under UK law, though we maintain restrictions on the accounts as a matter of policy. Estimated gross revenue in 2016 for these accounts, which includes fees and/or commissions, was approximately $154,100.

- We act as the trustee and administrator for a pension scheme involving five employees of a US-sanctioned Iranian bank in Hong Kong, two of whom resigned from the scheme during the third and fourth quarters of 2016. Under the rules of this scheme, we accept contributions from the Iranian bank each month and allocate the funds into the pension accounts of the Iranian bank's employees. We run and operate this pension scheme in accordance with Hong Kong laws and regulations. Estimated gross revenue, which includes fees and/or commissions, generated by this pension scheme in 2016 was approximately $3,790. Three cheques amounting to HK$5,469 (equal to $705.09 based on the HK$ – US dollar exchange rate on 31 December 2016) were issued to the Iranian bank employer during the second quarter of 2016, as a result of the employer's overpayment of contributions.

For the Iranian bank related-activity discussed above, we do not allocate direct costs to fees and commissions and, therefore, have not disclosed a separate net profit measure.

We have been holding a safe custody box for the Central Bank of Iran. For a number of years, the box has not been accessed by the Central Bank of Iran and no fees have been charged to the Central Bank of Iran.

We currently intend to continue to wind down the activity discussed in this section, to the extent legally permissible, and not enter into any new such activity.

Activity related to US Executive Order 13224

We maintained a frozen personal account for an individual customer who was sanctioned under US Executive Order 13224. We issued a cheque to the customer and processed the cheque deposit to close the account. We exited the customer relationship in the first quarter of 2016.

We maintained a credit card account for an individual who was sanctioned under US Executive Order 13224 during the first quarter of 2016. The account was frozen during the first quarter of 2016. During the third quarter, the credit card was used for one minor debit transaction, and we received a payment relative to the credit card, which has now been cancelled.

We maintain accounts for a corporate customer that was sanctioned under US Executive Order 13224 during the first quarter of 2016. The accounts were frozen during the first quarter of 2016.

We maintain an account for a corporate customer that was sanctioned under US Executive Order 13224 during the first quarter of 2016. The account was frozen during the first quarter of 2016.

We maintain frozen personal accounts for an individual customer who was sanctioned under US Executive Order 13224 during the second quarter of 2016. The accounts were frozen during the second quarter of 2016.

We maintained a jointly owned safekeeping box during 2016 for an individual customer who was sanctioned under US Executive Order 13224 in 2014. During the first quarter of 2016, the safekeeping box was accessed by the other joint owner (who is not a sanctioned individual).

For activity related to US Executive Order 13224, there was no measurable gross revenue or net profit to HSBC in 2016.

Other activity

We maintained an account for a customer that received and deposited a cheque issued by the Iranian embassy in Brunei for payment of monthly rental property fees in the first quarter of 2016. The relationship was exited in the third quarter of 2016.

We held a lease of branch premises in London which we entered into in 2005 and was due to expire in 2020. The landlord of the premises is owned by the Iranian government. We exercised the break clause in the lease and exited the property during 2015. During the third quarter of 2016, we paid all outstanding rent and service charges to the landlord, and also made a payment to a third party company that dealt with refurbishment to the premises.
We maintain an account for a corporate customer in Germany for whom we received funds during the second quarter of 2016 from an account at a European bank that is named on the List of Persons Identified as Blocked Solely Pursuant to Executive Order 13599, in relation to the purchase of software.
For the activity in this section, there was no measurable gross revenue or net profit to HSBC in 2016.

Frozen accounts and transactions
We maintain several accounts that are frozen under relevant sanctions programmes and on which no activity, except as licensed or otherwise authorised, took place during 2016. There was no measurable gross revenue or net profit to HSBC in 2016 relating to these frozen accounts.

Risk

Our conservative risk appetite

Throughout its history, HSBC has maintained a conservative risk profile. This is central to our business and strategy. The following principles guide the Group's overarching risk appetite and determine how its businesses and risks are managed.

Financial position

- Strong capital position, defined by regulatory and internal capital ratios.
- Liquidity and funding management for each operating entity, on a stand-alone basis.

Operating model

- Returns generated in line with risk taken.
- Sustainable and diversified earnings mix, delivering consistent returns for shareholders.

Business practice

- Zero tolerance for knowingly engaging in any business, activity or association where foreseeable reputational risk or damage has not been considered and/or mitigated.
- No appetite for deliberately or knowingly causing detriment to consumers arising from our products and services or incurring a breach of the letter or spirit of regulatory requirements.
- No appetite for inappropriate market conduct by a member of staff or by any Group business.

Top and emerging risks

Our approach to identifying and monitoring top and emerging risks is described on page 103. During 2016, we made a number of changes to our top and emerging risks to reflect our assessment of the issues facing HSBC and their effect on the Group, which are described on page 27.

Our current top and emerging risks are as follows.

Externally driven

Economic outlook and capital flows

Global economic growth remained muted in 2016, with headwinds adversely affecting both developed and emerging markets.

The UK electorate's vote to leave the European Union ('EU') caused significant market volatility in its immediate aftermath, and since then sterling has depreciated against major currencies. Uncertainty regarding the terms of the UK's exit agreement, its future relationship with the EU and its trading relationship with the rest of the world may lead to economic uncertainty and market volatility, which could affect both the Group and its customers.

Following robust policy action during the course of 2016, market concerns have eased over the extent of the slowdown of the mainland Chinese economy, and the potential for further renminbi depreciation. However, a prolonged or severe slowdown cannot be ruled out, which would have wider ramifications for regional and global economic growth, and global trade and capital flows, as a consequence.

While oil and gas prices have partly recovered from the lows of 2015, global supply and demand imbalances continue to place considerable financial strain on some producers and exporters. A continuation of low oil prices, particularly in conjunction with a low inflation environment and/or low or negative interest rates, would adversely affect global growth prospects and, as a consequence, our results.

Mitigating actions

- We actively assess the impact of economic developments in key markets on specific customers, customer segments or portfolios and take appropriate mitigating action – that may include revising risk appetite or limits – as circumstances evolve.
- We use internal stress testing and scenario analysis, as well as regulatory stress test programmes, to evaluate the potential impact of macroeconomic shocks on our businesses and portfolios. Analysis undertaken on our oil and gas lending portfolios are described on page 101, and our wider approach to stress testing is described on page 103.
- We have carried out detailed reviews of our wholesale credit portfolios, particularly across those sectors most affected by the UK referendum result. We have also run a number of stress tests on our wholesale and trading portfolios to examine potential impacts under a range of possible exit scenarios and develop a suite of possible mitigating actions.

Geopolitical risk

Our operations and portfolios are exposed to risks arising from political instability, civil unrest and military conflict in many parts of the world. These may include physical risk to our staff and/or physical damage to our assets, disruption to our operations and a curtailment in global trade flows.

The outcome of the US election has added to concerns about a rise in protectionism. This has been accentuated in many parts of the world by rapid technological change and income inequality. Any amplification of this trend could cause a curtailment in global trade, and thus impact HSBC's traditional lines of business.

European states are experiencing heightened political tension, reflecting concerns over migration, fears of terrorism, increased tension with Russia, and uncertainty about the future relationship between the UK and the EU. Elections in France, Germany, the Netherlands and possibly Italy in 2017 are adding to the uncertainty.

In the Middle East, the terrorist group Daesh has come under increasing pressure as an international coalition recaptured territory across Syria and Iraq. Despite this, Daesh has proved capable of carrying out terrorist attacks both in neighbouring countries and further afield.

In Asia, ongoing territorial disputes in the South China Sea and a region-wide build-up in military capability have strained diplomatic relations, and are testing the resolve of the US to defend freedom of navigation.

Mitigating actions

- We continually monitor the geopolitical outlook, in particular in countries where we have material exposures and/or a physical presence. We established a new dedicated forum to monitor and advise senior management on global developments, including analysis on how the Group's strategy could be affected by geopolitical events.
- We have taken steps to increase the physical security of our premises and have enhanced our major incident response capabilities, particularly in those geographical areas deemed to be at a higher risk from terrorism and military conflicts.
- Our internal credit risk ratings of sovereign counterparties take geopolitical factors into account and drive our appetite for conducting business in those countries. Where necessary, we adjust our country limits and exposures to reflect our risk appetite and mitigate risks as appropriate.
- We incorporate geopolitical scenarios, such as conflicts in countries where we have a significant presence or political developments that could disrupt our operations, into our internal stress tests to assess their potential effect on our portfolios and businesses.

Turning of the credit cycle

Although the credit environment has stabilised in the latter part of the year, due in part to further monetary loosening, there is a risk that the credit cycle could turn sharply in 2017 if economic and/or geopolitical shocks unfold.

Stress could appear across a wide array of credit segments, particularly given the substantial amounts of external refinancing due in emerging markets in 2017 and 2018. Sentiment towards mainland China could also deteriorate amid concerns over its increasing debt burden, or political events in the US, UK and EU could deliver negative economic outcomes. Impairment allowances could increase if the credit quality of our customers is affected by less favourable global economic conditions in some markets. Should oil prices remain low or fall, our oil and gas portfolios would come under further pressure.

Mitigating actions

- We closely monitor economic developments in key markets and sectors, taking portfolio actions where necessary, including enhanced monitoring, amending our risk appetite and/or reducing limits and exposures.
- We stress test portfolios of particular concern to identify sensitivity to loss under a range of scenarios, with management actions being taken to manage risk appetite where necessary.
- Reviews of key portfolios are undertaken regularly to ensure that individual customer or portfolio risks are understood and that the level of facilities offered and our ability to

manage these through any downturn are appropriate.

Cyber threat and unauthorised access to systems

HSBC and other public and private organisations continue to be the targets of increasing and more sophisticated cyber attacks that may disrupt customer services.

Mitigating actions

- We continue to strengthen and significantly invest in our ability to prevent, detect and respond to the ever-increasing and sophisticated threat of cyber attacks. Specifically, we continue to enhance our capabilities to protect against increasingly sophisticated malware, denial of service attacks and data leakage prevention, as well as enhancing our security event detection and incident response processes.
- Cyber risk is a priority area for the Board and is regularly reported at Board level to ensure appropriate visibility, governance and executive support for our ongoing cybersecurity programme.
-

We participate in intelligence sharing with both law enforcement and industry schemes to help improve our understanding of, and ability to respond to, the evolving threats faced by us and our peers within our industry.

Regulatory and technological developments with adverse impact on business model and profitability

Financial service providers continue to face stringent regulatory and supervisory requirements, particularly in the areas of capital and liquidity management, conduct of business, financial crime, operational structures, the use of models and the integrity of financial services delivery. The competitive landscape in which the Group operates may be significantly altered by future regulatory changes and government intervention, which could be introduced with different, potentially conflicting requirements and to differing timetables by different regulatory regimes. Regulatory changes may affect the activities of the Group as a whole, or of some or all of its principal subsidiaries.

While the rise of financial technology (‘fintech’) presents a number of opportunities that we are actively engaging in, there is also a risk that it could disrupt financial institutions’ traditional business model.

Mitigating actions

- We are engaged closely with governments and regulators in the countries in which we operate to help ensure that new requirements are considered properly by regulatory authorities and the financial sector and can be implemented effectively.
- We have strengthened governance and resourcing around regulatory change management. Significant regulatory programmes, such as the implementation of International Financial Reporting Standard 9, are overseen by the Group Change Committee (see ‘Execution risk’ on page 92).
- We are actively pursuing opportunities in the fintech space, and have established HSBC Digital Solutions, a specialist team to design, build and run digital services. We have also established a technology advisory board to help ensure we are fully aware of, and respond to, industry developments as they arise.

Regulatory focus on conduct of business and financial crime

Financial institutions remain under considerable scrutiny regarding conduct of business, particularly in relation to fair outcomes for customers and orderly and transparent operations in financial markets, as well as financial crime. Regulators, prosecutors, the media and the public all have heightened expectations as to the behaviour and conduct of financial institutions, and any shortcomings or failure to demonstrate adequate controls are in place to mitigate such risks could result in regulatory sanctions or fines. This could also lead to an increase in civil litigation arising from or relating to issues which are subject to regulatory investigation, sanction or fine.

Mitigating actions

- We have created a new function, Financial Crime Risk, which brings together all areas of financial crime risk management at HSBC. For further details, see 'Financial crime risk management' on page 114.
- We have also continued to enhance our management of conduct in areas including the treatment of potentially vulnerable customers, market surveillance, employee training and performance management (see 'Regulatory compliance risk management' on page 114).

US deferred prosecution agreement and related agreements and consent orders

HSBC is subject to a five-year deferred prosecution agreement ('US DPA') with the US DoJ and related agreements and consent orders with the FRB, the OCC and the FCA. Under the agreements entered into with the DoJ and the FCA in 2012, an independent compliance monitor (the 'Monitor') was appointed in July 2013 for an expected five-year period to produce annual assessments of the effectiveness of the Group's anti-money laundering ('AML') and sanctions compliance programme.

The design and execution of the AML and sanctions remediation plans to address the findings of the US DPA and the Monitor are complex and require major investments in people, systems and other infrastructure. This complexity creates significant execution risk that could affect our ability to effectively identify and manage financial crime risk and remedy AML and sanctions compliance deficiencies in a timely manner. This, in turn, could impact our ability to satisfy the Monitor or comply with the terms of the US DPA and related agreements and consent orders, and may require us to take additional remedial measures in the future. These risks could be further heightened if the Monitor's reports were to become public.

In February 2017, the Monitor delivered his third annual follow-up review report as required by the US DPA. In his report, which is discussed on page 115, the Monitor concluded that, in 2016, HSBC continued to make progress in enhancing its financial crime compliance controls, including improvements to our global AML policies and procedures. However, the Monitor also expressed significant concerns about the pace of that progress, instances of potential financial crime that the DoJ and HSBC are reviewing further and on-going systems and control deficiencies that in his view raised questions as to whether HSBC is adhering to all its obligations under the US DPA. The Monitor also found that there remain substantial challenges for HSBC to meet its goal of developing a reasonably effective and sustainable AML and sanctions compliance programme. In addition, the Monitor did not certify as to HSBC's implementation of and adherence to remedial measures specified in the US DPA.

Potential consequences of breaching the US DPA could include the imposition of additional terms and conditions on HSBC, an extension of the agreement, including its monitorship, or the criminal prosecution of HSBC that could, in turn, entail further financial penalties and collateral consequences.

Moreover, HSBC Bank USA, as the primary US dollar correspondent bank for the Group, is subject to heightened financial crime risk arising from business conducted on behalf of clients as well as its non-US HSBC affiliates. If HSBC Bank USA fails to conduct adequate due diligence on clients, including its affiliates, or otherwise inappropriately processes US dollar payments on behalf of non-US HSBC affiliates, it could be in breach of applicable US AML and sanctions laws and regulations, become subject to legal or regulatory enforcement actions by OFAC or other US agencies and be required to pay substantial fines or penalties. In addition, any such breaches of US legislation could constitute a breach of the US DPA.

Under the terms of the US DPA, upon notice and an opportunity to be heard, the DoJ has sole discretion to determine whether HSBC has breached the US DPA.

Mitigating actions

- We continued to make progress during 2016 toward putting in place an effective and sustainable AML and sanctions compliance programme, including through the creation of a new Financial Crime Risk function and improvements in technology and systems to manage financial crime risk.

- We are working to implement the agreed recommendations flowing from the Monitor's previous reviews, and to implement the agreed recommendations from the 2016 review.

Internally driven

IT systems infrastructure and resilience

HSBC continues to invest in the reliability and resilience of our IT Systems, to help ensure that disruption to customer services resulting in reputational and regulatory damage does not occur.

Mitigating actions

- We are part-way through a multi-year investment programme that is transforming how technology is developed, delivered and maintained, with a particular focus on providing high-quality, stable and secure services. As part of this, we are simplifying our service provision and replacing older IT infrastructure and applications. These investments are designed to improve IT systems resilience.
- During 2016, we continued to upgrade our IT Systems, improve disruption free change, and materially reduce the number of incidents relating to our critical business services. These enhancements led to a material improvement in service availability during the year and helped reduce impact to our customers and colleagues by 45% (when compared with the same period in 2015).

Impact of organisational change and regulatory demands on employees

The cumulative workload arising from our regulatory reform and remediation programmes, together with those related to the delivery of our strategy, continues to place increasingly complex and conflicting demands on a workforce that operates in an employment market where expertise in key markets is often in short supply and mobile. The scale of organisational change, including the establishment of the ring-fenced bank in the UK, has increased pressure on employees and requires us to ensure that key skills and experience are retained. Furthermore, the outcome of the UK referendum on EU membership has led to some uncertainties regarding movement of labour.

Mitigating actions

- We have enhanced our wellbeing programme to support our employees, particularly those affected by the Group's considerable change agenda.
- Risks related to organisational change are subject to close management oversight. A range of actions are being developed to address the risks associated with the Group's major change initiatives, including recruitment and extensive relocation support to existing employees in the UK ring-fenced bank.
- We continue to increase the level of specialist resource in key areas, and to engage with our regulators as they finalise new regulations. We use a broad array of talent-sourcing channels, succession planning for key management roles, and heightened promotion of opportunities internally, with particular attention in our more challenging markets.

Execution risk

Execution risk remained heightened during 2016 as we continued to work towards delivering the strategic actions announced at the Investor Update in June 2015 (see page 12). These, along with the regulatory reform agenda and our commitments under the US DPA, require the management of significant projects that are resource intensive and time sensitive. Risks arising from the volume, magnitude and complexity of the projects underway to meet these demands may include regulatory censure, reputational damage or financial losses.

Mitigating actions

- We have strengthened our prioritisation and governance processes for significant projects. The Group Change Committee ('GCC'), chaired by the Group Chief Operating Officer, oversees the most significant programmes and provides regular updates to the Risk Management Meeting of the GMB.
- The GCC monitors the concentration of deliverables to ensure that potential resource constraints over the medium term are understood and addressed.

Third-party risk management

We utilise third parties for the provision of a range of goods and services, in common with other financial services providers. Global regulators have increased their scrutiny of these arrangements and expect firms to be able to demonstrate adequate control over the selection, governance and oversight of their third parties, including affiliates. Any deficiency in our management of third-party risk could affect our ability to meet strategic, regulatory or client expectations. This may, in turn, lead to a range of consequences, including regulatory censure or reputational damage.

Mitigating actions

- We are part-way through a multi-year strategic programme to enhance our third-party risk management capability. This is designed to enable the consistent risk assessment of any third-party service against key criteria, along with associated control monitoring, testing and assurance throughout the third-party life cycle.
- A new Group policy and supporting framework was published in December 2016. The supporting delivery model and technology will be developed and will start to deploy in the second half of 2017.

Enhanced model risk management expectations

We use models for a range of purposes in managing our business, including regulatory capital calculations, stress testing, credit approvals, financial crime and fraud risk management, and financial reporting. Regulatory requirements for models are rapidly increasing and often fast-moving. The scale and scope of model development expected by regulators pose significant execution challenges, especially where the breadth and scope are beyond what has previously been expected of the Group.

Regulatory scrutiny and supervisory concerns over banks' use of models is considerable, particularly the internal models and assumptions used by banks in the calculation of regulatory capital. If regulatory approval for key capital models is not achieved in a timely manner, we could be required to hold additional capital.

Mitigating actions

- We have strengthened our model risk governance framework by establishing additional global model oversight committees and implementing policies and standards in accordance with key regulatory requirements.
- We have strengthened our governance over the development, usage and validation of models including

the creation of centralised global analytical functions with necessary subject matter expertise.

- We have hired additional subject matter experts within our Independent Model Review sub-function and empowered the team to ensure appropriate challenge and feedback are given to models prior to and as part of their ongoing use.
- We have strengthened the model risk policy and introduced a Group-wide single model inventory system detailing key metrics on all models, and an assessment of their relative importance to the organisation.

Data management

The Group currently uses a large number of systems and applications to support business processes and operations. Multiple data sources, including customer data sources, introduce the need for reconciliation to reduce the risk of error. Strong data governance and enhanced data quality are required to meet our regulatory obligations relating to risk data aggregation and risk reporting as set out by the Basel Committee and our obligations under the US DPA, as well as to service our customers more effectively and improve our product offering.

Mitigating actions

- The Chief Information Officer continues to drive the Group's efforts to enhance data governance, quality and architecture. These services underpin key programmes and initiatives, such as our Global Standards programme.
- We are significantly reducing the number of systems and applications that support key business processes, which will streamline the number of data sources across the Group, particularly data used in our customer and transaction screening processes.
- We continue to make progress on key initiatives and projects to implement our data strategy and work towards meeting our Basel Committee data obligations.

Risk factors

We have identified a comprehensive suite of risk factors that covers the broad range of risks our businesses are exposed to. A number of the risk factors have the potential to have a material adverse effect on our business, prospects, financial condition, capital position, reputation, results of operations and/or our customers. They may not necessarily be deemed as top or emerging risks; however, they inform the ongoing assessment of our top and emerging risks that may result in our risk appetite being revised. The risk factors are set out below.

Macroeconomic and geopolitical risk

Current economic and market conditions may adversely affect our results

Our earnings are affected by global and local economic and market conditions.

Uncertain and at times volatile economic conditions can create a challenging operating environment for financial services companies such as HSBC. In particular, we may face the following challenges to our operations and operating model in connection with these factors:

- the demand for borrowing from creditworthy customers may diminish if economic activity slows or remains subdued;
- as capital flows are increasingly disrupted, some emerging markets have imposed protectionist measures that could affect financial institutions and their clients, and other emerging, as well as non-emerging markets may be tempted to follow suit;
- European banks may come under renewed stress as subdued economic conditions raise asset quality worries,

particularly in the EU, and uncertainties about the new EU bank resolution regime raise funding costs;

- the prolonged period of low, or negative, interest rates constraints; for example, through margin compression and low returns on assets, the net interest income we earn from investing our excess deposits;
- our ability to borrow from other financial institutions or to engage in funding transactions may be adversely affected by market disruption; for example, in the event of contagion from stress in the eurozone sovereign and financial sectors; and
- market developments may depress consumer and business confidence beyond expected levels. If economic growth remains subdued; for example, asset prices and payment patterns may be adversely affected, leading to greater than expected increases in our delinquencies, default rates, write-offs and loan impairment charges.

The occurrence of any of these events or circumstances could have a material adverse effect on our business prospects, financial condition, customers and results of operations.

We are subject to political risks in the countries in which we operate, including the risk of government intervention

We operate through an international network of subsidiaries and affiliates in 70 countries and territories around the world. Our operations in such countries are subject to potential unfavourable political developments (which may include coups and/or civil wars), currency fluctuations, social instability and changes in government policies. These may take the form of expropriation, restrictions on international ownership, interest-rate caps, limits on dividend flows and tax in the jurisdictions in which we operate. Such developments could cause disruptions to our operations and result in a material adverse effect on our business, prospects, financial condition and results of operations.

The UK's withdrawal from the European Union may adversely affect our operating model and financial results

The UK electorate's vote to leave the European Union may have a significant impact on general macroeconomic conditions in the United Kingdom, the European Union and globally, and is likely to usher in a prolonged period of uncertainty. Negotiations of the UK's exit agreement, its future relationship with the EU and its trading relationships with the rest of the world will likely take a number of years to resolve. The period of uncertainty and market volatility that followed the UK's decision to leave the EU is likely to continue until the UK's future relationship with the EU and the rest of the world is clearer. Given the timeframe and the complex negotiations involved, a clearer picture is not expected to emerge for some time.

Uncertainty as to the precise terms of these arrangements, and the future legal and regulatory landscape, may lead to uncertain economic conditions, market volatility and currency fluctuations. Among other issues, the UK's future relationship with the EU may have implications for the future business model for our London-based European cross-border banking operations, which relies on unrestricted access to the European financial services market. The current negotiating stance of the UK government is likely to increase the likelihood of a 'hard exit' which may include the loss of EU 'passporting rights' (that would require us to make use of alternative licensing arrangements for our operations in EU jurisdictions), a discontinuation of the free movement of services and significant changes to the UK's immigration policy. As a result, meeting our client's needs following the UK's departure from the EU will likely require adjustments to our London-based European cross-border banking operations.

These types of challenging market conditions have historically resulted in reduced liquidity, greater volatility, widening of credit spreads and lack of price transparency in credit and capital markets. The adverse market conditions have impacted investment markets globally, including adverse changes and increased volatility in interest rates and exchange rates, and decreased returns from equity, property and other investments.

We may face the following challenges to our operations and operating model in connection with these factors, as a result of the UK's exit from the EU:

- our operating costs could increase, and we could be forced to relocate UK staff and businesses to other jurisdictions;
- the demand for borrowing from creditworthy customers may diminish if economic activity slows or remains subdued;
- if capital flows are disrupted, some emerging markets may impose protectionist measures that could affect financial institutions and their clients;
-

- our ability to borrow from other financial institutions or to engage in funding transactions may be adversely affected by market disruption; for example, in the event of contagion from stress in the eurozone and global sovereign and financial sectors, and
- market developments may depress consumer and business confidence beyond expected levels. If economic growth remains subdued; for example, asset prices and payment patterns may be adversely affected, leading to greater than expected increases in delinquencies, default rates, write-offs and loan impairment charges. However, if growth is too rapid, new asset valuation bubbles could appear, particularly in the real estate sector, with potentially negative consequences for banks, such as the Issuer.

The occurrence of any of the events described above could have a material adverse effect on HSBC's business, financial condition and prospects, the results of the operations and/or our customers.

Changes in foreign currency exchange rates may affect our results

We prepare our accounts in US dollars because the US dollar and currencies linked to it form the major currency bloc in which we transact and fund our business. However, a substantial portion of our assets, liabilities, assets under management, revenues and expenses are denominated in other currencies. Changes in foreign exchange rates, including those that may result from a currency becoming de-pegged from the US dollar, have an effect on our reported income, cash flows and shareholders' equity, and could have a material adverse effect on our business, prospects, financial condition and results of operations.

Macro-prudential, regulatory and legal risks to our business model

Failure to implement and adhere to our obligations under the deferred prosecution agreement could have a material adverse effect on our results and operations

HSBC is subject to a five-year Deferred Prosecution Agreement ('US DPA') with the US DoJ and related agreements and consent orders with the FRB, the OCC and the FCA. Under the agreements entered into with the DoJ and the FCA in 2012, an independent compliance monitor ('the Monitor') was appointed in July 2013 for an expected five-year period to produce annual assessments of the effectiveness of our AML and sanctions compliance programme.

The design and execution of AML and sanctions remediation plans to address the findings of the US DPA and the Monitor are complex and require major investments in people, systems and other infrastructure. This complexity creates significant execution risk, which could affect our ability to effectively identify and manage financial crime risk, and remedy AML and sanctions compliance deficiencies in a timely manner. This could, in turn, impact our ability to satisfy the Monitor or comply with the terms of the US DPA and related agreements and consent orders, and may require us to take additional remedial measures in the future. These risks could be further heightened if the Monitor's report were to become public.

In February 2017, the Monitor delivered his third annual follow-up review report as required by the US DPA. In his report, which is discussed on page 115, the Monitor concluded that, in 2016, HSBC continued to make progress in enhancing its financial crime compliance controls, including improvements to our global AML policies and procedures. However, the Monitor also expressed significant concerns about the pace of that progress, instances of potential financial crime that the DoJ and HSBC are reviewing further and on-going systems and control deficiencies that in his view raised questions as to whether HSBC is adhering to all its obligations under the US DPA. The Monitor also found that there remain substantial challenges for HSBC to meet its goal of developing a reasonably effective and sustainable AML and sanctions compliance programme. In addition, the Monitor did not certify as to HSBC's implementation of and adherence to remedial measures specified in the US DPA.

Potential consequences of breaching the US DPA could include the imposition of additional terms and conditions on HSBC, an extension of the agreement, including its monitorship, or the criminal prosecution of HSBC, which could, in turn, entail further financial penalties and collateral consequences. Under the terms of the US DPA, upon notice and an opportunity to be heard, the DoJ has sole discretion to determine whether HSBC has breached the US DPA.

Breach of the US DPA or related agreements and consent orders could have a material adverse effect on our business, financial condition and results of operations, including loss of business and withdrawal of funding, restrictions on performing dollar-clearing functions through HSBC Bank USA or revocation of bank licences. Even if we are not determined to have breached these agreements, but the agreements are amended or their terms extended, our business, reputation and brand could suffer materially. See 'Third parties may use us as a conduit for illegal activities without our knowledge'. Moreover, these consent orders do not prelude additional enforcement actions by bank regulatory, governmental or law enforcement agencies or private litigation.

We may fail to effectively manage affiliate risk

HSBC Bank USA, as the primary US dollar correspondent bank for the Group, is subject to heightened financial crime risk arising from business conducted on behalf of clients, as well as its non-US HSBC affiliates. If HSBC Bank USA fails to conduct adequate due diligence on clients, including its affiliates, or otherwise inappropriately processes US dollar payments on behalf of non-US HSBC affiliates, it could be in breach of applicable US AML and sanctions laws and regulations, become subject to legal or regulatory enforcement actions by OFAC or other US agencies and be required to pay substantial fines or penalties. In addition, any such breaches of US legislation could constitute a breach of the US DPA, leading to the potential consequences described under 'Failure to implement and adhere to our obligations under the deferred prosecution agreement could have a material adverse effect on our results and operations'. In particular, any such breaches could require HSBC to restructure its operations or cease to offer certain products or services, which could potentially include a suspension or restriction of HSBC Bank USA's ability to process US dollar payment transactions, all of which would have a material adverse effect on our business, financial condition, results of operations and prospects.

Failure to comply with certain regulatory requirements would have a material adverse effect on our results and operations

HSBC Bank USA is also subject to an agreement entered into with the OCC in December 2012, the Gramm-Leach-Bliley Act ('GLBA') Agreement and other consent orders. As reflected in the agreement entered into with the OCC in December 2012 ('the GLBA Agreement'), the OCC has determined that HSBC Bank USA is not in compliance with the requirements that a national bank, and each depository institution affiliate of the national bank, must be both well capitalised and well managed in order to own or control a financial subsidiary. As a result, HSBC Bank USA and its parent holding companies, including HSBC Holdings, do not meet the qualification requirements for financial holding company status. If all of our affiliate depository institutions are not in compliance with these requirements within the time periods specified in the GLBA Agreement, as they may be extended, HSBC could be required either to divest HSBC Bank USA or to divest or terminate any financial activities conducted in reliance on financial holding company status under the GLBA. Similar consequences could result for financial

subsidiaries of HSBC Bank USA that engage in activities in reliance on expanded powers provided for in the GLBA. Any such divestiture or termination of activities would have a material adverse effect on our business, prospects, financial condition and results of operation.

We may fail to meet the requirements of regulatory stress tests

We are subject to regulatory stress testing in many jurisdictions, which are described on page 115. These exercises are designed to assess the resilience of banks to adverse economic or financial developments and ensure that they have robust, forward-looking capital planning processes that account for the risks associated with their business profile.

Assessment by regulators is on both a quantitative and qualitative basis, the latter focusing on our data provision, stress testing capability and internal management processes and controls.
Failure to meet quantitative or qualitative requirements of regulatory stress test programmes, or the failure by regulators to approve our stress results and capital plans, could have a material adverse effect on our prospects, financial condition and results of operations.
We are subject to a number of legal and regulatory actions and investigations, the outcomes of which are inherently difficult to predict
We face significant legal and regulatory risks in our business. The volume and amount of damages claimed in litigation, regulatory proceedings and other adversarial proceedings against financial institutions are increasing for many reasons, including a substantial increase in the number of regulatory changes taking place globally, increased media attention and higher expectations from regulators and the public. In addition, criminal prosecutions of financial institutions for, among other things, alleged conduct, breaches of AML and sanctions regulations, antitrust violations, market manipulation, aiding and abetting tax evasion, and providing unlicensed cross-border banking services, have become more commonplace and may increase in frequency due to increased media attention and higher expectations from prosecutors and the public. Any such prosecution of HSBC or one or more of its subsidiaries could result in substantial fines, penalties and/or forfeitures, and could have a material adverse effect on our business, financial condition, results of operations, prospects and reputation, including the potential loss of key licences, requirement to exit certain businesses and withdrawal of funding from depositors and other stakeholders.
Additionally, we continue to be subject to a number of material legal proceedings, regulatory actions and investigations (including criminal), as described in Note 35 on the Financial Statements. It is inherently difficult to predict the outcome of many of the legal, regulatory and other adversarial proceedings involving our businesses, particularly those cases in which the matters are brought on behalf of various classes of claimants, seek damages of unspecified or indeterminate amounts or involve novel legal claims. Moreover, we may face additional legal proceedings, investigations or regulatory actions in the future, including in other jurisdictions and/or with respect to matters similar to, or broader than, the existing legal proceedings, investigations or regulatory actions. An unfavourable result in one or more of these proceedings could have a material adverse effect on our business, prospects, financial condition, reputation and/or results of operations.
We are subject to unfavourable legislative or regulatory developments and changes in the policy of regulators or governments
Our businesses are subject to ongoing regulation and associated regulatory risks, including the effects of changes in the laws, regulations, policies, voluntary codes of practice and interpretations in the UK, the US, Hong Kong, the EU and the other markets in which we operate. This is particularly the case given the current environment, where we expect government and regulatory intervention in the banking sector to remain high for the foreseeable future. Additionally, many of these changes have an effect beyond the country in which they are enacted, as regulators either deliberately enact regulation with extra-

territorial impact or our operations mean that the Group is obliged to give effect to 'local' laws and regulations on a wider basis.

In recent years, regulators and governments have focused on reforming both the prudential regulation of the financial services industry and the ways in which the business of financial services is conducted. Measures include enhanced capital, liquidity and funding requirements, the separation or prohibition of certain activities by banks, changes in the operation of capital markets activities, the introduction of tax levies and transaction taxes, changes in compensation practices and adjustments to how business is conducted. The government and regulators in the UK, US, Hong Kong, the EU or elsewhere may intervene further in relation to areas of industry risk already identified, or in new areas, which could adversely affect us.

More stringent regulatory requirements, including further capital, liquidity and funding requirements, and adjustments in the use of models for measuring risk, may adversely affect elements of our business, particularly if capital requirements are increased.

There may be changes in laws, rules or regulations, or in their interpretation or enforcement, or in how new laws, rules or regulations are implemented. Further, there may be uncertainty and lack of international regulatory coordination as enhanced supervisory standards are developed and implemented. These developments are expected to continue to change the way in which we are regulated and supervised, and could affect the manner in which we conduct our business activities, capital requirements, risk management or how the Group is structured; all of which could have a material adverse effect on our business, prospects, financial condition, reputation and results of operations.

We may fail to comply with all applicable regulations, particularly any changes thereto

Authorities in many jurisdictions have the power to bring administrative or judicial proceedings against us that could result in, among other things, the suspension or revocation of our licences, cease and desist orders, fines, civil penalties, criminal penalties or other disciplinary actions.

Areas where changes could have an adverse effect on our business, prospects, financial condition or results of operations include, but are not limited to:

- general changes in government, central bank or regulatory or competition policy, or changes in regulatory regimes that may influence investor decisions in particular markets in which we operate;
- the structural separation of certain banking and other activities proposed or enacted in a number of jurisdictions, including the UK, US and France;
- requirements flowing from arrangements for the resolution strategy of the Group and its individual operating entities, that may have different effects in different countries;
- the implementation of extra-territorial laws, including initiatives to share tax information, such as the Common Reporting Standard introduced by the OECD;
- the implementation of CRD IV, notably the UK application of the capital buffer framework and its interaction with Pillar 2 and the PRA buffer;
- the implementation of Directive 2014/59/EU establishing the framework for the recovery and resolution of credit institutions and investment firms (the 'BRRD') minimum requirements for eligible liabilities or MREL, by the Bank of England ('BoE') and its interaction with TLAC requirements for G-SIBs in other jurisdictions, particularly in the US and Hong Kong. Under the FSB Standard, G-SIBs are required to meet the TLAC requirement alongside the minimum regulatory capital requirements set out in the Basel III framework (some elements of which have also been or are expected to be revised), discussed on page 63;
- the UK's exit from the EU, which could result in significant changes to those EU laws applicable in the UK (depending on whether the UK were to be readmitted to the European Free Trade Association and EEA). While the UK's exit from

the EU should not in and of itself affect existing UK laws such as the Banking Act 2009, as amended (the 'Banking Act') (discussed below), it is possible that significant changes to UK law and regulation concerning banking and financial services could take place before or following the UK's exit from the EU;

- changes to EU laws relating to taxation in the UK that could result from the UK's exit from the EU;
- the implementation of the European Commission's proposals for amendments to the BRRD and CRD IV, designed to implement (among other changes) various changes to the EU prudential framework, including a proposed requirement for G-SIBs and certain other banking groups with two or more institutions in the EU, but whose ultimate parent is outside the EU, to establish an EU intermediate financial holding company, that would be subject to consolidated prudential supervision in the EU. These proposals are yet to be finalised and it is unclear, particularly in light of the UK's exit from the EU, how these requirements will affect the Group;
- the international developments on non-modelled, standardised requirements for credit and operational risk, and the use of capital floors;
- the corporate governance, business conduct, capital, margin, reporting, clearing, execution and other regulatory requirements to which HSBC Bank USA and certain of our affiliates are or may become subject to in their role as a swap dealer, including as imposed by the CFTC and the SEC. Although many significant regulations applicable to swap dealers are already in effect and have imposed significant costs on our derivatives business, we are still in the process of assessing the full impact of certain recently released requirements and the potential impact of future security-based swap requirements;
- the increasing focus by regulators on how institutions conduct business, particularly with regard to the delivery of fair outcomes for customers and orderly/transparent markets, promoting effective competition in the interests of consumers and ensuring the orderly and transparent operation of global financial markets;
- restrictions on the structure of remuneration and increasing requirements to detail management accountability within the Group (e.g. the requirements of the Senior Managers and Certification Regime in the UK);
- the continued focus in the UK on matters relating to institutional 'culture', employee conduct and obligations more generally such as whistleblowing;
- the implementation of any measures as a result of regulators' increased focus on 'conduct' matters, including measures resulting from ongoing thematic work into the workings of the retail, SME and wholesale banking sectors and the provision of financial advice to consumers;
- external bodies applying or interpreting standards or laws differently to us;
- further requirements relating to financial reporting, corporate governance and employee compensation; and
- expropriation, nationalisation, confiscation of assets and changes in legislation or regulations relating to foreign ownership.

We and our UK subsidiaries may become subject to stabilisation provisions under the Banking Act 2009, as amended, in certain significant stress situations

The Banking Act 2009, as amended (the 'Banking Act') implements the BRRD in the UK and creates a special resolution regime (the 'SRR'). Under the SRR, HM Treasury, the BoE and the PRA and FCA (together, the 'Authorities') are granted substantial powers to resolve and stabilise UK-incorporated institutions with permission to accept deposits pursuant to Part 4A of the FSMA that are failing or are likely to fail to satisfy the threshold conditions (within the meaning of section 55B of the FSMA) where it is in the public interest to do so. The SRR presently consists of five stabilisation options: (i) transfer of all of the business of a relevant entity or the shares of the relevant entity to a private sector purchaser; (ii) transfer of all or part of the business of the relevant entity to a 'bridge bank' wholly-owned by the BoE; (iii) transfer of part of the assets, rights or liabilities of the relevant entity to one or more asset management vehicles for management of the transferor's assets, rights or liabilities; (iv) the write-down, conversation, transfer, modification, or suspension of the relevant entity's equity, capital instruments and liabilities; and (v) temporary public ownership of the relevant entity. These tools may also be applied to a parent company or affiliate of a relevant entity where certain conditions are met. In addition, the SRR provides for modified insolvency and administration procedures for relevant entities. It also confers ancillary powers on the Authorities, including the power to modify or override certain contractual arrangements in certain circumstances. The Authorities are also empowered by order to amend the law for the purpose of enabling the powers under the SRR to be used effectively. Such orders may promulgate provisions with retrospective applicability.

In general, the Banking Act requires the Authorities to have regard to specified objectives in exercising the powers provided for by the Banking Act. One of the objectives (which is required to be balanced as appropriate with the other specified objectives) refers to the protection and enhancement of the stability of the financial system of the UK. The Banking Act includes provisions related to compensation in respect of transfer instruments and orders made under it.

There is considerable uncertainty about how the Authorities may exercise the powers granted to them under the Banking Act. However, if we are at or approaching the point of non-viability, such as to require regulatory intervention, any exercise of any resolution regime powers by the Authorities may result in holders of our ordinary shares or other instruments that may fall within the scope of the 'bail in' powers described above being adversely affected, including by the write-down of shares, the write-down or conversion into shares of other instruments, the loss of rights associated with shares or other instruments (including rights to dividends or interest payments), the dilution of their percentage ownership of our share capital, and any corresponding material adverse effect on the market price of our ordinary shares and other instruments.

Structural separation requirements of banking and trading activities proposed or enacted in a number of jurisdictions could have a material adverse effect on us

In December 2013, the UK Financial Services (Banking Reform) Act 2013 received Royal Assent. It implements the recommendations of the Independent Commission on Banking which, among other things, establish a framework for 'ring-fencing' UK retail banking in separately incorporated banking entities ('ring-fenced banks') from trading activities. Secondary legislation and PRA rules have largely been finalised.

The proposed separation of retail and SME banking in the UK would be a material change to the structure of HSBC Bank plc. We expect the cost of implementing structural separation to be material.

In January 2014, the European Commission published legislative proposals on the structural reform of the European banking sector that would prohibit proprietary trading in financial instruments and commodities, and enable supervisors to require trading activities such as market-making, complex derivatives and securitisation operations to be undertaken in a separate subsidiary from deposit-taking activities. Although limited progress has been made on these proposals in the past year, they remain under consideration in the European Parliament and the Council.

We are subject to tax-related risks in the countries in which we operate

We are subject to the substance and interpretation of tax laws in all countries in which we operate and are subject to routine review and audit by tax authorities in relation thereto. We provide for potential tax liabilities that may arise on the basis of the amounts expected to be paid to the tax authorities. The amounts ultimately paid may differ materially from the amounts provided depending on the ultimate resolution of such matters. Changes to tax law, tax rates and penalties for failing to comply

could have a material adverse effect on our business, prospects, financial condition and results of operations.

Risks related to our business, business operations, governance and internal control systems

The delivery of our strategic actions is subject to execution risk

At our Investor Update in June 2015, we set out 10 strategic actions to be completed by the end of 2017. Nine of these are business-led initiatives, while one has been completed by the Board of Directors. The work required to execute these actions is substantial.

Alongside the strategic actions, we continue to implement a number of externally driven regulatory programmes. The magnitude and complexity of the projects required to meet these demands present heightened execution risk. The

cumulative impact of the collective change initiatives underway within the Group is significant and has direct implications on resourcing and our people. In addition, the completion of these strategic actions is subject to economic and market conditions, which may be negatively affected as described under 'Current economic and market conditions may adversely affect our results'.
The failure to successfully complete our 10 strategic actions or other regulatory programmes (within the announced timeframe or at all) could have a significant impact on our financial condition, profitability, prospects and share price, as well as wider reputational and regulatory implications.
There also remains heightened risk around the execution of a number of disposals across the Group in line with our strategy. The potential risks of disposals include regulatory breaches, industrial action, loss of key personnel and interruption to systems and processes during business transformation. They can have both financial and reputational implications, and could also adversely affect the successful delivery of our strategic priorities.
We may not achieve any of the expected benefits of our strategic initiatives
The Group's strategy (see pages 10 to 11), is built around two trends – the continued growth of international trade and capital flows, and wealth creation, particularly in faster-growing markets. We have analysed those trends and developed criteria to help us better deploy capital in response. The development and implementation of our strategy requires difficult, subjective and complex judgements, including forecasts of economic conditions in various parts of the world. We may fail to correctly identify the trends we seek to exploit and the relevant factors in making decisions as to capital deployment and cost reduction.
Key to achieving our growth strategy is increasing the number of HSBC products held by our customers through cross-selling and driving synergies across our global businesses to grow revenue and earnings. Key opportunities to drive business synergies arise between CMB and GB&M, and separately in RBWM, which are both areas where many of our competitors also focus. In both instances, this may limit our ability to cross-sell additional products to our customers or may influence us to sell our products at lower prices, reducing our net interest income and revenue from our fee-based products. A failure to deliver the cross-selling and/or business synergies required to achieve our growth strategy could have a material adverse effect on our business, prospects, financial condition and results of operations.
Our ability to execute our strategy may be limited by our operational capacity and the increasing complexity of the regulatory environment in which we operate. We continue to pursue our cost management initiatives, though they may not be as effective as expected, and we may be unable to meet our cost-saving targets. In addition, factors beyond our control, including but not limited to economic and market conditions, could limit our ability to achieve any of the expected benefits of these initiatives.
Failure to achieve any of the expected benefits of our strategic initiatives could have a material adverse effect on our business, prospects, financial condition and results of operations.

We operate in markets that are highly competitive

We compete with other financial institutions in a highly competitive industry that continues to undergo significant change as a result of financial regulatory reform, as well as increased public scrutiny stemming from the financial crisis and continued challenging economic conditions.

We target internationally mobile clients who need sophisticated global solutions and generally compete on the basis of the quality of our customer service, the wide variety of products and services that we can offer our customers, and the ability of those products and services to satisfy our customers' needs, the extensive distribution channels available for our customers, our innovation and our reputation. Continued and increased competition in any one or all of these areas may negatively affect our market share and/or cause us to increase our capital investment in our businesses in order to remain competitive. Additionally, our products and services may not be accepted by our targeted clients.

In many markets, there is increased competitive pressure to provide products and services at current or lower prices. Consequently, our ability to reposition or reprice our products and services from time to time may be limited, and could be influenced significantly by the actions of our competitors who may or may not charge similar fees for their products and services. Any changes in the types of products and services that we offer our customers, and/or the pricing for those products and services, could result in a loss of customers and market share.

Further, new entrants to the market or new technologies could require us to spend more to modify or adapt our products to attract and retain customers. We may not respond effectively to these competitive threats from existing and new competitors, and may be forced to increase our investment in our business to modify or adapt our existing products and services or develop new products and services to respond to our customers' needs.

Any of these factors may have a material adverse effect on our business, prospects, financial condition and results of operations.

Our risk management measures may not be successful

The management of risk is an integral part of all our activities. Risk constitutes our exposure to uncertainty and the consequent variability of return. Specifically, risk equates to the adverse effect on profitability or financial condition arising from different sources of uncertainty, including retail and wholesale credit risk, market risk, operational risk, non-traded market risk, insurance risk, concentration risk, liquidity and funding risk, litigation risk, reputational risk, strategic risk, pension obligation risk and regulatory risk. While we employ a broad and diversified set of risk monitoring and mitigation techniques, such methods and the judgements that accompany their application cannot anticipate every unfavourable event or the specifics and timing of every outcome. Failure to manage risks appropriately could have a material adverse effect on our business prospects, reputation, financial condition and results of operations.

Operational risks are inherent in our business

We are exposed to many types of operational risk that are inherent in banking operations, including fraudulent and other criminal activities (both internal and external), breakdowns in processes or procedures and systems failure or non-availability. These risks are also present when we rely on outside suppliers or vendors to provide services to us and our customers. These operational risks could have a material adverse effect on our business, prospects, financial condition and results of operations.

Our operations are subject to the threat of fraudulent activity

Fraudsters may target any of our products, services and delivery channels, including lending, internet banking, payments, bank accounts and cards. This may result in financial loss to the Group, an adverse customer experience, reputational damage and potential regulatory action depending on the circumstances of the event, any of which could have a material adverse effect on our business, prospects, financial condition and results of operations.

Our operations are subject to disruption from the external environment

HSBC operates in many geographical locations, which are subject to events that are outside our control. These events may be acts of God, such as natural disasters and epidemics, geopolitical risks, including acts of terrorism and social unrest, and infrastructure issues, such as transport or power failure. These risk events may give rise to disruption to our services, result in physical damage and/or loss of life, which could have a material adverse effect on our business,

prospects, financial condition and results of operations.
Our operations utilise third-party suppliers and service providers
HSBC relies on third parties to supply goods and services. Global regulators have increased their scrutiny of the use of third-party service providers by financial institutions, including with respect to how outsourcing decisions are made and how key relationships are managed. Risks arising from the use of third parties may be less transparent and therefore more challenging to manage. The inadequate management of third-party risk could impact our ability to meet strategic, regulatory and client expectations. This may lead to a range of effects, including regulatory censure, civil penalties or damage both to shareholder value and to our reputation, which could have a material adverse effect on our business, prospects, financial condition and results of operations.
Our operations are highly dependent on our information technology systems
The reliability and security of our information and technology infrastructure, and our customer databases are crucial to maintaining the service availability of banking applications and processes and to protecting the HSBC brand. The proper functioning of our payment systems, financial control, risk management, credit analysis and reporting, accounting, customer service and other information technology systems, as well as the communication networks between our branches and main data processing centres, are critical to our operations.
Critical system failure, any prolonged loss of service availability or any material breach of data security, particularly involving confidential customer data, could cause serious damage to our ability to service our clients, could breach regulations under which we operate and cause long-term damage to our business and brand that could have a material adverse effect on our business, prospects, financial condition and results of operations.
We remain susceptible to a wide range of cyber risks that impact and/or are facilitated by technology.
The threat from cyber attacks is a concern for our organisation, and failure to protect our operations from internet crime or cyber attacks may result in financial loss and/or loss of customer data or other sensitive information that could undermine our reputation and our ability to attract and keep customers.
Moreover, during 2016, we were subjected to frequent ‘denial of service’ attacks on our external-facing websites across the Group. A denial of service attack is the attempt to intentionally disrupt, paralyse and potentially extract data from a computer network by flooding it with data sent simultaneously from many individual computers.
Although the cyber attacks in 2016 had a negligible effect on our customers, services or firm, future cyber attacks could have a material adverse effect on our business, prospects, financial condition, reputation and results of operations.
Our data management policies and processes may not be sufficiently robust
Critical business processes across the Group rely on large volumes of data from a number of different systems and sources. If data governance, data quality and data architecture policies and procedures are not sufficiently robust, manual intervention, adjustments and reconciliations may be required to reduce the risk of error in reporting to senior management or regulators. Inadequate policies and processes may also affect our ability to use data within the Group to service customers more effectively and/or improve our product offering. This could have a material adverse effect on our business, prospects, financial condition and results of operations.
Moreover, financial institutions that fail to comply with the principles for effective risk data aggregation and risk reporting as set out by the Basel Committee by the required deadline may face supervisory measures. Any of these failures could have a material adverse effect on our business, prospects, financial condition and results of operations.
Our operations have inherent reputational risk
Reputational risk is the risk of failing to meet stakeholder expectations as a result of any event, behaviour, action or inaction, either by HSBC, our employees or those with whom we are associated. This might cause stakeholders to form a negative view of the Group and result in financial or non-financial effects, loss of confidence in the Group. Modern technologies, in particular online social media channels and other broadcast tools that facilitate communication with large audiences in short time frames and with minimal costs may significantly enhance and accelerate the effect of damaging information and allegations. It could also arise from negative public opinion about the actual, or perceived, manner in which we conduct our business activities, or financial performance, as well as actual or perceived practices in banking and the financial services industry generally. Negative public opinion may adversely affect our ability to retain and attract customers, in particular, corporate and retail depositors, and retain and motivate staff, and could have a material adverse effect on our business, prospects, financial condition, reputation and results of operations.

We may suffer losses due to employee misconduct

Our businesses are exposed to risk from potential non-compliance with Group policies, including HSBC Values, and related behaviours and employee misconduct such as fraud or negligence, all of which could result in regulatory sanctions or reputational or financial harm. In recent years, a number of multinational financial institutions have suffered material losses due to the actions of 'rogue traders' or other employees. It is not always possible to deter employee misconduct, and the precautions we take to prevent and detect this activity may not always be effective. Employee misconduct could have a material adverse effect on our business, prospects, financial condition and results of operations.

We rely on recruiting, retaining and developing appropriate senior management and skilled personnel

The demands being placed on the human capital of the Group are unprecedented. The cumulative workload arising from a regulatory reform programme that is often extra-territorial and regularly evolving consumes significant human resources, placing increasingly complex and conflicting demands on a workforce that operates in an employment market where expertise in key markets is often in short supply and mobile.

Our continued success depends in part on the retention of key members of our management team and wider employee base. The ability to continue to attract, train, motivate and retain highly qualified professionals is a key element of our strategy. The successful implementation of our growth strategy depends on the availability of skilled management in each of our global businesses and global functions, which may depend on factors beyond our control, including economic, market and regulatory conditions.

If global businesses or global functions fail to staff their operations appropriately or lose one or more of their key senior executives and fail to successfully replace them in a satisfactory and timely manner, or fail to implement successfully the organisational changes required to support the Group's strategy, our business prospects, financial condition and results of operations, including control and operational risks, could be materially adversely affected.

Our financial statements are based in part on judgments, estimates and assumptions that are subject to uncertainty

The preparation of financial statements requires management to make judgments, estimates and assumptions that affect the reported amounts of assets, liabilities, income and expenses. Due to the inherent uncertainty in making estimates, particularly those involving the use of complex models, actual results reported in future periods may be based upon amounts which differ from those estimates. Estimates, judgments, assumptions and models are continually evaluated, and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. Revisions to accounting estimates are recognised in the period in which the estimate is revised and in any future periods affected. The accounting policies deemed critical to our results and financial position, based upon materiality and significant judgments and estimates, include impairment of loans and advances, goodwill impairment, valuation of financial instruments, deferred tax assets, provisions and interests in associates, which are discussed in detail in 'Critical accounting estimates and judgments' on page 30.

The valuation of financial instruments measured at fair value can be subjective, in particular where models are used that include unobservable inputs. Given the uncertainty and subjectivity associated with valuing such instruments, future outcomes may differ materially from those assumed using information available at the reporting date. The effect of these differences on the future results of operations and the future financial position of the Group may be material. For further details, see 'Critical accounting estimates and judgements' on page 30.

If the judgement, estimates and assumptions we use in preparing our consolidated financial statements are subsequently found to be materially different from those assumed using information available at the reporting date, this could affect our business, prospects, financial condition and results of operations.

We could incur losses or be required to hold additional capital as a result of model limitations or failure

HSBC uses models for a range of purposes in managing our business, including regulatory capital calculations, stress testing, credit approvals, financial crime and fraud risk management and financial reporting. HSBC could face adverse consequences as a result of decisions that may lead to actions by management based on models that are poorly developed, implemented or used, or as a result of the modelled outcome being misunderstood or the use of such information for purposes for which it was not designed. Regulatory scrutiny and supervisory concerns over banks' use of models is considerable, particularly the internal models and assumptions used by banks in the calculation of regulatory capital. If regulatory approval for key capital models is not achieved in a timely manner, we could be required to hold additional capital. Risks arising from the use of models could have a material adverse effect on our business, prospects, financial condition, results of operations, minimum capital requirements and reputation.

Third parties may use us as a conduit for illegal activities without our knowledge

We are required to comply with applicable AML laws and regulations, and have adopted various policies and procedures, including internal control and 'know your customer' procedures, aimed at preventing use of HSBC products and services for the purpose of committing or concealing financial crime. A major focus of US and UK government policy relating to financial institutions in recent years has been combating money laundering and enforcing compliance with US and EU economic sanctions. This focus is reflected in part by our agreements with US and UK authorities relating to various investigations regarding past inadequate compliance with AML and sanctions laws. These consent orders do not preclude additional enforcement actions by bank regulatory, governmental or law enforcement agencies or private litigation.

A number of the remedial actions taken or being taken as a result of the matters to which the US DPA relates are intended to ensure that the Group's businesses are better protected in respect of these risks. However, there can be no assurance that the steps that continue to be taken to address the requirements of the US DPA will be completely effective.

Moreover, in relevant situations, and where permitted by regulation, we may rely upon certain counterparties to maintain and properly apply their own appropriate AML procedures. While permitted by regulation, such reliance may not be effective in preventing third parties from using us (and our relevant counterparties) as a conduit for money laundering, including illegal cash operations, without our knowledge (and that of our relevant counterparties). Becoming a party to money laundering, association with, or even accusations of being associated with, money laundering will damage our reputation and could make us subject to fines, sanctions and/or legal enforcement. Any one of these outcomes could have a material adverse effect on our business, prospects, financial condition and results of operations.

We have significant exposure to counterparty risk

We are exposed to counterparties that are involved in virtually all major industries, and we routinely execute transactions with counterparties in financial services, including brokers and dealers, central clearing counterparties, commercial banks, investment banks, mutual and hedge funds, and other institutional clients. Many of these transactions expose us to credit risk in the event of default by our counterparty or client. Our ability to engage in routine transactions to fund our operations and manage our risks could be materially adversely affected by the actions and commercial soundness of other financial services institutions. Financial institutions are necessarily interdependent because of trading, clearing, counterparty or other relationships. As a consequence, a default by, or decline in market confidence in, individual institutions, or anxiety about the financial services industry generally, can lead to further individual and/or systemic difficulties, defaults and losses.

Mandatory central clearing of OTC derivatives, including under Dodd-Frank and the EU's European Market Infrastructure Regulation, poses risks to HSBC. As a clearing member, we will be required to underwrite losses incurred at Central Counterparty ('CCP') by the default of other clearing members and their clients. Hence, central clearing brings with it a new element of interconnectedness between clearing members and clients that we believe may increase rather than reduce our exposure to systemic risk. At the same time, our ability to manage such risk ourselves will be reduced because control has been largely outsourced to CCPs, and it is unclear at present how, at a time of stress, regulators and resolution authorities will intervene.

Where bilateral counterparty risk has been mitigated by taking collateral, our credit risk may remain high if the collateral we hold cannot be realised or has to be liquidated at prices that are insufficient to recover the full amount of our loan or derivative exposure. There is a risk that collateral cannot be realised, including situations where this arises by change of law that may influence our ability to foreclose on collateral or otherwise enforce contractual rights.

The Group also has credit exposure arising from mitigants, such as credit default swaps ('CDSs'), and other credit derivatives, each of which is carried at fair value. The risk of default by counterparties to CDSs and other credit derivatives used as mitigants affects the fair value of these instruments depending on the valuation and the perceived credit risk of the underlying instrument against which protection has been purchased. Any such adjustments or fair value changes may have a material adverse effect on our financial condition and results of operations.

Market fluctuations may reduce our income or the value of our portfolios

Our businesses are inherently subject to risks in financial markets and in the wider economy, including changes in, and increased volatility of, interest rates, inflation rates, credit spreads, foreign exchange rates, commodity, equity, bond and property prices, and the risk that our customers act in a manner inconsistent with our business, pricing and hedging assumptions.

Market movements will continue to significantly affect us in a number of key areas. For example, banking and trading activities are subject to interest rate risk, foreign exchange risk, inflation risk and credit spread risk. Changes in interest rate levels, interbank spreads over official rates, yield curves and spreads affect the interest rate spread realised between lending and borrowing costs. A declining or low interest rate environment could increase prepayment activity that reduces the weighted average lives of our interest-earning assets and could have a material adverse effect on us. The potential for future volatility and margin changes remains. Competitive pressures on fixed rates or product terms in existing loans and deposits sometimes restrict our ability to change interest rates applying to customers in response to changes in official and wholesale market rates. Our pension scheme assets include equity and debt securities, the cash flows of which change as equity prices and interest rates vary.

Our insurance businesses are exposed to the risk that market fluctuations will cause mismatches to occur between product liabilities and the investment assets that back them. Market risks can affect our insurance products in a number of ways depending upon the product and associated contract. For example, mismatches between assets and liability yields and maturities give rise to interest rate risk. Some of these risks are borne directly by the customer and some are borne by the insurance businesses, with their excess capital invested in the markets. Some insurance contracts involve guarantees and options that increase in value in adverse investment markets. There is a risk that the insurance businesses will bear some of the cost of such guarantees and options. The performance of the investment markets will thus have a direct effect upon the value embedded in the insurance and investment contracts and our operating results, financial condition and prospects.

It is difficult to predict with any degree of accuracy changes in market conditions, and such changes may have a material adverse effect on our business, prospects, financial condition and results of operations.

Liquidity, or ready access to funds, is essential to our businesses

Our ability to borrow on a secured or unsecured basis, and the cost of doing so, can be affected by increases in interest rates or credit spreads, the availability of credit, regulatory requirements relating to liquidity or the market perceptions of risk relating to HSBC or the banking sector, including our perceived or actual creditworthiness.

Current accounts and savings deposits payable on demand or at short notice form a significant part of our funding, and we place considerable importance on maintaining their stability. For deposits, stability depends upon preserving investor confidence in our capital strength and liquidity, and on comparable and transparent pricing. Although deposits have been a stable source of funding historically, this may not continue.

We also access wholesale markets in order to provide funding for entities that do not accept deposits, to align asset and liability maturities and currencies, and to maintain a presence in local markets. In 2016, we issued the equivalent of $54.9bn of debt securities in the public capital markets in a range of currencies and maturities from a number of Group entities, including $2.6bn of subordinated and $31.6bn of senior securities issued by HSBC Holdings.

An inability to obtain financing in the unsecured long-term or short-term debt capital markets, or to access the secured lending markets, could have a substantial adverse effect on our liquidity. Unfavourable macroeconomic developments, market disruptions or regulatory developments may increase our funding costs or challenge our ability to raise funds to support or expand our businesses.

If we are unable to raise funds through deposits and/or in the capital markets, our liquidity position could be adversely affected, and we might be unable to meet deposit withdrawals on demand or at their contractual maturity, to repay borrowings as they mature, to meet our obligations under committed financing facilities and insurance contracts or to fund new loans, investments and businesses. We may need to liquidate unencumbered assets to meet our liabilities. In a time of reduced liquidity, we may be unable to sell some of our assets, or we may need to sell assets at reduced prices, which in either case could materially adversely affect our business, prospects, financial condition and results of operations.

Any reduction in the credit rating assigned to HSBC Holdings, any subsidiaries of HSBC Holdings or any of their respective debt securities could increase the cost or decrease the availability of our funding and adversely affect our liquidity position and net interest margin

Credit ratings affect the cost and other terms upon which we are able to obtain market funding. Rating agencies regularly evaluate HSBC Holdings and certain of its subsidiaries, as well as their respective debt securities. Their ratings are based on a number of factors, including their assessment of the relative financial strength of HSBC or of the relevant entity, as well as conditions affecting the financial services industry generally. There can be no assurance that the rating agencies will maintain HSBC's or the relevant entity's current ratings or outlook, particularly given the rating agencies' current review of their bank rating methodologies and the potential impact on HSBC's or its subsidiaries' ratings.

At the date hereof, HSBC Holdings' long-term debt was rated 'AA-' by Fitch, 'A' by Standard and Poor's ('S&P') and 'A1' by Moody's. The ratings outlook by Fitch was stable and the ratings outlooks by both S&P and Moody's were negative. Any reductions in these ratings and outlook could increase the cost of our funding, limit access to capital markets and require additional collateral to be placed and, consequently, materially adversely affect our interest margins and our liquidity position.

Under the terms of our current collateral obligations under derivative contracts, we could be required to post additional collateral as a result of a downgrade in HSBC's credit rating, as described on page 148.

Risks concerning borrower credit quality are inherent in our businesses

Risks arising from changes in credit quality and the recoverability of loans and amounts due from borrowers and counterparties (e.g. reinsurers and counterparties in derivative transactions) are inherent in a wide range of our businesses. Adverse changes in the credit quality of our borrowers and counterparties arising from a general deterioration in economic conditions or systemic risks in the financial systems could reduce the recoverability and value of our assets, and require an increase in our loan impairment charges.

We estimate and recognise impairment allowances for credit losses inherent in our credit exposure. This process, which is critical to our results and financial condition, requires difficult, subjective and complex judgements, including forecasts of how the economic conditions might impair the ability of our borrowers to repay their loans and the ability of other counterparties to meet their obligations. As is the case with any such assessments, we may fail to estimate accurately the effect of factors that we identify or fail to identify relevant factors. Further, the information we use to assess the creditworthiness of our counterparties may be inaccurate or incorrect. Any failure by us to accurately estimate the ability of our counterparties to meet their obligations may have a material adverse effect on our business, prospects, financial conditions and results of operations.

Our insurance businesses are subject to risks relating to insurance claim rates and changes in insurance customer behaviour

We provide various insurance products for customers with whom we have a banking relationship, including several types of life insurance products. The cost of claims and benefits can be influenced by many factors, including mortality and morbidity rates, lapse and surrender rates and, if the policy has a savings element, the performance of assets to support the liabilities. Adverse developments in any of these factors may materially adversely affect our business, prospects, financial condition and results of operations.

HSBC Holdings is a holding company and, as a result, is dependent on loan payments and dividends from its subsidiaries to meet its obligations, including obligations with respect to its debt securities, and to provide profits for payment of future dividends to shareholders

HSBC Holdings is a non-operating holding company and, as such, its principal source of income is from operating subsidiaries that hold the principal assets of HSBC. As a separate legal entity, HSBC Holdings relies on remittance of its subsidiaries' loan interest payments and dividends in order to be able to pay obligations to debt holders as they fall due, and to pay dividends to its shareholders. The ability of HSBC Holdings subsidiaries and affiliates to pay dividends could be restricted by changes in regulation, exchange controls and other requirements.

We may be required to make substantial contributions to our pension plans

We operate a number of pension plans throughout the world, including defined benefit plans. Pension scheme obligations fluctuate with changes in long-term interest rates, inflation, salary levels and the longevity of scheme members. The level of contributions we make to our pension plans has a direct effect on our cash flow. To the extent plan assets are insufficient to cover existing liabilities, higher levels of contributions will be required. As a result, deficits in those pension plans may have a material adverse effect on our business, prospects, financial condition and results of operations.

Areas of special interest

During 2016, we considered a number of particular areas because of the effect they may have on the Group. While these areas have been identified as part of our top and emerging risks, further details of the actions taken during the year are provided below.

Process of UK withdrawal from the European Union

The period of uncertainty and market volatility that followed the UK's decision to leave the EU is likely to continue until the UK's future relationship with the EU and the rest of the world is clearer. Given the time-frame and the complex negotiations involved, and assuming Article 50 is invoked by the end of March 2017, a clearer picture is not expected to emerge for some time. HSBC is working with clients as they adapt to this new environment and plan for what might follow.

Meeting our customers' needs following the UK's departure from the EU will likely require adjustments to our cross-border banking model. However, with Article 50 not yet invoked and formal negotiations not yet initiated, it is too early to determine precisely what will be required or what the likely effects on HSBC might be. Despite this uncertainty, use of HSBC's existing subsidiaries in France, Germany, Malta and Poland should help us more quickly and seamlessly adapt our banking model to this new landscape. Such changes could, among other things, increase our operating costs and require us to relocate staff and businesses outside the UK to other jurisdictions.

Through this period of uncertainty, our priorities are to continue to support our clients, take appropriate actions to mitigate risks and maintain stability, and deliver on our strategy. We are actively monitoring our portfolio to identify areas of stress, with vulnerable sectors subject to management review to determine if any adjustment to our risk policy or appetite is required. As the UK's negotiating priorities and likelihood of achieving them become clearer, we will continue to monitor developments and take actions required to meet these priorities.

Oil and gas prices

Oil prices improved throughout 2016 and in early 2017, particularly after Opec agreed to cut supply levels. The improved oil prices resulted in a decline in new loan impairments in the second half of the year. The medium- to long-term outlook remains uncertain as technological change impacts the supply side through cheaper methods of extraction and the demand side through the development of renewable energy sources. At 31 December 2016, HSBC's overall portfolio directly exposed to oil and gas sector had drawn risk exposure of $28bn (2015: $29bn). The portfolio has the following credit quality distribution: 'strong' and 'good' 53% (2015: 56%), 'satisfactory' 28% (2015: 35%), 'sub-standard' 15% (2015: 7%) and 'impaired' 4% (2015: 2%), with the majority of the exposures located in North America, Asia and Europe. Loan impairment charges in 2016 were approximately $0.3bn. The sector remains under

enhanced monitoring with risk appetite and new lending significantly curtailed.

Risk management

This section describes the enterprise-wide risk management framework, and the significant policies and practices employed by HSBC in managing its material risks.

Our risk management framework

We use an enterprise-wide risk management framework across the organisation and across all risk types. It is underpinned by our risk culture and is reinforced by the HSBC Values and our Global Standards programme.

The framework fosters continuous monitoring of the risk environment, and an integrated evaluation of risks and their interactions. It also ensures a consistent approach to monitoring, managing and mitigating the risks we accept and incur in our activities.

The following diagram and descriptions summarise key aspects of the framework, including governance and structure, our risk management tools and our risk culture, which together help align employee behaviour with our risk appetite.

Key components of our risk management framework

HSBC Values and risk culture

	The Board and its sub-committees	The Board approves the Group's risk appetite, plans and performance targets. It sets the 'tone from the top' and is advised by the Group Risk Committee, the Financial System Vulnerabilities Committee, and the Conduct & Values Committee (see page 170).
Governance and structure	The Risk Management Meeting of the Group Management Board and its sub-committees	Responsible for the enterprise-wide management of all risks, including key policies and frameworks for the management of risk within the Group (see page 102). The Global Standards Steering Meeting is responsible for the management of financial crime risk (see page 114).
	Risk governance framework	Ensures appropriate oversight of and accountability for the management of risk (see page 101).

Responsibilities	Three lines of defence model		Our three lines of defence model defines roles and responsibilities for risk management (see page 102).
	Global Risk function		An independent function to help ensure the necessary balance in risk/return decisions (see page 102).
Processes	Enterprise-wide risk management tools		
	Risk appetite	Top and emerging risks	Processes to identify, monitor, mitigate and report risks to ensure we remain within our risk appetite (see pages 103 to 104).
	Risk map	Stress testing	
Controls	Banking and insurance risks		Material risks arising from our business activities that are measured, monitored and managed (see pages 104 to 105).
	Risk Policies and Practices		Set by risk stewards for each of our material banking and insurance risks (see pages 101 to 106.
	Internal Controls		The operational risk management framework defines minimum standards and processes for managing operational risks and internal controls (see page 113).

Systems and tools

Our risk culture

Risk culture refers to HSBC's norms, attitudes and behaviours related to risk awareness, risk taking and risk management.

HSBC has long recognised the importance of a strong risk culture, the fostering of which is a key responsibility of senior executives. Our risk culture is reinforced by HSBC Values and our Global Standards programme. It is instrumental in aligning

the behaviours of individuals with our attitude to assuming and managing risk, which helps to ensure that our risk profile remains in line with our risk appetite.

We use clear and consistent employee communication on risk to convey strategic messages and set the tone from senior management. We also deploy mandatory training on risk and compliance topics to embed skills and understanding in order to strengthen our risk culture and reinforce the attitude to risk in the behaviour expected of employees, as described in our risk policies. Mandatory training materials are updated regularly, describing technical, cultural and ethical aspects of the various risks assumed by the Group and how they should be managed effectively. We operate a global whistleblowing platform, HSBC Confidential, allowing staff to report matters of concern confidentially. We also maintain an external email address for concerns about accounting and internal financial controls or auditing matters (accountingdisclosures@hsbc.com). The Group has a strict policy prohibiting retaliation against those who raise concerns by this route. All allegations of retaliation reported are escalated to senior management. For details on the governance of our whistleblowing policy, see pages 178 and 182.

Our risk culture is also reinforced by our approach to remuneration. Individual awards, including those for senior executives, are based on compliance with HSBC Values and the achievement of financial and non-financial objectives, which are aligned to our risk appetite and global strategy.

For further information on remuneration, see the Directors' Remuneration Report on page 191.

Governance and structure

The Board has ultimate responsibility for the effective management of risk and approves HSBC's risk appetite. It is advised on risk-related matters by the Group Risk Committee ('GRC'), the Financial System Vulnerabilities Committee ('FSVC'), and the Conduct & Values Committee ('CVC') (see page 115).

Executive accountability for the monitoring, assessment and management of risk resides with the Group Chief Risk Officer. He is supported by the Risk Management Meeting of the Group Management Board ('RMM').

In the second half of 2016, we established a Financial Crime Risk ('FCR') function and appointed a Group Head of FCR, who reports to the Group Chief Executive and chairs the Global Standards Steering Meeting. The FCR function is dedicated to implementing the most effective global standards to combat financial crime, as described under 'Financial crime risk management' on page 114.

Day-to-day responsibility for risk management is delegated to senior managers with individual accountability for decision making. These managers are supported by global functions as described under 'Three lines of defence' below.

We use a defined executive risk governance structure to help ensure appropriate oversight and accountability of risk, which facilitates the reporting and escalation to the RMM. This structure is summarised below.

Governance structure for the management of risk

Authority	Membership	Responsibilities include:
Risk Management Meeting of the Group Management Board	Group Chief Risk Officer Chief Legal Officer Group Chief Executive Group Finance Director All other Group Managing Directors	• Supporting the Group Chief Risk Officer in exercising Board-delegated risk management authority • Overseeing the implementation of risk appetite and the enterprise-wide risk management framework • Forward-looking assessment of the risk environment, analysing the possible risk impact and taking appropriate action • Monitoring all categories of risk and determining appropriate mitigating action •

		Promoting a supportive Group culture in relation to risk management and conduct
Global Risk Management Board	Group Chief Risk Officer Chief Risk Officers of HSBC's global businesses and regions Heads of Global Risk sub-functions	• Supporting the Group Chief Risk Officer in providing strategic direction for the Global Risk function, setting priorities and providing oversight • Overseeing a consistent approach to accountability for, and mitigation of, risk across the Global Risk function • Supporting the Chief Risk Officer in exercising Board-delegated risk management authority
Global business/regional risk management meetings	Global Business/Regional Chief Risk Officer Global Business/Regional Chief Executive Global Business/Regional Chief Financial Officer Global Business/Regional Heads of global functions	• Forward-looking assessment of the risk environment, analysing the possible risk impact and taking appropriate action • Implementation of risk appetite and the enterprise-wide risk management framework • Monitoring all categories of risk and determining appropriate mitigating actions • Embedding a supportive culture in relation to risk management and controls

The Board committees with responsibility for oversight of risk-related matters are set out on page 178.

Our responsibilities

All employees are responsible for identifying and managing risk within the scope of their role as part of the three lines of defence model.

Three lines of defence

We use an activity-based three lines of defence model to delineate management accountabilities and responsibilities for risk management and the control environment. This creates a robust control environment to manage risks.

The model underpins our approach to risk management by clarifying responsibility, encouraging collaboration, and enabling efficient coordination of risk and control activities.

The three lines of defence are summarised below:

- The first line of defence owns the risks and is responsible for identifying, recording, reporting and managing them, and ensuring that the right controls and assessments are in place to mitigate them.
- The second line of defence sets the policy and guidelines for managing specific risk areas, provides advice and guidance in relation to the risk, and challenges the first line of defence on effective risk management.
- The third line of defence is our Internal Audit function, which provides independent and objective assurance of the adequacy of the design and operational effectiveness of the Group's risk management framework and control governance process.

Global Risk function

We have a Global Risk function, headed by the Group Chief Risk Officer, which is responsible for the Group's risk management framework. This responsibility includes establishing global policy, monitoring risk profiles, and forward-looking risk identification and management. Global Risk is made up of sub-functions covering all risks to our operations. Global Risk forms part of the second line of defence. It is independent from the global businesses, including sales and trading functions, to provide challenge, appropriate oversight, and balance in risk/return decisions.

Enterprise-wide risk management tools

The Group uses a range of tools to identify, monitor and manage risk. The key enterprise-wide risk tools are summarised below.

Risk appetite

The Group's risk appetite defines its desired forward-looking risk profile, and informs the strategic and financial planning process. Furthermore, it is integrated with other key risk management tools, such as stress testing and our top and emerging risk reports, to help ensure consistency in risk management practices.

The Group sets out the aggregated level and risk types it accepts in order to achieve its business objectives in a risk appetite statement ('RAS'). This is reviewed on an ongoing basis, and formally approved by the Board every six months on the recommendation of the GRC.

The Group's actual performance is reported monthly against the approved RAS to the RMM, enabling senior management to monitor the risk profile and guide business activity to balance risk and return. This reporting allows risks to be promptly identified and mitigated, and informs risk-adjusted remuneration to drive a strong risk culture.

Global businesses, regions and strategically important countries are required to have their own RASs, which are monitored to ensure they remain aligned with the Group's. All RASs and business activities are guided and underpinned by qualitative principles (see page 181). Additionally, quantitative metrics are defined along with appetite and tolerance thresholds for key risk areas.

Risk map

The Group risk map provides a point-in-time view of the risk profiles of countries, regions and global businesses across all risk categories. It assesses the potential for these risks to have a material impact on the Group's financial results, reputation and the sustainability of its business. Risk stewards assign 'current' and 'projected' risk ratings, supported by commentary. Risks that have an 'amber' or 'red' risk rating require monitoring and mitigating action plans to be either in place or initiated to manage the risk down to acceptable levels.

Descriptions of our material banking and insurance risks are set out on page 104.

Top and emerging risks

We use a top and emerging risks process to provide a forward-looking view of issues with the potential to threaten the execution of our strategy or operations over the medium to long term.

We proactively assess the internal and external risk environment, as well as review the themes identified across our regions and global businesses, for any risks that may require global escalation, updating our top and emerging risks as necessary.

We define a 'top risk' as a thematic issue that may form and crystallise in between six months and one year, and that has the potential to materially affect the Group's financial results, reputation or business model. It may arise across any combination of risk types, regions or global businesses. The impact may be well understood by senior management and some mitigating actions may already be in place. Stress tests of varying granularity may also have been carried out to assess the impact.

An 'emerging risk' is a thematic issue with large unknown components that may form and crystallise beyond a one-year time horizon. If it were to materialise, it could have a material effect on the Group's long-term strategy, profitability and/or reputation. Existing mitigation plans are likely to be minimal, reflecting the uncertain nature of these risks at this stage. Some high-level analysis and/or stress testing may have been carried out to assess the potential impact.

Our current top and emerging risks are discussed on page 89.

Stress testing

HSBC operates a comprehensive stress testing programme that supports our risk management and capital planning. It includes execution of stress tests mandated by our regulators. Our stress testing is supported by dedicated teams and

infrastructure, and is overseen at the most senior levels of the Group.
Our stress testing programme demonstrates our capital strength and enhances our resilience against external shocks. It also helps us understand and mitigate risks, and informs our decisions about capital levels. As well as taking part in regulators' stress tests, we conduct our own internal stress tests.
Many of our regulators – especially the Bank of England ('BoE'), the Federal Reserve and the HKMA – utilise stress testing as an essential prudential regulatory tool and the Group has focused significant governance attention and resourcing to meet their requirements. We place particular emphasis on the global enterprise-wide stress test run on the Group by the BoE, our lead regulator.
In 2016, the results for HSBC as published by the BoE showed that our capital ratios after taking account of CRD IV restrictions and strategic management actions exceeded the BoE's requirements. The results for HSBC included an assumed dividend payment in the first year of the severe stress projection period.
This outcome reflected our conservative risk appetite, and diversified geographical and business mix. It also reflected our ongoing strategic actions, including the sale of operations in Brazil, RWA reductions in GB&M and continued sales from our US CML run-off portfolio. These actions have materially reduced our RWAs, strengthened our capital position and made us even more robust under stress.
Bank of England stress test results for 2016
The BoE's stress test in 2016 specified a global downturn with severe effects in the UK, US, Hong Kong and China, which accounted for approximately two-thirds of HSBC's RWAs at the end of 2015. The assumed GDP growth rates are detailed in the following table. We estimated that the impact on global GDP in this scenario was about as severe as the global financial crisis of 2007 to 2009, but with a much greater focus on emerging markets. This made it particularly severe for HSBC, given its priority markets in these areas.
Assumed GDP growth rates in
the 2016 Bank of England
stress test scenario

	2015	2016	2017	2018
	%	%	%	%
UK	2.2	(4.3)	1.1	1.7
USA	1.8	(3.0)	0.8	1.6
China	6.7	(0.5)	4.2	5.6
Hong Kong	1.9	(7.4)	1.5	2.7

Source: Bank of England.
PRA assumed GDP growth rates are shown in terms of fourth quarter on fourth quarter annual changes.

The following table shows the results of the stress test for the past three years, and reflects HSBC's resilience. From a starting CET1 ratio of 11.9% at the end of 2015, the BoE showed projected minimum stressed CET1 ratios of 7.6% and 9.1% before and after the impact of strategic management actions.

Results of Bank of England stress tests for the past three years

	2016	2015	2014
	%	%	%
CET1 ratio at scenario start point	11.9	10.9	10.8
Minimum stressed CET1 ratio after strategic management actions	9.1	7.7	8.7
Fall in CET1 ratio	2.8	3.2	2.1

Source: Bank of England.

Data is presented in terms of the minimum CET1 ratio reached net of strategic management actions as per the results published by the PRA.

Internal stress tests are used intensively in our enterprise-wide risk management and capital management frameworks. Risks to our capital plan are assessed through a range of scenarios which explore risks that management needs to consider under stress. They include potential adverse macroeconomic, geopolitical and operational risk events, and potential events that are specific to HSBC. The selection of scenarios reflects our risk appetite relating to metrics such as profitability, capital or liquidity. Stress testing analysis helps management understand the nature and extent of any vulnerability. Using this information, management decides whether risks can or should be mitigated through management actions or, if they were to crystallise, should be absorbed through capital. This in turn informs decisions about preferred capital levels.

We conduct reverse stress tests each year at Group and, where required, subsidiary entity level in order to understand which potential extreme conditions would make our business model non-viable. Reverse stress testing identifies potential stresses and vulnerabilities we might face, and helps inform early warning triggers, management actions and contingency plans designed to mitigate risks.

In addition to the Group-wide stress testing scenarios, each major HSBC subsidiary conducts regular macroeconomic and event-driven scenario analyses specific to its region. They also participate as required in the regulatory stress testing programmes of the jurisdictions in which they operate, such as the Comprehensive Capital Analysis and Review and Dodd-Frank Act Stress Test programmes in the US, and the stress tests of the Hong Kong Monetary Authority. Global functions and businesses also perform bespoke stress testing to inform their assessment of risks in potential scenarios.

The Group stress testing programme is overseen by the GRC and results are reported, where appropriate, to the RMM and GRC.

Our material banking and insurance risks

The material risk types associated with our banking and insurance manufacturing operations are described in the following tables:

Description of risks – banking operations

Risks	Arising from	Measurement, monitoring and management of risk
Credit risk (see page 106)		
Credit risk is the risk of financial loss if a customer or counterparty fails to meet an obligation under a contract.	Credit risk arises principally from direct lending, trade finance and leasing business, but also from certain other products	Credit risk is: • measured as the amount which could be lost if a customer or counterparty fails to

	such as guarantees and derivatives.	make repayments; • monitored using various internal risk management measures and within limits approved by individuals within a framework of delegated authorities; and • managed through a robust risk control framework which outlines clear and consistent policies, principles and guidance for risk managers.
Liquidity and funding risk (see page 108)		
Liquidity risk is the risk that we do not have sufficient financial resources to meet our obligations as they fall due or that we can only do so at an excessive cost. Funding risk is the risk that funding considered to be sustainable, and therefore used to fund assets, is not sustainable over time.	Liquidity risk arises from mismatches in the timing of cash flows. Funding risk arises when illiquid asset positions cannot be funded at the expected terms and when required.	Liquidity and funding risk is: • measured using a range of metrics including liquidity coverage ratio and net stable funding ratio; • monitored against the Group's liquidity and funding risk framework; and • managed on a stand-alone basis with no reliance on any Group entity (unless pre-committed) or central bank unless this represents routine established business-as-usual market practice.
Market risk (see page 110)		
Market risk is the risk that movements in market factors, such as foreign exchange rates, interest rates, credit spreads, equity prices and commodity prices, will reduce our income or the value of our portfolios.	Exposure to market risk is separated into two portfolios: • trading portfolios; and • non-trading portfolios. Market risk exposures arising from our insurance operations are discussed on page 161.	Market risk is: • measured in terms of value at risk ('VaR'), which measures the potential losses on risk positions over a specified time horizon for a given level of confidence, and assessed using stress testing; • monitored using VaR, stress testing and other measures including the sensitivity of net interest income and the sensitivity of structural foreign exchange; and • managed using risk limits approved by the RMM and the risk management meeting in various global businesses.
Operational risk (see page 113)		

Description of risks – banking operations

Risks	Arising from	Measurement, monitoring and management of risk
Operational risk is the risk to achieving our strategy or objectives as a result of inadequate or failed internal processes, people and systems or from external events.	Operational risk arises from day-to-day operations or external events, and is relevant to every aspect of our business. Regulatory compliance risk and financial crime compliance risk are discussed below.	Operational risk is: • measured using the risk and control assessment process, which assesses the level of risk and effectiveness of controls; • monitored using key indicators and other internal control activities; and • managed primarily by global business and functional managers that identify and assess risks, implement controls to manage them and monitor the effectiveness of these controls using the operational risk management framework.
Regulatory compliance risk (see page 116)		
Regulatory compliance risk is the risk that we fail to observe the letter and spirit of all relevant laws, codes, rules, regulations and standards of good market practice, and incur fines and penalties and suffer damage to our business as a consequence.	Regulatory compliance risk is part of operational risk, and arises from the risks associated with breaching our duty to clients and other counter-parties, inappropriate market conduct and breaching other regulatory requirements.	Regulatory compliance risk is: • measured by reference to identified metrics, incident assessments, regulatory feedback and the judgement and assessment of our Regulatory Compliance teams; • monitored against our regulatory compliance risk assessments and metrics, the results of the monitoring and control activities of the second line of defence functions, and the results of internal and external audits and regulatory inspections; and • managed by establishing and communicating appropriate policies and procedures, training employees in them, and monitoring activity to help ensure their observance. Proactive risk control and/or remediation work is undertaken where required.
Financial crime risk (see page 114)		
Financial crime risk is the risk that we knowingly or unknowingly help parties to commit or to further potentially illegal	Financial crime risk is part of operational risk and arises from day-to-day banking operations.	Financial crime risk is: •

activity through HSBC.		measured by reference to identified metrics, incident assessments, regulatory feedback and the judgement and assessment of our Financial Crime Risk teams; • monitored against our financial crime compliance risk appetite statement and metrics, the results of the monitoring and control activities of the second line of defence functions, and the results of internal and external audits and regulatory inspections; and • managed by establishing and communicating appropriate policies and procedures, training employees in them, and monitoring activity to help ensure their observance. Proactive risk control and/or remediation work is undertaken where required.
Other material risks		
Reputational risk (see page 116)		
Reputational risk is the risk of failure to meet stakeholder expectations as a result of any event, behaviour, action or inaction, either by HSBC itself, our employees or those with whom we are associated, that might cause stakeholders to form a negative view of the Group.	Primary reputational risks arise directly from an action or inaction by HSBC, its employees or associated parties that are not the consequence of another type of risk. Secondary reputational risks are those arising indirectly and are a result of a failure to control any other risks.	Reputational risk is: • measured by reference to our reputation as indicated by our dealings with all relevant stakeholders, including media, regulators, customers and employees; • monitored through a reputational risk management framework that is integrated into the Group's broader risk management framework; and • managed by every member of staff, and covered by a number of policies and guidelines. There is a clear structure of committees and individuals charged with mitigating reputational risk.
Pension risk (see page 117)		
Pension risk is the risk of increased costs to HSBC from the post-employment benefit plans that HSBC has established for its employees.	Pension risk arises from investments delivering an inadequate return, adverse changes in interest rates or inflation, or members living longer than expected. Pension risk also includes operational and	Pension risk is: • measured in terms of the scheme's ability to generate sufficient funds to meet the cost of their accrued benefits;

	reputational risk of sponsoring pension plans.	• monitored through the specific risk appetite that has been developed at both Group and regional levels; and • managed locally through the appropriate pension risk governance structure and globally through the Global Pensions Oversight Committee and ultimately the RMM.
Sustainability risk (see page 117)		
Sustainability risk is the risk that financial services provided to customers by the Group indirectly result in unacceptable impacts on people or the environment.	Sustainability risk arises from the provision of financial services to companies or projects which indirectly result in unacceptable impacts on people or on the environment.	Sustainability risk is: • measured by assessing the potential sustainability effect of a customer's activities and assigning a Sustainability Risk Rating to all high risk transactions; • monitored quarterly by the RMM and monthly by the Group's Sustainability Risk function; and • managed using sustainability risk policies covering project finance lending and sector-based sustainability policies for sectors and themes with potentially large environmental or social impacts.

Our insurance manufacturing subsidiaries are regulated separately from our banking operations. Risks in our insurance entities are managed using methodologies and processes that are subject to Group oversight. Our insurance operations are

also subject to some of the same risks as our banking operations, which are covered by the Group's risk management processes.

Description of risks – insurance manufacturing operations

Risks	Arising from	Measurement, monitoring and management of risk
Financial risk (see page 161)		
Our ability to effectively match liabilities arising under insurance contracts with the asset portfolios that back them is contingent on the management of financial risks and the extent to which these are borne by policyholders.	Exposure to financial risk arises from: • market risk affecting the fair values of financial assets or their future cash flows; • credit risk; and • liquidity risk of entities not being able to make payments to policyholders as they fall due.	Financial risk is: • measured (i) for credit risk, in terms of economic capital and the amount that could be lost if a counterparty fails to make repayments; (ii) for market risk, in terms of economic capital, internal metrics and fluctuations in key financial variables; and (iii) for liquidity risk, in terms of internal metrics including stressed operational cash flow projections; • monitored through a framework of approved limits and delegated authorities; and • managed through a robust risk control framework which outlines clear and consistent policies, principles and guidance. This includes using product design, asset liability matching and bonus rates.
Insurance risk (see page 163)		
Insurance risk is the risk that, over time, the cost of the contract, including claims and benefits, may exceed the total amount of premiums and investment income received.	The cost of claims and benefits can be influenced by many factors, including mortality and morbidity experience, as well as lapse and surrender rates.	Insurance risk is: • measured in terms of life insurance liabilities and economic capital allocated to insurance underwriting risk; • monitored through a framework of approved limits and delegated authorities; and • managed through a robust risk control framework which outlines clear and consistent policies, principles and guidance. This includes using product design, underwriting, reinsurance and claims-handling procedures.

Credit risk management

Details of changes in our credit risk profile in 2016 can be found on page 118, in 'Key developments and risk profile in 2016'.

There were no material changes to the policies and practices for the management of credit risk in 2016.

Credit risk sub-function

(Audited)

Credit approval authorities are delegated by the Board to the Group Chief Executive together with the authority to sub-delegate them. The Credit Risk sub-function in Global Risk is responsible for the key policies and processes for managing credit risk, which include formulating Group credit policies and risk rating frameworks, guiding the Group's appetite for credit risk exposures, undertaking independent reviews and objective assessment of credit risk, and

monitoring performance and management of portfolios.
The principal objectives of our credit risk management are:

- to maintain across HSBC a strong culture of responsible lending, and robust risk policies and control frameworks;
- to both partner and challenge our businesses in defining, implementing and continually re-evaluating our risk appetite under actual and scenario conditions; and
- to ensure there is independent, expert scrutiny of credit risks, their costs and their mitigation.

Concentration of exposure
(Audited)
Concentrations of credit risk arise when a number of counterparties or exposures have comparable economic characteristics, or such counterparties are engaged in similar activities or operate in the same geographical areas or industry sectors so that their collective ability to meet contractual obligations is uniformly affected by changes in economic, political or other conditions. We use a number of controls and measures to minimise undue concentration of exposure in our portfolios across industries, countries and global businesses. These include portfolio and counterparty limits, approval and review controls, and stress testing.

Credit quality of financial instruments
(Audited)
Our risk rating system facilitates the internal ratings-based approach under the Basel framework adopted by the Group to support calculation of our minimum credit regulatory capital requirement.
The customer risk rating ('CRR') 10-grade scale summarises a more granular underlying 23-grade scale of obligor probability of default ('PD'). All corporate customers are rated using the 10- or 23-grade scale, depending on the degree of sophistication of the Basel II approach adopted for the exposure.
Each CRR band is associated with an external rating grade by reference to long-run default rates for that grade, represented by the average of issuer-weighted historical default rates. This mapping between internal and external ratings is indicative and may vary over time.
The expected loss ('EL') 10-grade scale for retail business summarises a more granular underlying EL scale for this customer segment. This combines obligor and facility/product risk factors in a composite measure.
For the five credit quality classifications defined, each encompasses a range of granular internal credit rating grades assigned to wholesale and retail lending businesses, and the external ratings attributed by external agencies to debt securities.
For debt securities and certain other financial instruments, external ratings have been aligned to the five quality classifications based upon the mapping of related CRR to external credit rating. The mapping is reviewed on a regular basis and the most recent review resulted in sovereign BBB+ and BBB exposures previously mapped to Credit Quality band 'Good' being mapped to Credit Quality Band 'Strong'. Sovereign BB+ and BB exposures previously mapped to Credit Quality band 'Satisfactory' being mapped to Credit Quality Band 'Good'. This represents a change in disclosure mapping unrelated to changes in counterparty creditworthiness. Had this mapping been applied in 2015, sovereign exposures would be changed as follows: 'Satisfactory' $1.4bn decrease, 'Good' $4.3bn decrease and $5.7bn 'Strong' increase.

Credit quality classification

		Sovereign debt securities and bills	Other debt securities and bills	Wholesale lending and derivatives		Retail lending	
	Footnotes	External credit rating	External credit rating	Internal credit rating	12-month probability of default %	Internal credit rating	Expected loss %
Quality classification							
Strong	1, 2	BBB and above	A– and above	CRR1 to CRR2	0 – 0.169	EL1 to EL2	0 – 0.999
Good		BB to BBB–	BBB+ to BBB–	CRR3	0.170 – 0.740	EL3	1.000 – 4.999
Satisfactory		BB- to B and unrated	BB+ to B and unrated	CRR4 to CRR5	0.741 – 4.914	EL4 to EL5	5.000 – 19.999
Sub-standard		B– to C	B– to C	CRR6 to CRR8	4.915 – 99.999	EL6 to EL8	20.000 – 99.999
Impaired	3	Default	Default	CRR9 to CRR10	100	EL9 to EL10	100+ or defaulted

1 Customer risk rating.
2 Expected loss ('EL').
3 The EL percentage is derived through a combination of probability of default ('PD') and loss given default ('LGD'), and may exceed 100% in circumstances where the LGD is above 100% reflecting the cost of recoveries.

Quality classification definitions

- 'Strong' exposures demonstrate a strong capacity to meet financial commitments, with negligible or low probability of default and/or low levels of expected loss.
- 'Good' exposures require closer monitoring and demonstrate a good capacity to meet financial commitments, with low default risk.
- 'Satisfactory' exposures require closer monitoring and demonstrate an average to fair capacity to meet financial commitments, with moderate default risk.
- 'Sub-standard' exposures require varying degrees of special attention and default risk is of greater concern.
- 'Impaired' exposures have been assessed as impaired, as described on page 123. These also include retail accounts classified as EL1 to EL8 that are delinquent by more than 90 days, unless individually they have been assessed as not impaired; and renegotiated loans that have met the requirements to be disclosed as impaired and have not yet met the criteria to be returned to the unimpaired portfolio (see below).

Renegotiated loans and forbearance

(Audited)

Where a loan is modified due to significant concerns about the borrower's ability to meet contractual payments when due, a range of forbearance strategies is employed in order to improve the management of customer relationships, maximise collection opportunities and, if possible, avoid default, foreclosure or repossession.

Identifying renegotiated loans

Loans are identified as renegotiated loans when we modify the contractual payment terms due to significant credit distress of the borrower. 'Forbearance' describes concessions made on the contractual terms of a loan in response to an obligor's financial difficulties. We classify and report loans on which concessions have been granted under conditions of credit distress as 'renegotiated loans' when their contractual payment terms have been modified because we have significant concerns about the borrowers' ability to meet contractual payments when due. When considering modification terms, the borrower's continued ability to repay is assessed and where they are unrelated to payment arrangements, whilst potential indicators of impairment, these loans are not considered as renegotiated loans. In HSBC Finance, loan modification and re-age policies, renegotiated real estate loans are not eligible for a subsequent renegotiation for six or 12 months depending upon the action, with a maximum of five renegotiations permitted within a five-year period. Loans that have been identified as renegotiated retain this designation until maturity or derecognition. A loan that is renegotiated is derecognised if the existing agreement is cancelled and a new agreement is made on substantially different terms or if the terms of an existing agreement are modified such that the renegotiated loan is substantially a different financial instrument. Any new loans that arise following derecognition events will continue to be disclosed as renegotiated loans.

Credit quality of renegotiated loans

On execution of the renegotiation, the loan will also be classified as impaired if it is not already so classified. In wholesale lending, all of the facilities with a customer, including loans which have not been modified, are considered impaired

following the provision of a renegotiated loan. In our US CML run-off portfolio in HSBC Finance, loans which are in the early stages of delinquency (less than 60 days delinquent) and typically have the equivalent of two payments deferred for the first time are not considered impaired, as the contractual payment deferrals are deemed to be insignificant compared with payments due on the loan as a whole.

Those loans that are considered impaired retain the impaired classification for a minimum of one year. Renegotiated loans will continue to be disclosed as impaired until there is sufficient evidence to demonstrate a significant reduction in the risk of non-payment of future cash flows (the evidence typically comprises a history of payment performance against the original or revised terms), and there are no other indicators of impairment. In our US CML run-off portfolio in HSBC Finance, all modified loans with terms of more than two years are considered to be permanently impaired.

Renegotiated loans and recognition of impairment allowances

(Audited)

For retail lending, renegotiated loans are segregated from other parts of the loan portfolio for collective impairment assessment to reflect the higher rates of losses often encountered in these segments.

For wholesale lending, renegotiated loans are typically assessed individually. Credit risk ratings are intrinsic to the impairment assessment. The individual impairment assessment takes into account the higher risk of the non-payment of future cash flows inherent in renegotiated loans.

Impairment assessment

(Audited)

For details of our impairment policies on loans and advances and financial investments, see Note 1 to the Financial Statements.

Write-off of loans and advances

(Audited)

For details of our policy on the write-off of loans and advances, see Note 1 to the Financial Statements.

In HSBC Finance, the carrying amounts of residential mortgages and second lien loans in excess of net realisable value are written off at or before the time foreclosure is completed or settlement is reached with the borrower. If there is no reasonable expectation of recovery, and foreclosure is pursued, the loan is normally written off no later than the end of the month in which the loan becomes 180 days contractually past due.

Unsecured personal facilities, including credit cards, are generally written off at between 150 and 210 days past due. The standard period runs until the end of the month in which the account becomes 180 days contractually delinquent. Write-off periods may be extended, generally to no more than 360 days past due but, in very exceptional circumstances, to longer in a few countries where local regulation or legislation constrain earlier write-off, or where the realisation of collateral for secured real estate lending takes this time.

For secured personal facilities, final write-off should generally occur within 60 months of the default at the latest.

In the event of bankruptcy or analogous proceedings, write-off may occur earlier than the periods stated above. Collection procedures may continue after write-off.

Impairment methodologies for available-for-sale asset-backed securities ('ABSs')

(Audited)

To identify objective evidence of impairment for available-for-sale ABSs, an industry standard valuation model is normally applied which uses data with reference to the underlying asset pools and models their projected future cash flows. The estimated future cash flows of the securities are assessed at the specific financial asset level to determine whether any of them are unlikely to be recovered as a result of loss events occurring on or before the reporting date.

The principal assumptions and inputs to the models are typically the delinquency status of the underlying loans, the probability of delinquent loans progressing to default, the prepayment profiles of the underlying assets and the loss severity in the event of default. However, the models utilise other variables relevant to specific classes of collateral to forecast future defaults and recovery rates. Management uses externally available data and applies judgement when determining the appropriate assumptions in respect of these factors. We use a modelling approach which incorporates historically observed progression rates to default to determine if the decline in aggregate projected cash flows from the underlying collateral will lead to a shortfall in contractual cash flows. In such cases, the security is considered to be impaired.

In respect of collateralised debt obligations ('CDOs'), expected future cash flows for the underlying collateral are assessed to determine whether there is likely to be a shortfall in the contractual cash flows of the CDO.

When a security benefits from a contract provided by a monoline insurer that insures payments of principal and interest, the expected recovery on the contract is assessed in determining the total expected credit support available to the ABS.

Liquidity and funding risk management

Details of changes in our liquidity and funding risk profile in 2016 can be found on page 118, in 'Key developments and risk profile in 2016'.

Liquidity and funding risk management framework

HSBC has an internal liquidity and funding risk management framework ('LFRF') which aims to allow it to withstand very severe liquidity stresses. It is designed to be adaptable to changing business models, markets and regulations.

The management of liquidity and funding is primarily undertaken locally (by country) in our operating entities in compliance with the Group's LFRF, and with practices and limits set by the GMB through the RMM and approved by the Board. Our general policy is that each defined operating entity should be self-sufficient in funding its own activities. Where transactions exist between operating entities, they are reflected symmetrically in both entities.

As part of our asset, liability and capital management ('ALCM') structure, we have established asset and liability committees ('ALCO') at Group level, in the regions and in operating entities. The terms of reference of all ALCOs include the monitoring and control of liquidity and funding.

The primary responsibility for managing liquidity and funding within the Group's framework and risk appetite resides with the local operating entities' ALCOs, Holdings ALCO and the RMM. The remaining smaller operating entities are overseen by regional ALCOs, with appropriate escalation of significant issues to Holdings ALCO and the RMM.

Operating entities are predominantly defined on a country basis to reflect our local management of liquidity and funding. Typically, an operating entity will be defined as a single legal entity. However, to take account of the situation where operations in a country are booked across multiple subsidiaries or branches:

- an operating entity may be defined as a wider sub-consolidated group of legal entities if they are incorporated in the same country, liquidity and funding are freely fungible between the entities and permitted by local regulation, and the definition reflects how liquidity and funding are managed locally; or
- an operating entity may be defined more narrowly as a principal office (branch) of a wider legal entity operating in multiple countries, reflecting the local country management of liquidity and funding.

The RMM reviews and agrees annually the list of entities it directly oversees and the composition of these entities.

Key developments in 2016

On 1 January 2016, the Group implemented a new LFRF. It uses the liquidity coverage ratio ('LCR') and net stable funding ratio ('NSFR') regulatory framework as a foundation, but adds extra metrics, limits and overlays to address firm-specific risks:

The LFRF is delivered using the following key aspects:

- stand-alone management of liquidity and funding by operating entity;
- operating entity classification by inherent liquidity risk ('ILR') categorisation;
- minimum LCR requirement depending on ILR categorisation;
- minimum NSFR requirement depending on ILR categorisation;
- legal entity depositor concentration limit;
- three-month and 12-month cumulative rolling term contractual maturity limits covering deposits from banks, deposits from non-bank financial institutions and securities issued;
- annual individual liquidity adequacy assessment by principal operating entity;
- minimum LCR requirement by currency;
- intra-day liquidity; and
- forward-looking funding assessments.

The new internal LFRF and the risk tolerance limits were approved by the Board on the basis of recommendations made by the Group Risk Committee.

Our annual individual liquidity adequacy assessment process aims to:

- identify risks that are not reflected in the LFRF, and, where required, to assess additional limits required locally; and
- validate the risk tolerance at the operating entity level by demonstrating that reverse stress testing scenarios are acceptably remote and ensuring vulnerabilities have been assessed through the use of severe stress scenarios.

Management of liquidity and funding risk

Liquidity coverage ratio

The HSBC application of the LCR metric involves the following two key assumptions about the definition of operational deposits and the ability to transfer liquidity from non-EU legal entities:

- we define operational deposits as transactional (current) accounts arising from the provision of custody services by HSBC Security Services or Global Liquidity and Cash Management, where the operational component is assessed to be the lower of the current balance and the separate notional values of debits and credits across the account in the previous calculation period; and
- we assume no transferability of liquidity from non-EU entities other than to the extent currently permitted.

Net stable funding ratio

HSBC uses the NSFR as a basis for establishing stable funding around the Group.

Liquid assets of HSBC's principal operating entities

Liquid assets are held and managed on a stand-alone operating entity basis. Most are held directly by each operating entity's Balance Sheet Management ('BSM') department, primarily for the purpose of managing liquidity risk in line with the LFRF.

The liquid asset buffer may also include securities in held-to-maturity portfolios. To qualify as part of the liquid asset buffer, held-to-maturity portfolios must have a deep and liquid repo market in the underlying security.

Liquid assets also include any unencumbered liquid assets held outside BSM departments for any other purpose. The LFRF gives ultimate control of all unencumbered assets and sources of liquidity to BSM.

Sources of funding

Customer deposits in the form of current accounts and savings deposits payable on demand or at short notice form the significant part of our stable funding, and we place considerable importance on maintaining their stability. For deposits, stability depends upon maintaining depositor confidence in our capital strength and liquidity, and on competitive and transparent pricing.

We also access wholesale funding markets by issuing senior secured and unsecured debt securities (publicly and privately) and borrowing from the secured repo markets against high-quality collateral, in order to obtain funding for non-banking subsidiaries that do not accept deposits, to align asset and liability maturities and currencies, and to maintain a presence in local wholesale markets.

Ordinary share capital and retained reserves, non-core capital instruments and total loss-absorbing capacity ('TLAC') eligible debt securities are also a source of stable funding.

Analysis of on-balance sheet encumbered and unencumbered assets and off-balance sheet collateral

An asset is defined as encumbered if it has been pledged as collateral against an existing liability and, as a result, is no longer available to the Group to secure funding, satisfy collateral needs or be sold to reduce the funding requirement. An asset is therefore categorised as unencumbered if it has not been pledged against an existing liability.

Unencumbered assets are further segmented into four separate sub-categories: 'Readily realisable assets', 'Other realisable assets', 'Reverse repo/stock

borrowing receivables and derivative assets' and 'Cannot be pledged as collateral'.

Liquidity behaviouralisation

All stable deposits are assumed under the Group's frameworks to have a liquidity behaviouralised life beyond one year and to represent a homogeneous source of stable funding. The behaviouralisation of assets is far more granular and seeks to differentiate the period for which we must assume that we will need stable funding for the asset.

Funds transfer pricing

Our funds transfer pricing policies give rise to a two-stage funds transfer pricing approach, reflecting the fact that we separately manage interest rate risk and liquidity and funding risk under different assumptions. They have been developed to be consistent with our risk management frameworks. Each operating entity is required to apply the Group's transfer pricing policy framework to determine for each material currency the most appropriate interest rate risk transfer pricing curve, a liquidity premium curve (which is the spread over the interest rate risk transfer pricing curve) and a liquidity recharge assessment (which is the spread under or over the interest rate risk transfer pricing curve).

Repos and stock lending

GB&M provides collateralised security financing services to its clients, providing them with cash financing or specific securities. When cash is provided to clients against collateral in the form of securities, the cash provided is recognised on the balance sheet as a reverse repo. When securities are provided to clients against cash collateral, the cash received is recognised on the balance sheet as a repo or, if the securities are equity securities, as stock lending.

Each operating entity manages its collateral through a central collateral pool, in line with the LFRF. When specific securities need to be delivered and the entity does not have them currently available within the central collateral pool, the securities are borrowed on a collateralised basis. When securities are borrowed against cash collateral, the cash provided is recognised on the balance sheet as a reverse repo or, if the securities are equity securities, as stock borrowing.

Operating entities may also borrow cash against collateral in the form of securities, using the securities available in the central collateral pool. Repos and stock lending can be used in this way to fund the cash requirement arising from securities owned outright by Markets to facilitate client business, and the net cash requirement arising from financing client securities activity.

Reverse repos, stock borrowing, repos and stock lending are reported net when the IFRS offsetting criteria are met. In some cases, transactions to borrow or lend securities are collateralised using securities. These transactions are off-balance sheet.

Any security accepted as collateral for a reverse repo or stock borrowing transaction must be of very high quality and its value subject to an appropriate haircut. Securities borrowed under reverse repo or stock borrowing transactions can only be recognised as part of the liquidity asset buffer for the duration of the transactions and only if the security received is eligible under the liquid asset policy within the LFRF.

Credit controls are in place to ensure that the fair value of any collateral received remains appropriate to collateralise the cash or fair value of securities given.

HSBC Holdings

HSBC Holdings’ primary sources of cash are dividends received from subsidiaries, interest on and repayment of intra-group loans and securities, and interest earned on its own liquid funds. HSBC Holdings also raises ancillary funds in the debt capital markets through subordinated and senior debt issuances. Cash is primarily used for the provision of capital and subordinated funding to subsidiaries, interest payments to debt holders and dividend payments to shareholders.

HSBC Holdings is also subject to contingent liquidity risk by virtue of credit-related commitments and guarantees and similar contracts issued. Such commitments and guarantees are only issued after due consideration of HSBC Holdings' ability to finance the commitments and guarantees and the likelihood of the need arising.

HSBC Holdings actively manages the cash flows from its subsidiaries to optimise the amount of cash held at the holding company level. During 2016, consistent with the Group's capital plan, the Group's subsidiaries did not experience any significant restrictions on paying dividends or repaying loans and advances. Also, there are no foreseen restrictions envisaged with regard to planned dividends or payments. However, the ability of subsidiaries to pay dividends or advance monies to HSBC Holdings depends on, among other things, their respective local regulatory capital and banking requirements, exchange controls, statutory reserves, and financial and operating performance.

None of the subsidiaries that are excluded from our regulatory consolidation has capital resources below its minimum regulatory requirement.

Market risk management

Details of changes in our market risk profile in 2016 can be found on page 118, in 'Key developments and risk profile in 2016'.

There were no material changes to our policies and practices for the management of market risk in 2016.

Market risk in global businesses

The diagram below summarises the main business areas where trading and non-trading market risks reside, and the market risk

measures used to monitor and limit exposures.

	Trading risk	Non-trading risk
Risk types	• Foreign exchange and commodities • Interest rates • Credit spreads • Equities	• Structural foreign exchange • Interest rates[1] • Credit spreads
Global business	GB&M and BSM[2]	GB&M, BSM[2], GPB, CMB and RBWM
Risk measure	VaR | Sensitivity | Stress Testing	VaR | Sensitivity | Stress Testing

1 The interest rate risk on the fixed-rate securities issued by HSBC Holdings is not included in the Group VaR. The management of this risk is described on page 143.

2 BSM, for external reporting purposes, forms part of Corporate Centre while daily operations and risk are managed within GB&M.

Where appropriate, we apply similar risk management policies and measurement techniques to both trading and non-trading portfolios. Our objective is to manage and control market risk exposures to optimise return on risk while maintaining a market profile consistent with our established risk appetite.

The nature of the hedging and risk mitigation strategies performed across the Group corresponds to the market risk management instruments available within each operating jurisdiction. These strategies range from the use of traditional market instruments, such as interest rate swaps, to more sophisticated hedging strategies to address a combination of risk factors arising at the portfolio level.

Market risk governance

(Audited)

Market risk is managed and controlled through limits approved by the RMM for HSBC Holdings. These limits are allocated across business lines and to the Group's legal entities.

B&M manages market risk, where the majority of HSBC's total value at risk (excluding insurance) and almost all trading VaR resides, using risk limits approved by the GMB. VaR limits are set for portfolios, products and risk types, with market liquidity being a primary factor in determining the level of limits set. Global Risk is responsible for setting market risk management policies and measurement techniques.

Each major operating entity has an independent market risk management and control sub-function which is responsible for measuring market risk exposures, monitoring and reporting these exposures against the prescribed limits on a daily basis. The market risk limits are governed according to the framework illustrated to the left.

Each operating entity is required to assess the market risks arising on each product in its business and to transfer them to either its local GB&M unit for management, or to separate books managed under the supervision of the local ALCO.

Model risk is governed through Model Oversight Committees ('MOCs') at the regional and global Wholesale Credit and Market Risk levels. They have direct oversight and approval responsibility for all traded risk models utilised for risk measurement and management and stress testing. We are committed to the ongoing development of our in-house risk models.

The Markets MOC reports into the Group MOC, which oversees all model risk types at Group level. The Group MOC informs the RMM about material issues at least two times a year. The RMM is the Group's 'Designated Committee' according to regulatory rules and has delegated day-to-day governance of all traded risk models to the Markets MOC.

Global Risk enforces trading in permissible instruments approved for each site, new product approval procedures, restricting trading in the more complex derivative products only to offices with appropriate levels of product expertise and robust control systems.

General measures	HSBC Holdings Board Group Chairman/ Group Chief Executive Risk Management Meeting of the GMB	GB&M manages market risk, where the majority of HSBC's total value at risk (excluding insurance) and almost all trading VaR resides, using risk limits approved by the RMM. VaR limits are set for portfolios, products and risk types, with market liquidity being a primary factor in determining the level of limits set. Global Risk is responsible for setting market risk management policies and measurement techniques. Each major operating entity has an independent market risk management and control sub-function which is responsible for measuring market risk exposures, monitoring and reporting these exposures against the prescribed limits on a

	Group traded risk	daily basis. The market risk limits are governed according to the framework illustrated to the left.
Specific measures	Entity risk management committee	Each operating entity is required to assess the market risks arising on each product in its business and to transfer them to either its local GB&M unit for management, or to separate books managed under the supervision of the local ALCO.
	Principal office manager	Model risk is governed through Model Oversight Committees (‘MOCs’) at the regional and global Wholesale Credit and Market Risk levels. They have direct oversight and approval responsibility for all traded risk models used for risk
	Business/desk/trader	measurement and management and stress testing. We are committed to the ongoing development of our in-house risk models.
		The Markets MOC reports into the Group MOC, which oversees all model risk types at Group level. The Group MOC informs the RMM about material issues at least two times a year. The RMM is the Group’s ‘Designated Committee’ according to regulatory rules and has delegated day-to-day governance of all traded risk models to the Markets MOC.
		Global Risk enforces trading in permissible instruments approved for each site, new product approval procedures, restricting trading in the more complex derivative products only to offices with appropriate levels of product expertise and robust control systems.

Market risk measures

Monitoring and limiting market risk exposures

Our objective is to manage and control market risk exposures while maintaining a market profile consistent with our risk appetite.

We use a range of tools to monitor and limit market risk exposures including sensitivity analysis, value at risk and stress testing.

Sensitivity analysis

Sensitivity analysis measures the impact of individual market factor movements on specific instruments or portfolios, including interest rates, foreign exchange rates and equity prices, such as the effect of a one basis point change in yield. We use sensitivity measures to monitor the market risk positions within each risk type. Sensitivity limits are set for portfolios, products and risk types, with the depth of the market being a principal factor in determining the level.

Value at risk

(Audited)

Value at risk ('VaR') is a technique for estimating potential losses on risk positions as a result of movements in market rates and prices over a specified time horizon and to a given level of confidence. The use of VaR is integrated into market risk management and calculated for all trading positions regardless of how we capitalise them. Where there is not an approved internal model, we use the appropriate local rules to capitalise exposures. In addition, we calculate VaR for non-trading portfolios to have a complete picture of risk. Where we do not calculate VaR explicitly, we use alternative tools as summarised in the 'Stress testing' section below.

Our models are predominantly based on historical simulation which incorporate the following features:

- historical market rates and prices are calculated with reference to foreign exchange rates, commodity prices, interest rates, equity prices and the associated volatilities;
- potential market movements utilised for VaR are calculated with reference to data from the past two years; and
- VaR measures are calculated to a 99% confidence level and use a one-day holding period.

The models also incorporate the effect of option features on the underlying exposures. The nature of the VaR models means that an increase in observed market volatility will lead to an increase in VaR without any changes in the underlying positions.

VaR model limitations

Although a valuable guide to risk, VaR should always be viewed in the context of its limitations. For example:

- use of historical data as a proxy for estimating future events may not encompass all potential events, particularly extreme ones;
- the use of a holding period assumes that all positions can be liquidated or the risks offset during that period, which may not fully reflect the market risk arising at times of severe illiquidity, when the holding period may be insufficient to liquidate or hedge all positions fully;
- the use of a 99% confidence level does not take into account losses that might occur beyond this level of confidence; and
- VaR is calculated on the basis of exposures outstanding at the close of business and therefore does not necessarily reflect intra-day exposures.

Risk not in VaR framework

The risks not in VaR ('RNIV') framework aims to capture and capitalise material market risks that are not adequately covered

in the VaR model, such as the LIBOR tenor basis.

Risk factors are reviewed on a regular basis and either incorporated directly in the VaR models, where possible, or quantified through the VaR-based RNIV approach or a stress test approach within the RNIV framework. The outcome of the VaR-based RNIV is included in the VaR calculation and back-testing; a stressed VaR RNIV is also computed for the risk factors considered in the VaR-based RNIV approach.

Stress-type RNIVs include a gap risk exposure measure to capture risk on non-recourse margin loans and a de-peg risk measure to capture risk to pegged and heavily-managed currencies.

Stress testing

Stress testing is an important procedure that is integrated into our market risk management framework to evaluate the potential impact on portfolio values of more extreme, although plausible, events or movements in a set of financial variables. In such scenarios, losses can be much greater than those predicted by VaR modelling.

Stress testing is implemented at legal entity, regional and overall Group levels. A set of scenarios is used consistently across all regions within the Group. Scenarios are tailored to capture the relevant potential events or market movements at each level. The risk appetite around potential stress losses for the Group is set and monitored against referral limits.

Market risk reverse stress tests are undertaken on the premise that there is a fixed loss. The stress testing process identifies which scenarios lead to this loss. The rationale behind the reverse stress test is to understand scenarios that are beyond normal business settings and could have contagion and systemic implications.

Stressed VaR and stress testing, together with reverse stress testing and the management of gap risk, provide management with insights regarding the ‘tail risk’ beyond VaR, for which HSBC’s appetite is limited.

Trading portfolios

Back-testing

We routinely validate the accuracy of our VaR models by back-testing them against both actual and hypothetical profit and loss against the corresponding VaR numbers. Hypothetical profit and loss excludes non-modelled items such as fees, commissions and revenues of intra-day transactions.

We would expect, on average, to see two or three profits and two or three losses in excess of VaR at the 99% confidence level over a one-year period. The actual number of profits or losses in excess of VaR over this period can therefore be used to gauge how well the models are performing.

We back-test our Group VaR at various levels that reflect a full legal entity scope of HSBC, including entities that do not have local permission to use VaR for regulatory purposes.

Structural foreign exchange exposures

Structural foreign exchange exposures represent net investments in subsidiaries, branches and associates, the functional currencies of which are currencies other than the US dollar. An entity’s functional currency is that of the primary economic environment in which the entity operates.

Exchange differences on structural exposures are recognised in ‘Other comprehensive income’. We use the US dollar as our presentation currency in our consolidated financial statements because the US dollar and currencies linked to it form the major currency bloc in which we transact and fund our business. Our consolidated balance sheet is, therefore, affected by exchange differences between the US dollar and all the non-US dollar functional currencies of underlying subsidiaries.

We hedge structural foreign exchange exposures only in limited circumstances. Our structural foreign exchange exposures are managed with the primary objective of ensuring, where practical, that our consolidated capital ratios and the capital ratios of individual banking subsidiaries are largely protected from the effect of changes in exchange rates.

Interest rate risk in the banking book

The Asset, Liability and Capital Management ('ALCM') function is responsible for measuring and controlling interest rate risk in the banking book under the supervision of the RMM.

The component of the interest rate risk in the banking book outside Balance Sheet Management ('BSM') or Global Markets that can be economically neutralised by fixed-rate government bonds or interest rate derivatives is transfer priced to and managed by BSM. The banking book interest rate risk transferred to BSM is reflected in the Group's non-traded VaR measure.

BSM is overseen by the Market Risk and Product Control functions in exactly the same way as Global Markets.

The price at which interest rate risk is transferred to BSM is determined by the entity's prevailing interest rate risk transfer pricing curve defined by operating entities Asset and Liability Management Committee ('ALCO'), in accordance with the Group's funds transfer pricing policies. The transfer price seeks to reflect the price at which BSM could neutralise the risk in the market at the point of transfer.

The banking book interest rate risk within HSBC Holdings is not transferred to BSM and is managed as an ALCO book.

Interest rate risk behaviouralisation

In assessing the banking book interest rate risk outside BSM and Global Markets, interest rate repricing behaviouralisation techniques are used where the interest repricing profile is uncertain due to customer/bank optionality or where non-interest bearing balances are withdrawable.

The maximum tenor to which any individual tranche of a non-interest bearing withdrawable/repayable customer balance or equity can be behaviouralised is 10 years. The maximum weighted average behaviouralised tenor for any portfolio is five years. Interest-bearing managed/administered rate balances are behaviouralised to tenors less than one year, typically one month or three months.

The maximum percentage of any portfolio that can be behaviouralised is 90% with the residual treated as contractual, meaning overnight.

Unlike liquidity risk, which is assessed on the basis of a very severe stress scenario, banking book interest rate risk is assessed and managed according to business-as-usual conditions. In many cases, the contractual profile of banking book assets/liabilities arising from assets/liabilities created outside Markets or BSM does not reflect the behaviour observed.

Where there is no certainty with regard to interest rate repricing profile, behaviouralisation is used to assess the market interest rate risk of banking book assets/liabilities and this assessed market risk is transferred to BSM, in accordance with the rules governing the transfer of interest rate risk from the global businesses to BSM.

Behaviouralisation is applied in three key areas:

- the assessed repricing frequency of managed rate balances;
- the assessed duration of non-interest bearing balances, typically capital and current accounts; and
- the base case expected prepayment behaviour or pipeline take-up rate for fixed-rate balances with embedded optionality.

Interest rate behaviouralisation policies have to be formulated in line with the Group's behaviouralisation policies and approved

at least annually by local ALCOs.

The extent to which balances can be behaviouralised is driven by:

- the amount of the current balance that can be assessed as constant under business-as-usual conditions; and
- for managed rate balances, the historical market interest rate repricing behaviour observed; or
- for non-interest bearing balances, the duration for which the balance is expected to remain under business-as-usual conditions. This assessment is often driven by the re-investment tenors available to BSM to neutralise the risk through

the use of fixed-rate government bonds or interest rate derivatives, and for derivatives the availability of cash flow hedging capacity.

Measurement of interest rate risk in the banking book

Interest rate risk in the banking book is measured and controlled using three metrics:

- non-traded VaR;
- net interest income sensitivity; and
- economic value of equity.

Non-traded VaR excludes the non-traded interest rate risk not transferred to BSM and the non-traded interest rate risk of HSBC Holdings.

Net interest income ('NII') sensitivity captures the expected impact of changes in interest rates on base case projected net interest income.

Economic value of equity ('EVE') captures the expected impact of changes in interest rates on base case economic value. It captures all non-traded items irrespective of the profit and loss accounting treatment.

Balance Sheet Management

Effective governance across BSM is supported by the dual reporting lines it has to the Chief Executive Officer of GB&M and to the Group Treasurer. In each operating entity, BSM is responsible for managing liquidity and funding under the supervision of the local ALCO (which usually meets on a monthly basis). It also manages the banking book interest rate positions transferred to it within a Markets limit structure.

In executing the management of the liquidity risk on behalf of ALCO, and managing the banking book interest rate positions transferred to it, BSM invests in highly rated liquid assets in line with the Group's liquid asset policy. The majority of the liquidity is invested in central bank deposits and government, supranational and agency securities, with most of the remainder held in short-term interbank and central bank loans.

Withdrawable central bank deposits are accounted for as cash balances. Interbank loans, statutory central bank reserves and loans to central banks are accounted for as loans and advances to banks. BSM's holdings of securities are accounted for as available-for-sale or, to a lesser extent, held-to-maturity assets.

Statutory central bank reserves are not recognised as liquid assets. The statutory reserves that would be released in line with the Group's stressed customer deposit outflow assumptions are reflected as stressed inflows.

BSM is permitted to use derivatives as part of its mandate to manage interest rate risk. Derivative activity is predominantly through the use of vanilla interest rate swaps which are part of cash flow hedging and fair value hedging relationships.

Credit risk in BSM is predominantly limited to short-term bank exposure created by interbank lending, exposure to central banks and high-quality sovereigns, supranationals or agencies which constitute the majority of BSM's liquidity portfolio. BSM does not manage the structural credit risk of any Group entity balance sheet.

BSM is permitted to enter into single name and index credit derivatives activity, but it does so to manage credit risk on the exposure specific to its securities portfolio in limited circumstances only. The risk limits are extremely limited and closely monitored. At 31 December 2016, BSM had no open credit derivative index risk.

VaR is calculated on positions held in BSM and is calculated by applying the same methodology used for the Markets business and utilised as a tool for market risk control purposes.

The vast majority of BSM's VaR arises from banking book portfolios and is classified as non-traded VaR.

BSM is predominantly involved in managing liquidity in accordance with the LFRF, managing the daily cash position and managing the non-traded interest rate risk transferred to it, within non-traded market risk limits.

Net interest income sensitivity

A principal part of our management of non-traded interest rate risk is to monitor the sensitivity of expected net interest income under varying interest rate scenarios (simulation modelling), where all other economic variables are held constant. This monitoring is undertaken at an entity level by local ALCOs.

Entities apply a combination of scenarios and assumptions relevant to their local businesses, and standard scenarios which are required throughout HSBC. The latter are consolidated to illustrate the combined pro forma effect on our consolidated net interest income.

Projected net interest income sensitivity figures represent the effect of the pro forma movements in projected yield curves based on a static balance sheet size and structure assumption, other than instances where the size of the balances or repricing is deemed interest rate sensitive (non-interest bearing current account migration and fixed rate loan early prepayment) and where non-traded VaR is assumed to contractually run off. This effect, however, does not incorporate actions which would probably be taken by BSM or in the business units to mitigate the effect of interest rate risk. In reality, BSM proactively seeks to change the interest rate risk profile to optimise net revenues. The net interest income sensitivity calculations assume that interest rates of all maturities move by the same amount in the 'up-shock' scenario. Rates are not assumed to become negative in the 'down-shock' scenario unless the central bank rate is already negative and then not assumed to go further negative, which may, in certain currencies, effectively result in non-parallel shock. In addition, the net interest income sensitivity calculations take account of the effect on net interest income of anticipated differences in changes between interbank interest rates and interest rates over which the entity has discretion in terms of the timing and extent of rate changes.

Economic value of equity

An economic value of equity ('EVE value') represents the present value of future banking book cash flows that could be distributed to equity providers under a managed run-off scenario, which represents the current book value of equity plus the present value of future net interest income under a managed run-off scenario. The present value of net interest income under a managed run-off and under any interest rate scenario can therefore be assessed by deducting the book value of equity from the EVE value calculated.

An EVE sensitivity is the extent to which the EVE value will change due to a pre-specified movement in interest rates, where all other economic variables are held constant. The EVE sensitivity represents the sensitivity of discounted net interest income plus the sensitivity of the net present value of any transactions used to hedge the interest income earned on equity. If the EVE sensitivity is adjusted to remove the sensitivity in net present value of any transactions used to hedge the interest income earned on equity, the resulting adjusted EVE sensitivity represents the extent to which, under a managed run-off scenario, discounted net interest income is sensitive to

a pre-specified movement in interest rates.

When assessing the sensitivity of economic value of equity to interest rate movements, the timing of principal cash flows can vary but the amount remains constant.

Operating entities are required to monitor EVE sensitivity as a percentage of total capital resources and adjusted EVE sensitivity as a percentage of the present value of future net interest income (base case EVE minus book value of equity) under a managed run-off assumption.

EVE can also be used for assessing the economic capital required to support interest rate risk in the banking book ('IRRBB'):

- Where EVE under any scenario is higher than the current balance sheet carrying value of equity, the banking book income stream is positive (i.e. profit) and therefore capital accretive under that scenario and no economic capital for IRRBB is required.

- Where EVE of any scenario is lower than the current balance sheet carrying value of equity, the banking book income stream is negative (i.e. loss) and therefore capital deductive under that scenario and economic capital for IRRBB should be held against this loss.

Where banking book assets/liabilities are fair valued through profit and loss or where the fair value changes impact capital resources (i.e. available for sale), economic capital for this interest rate sensitivity is additionally assessed using a stressed VaR approach.

HSBC Holdings

As a financial services holding company, HSBC Holdings has limited market risk activity. Its activities predominantly involve maintaining sufficient capital resources to support the Group's diverse activities; allocating these capital resources across our businesses; earning dividend and interest income on its investments in our businesses; providing dividend payments to its equity shareholders and interest payments to providers of debt capital; and maintaining a supply of short-term capital resources for deployment under extraordinary circumstances. It does not take proprietary trading positions.

The main market risks to which HSBC Holdings is exposed are banking book interest rate risk and foreign currency risk. Exposure to these risks arises from short-term cash balances, funding positions held, loans to subsidiaries, investments in long-term financial assets and financial liabilities including debt capital issued. The objective of HSBC Holdings' market risk management strategy is to reduce exposure to these risks and minimise volatility in capital resources, cash flows and distributable reserves. Market risk for HSBC Holdings is monitored by Holdings ALCO in accordance with its risk appetite statement.

HSBC Holdings uses interest rate swaps and cross-currency interest rate swaps to manage the interest rate risk and foreign currency risk arising from its long-term debt issues.

Operational risk management

Details of our operational risk profile in 2016 can be found on page 159, in 'Operational risk exposures in 2016'.

Responsibility for minimising operational risk lies with all HSBC's employees. Specifically, all staff are required to manage the operational risks of the business and operational activities for which they are responsible.

Overview

The objective of our operational risk management is to manage and control operational risk in a cost-effective manner within targeted levels of operational risk consistent with our risk appetite, as defined by the GMB.

Key developments in 2016

HSBC's operational risk management framework ('ORMF') is our overarching approach for managing operational risk, the purpose of which is to:

- identify and manage our non-financial operational risks in an effective manner;
- remain within the Group's operational risk appetite, which helps the organisation understand the level of risk it is willing to accept; and
- drive forward-looking risk awareness and assist management focus during 2016.

Activity to strengthen our risk culture and better embed the use of the ORMF was further implemented in 2016, in particular the use of the activity-based three lines of defence model, which sets out roles and responsibilities for managing operational risks on a daily basis.

Further information on the three lines of defence model can be found in the 'Our risk management framework' section on page 101.

Governance and structure

The ORMF defines minimum standards and processes, and the governance structure for the management of operational risk and internal control in our geographical regions, global businesses and global functions. The ORMF has been codified in a high-level standards manual, supplemented with detailed policies, which describes our approach to identifying, assessing, monitoring and controlling operational risk and gives guidance on mitigating action to be taken when weaknesses are identified.

Operational risk is organised as a specific risk discipline within Global Risk, and a formal governance structure provides oversight over its management. The Global Operational Risk sub-function supports the Group Chief Risk Officer and the Global Operational Risk Committee. It is responsible for leading the embedding of the ORMF and assurance of adherence to associated policies and processes across the first and second lines. It is also responsible for preparation of operational risk reporting at Group level, including reports for consideration by the RMM and the Group Risk Committee. The Global Operational Risk Committee meets at least quarterly to discuss key risk issues and review the effective implementation of the ORMF.

Key risk management processes

Business managers throughout the Group are responsible for maintaining an acceptable level of internal control commensurate with the scale and nature of operations, and for identifying and assessing risks, designing controls and monitoring the effectiveness of these controls. The ORMF helps managers to fulfil these responsibilities by defining a standard risk assessment methodology and providing a tool for the systematic reporting of operational loss data.

A centralised database is used to record the results of the operational risk management process. Operational risk and control self-assessments are inputted and maintained by business units. Business and functional management and business risk and control managers monitor the progress of documented action plans to address shortcomings. To help ensure that operational risk losses are consistently reported and monitored at Group level, all Group companies are required to report individual losses when the net loss is expected to exceed $10,000, and to aggregate all other operational risk losses under $10,000. Losses are entered into the Group operational risk database and reported to the RMM on a monthly basis.

Regulatory compliance risk management

Overview

The Regulatory Compliance sub-function ('RC') provides independent, objective oversight and challenge and promotes a compliance-orientated culture, supporting the business in delivering fair outcomes for customers, maintaining the integrity of financial markets and achieving HSBC's strategic objectives.

Key developments in 2016

In the second half of 2016, we restructured part of our Global Risk function. The Financial Crime Compliance sub-function became part of our new Financial Crime Risk function, which reports directly to the Group Chief

Executive (see 'Financial crime risk management' below). The RC sub-function remains part of Global Risk, and continues to oversee management of regulatory compliance risk.

Governance and structure

The Global Head of RC reports to the Group Chief Risk Officer. To align with our global business structure and help ensure coverage of local regulatory requirements, RC is structured as a global function with regional and country RC teams, which support and advise each global business and global function.

Key risk management processes

We regularly review our policies and procedures. Global policies and procedures require the prompt identification and escalation of any actual or potential regulatory breach to RC. Reportable events are escalated to the RMM and the Group Risk Committee, as appropriate. Matters relating to the Group's regulatory conduct of business are reported to the Conduct & Values Committee.

Conduct of business

In 2016, we continued to take steps to raise our standards relating to conduct, which included:

- designing further global mandatory conduct training for delivery to all employees in 2017;
- incorporating the assessment of expected values and behaviours as key determinants in recruitment, performance appraisal and remuneration processes;
- improving our Group-wide market surveillance capability;
- introducing policies and procedures to strengthen support for potentially vulnerable customers;
- enhancing the quality and depth of conduct management information and how it is used across the Group;
- implementing an assessment process to check the effectiveness of our conduct initiatives across the Group; and
- assessing conduct standards and practices within our key third-party suppliers and distributors.

The Board maintained oversight of conduct matters through the Conduct & Values Committee.

Further information on our conduct is provided in the Strategic Report on page 22 and www.hsbc.com. For conduct-related costs relating to significant items, see page 78.

Financial crime risk management

Overview

In the second half of 2016, we established a Financial Crime Risk ('FCR') function and appointed a Group Head of FCR, who reports to the Group Chief Executive and chairs the Global Standards Steering Meeting. FCR is a global function that brings together all areas of financial crime risk management at HSBC and is dedicated to implementing the most effective global standards to combat financial crime. The function has been set up to enable us to build on our achievements in managing financial crime risk effectively across the bank and to continue to strengthen financial crime detection, and anti-money laundering ('AML'), sanctions and anti-bribery and corruption compliance.

Key developments in 2016

The FCR function encompasses FCR Assurance, Financial Crime Compliance, Financial Crime Threat Mitigation, the Global Standards programme, the Monitor Liaison Office, FCR Strategy Implementation, FCR Chief of Staff and FCR COO.

The structure has been designed around the following key principles:

- FCR sets policy and standards, provides subject matter expertise and guidance, drives execution at country level via regions, and maintains line of business subject matter expertise in support of the global businesses.
- Country-level execution accountability is driven by a common set of global principles with material variations managed by exception.
- Sub-functions within FCR are leveraged across the global function, ensuring consistency and utilising expertise and resourcing.

Key risk management processes

We continue to embed policies and procedures, introduce new technology solutions and support the cultural change needed to effectively manage financial crime risk. A key enhancement during 2016 was the deployment of our global customer due diligence system to 35 markets for RBWM, 52 for CMB, 36 for GB&M and two for GPB. This, along with the enhanced financial crime risk training that we have taken more than 3,500 senior leaders through globally, will help ensure our people have the guidance and tools that they need.

The Group Head of FCR attends the Financial System Vulnerabilities Committee ('FSVC'), which reports to the Board on matters relating to financial crime and financial system abuse and provides a forward-looking perspective on financial crime risk, as well as cyber and information security. In 2016, the FSVC assumed responsibility from the CVC for oversight of controls relating to anti-bribery and corruption.

Throughout the year the Committee received regular reports from country chief executives on the actions being taken by management to address local financial crime risk issues and vulnerabilities, and also received reports on specific issues.

The Monitor

Under the agreements entered into with the DoJ and the FCA in 2012, including the five-year US DPA, the Monitor was appointed in July 2013 for an expected five-year period to produce annual assessments of the effectiveness of the Group's AML and sanctions compliance programme.

In February 2017, the Monitor delivered his third annual follow-up review report based on various thematic and country reviews he had conducted over the course of 2016. In his report, the Monitor concluded that, in 2016, HSBC continued to make progress in enhancing its financial crime compliance controls, including improvements to its Global AML policies and procedures. However, the Monitor also expressed significant concerns about the pace of that progress, instances of potential financial crime that the DoJ and HSBC are reviewing further and on-going systems and control deficiencies that in his view raised questions as to whether HSBC is adhering to its obligations under the US DPA - a matter that would be determined by the DoJ in its sole discretion. The Monitor also found that there remain substantial challenges for HSBC to meet its goal of developing a reasonably effective and sustainable AML and sanctions compliance programme. In addition, the Monitor did not certify as to HSBC's implementation of and adherence to remedial measures specified in the US DPA. The 'US deferred prosecution

agreement and related agreements and consent orders' are discussed in 'Top and emerging risks' on page 89.

Throughout 2016, the FSVC received regular reports on HSBC's relationship with the Monitor and its compliance with the US DPA. The FSVC received regular updates on the preliminary findings arising from the Monitor's third annual review, and has received the Monitor's third annual review report.

Insurance manufacturing operations risk management

Details of changes in our insurance manufacturing operations risk profile in 2016 can be found on page 159, in 'Insurance manufacturing operations risk profile'.

There were no material changes to our policies and practices for the management of risks arising in our insurance manufacturing operations in 2016.

Governance

(Audited)

Insurance risks are managed to a defined risk appetite, which is aligned to the Group risk appetite and risk management framework, including the Group three lines of defence model. For details of the Group's governance framework, see page 101. The Group Insurance Risk Management Meeting oversees the control framework globally and is accountable to the RBWM Risk Management Meeting on risk matters relating to the insurance business.

The monitoring of the risks within the insurance operations is carried out by insurance risk teams. Specific risk functions, including Wholesale Credit & Market Risk, Operational Risk, Information Security Risk and Financial Crime Risk, support Insurance Risk teams in their respective areas of expertise.

Stress and scenario testing

(Audited)

Stress testing forms a key part of the risk management framework for the insurance business. We participate in local and Group-wide regulatory stress tests, including the Bank of England stress test of the banking system, the Hong Kong Monetary Authority stress test, the European Insurance and Occupational Pensions Authority stress test, and individual country insurance regulatory stress tests.

These have highlighted that a key risk scenario for the insurance business is a prolonged low interest rate environment. In order to mitigate the impact of this scenario, the insurance operations have a range of strategies that could be employed including the hedging of investment risk, repricing current products to reflect lower interest rates, improving risk diversification, moving towards less capital intensive products, and developing investment strategies to optimise the expected returns against the cost of economic capital.

Management and mitigation of key risk types

Market risk

(Audited)

All our insurance manufacturing subsidiaries have market risk mandates which specify the investment instruments in which they are permitted to invest and the maximum quantum of market risk which they may retain. They manage market risk by using, among others, some or all of the techniques listed below, depending on the nature of the contracts written:

- For products with discretionary participating features ('DPF'), adjusting bonus rates to manage the liabilities to policyholders. The effect is that a significant portion of the market risk is borne by the policyholder.
- Asset and liability matching where asset portfolios are structured to support projected liability cash flows. The group manages its assets using an approach that considers asset quality, diversification, cash flow matching, liquidity,

volatility and target investment return. It is not always possible to match asset and liability durations due to uncertainty over the receipt of all future premiums and the timing of claims; and also because the forecast payment dates of liabilities may exceed the duration of the longest dated investments available. We use models to assess the effect of a range of future scenarios on the values of financial assets and associated liabilities, and ALCOs employ the outcomes in determining how to best structure asset holdings to support liabilities.

- Using derivatives to protect against adverse market movements or better match liability cash flows.
- For new products with investment guarantees, considering the cost when determining the level of premiums or the price structure.
- Periodically reviewing products identified as higher risk, which contain investment guarantees and embedded optionality features linked to savings and investment products.
- Designing new products to mitigate market risk, such as changing the investment return sharing portion between policyholders and the shareholder.
- Exiting, to the extent possible, investment portfolios whose risk is considered unacceptable.
- Repricing premiums charged to policyholders.

Credit risk

(Audited)

Our insurance manufacturing subsidiaries are responsible for the credit risk, quality and performance of their investment portfolios. Our assessment of the creditworthiness of issuers and counterparties is based primarily upon internationally recognised credit ratings and other publicly available information.

Investment credit exposures are monitored against limits by our local insurance manufacturing subsidiaries, and are aggregated and reported to the Group Insurance Credit Risk and Group Credit Risk functions. Stress testing is performed by Group Insurance on the investment credit exposures using credit spread sensitivities and default probabilities.

We use a number of tools to manage and monitor credit risk. These include a credit report which contains a watch-list of investments with current credit concerns. The report is circulated monthly to senior management in Group Insurance and the individual country chief risk officers to identify investments which may be at risk of future impairment.

Liquidity risk

(Audited)

Risk is managed by cash flow matching and maintaining sufficient cash resources, investing in high credit-quality investments with deep and liquid markets, monitoring investment concentrations and restricting them where appropriate, and establishing committed contingency borrowing facilities.

Insurance manufacturing subsidiaries are required to complete quarterly liquidity risk reports for the Group Insurance Risk function and an annual review of the liquidity risks to which they are exposed.

Insurance risk

HSBC Insurance primarily uses the following techniques to manage and mitigate insurance risk:

- product design, pricing and overall proposition management (for example, management of lapses by introducing surrender charges);
- underwriting policy;
- claims management processes; and
- reinsurance which cedes risks above our acceptable thresholds to an external reinsurer thereby limiting our exposure.

Reputational risk management

There were no material changes to our policies and practices for the management of reputational risk in 2016.

Overview

Reputational risk relates to stakeholders’ perceptions, whether fact-based or otherwise. Stakeholders’ expectations change constantly, and so reputational risk is dynamic and varies between geographical regions, groups and individuals. We have an unwavering commitment to operating at the high standards we set for ourselves in every jurisdiction. Any lapse in standards of integrity, compliance, customer service or operating efficiency represents a potential reputational risk.

Governance and structure

The development of policies, management and mitigation of reputational risk are coordinated through the Group Reputational Risk Policy Committee, which is chaired by the Group Chairman. In parallel, the Global Risk Resolution Committee, chaired by the Chief Risk Officer, is the highest decision-making forum in the Group for matters arising from clients or transactions that either present a serious potential reputational risk to the Group, or merit a Group-led decision to ensure a consistent risk management approach across our regions and global businesses. Both committees keep the RMM apprised of areas and activities presenting significant reputational risk and, where appropriate, make recommendations to the RMM to mitigate such risks. Significant issues posing reputational risk are also reported to the Board and the Conduct & Values Committee, where appropriate.

Key risk management processes

The External Affairs function maintains policies and gives policy advice for the issues that might affect HSBC's reputation and standing with customers, employees, opinion formers and the public. It oversees the identification, management and control of reputational risk for all HSBC Group entities in the areas of media relations and engagement with non-governmental organisations and other external stakeholders.

Our Reputational Risk and Client Selection ('RRCS') team, which is jointly managed by the Global Head of Financial Crime Compliance and the Global Head of Regulatory Compliance, oversees the identification, management and control of all other significant reputational risks across HSBC Group. It is responsible for setting policies to guide the Group's reputational risk management, devising strategies to protect against reputational risk, and advising the global businesses and global functions to help them identify, assess and mitigate such risks, where possible. It is led by a headquarters-based team. This is supported by teams in each business line and region, which help ensure that issues are directed to the appropriate forums, that decisions are made and implemented effectively, and that management information is generated to aid senior management in the businesses and regions in understanding where reputational risk exists. Each global business has established a governance process that empowers the RRCS's committees to address reputational risk issues at the right level, escalating decisions where appropriate. The global functions manage and escalate reputational risks within established operational risk frameworks.

Our policies set out our risk appetite and operational procedures for all areas of reputational risk, including financial crime prevention, regulatory compliance, conduct-related concerns, environmental impacts, human rights matters and employee relations.

We have taken, and are taking, measures to address the requirements of the US DPA and enhance our AML, sanctions and other regulatory compliance frameworks. These measures should also enhance our reputational risk management in the future. For further details on our financial crime risk, see 'Financial crime risk management' on page 114. Further details can be found at www.hsbc.com.

Sustainability risk management

Overview

Assessing the environmental and social impacts of providing finance to our customers is integral to our overall risk management processes.

Key developments in 2016

In 2016, we issued a revised mining and metals policy. It replaced the one introduced in 2007, and responds to increasing concerns regarding climate change by addressing thermal coal mining, and provides more details on how we deal with human rights issues in the sector.

We also created a new training module for relevant relationship managers globally on our sustainability risk policies and their responsibilities, to ensure consistent implementation. Furthermore, we continued to improve the way sustainability risk is recorded in our information management system.

Governance and structure

The Global Risk function, with input from the Global Corporate Sustainability function, is mandated to manage sustainability risk globally, working through local offices as appropriate. Sustainability risk managers have regional or national responsibilities for advising on and managing environmental and social risks.

Key risk management processes

The Global Risk function's responsibilities in relation to sustainability risk include:

- Formulating sustainability risk policies. This includes work in several key areas: overseeing our sustainability risk standards; overseeing our application of the Equator Principles, which provide a framework for banks to assess and manage the social and environmental impact of large projects they provide finance to; overseeing our application of our sustainability policies, covering agricultural commodities, chemicals, defence, energy, forestry, freshwater infrastructure, mining and metals, UNESCO World Heritage Sites and the Ramsar Convention on Wetlands; undertaking independent reviews of transactions where sustainability risks are assessed to be high; and supporting our operating companies to assess similar risks of a lesser magnitude.
- Building and implementing systems-based processes to ensure consistent application of policies, reduce the costs of sustainability risk reviews, and capture management information to measure and report on the effect of our lending and investment activities on sustainable development.
- Providing training and capacity building within our operating companies to ensure sustainability risks are identified and mitigated consistently to appropriate standards.

Pension risk management

There were no material changes to our policies and practices for the management of pension risk in 2016.

Governance and structure

A global pension risk framework and accompanying global policies on the management of risks related to defined benefit and defined contribution plans is in place. Pension risk is managed by a network of local and regional pension risk forums. The Global Pensions Oversight Committee is responsible for the governance and oversight of all pension plans sponsored by HSBC around the world.

Key risk management processes

Our global pensions strategy is to move from defined benefit to defined contribution plans, where local law allows and it is considered competitive to do so.

In defined contribution pension plans, the contributions that HSBC is required to make are known, while the ultimate pension benefit will vary, typically with investment returns achieved by investment choices made by the employee. While the market risk to HSBC of defined contribution plans is low, the Group is still exposed to operational and reputational risk.

In defined benefit pension plans, the level of pension benefit is known. Therefore, the level of contributions required by HSBC will vary due to a number of risks, including:

- investments delivering a return below that required to provide the projected plan benefits;
- the prevailing economic environment leading to corporate failures, thus triggering write-downs in asset values (both equity and debt);
- a change in either interest rates or inflation expectations, causing an increase in the value of plan liabilities; and
- plan members living longer than expected (known as longevity risk).

Pension risk is assessed using an economic capital model that takes into account potential variations in these factors. The impact of these variations on both pension assets and pension liabilities is assessed using a one-in-200-year stress test. Scenario analysis and other stress tests are also used to support pension risk management.

To fund the benefits associated with defined benefit plans, sponsoring Group companies, and in some instances employees, make regular contributions in accordance with advice from actuaries and in consultation with the plan's trustees where relevant. These contributions are normally set to ensure that there are sufficient funds to meet the cost of the accruing benefits for the future service of active members. However, higher contributions are required when plan assets are considered insufficient to cover the existing pension liabilities. Contribution rates are typically revised annually or once every three years, depending on the plan.

The defined benefit plans invest contributions in a range of investments designed to limit the risk of assets failing to meet a plan's liabilities. Any changes in expected returns from the investments may also change future contribution requirements. In pursuit of these long-term objectives, an overall target allocation of the defined benefit plan assets between asset classes is established. In addition, each permitted asset class has its own benchmarks, such as stock-market or property valuation indices. The benchmarks are reviewed at least once every three years and more frequently if required by local legislation or circumstances. The process generally involves an extensive asset and liability review.

Key developments and risk profile in 2016

Key developments in 2016

In 2016, HSBC undertook a number of initiatives to enhance its approach to the management of risk. These included:

- Implementing a new internal liquidity and funding risk management framework which uses the liquidity coverage ratio and net stable funding ratio regulatory framework as a foundation, as described on page 108 of the 'Liquidity and funding risk management' section.
- Undertaking activities to strengthen our risk culture and further embed the use of the operational risk management framework, as described on page 114 of the 'Operational risk management' section.
- Implementing a number of initiatives to raise our standards in relation to the conduct of our business, as described on page 114 of the 'Regulatory compliance risk management' section.
- Restructuring part of our Global Risk function. The Financial Crime Compliance sub-function became part of our new Financial Crime Risk ('FCR') function. The Regulatory Compliance sub-function remains part of Global Risk, and continues to oversee management of regulatory compliance risk.
- Establishing an FCR function and appointing a Group Head of FCR, who chairs the Global Standards Steering Meeting and reports to the Group Chief Executive, to oversee all areas of financial crime risk management at HSBC. The FCR function is dedicated to implementing the most effective global standards to combat financial crime, as described on page 114 of the 'Financial crime risk management' section.
- Issuing a revised mining and metals policy and creating a new training module for relevant relationship managers globally on our sustainability risk policies and their responsibilities, to ensure consistent implementation, as described on page 117 in the 'Sustainability risk management' section.

There were no material changes to our policies and practices for the management of credit risk, market risk, insurance manufacturing operations risk, reputational risk and sustainability risk in 2016.

Credit risk profile

Credit risk in 2016

Credit risk is the risk of financial loss if a customer or counterparty fails to meet an obligation under a contract. It arises principally from direct lending, trade finance and leasing business, but also from other products, such as guarantees and credit derivatives and from holding assets in the form of debt securities.

A summary of our current policies and practices regarding the management of credit risk is set out on pages 106 to 108.

The effect of commodity price movements in the oil and gas sectors is provided in 'Areas of special interest' on page 100.

Gross loans and advances declined by $67bn, mainly due to foreign exchange effects reducing balances by $68bn. Loan impairment charges and other credit provisions for the year were $3.4bn.

In wholesale lending, balances declined by $33bn mainly due to foreign exchange movements of $41bn. Excluding foreign exchange movements, lending balances decreased in North America, and in Middle East and North Africa but were more than offset by increases in Asia and Latin America. Europe lending balances were broadly unchanged.

In personal lending, balances decreased by $34bn, mainly due to foreign exchange movements of $26bn and $13bn in North America largely due to continued repayments and loan sales in the US CML run-off portfolio. Excluding foreign exchange movements and the US CML run-off portfolio, lending balances increased in Europe, Asia and Latin America and were offset by a decrease in Middle East and North Africa.

Information on constant currency movements is provided on page 30.

Summary of credit risk

	2016	2015	
	$bn	$bn	Page
At 31 Dec			
Maximum exposure to credit risk	2,898	2,947	119
– total assets subject to credit risk	2,205	2,234	
– off-balance sheet commitments subject to credit risk	693	713	
Gross loans and advances	958	1,024	
– personal lending	340	374	134
– wholesale lending	618	650	128
Impaired loans	18	24	123
– personal lending	6	12	
– wholesale lending	12	12	
	%	%	
Impaired loans as a % of gross loans and advances			
– personal lending	1.8	3.1	
– wholesale lending	1.9	1.9	
– personal and wholesale lending	1.9	2.3	
	$bn	$bn	
Impairment allowances	7.9	9.6	127
– personal lending	2.0	2.9	134
– wholesale lending	5.9	6.7	129
Loans and advances net of impairment allowances	950	1,015	
For year ended 31 Dec			
Loan impairment charge	3.3	3.6	125
– personal lending	1.7	1.8	
– wholesale lending	1.6	1.8	
Other credit risk provisions	0.1	0.1	
	3.4	3.7	

Gross loans to customers and banks over five years ($bn)

Personal Wholesale

Unimpaired Impaired

Loan impairment charge over five years ($bn)

Personal Wholesale

Loan impairment charges by geographical region ($bn)

2016 2015

Loan impairment charges by industry ($bn)

2016 2015

Loan impairment allowances over five years ($bn)

Personal Wholesale

t Loan impairment allowances as a percentage of impaired loans Loan impairment allowances ($bn)

Credit exposure

Maximum exposure to credit risk

(Audited)

The table that follows provides information on balance sheet items, offsets, and loan and other credit-related commitments. Commentary on balance sheet movements is provided on page 45.

The offset on derivatives remains in line with the movements in maximum exposure amounts.

The offset on corporate and commercial loans to customers decreased by $17bn. This reduction was mainly related to corporate overdraft balances where a small number of clients benefited from the use of net interest arrangements across overdrafts and deposits. As a result, net risk exposures are usually stable, while gross balances can be volatile.

‘Maximum exposure to credit risk’ table

The following table presents our maximum exposure before taking account of any collateral held or other credit enhancements (unless such enhancements meet accounting offsetting requirements). The table excludes financial instruments whose carrying amount best represents the net exposure to credit risk; and it excludes equity securities as they are not subject to credit risk. For the financial assets recognised on the balance sheet, the maximum exposure to credit risk equals their carrying amount; for financial guarantees and similar contracts granted, it is the maximum amount that we would have to pay if the guarantees were called upon. For loan commitments and other credit-related commitments, it is generally the full amount of the committed facilities.

The offset in the table relates to amounts where there is a legally enforceable right of offset in the event of counterparty default and where, as a result, there is a net exposure for credit risk purposes. However, as there is no intention to settle these balances on a net basis under normal circumstances, they do not qualify for net presentation for accounting purposes. No offset has been applied to off-balance sheet collateral. In the case of derivatives the offset column also includes collateral received in cash and other financial assets.

Other credit risk mitigants

While not disclosed as an offset in the following ‘Maximum exposure to credit risk’ table, other arrangements are in place which reduce our maximum exposure to credit risk. These include a charge over collateral on borrowers’ specific assets such as residential properties, collateral held in the form of financial instruments that are not held on balance sheet and short positions in securities. In addition, for financial assets held as part of linked insurance/investment contracts the risk is predominantly borne by the policyholder. See Note 30 and pages 230 and 233 of the Financial Statements for further details of collateral in respect of certain loans and advances and derivatives.

Maximum exposure to credit risk
(Audited)

	2016			2015		
	Maximum exposure	Offset	Net	Maximum exposure	Offset	Net
	$m	$m	$m	$m	$m	$m
Derivatives	290,872	(262,233)	28,639	288,476	(258,755)	29,721
Loans and advances to customers held at amortised cost	861,504	(33,657)	827,847	924,454	(52,190)	872,264
– personal	337,826	(3,629)	334,197	371,203	(5,373)	365,830
– corporate and commercial	460,209	(27,686)	432,523	493,078	(44,260)	448,818
– non-bank financial institutions	63,469	(2,342)	61,127	60,173	(2,557)	57,616
Loans and advances to banks held at amortised cost	88,126	(248)	87,878	90,401	(53)	90,348
Reverse repurchase agreements – non-trading	160,974	(4,764)	156,210	146,255	(900)	145,355
Total balance sheet exposure to credit risk	2,204,751	(300,902)	1,903,849	2,234,409	(311,898)	1,922,511
Total off-balance sheet	692,915	—	692,915	712,546	—	712,546
– financial guarantees and similar contracts	37,072	—	37,072	46,116	—	46,116
– loan and other credit-related commitments	655,843	—	655,843	666,430	—	666,430
At 31 Dec	2,897,666	(300,902)	2,596,764	2,946,955	(311,898)	2,635,057

Concentration of exposure

The geographical diversification of our lending portfolio, and our broad range of global businesses and products, ensured that we did not overly depend on a few markets to generate growth in 2016.

For an analysis of:

- financial investments, see Note 15 to the Financial Statements;

- trading assets, see Note 10 to the Financial Statements;
- derivatives, see page 132 and Note 14 to the Financial Statements; and
- loans and advances by industry sector and by the location of the principal operations of the lending subsidiary (or, in the case of the operations of The Hongkong and Shanghai Banking Corporation, HSBC Bank plc, HSBC Bank Middle East Limited and HSBC Bank USA, by the location of the lending branch) see page 127 for wholesale lending and page 133 for personal lending.

Credit quality of financial instruments
(Audited)
We assess the credit quality of all financial instruments that are subject to credit risk. Additional credit quality information in respect of our consolidated holdings of ABSs is provided on page 138.
For the purpose of the following disclosure, loans past due up to 90 days and not otherwise classified as impaired are separately classified as past due but not impaired, irrespective

of their credit quality grade. Trading assets, financial assets designated at fair value and financial investments exclude equity securities as they are not subject to credit risk. The changes to the mapping of sovereign external ratings to credit quality bands, described on page 106, mainly impacts the credit quality of financial investments in 2016 with an increase in the 'Strong' rating band and a decrease in the 'Good' and 'Satisfactory' rating bands.

Distribution of financial instruments by credit quality
(Audited)

	Neither past due nor impaired								
	Strong	Good	Satisfactory	Sub-standard	Past due but not impaired	Impaired	Total gross amount	Impairment allowances	Total
	$m	$m	$m	$m	$m	$m	$m	$m	$m
Cash and balances at central banks	126,838	711	444	16			128,009		128,009
Items in the course of collection from other banks	4,656	14	329	4			5,003		5,003
Hong Kong Government certificates of indebtedness	31,228	—	—	—			31,228		31,228
Trading assets	127,997	20,345	21,947	1,232			171,521		171,521
– treasury and other eligible bills	13,595	672	138	46			14,451		14,451
– debt securities	73,171	7,746	12,741	396			94,054		94,054
– loans and advances to banks	15,356	6,119	3,250	44			24,769		24,769
– loans and advances to customers	25,875	5,808	5,818	746			38,247		38,247
Financial assets designated at fair value	3,249	367	542	314			4,472		4,472
Derivatives	236,693	45,961	7,368	850			290,872		290,872
Loans and advances to customers held at amortised cost	437,531	200,385	185,717	18,831	8,662	18,228	869,354	(7,850)	861,504
– personal	290,313	24,544	12,505	884	5,062	6,490	339,798	(1,972)	337,826
– corporate and commercial	111,848	158,878	163,107	17,504	3,128	11,362	465,827	(5,618)	460,209
– non-bank financial institutions	35,370	16,963	10,105	443	472	376	63,729	(260)	63,469
Loans and advances to banks held at amortised cost	73,516	8,238	6,293	73	6	—	88,126	—	88,126
Reverse repurchase agreements	123,822	18,223	18,166	763	—	—	160,974	—	160,974

– non-trading									
Financial investments	401,010	13,579	13,570	2,940	—	1,031	432,130		432,130
Assets held for sale	1,774	536	392	266	236	1,030	4,234	(250)	3,984
Other assets	11,203	5,348	9,227	805	124	221	26,928		26,928
– endorsements and acceptances	1,160	3,688	3,125	474	35	92	8,574		8,574
– accrued income and other	10,043	1,660	6,102	331	89	129	18,354		18,354
At 31 Dec 2016	1,579,517	313,707	263,995	26,094	9,028	20,510	2,212,851	(8,100)	2,204,751
	%	%	%	%	%	%	%		
Percentage of total gross amount	71.4	14.2	11.9	1.2	0.4	0.9	100.0		

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Distribution of financial instruments by credit quality (continued)

	Neither past due nor impaired				Past due but not impaired	Impaired	Total gross amount	Impairment allowances	Total
	Strong	Good	Satisfactory	Sub-standard					
	$m	$m	$m	$m	$m	$m	$m	$m	$m
Cash and balances at central banks	97,365	583	939	47			98,934		98,934
Items in the course of collection from other banks	5,318	32	416	2			5,768		5,768
Hong Kong Government certificates of indebtedness	28,410	—	—	—			28,410		28,410
Trading assets	116,633	21,243	19,894	576			158,346		158,346
– treasury and other eligible bills	6,749	790	190	100			7,829		7,829
– debt securities	77,088	10,995	10,656	299			99,038		99,038
– loans and advances to banks	14,546	4,391	3,239	127			22,303		22,303
– loans and advances to customers	18,250	5,067	5,809	50			29,176		29,176
Financial assets designated at fair value	3,037	701	736	383			4,857		4,857
Derivatives	248,101	32,056	7,209	1,110			288,476		288,476
Loans and advances to customers held at amortised cost	472,691	214,152	194,393	16,836	12,179	23,758	934,009	(9,555)	924,454
– personal	309,720	29,322	15,021	944	7,568	11,507	374,082	(2,879)	371,203
– corporate and commercial	127,673	168,772	171,466	15,379	4,274	11,949	499,513	(6,435)	493,078
– non-bank financial institutions	35,298	16,058	7,906	513	337	302	60,414	(241)	60,173
Loans and advances to banks held at amortised cost	73,226	11,929	4,836	407	1	20	90,419	(18)	90,401
Reverse repurchase agreements – non-trading	108,238	16,552	20,931	46	—	488	146,255	—	146,255
Financial investments	382,328	18,600	16,341	4,525	—	1,326	423,120		423,120
Assets held for sale	10,177	9,605	17,279	1,635	703	2,133	41,532	(1,454)	40,078
Other assets	8,306	5,688	10,204	632	147	333	25,310		25,310
– endorsements and acceptances	1,084	3,850	3,798	343	22	52	9,149		9,149
– accrued income and other	7,222	1,838	6,406	289	125	281	16,161		16,161
At 31 Dec 2015	1,553,830	331,141	293,178	26,199	13,030	28,058	2,245,436	(11,027)	2,234,409
	%	%	%	%	%	%	%		
Percentage of total gross amount	69.2	14.7	13.1	1.2	0.6	1.2	100.0		

Past due but not impaired gross financial instruments
(Audited)
Past due but not impaired gross financial instruments are those loans where, although customers have failed to make payments

in accordance with the contractual terms of their facilities, they have not met the impaired loan criteria described on page 123.
In North America, past due but not impaired balances decreased, mainly due to the continued repayments and loan sales in the US CML run-off portfolio.

Past due but not impaired gross financial instruments by geographical region
(Audited)

	Europe	Asia	MENA	North America	Latin America	Total
	$m	$m	$m	$m	$m	$m
At 31 Dec 2016	1,206	3,484	1,260	2,549	529	9,028
At 31 Dec 2015	1,599	3,444	1,263	5,474	1,250	13,030

Ageing analysis of days for past due but not impaired gross financial instruments
(Audited)

	Up to 29 days	30-59 days	60-89 days	90-179 days	180 days and over	Total
	$m	$m	$m	$m	$m	$m
Loans and advances to customers and banks held at amortised cost	6,743	1,320	587	11	7	8,668
– personal	3,696	986	380	—	—	5,062
– corporate and commercial	2,593	316	201	11	7	3,128
– financial	454	18	6	—	—	478
Assets held for sale	194	29	13	—	—	236
– disposal group	11	3	3	—	—	17
– non-current assets held for sale	183	26	10	—	—	219
Other financial instruments	70	18	10	12	14	124
At 31 Dec 2016	7,007	1,367	610	23	21	9,028
Loans and advances to customers and banks held at amortised cost	9,403	1,917	727	111	21	12,179
– personal	5,665	1,401	502	—	—	7,568
– corporate and commercial	3,432	505	225	93	19	4,274
– financial	306	11	—	18	2	337
Assets held for sale	476	137	90	—	—	703
– disposal group	476	136	89	—	—	701
– non-current assets held for sale	—	1	1	—	—	2
Other financial instruments	80	35	14	10	9	148
At 31 Dec 2015	9,959	2,089	831	121	30	13,030

Impaired loans
(Audited)
Impaired loans and advances are those that meet any of the following criteria:

- Wholesale loans and advances classified as customer risk rating (‘CRR’) 9 or CRR 10: these grades are assigned when HSBC considers that the customer is either unlikely to pay their credit obligations in full without recourse to security, or is more than 90 days past due on any material credit obligation to HSBC.
- Retail loans and advances classified as expected loss (‘EL’) 9 or EL 10: these grades are typically assigned to retail loans

and advances more than 90 days past due unless they have been individually assessed as not impaired.

- Renegotiated loans and advances: loans where we have changed the contractual cash flows due to credit distress of the obligor. Renegotiated loans remain classified as impaired until there is sufficient evidence to demonstrate a significant reduction in the risk of non-payment of future cash flows.

In personal lending, the continued repayments and loan sales in the US CML run-off portfolio reduced impaired loan balances by a further $4.2bn.

Movement in impaired loans by industry sector

	2016				2015			
	Personal	Corporate and commercial	Financial	Total	Personal	Corporate and commercial	Financial	Total
	$m	$m	$m	$m	$m	$m	$m	$m
At 1 Jan	11,507	11,949	322	23,778	15,160	13,795	375	29,330
Classified as impaired during the year	3,521	6,032	133	9,686	5,995	5,469	96	11,560
Transferred from impaired to unimpaired	(1,210)	(922)	(7)	(2,139)	(2,346)	(922)	(38)	(3,306)

during the year								
Amounts written off	(1,252)	(1,720)	(11)	(2,983)	(2,263)	(1,424)	(14)	(3,701)
Net repayments and other	(6,076)	(3,977)	(61)	(10,114)	(5,039)	(4,969)	(97)	(10,105)
At 31 Dec	6,490	11,362	376	18,228	11,507	11,949	322	23,778

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Impaired loans by industry sector and geographical region

	Europe	Asia	MENA	North America	Latin America	Total
	$m	$m	$m	$m	$m	$m
Non-renegotiated impaired loans	4,354	1,771	1,042	1,913	399	9,479
– personal	1,239	453	459	1,043	220	3,414
– corporate and commercial	3,029	1,291	582	865	179	5,946
– financial	86	27	1	5	—	119
Renegotiated impaired loans	3,708	728	1,188	2,929	196	8,749
– personal	648	113	72	2,213	30	3,076
– corporate and commercial	2,868	614	1,052	716	166	5,416
– financial	192	1	64	—	—	257
At 31 Dec 2016	8,062	2,499	2,230	4,842	595	18,228
Impaired loans % of total gross loans and advances	2.3 %	0.6 %	5.5 %	4.1 %	2.9 %	1.9 %
Non-renegotiated impaired loans	4,583	1,760	1,051	2,177	623	10,194
– personal	1,361	385	475	1,786	211	4,218
– corporate and commercial	3,135	1,368	552	389	411	5,855
– financial	87	7	24	2	1	121
Renegotiated impaired loans	4,682	615	1,127	6,753	407	13,584
– personal	878	131	41	6,208	31	7,289
– corporate and commercial	3,607	480	1,086	545	376	6,094
– financial	197	4	—	—	—	201
At 31 Dec 2015	9,265	2,375	2,178	8,930	1,030	23,778
Impaired loans % of total gross loans and advances	2.3 %	0.6 %	4.6 %	6.5 %	4.8 %	2.3 %
Currency translation adjustment	(1,170)	(22)	(194)	12	(162)	(1,536)
31 Dec 2015 at 31 Dec 2016 exchange rates	8,095	2,353	1,984	8,942	868	22,242
Movement – constant currency basis	(33)	146	246	(4,100)	(273)	(4,014)
31 Dec 2016 as reported	8,062	2,499	2,230	4,842	595	18,228

Renegotiated loans and forbearance

The most significant portfolio of renegotiated loans was in North America, substantially all of which were retail loans held by HSBC Finance Corporation ('HSBC Finance'). The ongoing repayments and loan sales in the US CML run-off portfolio reduced renegotiated loans by $8.7bn during 2016.

The following tables show the gross carrying amounts of the Group's holdings of renegotiated loans and advances to customers by industry sector, geography, credit quality classification and arrangement type.

Renegotiated loans and advances to customers by industry sector

	First lien residential mortgages	Other personal lending	Corporate and commercial	Non-bank financial institutions	Total
	$m	$m	$m	$m	$m
Neither past due nor impaired	976	282	1,848	260	3,366
Past due but not impaired	346	78	301	—	725
Impaired	2,751	325	5,416	257	8,749
At 31 Dec 2016	4,073	685	7,565	517	12,840

Impairment allowances on renegotiated loans	267	150	1,667	130	2,214
Neither past due nor impaired	3,973	716	2,152	391	7,232
Past due but not impaired	1,753	243	123	24	2,143
Impaired	6,556	733	6,094	201	13,584
At 31 Dec 2015	12,282	1,692	8,369	616	22,959
Impairment allowances on renegotiated loans	870	252	2,098	119	3,339

Renegotiated loans and advances to customers by geographical region

	Europe	Asia	MENA	North America	Latin America	Total
	$m	$m	$m	$m	$m	$m
At 31 Dec 2016	5,855	1,046	1,871	3,736	332	12,840
At 31 Dec 2015	7,121	943	1,945	12,372	578	22,959

A range of forbearance strategies are employed in order to improve the management of customer relationships, maximise collection opportunities and, if possible, avoid default, foreclosure or repossession.

The tables below show renegotiated loans by arrangement type as a percentage of the total value of arrangements offered. In personal lending, renegotiated loans have been allocated to the single most dominant arrangement type.

Renegotiated loans by arrangement type: personal lending

	%
Interest rate and terms modifications	21.9
Payment concessions	14.3
Collection re-age	19.2
Modification re-age	34.6
Other	10.0
At 31 Dec 2016	100.0

Corporate renegotiated loans often require the granting of more than one arrangement type as part of an effective strategy. The percentages reported in the table below include the effect of loans being reported in more than one arrangement type.

Renegotiated loans by arrangement type: corporate and commercial, and financial

	%
Maturity term extensions	37.3
Reductions in margin, principal forgiveness, debt equity swaps and interest, fees or penalty payment forgiveness	21.4
Other changes to repayment profile	19.4
Interest only conversion	9.3
Other	12.6
At 31 Dec 2016	100.0

Impairment of loans and advances

(Audited)

For an analysis of loan impairment charges and other credit risk provisions by global business, see page 38.

The tables below analyse the loan impairment charges for the year by industry sector for impaired loans and advances that are either individually or collectively assessed, and for collective impairment allowances on loans and advances that are classified as not impaired.

Loan impairment charge to the income statement by industry sector

	Europe	Asia	MENA	North America	Latin America	Total
	$m	$m	$m	$m	$m	$m
Personal	162	264	226	219	832	1,703
– first lien residential mortgages	1	(1)	10	149	7	166
– other personal	161	265	216	70	825	1,537
Corporate and commercial	337	388	53	500	330	1,608
– manufacturing and international trade and services	38	306	105	81	195	725
– commercial real estate and other property-related	(15)	(28)	(16)	3	25	(31)
– other commercial	314	110	(36)	416	110	914
Financial	34	2	13	(10)	—	39
At 31 Dec 2016	533	654	292	709	1,162	3,350
Personal	109	309	276	157	983	1,834
– first lien residential mortgages	(8)	(1)	50	70	41	152
– other personal	117	310	226	87	942	1,682
Corporate and commercial	415	372	212	319	451	1,769
– manufacturing and international trade and services	138	250	127	26	305	846
– commercial real estate and other property-related	33	18	49	24	47	171
– other commercial	244	104	36	269	99	752

Financial	14	—	(18)	(7)	—	(11)
At 31 Dec 2015	538	681	470	469	1,434	3,592

Charge for impairment losses as a percentage of average gross loans and advances to customers by geographical region

	Europe	Asia	MENA	North America	Latin America	Total
	%	%	%	%	%	%
New allowances net of allowance releases	0.23	0.23	0.93	0.62	7.02	0.46
Recoveries	(0.08)	(0.04)	(0.13)	(0.06)	(0.56)	(0.07)
At 31 Dec 2016	0.15	0.19	0.80	0.56	6.46	0.39
Amount written off net of recoveries	0.26	0.14	0.84	0.48	2.99	0.32
New allowances net of allowance releases	0.26	0.23	1.35	0.41	5.37	0.48
Recoveries	(0.11)	(0.05)	(0.14)	(0.06)	(0.50)	(0.09)
At 31 Dec 2015	0.15	0.18	1.21	0.35	4.87	0.39
Amount written off net of recoveries	0.22	0.12	1.17	0.45	3.94	0.37

Movement in impairment allowances by industry sector and by geographical region

	Europe	Asia	MENA	North America	Latin America	Total
	$m	$m	$m	$m	$m	$m
At 1 Jan 2016	3,477	1,525	1,810	2,041	720	9,573
Amounts written off						
Personal	(412)	(358)	(208)	(284)	(340)	(1,602)
– first lien residential mortgages	(10)	(6)	(3)	(142)	(12)	(173)
– other personal	(402)	(352)	(205)	(142)	(328)	(1,429)
Corporate and commercial	(730)	(285)	(137)	(381)	(297)	(1,830)
– manufacturing and international trade and services	(380)	(172)	(78)	(125)	(10)	(765)
– commercial real estate and other property-related	(109)	(31)	(54)	(35)	(223)	(452)
– other commercial	(241)	(82)	(5)	(221)	(64)	(613)
Financial	(1)	(5)	(18)	—	—	(24)
Total amounts written off	(1,143)	(648)	(363)	(665)	(637)	(3,456)
Recoveries of amounts written off in previous years						
Personal	225	124	34	54	78	515
– first lien residential mortgages	3	4	—	26	8	41
– other personal	222	120	34	28	70	474
Corporate and commercial	35	24	10	18	22	109
– manufacturing and international trade and services	15	23	5	9	16	68
– commercial real estate and other property-related	9	—	—	2	—	11
– other commercial	11	1	5	7	6	30
Financial	1	1	—	1	—	3
Total recoveries of amounts written off in previous years	261	149	44	73	100	627
Charge to income statement	533	654	292	709	1,162	3,350
Exchange and other movements	(339)	(45)	(102)	(886)	(872)	(2,244)
At 31 Dec 2016	2,789	1,635	1,681	1,272	473	7,850
Impairment allowances against banks:						
– individually assessed	—	—	—	—	—	—
Impairment allowances against customers:						
– individually assessed	2,060	1,038	1,137	540	157	4,932
– collectively assessed	729	597	544	732	316	2,918
Impairment allowances at 31 Dec 2016	2,789	1,635	1,681	1,272	473	7,850
At 1 Jan 2015	3,971	1,356	1,890	2,640	2,529	12,386
Amounts written off						
Personal	(468)	(416)	(273)	(554)	(996)	(2,707)
– first lien residential mortgages	(12)	(6)	(1)	(344)	(24)	(387)
– other personal	(456)	(410)	(272)	(210)	(972)	(2,320)
Corporate and commercial	(644)	(179)	(235)	(106)	(309)	(1,473)
– manufacturing and international trade and services	(233)	(149)	(215)	(28)	(213)	(838)
– commercial real estate and other property-related	(244)	(5)	(8)	(57)	(30)	(344)
– other commercial	(167)	(25)	(12)	(21)	(66)	(291)
Financial	(12)	—	—	(2)	—	(14)
Total amounts written off	(1,124)	(595)	(508)	(662)	(1,305)	(4,194)
Recoveries of amounts written off in previous years						

Personal	320	135	50	57	119	681
– first lien residential mortgages	6	4	—	26	(17)	19
– other personal	314	131	50	31	136	662
Corporate and commercial	46	30	3	18	27	124
– manufacturing and international trade and services	16	20	2	8	15	61
– commercial real estate and other property-related	24	5	—	5	2	36
– other commercial	6	5	1	5	10	27
Financial	2	—	—	1	—	3
Total recoveries of amounts written off in previous years	368	165	53	76	146	808
Charge to income statement	538	681	470	469	1,434	3,592
Exchange and other movements	(276)	(82)	(95)	(482)	(2,084)	(3,019)
At 31 Dec 2015	3,477	1,525	1,810	2,041	720	9,573
Impairment allowances against banks:						
– individually assessed	—	—	18	—	—	18
Impairment allowances against customers:						
– individually assessed	2,572	908	1,157	327	438	5,402
– collectively assessed	905	617	635	1,714	282	4,153
Impairment allowances at 31 Dec 2015	3,477	1,525	1,810	2,041	720	9,573

Movement in impairment allowances on loans and advances to customers and banks
(Audited)

	2016				2015			
	Banks	Customers			Banks	Customers		
	individually assessed	Individually assessed	Collectively assessed	Total	individually assessed	Individually assessed	Collectively assessed	Total
	$m	$m	$m	$m	$m	$m	$m	$m
At 1 Jan	18	5,402	4,153	9,573	49	6,195	6,142	12,386
Amounts written off	(18)	(1,831)	(1,607)	(3,456)	—	(1,368)	(2,826)	(4,194)
Recoveries of loans and advances previously written off	—	107	520	627	—	86	722	808
Charge to income statement	—	1,831	1,519	3,350	(11)	1,516	2,087	3,592
Exchange and other movements	—	(577)	(1,667)	(2,244)	(20)	(1,027)	(1,972)	(3,019)
At 31 Dec	—	4,932	2,918	7,850	18	5,402	4,153	9,573
Impairment allowances % of loans and advances	—	0.6%	0.3%	0.8%	—	0.6%	0.4%	0.9%

Wholesale lending

Total wholesale lending balances declined by $33bn including foreign exchange movements of $41bn, of which $31bn related to the UK. In North America, lending decreased by $6.1bn, mainly in the US as paydowns and maturities exceeded new loan originations. This reflected our efforts to improve returns with more disciplined lending. In Middle East and North Africa, overall lending fell by $5.8bn, including $3.4bn of foreign exchange movements. Other

causes of the decline were mainly in Turkey, where some portfolios are being reduced, and in the UAE, where we sold loans and exited certain customer relationships. These decreases were partly offset by loan growth mainly in Egypt and Oman.

In Asia, lending balances increased by $13bn. This reflected strong credit growth in the fourth quarter of 2016 across a range of industries, and principally in Hong Kong, partly offset by foreign exchange decreases of $3.8bn.

Total wholesale lending gross loans

	Europe	Asia	MENA	North America	Latin America	Total	As a % of total gross loans
	$m	$m	$m	$m	$m	$m	%
Corporate and commercial	161,653	212,848	22,078	58,276	10,972	465,827	48.6
– manufacturing	27,005	32,564	2,941	15,348	2,785	80,643	8.4
– international trade and services	55,875	72,166	8,448	11,035	2,518	150,042	15.6
– commercial real estate	21,460	32,798	724	7,849	1,340	64,171	6.7
– other property-related	7,025	37,628	1,856	8,823	306	55,638	5.8
– government	3,009	2,919	1,619	354	541	8,442	0.9
– other commercial	47,279	34,773	6,490	14,867	3,482	106,891	11.2
Financial	43,666	79,254	10,370	14,823	3,742	151,855	15.9
– non-bank financial institutions	31,307	19,517	2,599	9,750	556	63,729	6.7
– banks	12,359	59,737	7,771	5,073	3,186	88,126	9.2
Gross loans at 31 Dec 2016	205,319	292,102	32,448	73,099	14,714	617,682	64.5
Loan and other credit-related commitments	135,394	183,508	18,562	124,720	9,849	472,033	
– corporate and commercial	112,229	167,298	18,474	96,301	9,174	403,476	
– financial	23,165	16,210	88	28,419	675	68,557	
Corporate and commercial	187,508	211,224	26,525	62,882	11,374	499,513	48.8
– manufacturing	36,623	34,272	4,884	17,507	2,572	95,858	9.4
– international trade and services	61,598	72,199	10,621	11,505	3,096	159,019	15.5
– commercial real estate	26,148	32,371	798	7,032	1,577	67,926	6.7
– other property-related	7,129	35,206	2,102	8,982	45	53,464	5.2
– government	3,653	1,132	1,695	203	772	7,455	0.7
– other commercial	52,357	36,044	6,425	17,653	3,312	115,791	11.3
Financial	50,447	68,321	11,761	16,308	3,996	150,833	14.7
– non-bank financial institutions	33,345	13,969	2,597	9,822	681	60,414	5.9
– banks	17,102	54,352	9,164	6,486	3,315	90,419	8.8
Gross loans at 31 Dec 2015	237,955	279,545	38,286	79,190	15,370	650,346	63.5
Currency translation adjustment	(32,287)	(3,846)	(3,446)	557	(2,316)	(41,338)	
31 Dec 2015 at 31 Dec 2016 exchange rates	205,668	275,699	34,840	79,747	13,054	609,008	
Movement – constant currency basis	(349)	16,403	(2,392)	(6,648)	1,660	8,674	
31 Dec 2016 as reported	205,319	292,102	32,448	73,099	14,714	617,682	
Loan and other credit-related commitments	125,029	171,566	20,829	126,912	19,151	463,487	
– corporate and commercial	104,832	159,947	20,610	102,369	18,155	405,913	
– financial	20,197	11,619	219	24,543	996	57,574	

Total wholesale lending impairment allowances

	Europe	Asia	MENA	North America	Latin America	Total
	$m	$m	$m	$m	$m	$m
Corporate and commercial	2,048	1,343	1,137	880	210	5,618
– manufacturing	411	342	174	139	38	1,104
– international trade and services	473	647	476	81	35	1,712
– commercial real estate	402	11	144	67	36	660
– other property-related	167	34	202	37	55	495
– government	2	—	1	—	1	4
– other commercial	593	309	140	556	45	1,643
Financial	216	9	15	20	—	260
– non-bank financial institutions	216	9	15	20	—	260
– banks	—	—	—	—	—	—
Impairment allowances at 31 Dec 2016	2,264	1,352	1,152	900	210	5,878
Impairment allowances % of impaired loans	36.7 %	69.9 %	67.8 %	56.7 %	60.9 %	50.0 %
Corporate and commercial	2,638	1,256	1,254	777	510	6,435
– manufacturing	459	254	204	140	49	1,106
– international trade and services	796	599	456	123	48	2,022
– commercial real estate	613	35	145	76	343	1,212
– other property-related	234	72	270	55	1	632
– government	6	—	—	—	2	8
– other commercial	530	296	179	383	67	1,455
Financial	194	13	22	30	—	259
– non-bank financial institutions	194	13	4	30	—	241
– banks	—	—	18	—	—	18
Impairment allowances at 31 Dec 2015	2,832	1,269	1,276	807	510	6,694
Impairment allowances % of impaired loans	40.3 %	68.3 %	77.7 %	86.2 %	64.7 %	54.6 %
Currency translation adjustment	(502)	(21)	(101)	(21)	(78)	(723)
31 Dec 2015 at 31 Dec 2016 exchange rates	2,330	1,248	1,175	786	432	5,971
Movement – on constant currency basis	(66)	104	(23)	114	(222)	(93)
31 Dec 2016 as reported	2,264	1,352	1,152	900	210	5,878

Commercial real estate

Our commercial real estate lending disclosures focus on the regions containing the majority of our balances for loans and

advances. Europe, Asia and North America accounted for 97% of our total commercial real estate lending at 31 December 2016 (31 December 2015: 97%).

Commercial real estate lending

	31 Dec 2016 Total	of which: Europe	Asia	North America	31 Dec 2015 Total	of which: Europe	Asia	North America
	$m	$m	$m	$m	$m	$m	$m	$m
Gross loans and advances								
Neither past due nor impaired	62,342	20,208	32,688	7,650	64,926	24,426	32,182	6,659
Past due but not impaired	221	41	88	89	454	89	119	212
Impaired loans	1,608	1,212	22	110	2,546	1,633	70	161

Total gross loans and advances	64,171	21,461	32,798	7,849	67,926	26,148	32,371	7,032
– of which: renegotiated loans	1,525	1,117	—	118	2,134	1,586	6	150
Impairment allowances	660	403	11	67	1,212	613	35	76

Commercial real estate lending includes the financing of corporate, institutional and high net worth customers who are investing primarily in income-producing assets and, to a lesser extent, in their construction and development. The portfolio is globally diversified with larger concentrations in Hong Kong, the UK, the US and Canada.
Our global exposure is centred largely on cities with economic, political or cultural significance. In many less-developed markets, industry is moving from the development and rapid construction of recent years to an increasing focus on investment stock consistent with more developed markets.

In more developed markets, our exposure mainly comprises the financing of investment assets, the redevelopment of existing stock and the augmentation of both commercial and residential markets to support economic and population growth. In less-developed commercial real estate markets, our exposures comprise lending for development assets on relatively short tenors with a particular focus on supporting larger, better capitalised developers involved in residential construction or assets supporting economic expansion.
Commercial real estate lending was $3.8bn lower, largely because of a fall in the value of sterling contributing to a foreign exchange movement of $4.0bn. Total lending balances in Europe declined by $4.7bn, including foreign exchange movements of $3.5bn, partly offset by increases in lending in Asia and North America.

Refinance risk in commercial real estate

Commercial real estate lending tends to require the repayment of a significant proportion of the principal at maturity. Typically, a customer will arrange repayment through the acquisition of a new loan to settle the existing debt. Refinance risk is the risk

that a customer, being unable to repay the debt on maturity, fails to refinance it at commercial rates. We monitor our commercial real estate portfolio closely, assessing indicators for signs of potential issues with refinancing.

Commercial real estate loans and advances maturity analysis

	31 Dec 2016 Total	of which: Europe	Asia	North America	31 Dec 2015 Total	of which: Europe	Asia	North America
	$m	$m	$m	$m	$m	$m	$m	$m
On demand, overdrafts or revolving								
< 1 year	17,636	5,687	7,773	3,568	19,579	6,757	8,811	2,992
1-2 years	9,531	2,904	5,075	1,453	11,408	4,354	5,934	939
2-5 years	26,829	10,846	13,691	1,733	25,268	11,442	11,399	2,037
> 5 years	10,175	2,024	6,259	1,095	11,671	3,595	6,227	1,064
Gross loans and advances	64,171	21,461	32,798	7,849	67,926	26,148	32,371	7,032

Collateral on loans and advances

Collateral held is analysed separately for commercial real estate and for other corporate, commercial and financial (non-bank) lending. The following tables include off balance sheet loan commitments, primarily undrawn credit lines. The collateral measured in the following tables consists of fixed first charges on real estate, and charges over cash and marketable financial instruments. The values in the tables represent the expected market value on an open market basis; no adjustment has been made to the collateral for any expected costs of recovery. Marketable securities are measured at their fair value.

Other types of collateral such as unsupported guarantees and floating charges over the assets of a customer's business are not measured in the tables below. While such mitigants have value, often providing rights in insolvency, their assignable value is not sufficiently certain and they are therefore assigned no value for disclosure purposes.

For impaired loans, the collateral values cannot be directly compared with impairment allowances recognised. The loan-

to-value ('LTV') figures use open market values with no adjustments. Impairment allowances are calculated on a different basis, by considering other cash flows and adjusting collateral values for costs of realising collateral as explained further on page 212.

Commercial real estate loans and advances

The value of commercial real estate collateral is determined by using a combination of external and internal valuations and physical inspections. For CRR 1-7, local valuation policies determine the frequency of review on the basis of local market conditions because of the complexity of valuing collateral for commercial real estate. For CRR 8 and 9-10, almost all collateral would have been revalued within the last three years.

In Hong Kong, market practice is typically for lending to major property companies to be either secured by guarantees or unsecured. In Europe, facilities of a working capital nature are generally not secured by a first fixed charge, and are therefore disclosed as not collateralised.

Commercial real estate loans and advances including loan commitments by level of collateral
(Audited)

	31 Dec 2016 Total	of which: Europe	Asia	North America	31 Dec 2015 Total	of which: Europe	Asia	North America
	$m	$m	$m	$m	$m	$m	$m	$m
Rated CRR/EL 1 to 7								
Not collateralised	18,313	3,887	12,714	561	17,834	4,493	12,329	8
Fully collateralised	60,330	21,815	27,296	10,618	62,618	25,735	26,270	9,997
Partially collateralised (A)	3,917	1,360	1,106	1,388	6,265	2,961	1,924	1,264
– collateral value on A	2,571	1,021	552	991	4,270	2,045	1,175	981
Total	82,560	27,062	41,116	12,567	86,717	33,189	40,523	11,269
Rated CRR/EL 8								
Not collateralised	13	12	—	1	28	28	—	—
Fully collateralised	196	190	—	6	682	668	4	9
– LTV ratio: less than 50%	58	54	—	4	92	86	—	5
– 51% to 75%	77	76	—	1	385	377	4	4
– 76% to 90%	44	44	—	—	174	174	—	—
– 91% to 100%	17	16	—	1	31	31	—	—
Partially collateralised (B)	102	91	—	11	122	120	1	1
– collateral value on B	71	70	—	1	87	87	—	—
Total	311	293	—	18	832	816	5	10
Rated CRR/EL 9 to 10								
Not collateralised	75	62	3	4	422	65	51	2
Fully collateralised	1,118	764	14	85	1,124	899	18	76
– LTV ratio: less than 50%	141	79	7	5	221	174	10	15
– 51% to 75%	624	571	5	34	513	425	2	27
– 76% to 90%	88	64	1	7	156	139	2	10
– 91% to 100%	265	50	1	39	234	161	4	24
Partially collateralised (C)	412	384	5	21	1,032	716	5	66
– collateral value on C	202	148	5	13	555	397	3	35
Total	1,605	1,210	22	110	2,578	1,680	74	144
At 31 Dec	84,476	28,565	41,138	12,695	90,127	35,685	40,602	11,423

Other corporate, commercial and financial (non-bank) loans are analysed separately in the table below, which focuses on the regions containing the majority of our loans and advances balances. For financing activities in other corporate and commercial lending, collateral value is not strongly correlated to principal repayment performance.

Collateral values are generally refreshed when an obligor's general credit performance deteriorates and we have to assess the likely performance of secondary sources of repayment should it prove necessary to rely on them. Accordingly, the table below reports values only for customers with CRR 8 to 10, recognising that these loans and advances generally have valuations that are comparatively recent.

Other corporate, commercial and non-bank financial institutions loans and advances including loan commitments by level of collateral rated CRR/EL 8 to 10 only
(Audited)

	31 Dec 2016 Total	of which: Europe	Asia	North America	31 Dec 2015 Total	of which: Europe	Asia	North America
	$m	$m	$m	$m	$m	$m	$m	$m
Rated CRR/EL 8								
Not collateralised	5,283	1,766	405	2,976	2,529	1,611	164	609
Fully collateralised	600	141	3	362	930	349	41	454
– LTV ratio: less than 50%	249	86	2	151	174	58	13	95
– 51% to 75%	168	34	1	118	430	267	8	85
– 76% to 90%	96	10	—	79	214	20	18	168
– 91% to 100%	87	11	—	14	112	4	2	106
Partially collateralised (A)	465	191	12	242	336	99	47	179
– collateral value on A	57	23	3	26	148	65	17	58
Total	6,348	2,098	420	3,580	3,795	2,059	252	1,242
Rated CRR/EL 9 to 10								
Not collateralised	3,508	1,439	848	154	4,877	2,805	889	80
Fully collateralised	2,545	1,394	447	488	1,853	789	440	323
– LTV ratio: less than 50%	838	570	126	59	514	270	94	47
– 51% to 75%	615	412	104	85	553	336	149	47
– 76% to 90%	414	180	86	53	231	87	74	27
– 91% to 100%	678	232	131	291	555	96	123	202
Partially collateralised (B)	2,368	478	642	771	3,079	1,667	506	423
– collateral value on B	1,034	322	268	353	1,374	770	236	283
Total	8,421	3,311	1,937	1,413	9,809	5,261	1,835	826
At 31 Dec	14,769	5,409	2,357	4,993	13,604	7,320	2,087	2,068

During the year, a number of counterparties were downgraded to CRR 8, mainly in the US' energy, commodities and Latin American portfolios. In the UK, a single large counterparty balance was settled which partly reduced the CRR 9 balance.

Other credit risk exposures

In addition to collateralised lending, other credit enhancements are employed and methods used to mitigate credit risk arising from financial assets. These are summarised below:

- Some securities issued by governments, banks and other financial institutions benefit from additional credit enhancement provided by government guarantees that cover the assets.
-

Debt securities issued by banks and financial institutions include ABSs and similar instruments which are supported by underlying pools of financial assets. Credit risk associated with ABSs is reduced through the purchase of credit default swap ('CDS') protection.

Disclosure of the Group's holdings of ABSs and associated CDS protection is provided on page 138.

- Trading loans and advances mainly consist of cash collateral posted to satisfy margin requirements. There is limited credit risk on cash collateral posted since in the event of default of the counterparty these would be set-off against the related liability. Reverse repos and stock borrowing are by their nature collateralised.

Collateral accepted as security that the Group is permitted to sell or repledge under these arrangements is described on page 263 of the Financial Statements.

-

- The Group's maximum exposure to credit risk includes financial guarantees and similar contracts granted, as well as loan and other credit-related commitments. Depending on the terms of the arrangement, we may use additional credit mitigation if a guarantee is called upon or a loan commitment is drawn and subsequently defaults.

For further information on these arrangements, see Note 33 on the Financial Statements.

Derivatives

HSBC participates in transactions exposing us to counterparty credit risk. Counterparty credit risk is the risk of financial loss if the counterparty to a transaction defaults before satisfactorily settling it. It arises principally from over-the-counter ('OTC') derivatives and securities financing transactions and is calculated in both the trading and non-trading books. Transactions vary in value by reference to a market factor such as an interest rate, exchange rate or asset price.

The counterparty risk from derivative transactions is taken into account when reporting the fair value of derivative positions. The adjustment to the fair value is known as the credit value adjustment ('CVA').

For an analysis of CVAs, see Note 11 on the Financial Statements.

The table below reflects by risk type the fair values and gross notional contract amounts of derivatives cleared through an exchange, central counterparty and non-central counterparty.

Notional contract amounts and fair values of derivatives by product type

	2016			2015		
	Notional	Fair value		Notional	Fair value	
	amount	Assets	Liabilities	amount	Assets	Liabilities
	$m	$m	$m	$m	$m	$m
Foreign exchange	5,846,095	127,413	119,781	5,690,354	96,341	95,598
– exchange traded	12,657	209	65	195,612	167	76
– central counterparty cleared OTC	66,209	698	748	29,263	406	443
– non-central counterparty cleared OTC	5,767,229	126,506	118,968	5,465,479	95,768	95,079
Interest rate	13,944,763	255,385	250,022	14,675,036	279,154	271,367
– exchange traded	1,075,299	277	214	1,259,888	49	8
– central counterparty cleared OTC	8,207,550	120,017	122,022	8,774,674	117,877	117,695
– non-central counterparty cleared OTC	4,661,914	135,091	127,786	4,640,474	161,228	153,664
Equity	472,169	7,410	9,240	501,834	8,732	10,383
– exchange traded	250,810	919	2,173	265,129	1,888	2,601
– non-central counterparty cleared OTC	221,359	6,491	7,067	236,705	6,844	7,782
Credit	448,220	5,199	5,767	463,344	6,961	6,884
– central counterparty cleared OTC	122,832	1,954	1,941	90,863	1,779	2,069
– non-central counterparty cleared OTC	325,388	3,245	3,826	372,481	5,182	4,815
Commodity and other	62,009	2,020	1,564	51,683	3,148	2,699
– exchange traded	5,596	117	—	8,136	38	—
– non-central counterparty cleared OTC	56,413	1,903	1,564	43,547	3,110	2,699
Total OTC derivatives	19,428,894	395,905	383,922	19,653,486	392,194	384,246
– total OTC derivatives cleared by central counterparties	8,396,591	122,669	124,711	8,894,800	120,062	120,207
– total OTC derivatives not cleared by central counterparties	11,032,303	273,236	259,211	10,758,686	272,132	264,039
Total exchange traded derivatives	1,344,362	1,522	2,452	1,728,765	2,142	2,685
Gross	20,773,256	397,427	386,374	21,382,251	394,336	386,931
Offset		(106,555)	(106,555)		(105,860)	(105,860)
At 31 Dec		290,872	279,819		288,476	281,071

The purposes for which HSBC uses derivatives are described in Note 16 on the Financial Statements.

The International Swaps and Derivatives Association ('ISDA') Master Agreement is our preferred agreement for documenting derivatives activity. It is common, and our preferred practice, for the parties to execute a Credit Support Annex ('CSA') in conjunction with the ISDA Master Agreement. Under a CSA, collateral is passed between the parties to mitigate the counterparty risk inherent in outstanding positions. The majority of our CSAs are with financial institutional clients.

We manage the counterparty exposure on our OTC derivative contracts by using collateral agreements with counterparties and netting agreements. Currently, we do not actively manage our general OTC derivative counterparty exposure in the credit markets, although we may manage individual exposures in certain circumstances.

We place strict policy restrictions on collateral types and as a consequence the types of collateral received and pledged are, by value, highly liquid and of a strong quality, being predominantly cash.

Where a collateral type is required to be approved outside the collateral policy, approval is required from a committee of senior representatives from Markets, Legal and Risk.

See page 283 and Note 30 on the Financial Statements for details regarding legally enforceable right of offset in the event of counterparty default and collateral received in respect of derivatives.

Personal lending

On a reported basis, total personal lending reduced by $34bn, mainly due to foreign exchange movements of $26bn and the ongoing repayments and loan sales of our US CML run-off portfolio in North America of $13bn.

Loan impairment allowances reduced by $0.9bn, largely due to the reduction in our US CML run-off portfolio.
Loan impairment charges for personal lending, remained flat at $1.7bn for 2016. For further analysis of loan impairment charges and other credit risk provisions by global business, see page 38.

While the tables are presented on a reported basis, the commentary that follows is on a constant currency basis and excludes the effect of the ongoing run-off and loan sales in the US CML run-off portfolio.

Overall, personal lending increased by $5.6bn compared with 31 December 2015. The growth was in mortgage balances which increased by $7.5bn across the Group. UK mortgage balances increased by $4.2bn as we grew our UK mortgage market share through increased sales across various channels including the expanded use of broker relationships. Mortgages in Hong Kong and China grew by $4.5bn as a result of successful marketing campaigns and business growth initiatives. This growth was offset by a $1.4bn reduction in Singapore, following a decision to continue to constrain the size of our mortgage portfolio.
The quality of both our Hong Kong and UK mortgage books remained high, with negligible defaults and impairment allowances. The average LTV ratio on new mortgage lending in Hong Kong was 47% compared with an estimated 29% for the overall mortgage portfolio. The LTV ratio on new lending in the UK was 59% compared with the average of 40% for the total mortgage portfolio.
Group credit policy prescribes the range of acceptable residential property LTV thresholds, with the maximum upper limit for new loans set at between 75% and 95%. Specific LTV thresholds and debt-to-income ratios are managed at regional and country levels. They must comply with the Group's policies, strategy and risk appetite, but vary to reflect the local factors: economic and housing market conditions, regulations, portfolio performance, pricing and product features.
Other personal lending balances declined by $1.9bn, mainly due to reductions resulting from the continued repositioning of the Global Private Bank. This was offset by growth in RBWM, in other personal lending products including $0.7bn in the UK and $0.5bn in Mexico.

Total personal lending gross loans

	Europe	Asia	MENA	North America	Latin America	Total	As a % of total gross loans
	$m	$m	$m	$m	$m	$m	
First lien residential mortgages	108,008	98,072	2,535	39,239	1,924	249,778	26.1
– of which:							
interest only (including offset)	33,045	876	92	113	—	34,126	3.6
affordability including ARMs	297	3,427	—	14,182	—	17,906	1.9
Other personal lending	38,491	36,628	5,209	5,717	3,975	90,020	9.4
– other	29,297	26,059	3,072	3,061	2,018	63,507	6.6
– credit cards	9,096	10,438	1,816	993	1,595	23,938	2.5
– second lien residential mortgages	97	24	2	1,631	—	1,754	0.2
– motor vehicle finance	1	107	319	32	362	821	0.1
At 31 Dec 2016	146,499	134,700	7,744	44,956	5,899	339,798	35.5
Loan and other credit-related commitments	49,029	111,123	4,291	13,944	5,423	183,810	
First lien residential mortgages	125,098	94,606	2,704	50,117	1,986	274,511	26.8
– of which:							
interest only (including offset)	40,906	936	—	180	—	42,022	4.1
affordability including ARMs	356	3,966	—	17,041	—	21,363	2.1
Other personal lending	42,568	38,101	6,861	8,069	3,972	99,571	9.7
– other	31,763	27,682	4,246	3,284	1,816	68,791	6.7
– credit cards	10,803	10,189	2,241	996	1,780	26,009	2.5
– second lien residential mortgages	—	33	2	3,762	—	3,797	0.4
– motor vehicle finance	2	197	372	27	376	974	0.1
At 31 Dec 2015	167,666	132,707	9,565	58,186	5,958	374,082	
Currency translation adjustment	(24,032)	(1,145)	(810)	519	(950)	(26,418)	
31 Dec 2015 at 31 Dec 2016 exchange rates	143,634	131,562	8,755	58,705	5,008	347,664	
Movement - constant currency basis	2,865	3,138	(1,011)	(13,749)	891	(7,866)	
31 Dec 2016 as reported	146,499	134,700	7,744	44,956	5,899	339,798	
Loan and other credit-related commitments	67,787	103,153	5,318	14,510	12,175	202,943	

Total personal lending impairment allowances

	Europe	Asia	MENA	North America	Latin America	Total
	$m	$m	$m	$m	$m	$m
First lien residential mortgages	225	34	81	289	14	643
Other personal lending	300	249	448	83	249	1,329
– other	224	122	226	23	128	723
– credit cards	76	127	217	34	117	571
– second lien residential mortgages	—	—	—	26	—	26
– motor vehicle finance	—	—	5	—	4	9
At 31 Dec 2016	525	283	529	372	263	1,972
Impairment allowances % of impaired loans	27.8%	50.0%	99.6%	11.4%	105.2%	30.4%
First lien residential mortgages	276	29	26	991	22	1,344

Other personal lending	374	227	507	241	186	1,535
– other	296	104	285	31	80	796
– credit cards	78	122	216	30	102	548
– second lien residential mortgages	—	—	—	180	—	180
– motor vehicle finance	—	1	6	—	4	11
At 31 Dec 2015	650	256	533	1,232	208	2,879
Impairment allowances % of impaired loans	29.0%	49.6%	103.3%	15.4%	86.0%	25.0%
Currency translation adjustment	(82)	(4)	(53)	2	(35)	(172)
31 Dec 2015 at 31 Dec 2016 exchange rates	568	252	480	1,234	173	2,707
Movement – constant currency basis	(43)	31	49	(862)	90	(735)
31 Dec 2016 as reported	525	283	529	372	263	1,972

Exposure to UK interest-only mortgage loans

Of total UK mortgage lending, interest-only mortgage products contributed $32bn, including $12bn of offset mortgages in First Direct and $1.2bn of endowment mortgages.

The following information is presented for HSBC Bank plc interest-only mortgage loans with balances of $15bn at the end of 2016. During the year, $0.17bn of interest-only mortgages matured. Of these, 1,416 loans with total balances of $0.07bn were repaid in full, 106 loans with balances of $0.01bn have agreed future repayment plans and 529 loans with balances of $0.09bn are subject to ongoing individual assessment.

The profile of expiring UK interest-only loans was as follows.

UK interest-only mortgage loans

	$m
Expired interest-only mortgage loans	209
Interest-only mortgage loans by maturity	
– 2017	248
– 2018	517
– 2019	567
– 2020	570
– 2021-2025	3,071
– Post 2025	9,347
At 31 Dec 2016	14,529

HSBC Finance

Gross loan portfolio of HSBC Finance real estate secured balances

	Re-aged	Modified and re-aged	Modified	Total renegotiated loans	Total non-renegotiated loans	Total gross loans	Total impairment allowances	Impairment allowances/ gross loans
	$m	$m	$m	$m	$m	$m	$m	%
At 31 Dec 2016	876	1,015	75	1,966	3,688	5,654	190	3.4
At 31 Dec 2015	4,858	5,257	519	10,634	8,612	19,246	986	5.1

Residential mortgages, including second lien mortgages, decreased by $14bn to $6bn at 31 December 2016. In addition to the continued loan sales in the US CML run-off portfolio, we transferred a further $12bn to ‘Assets held for sale’ during 2016, of which $1.6bn remained at the year end due to be sold in February 2017. The average gain on sale of foreclosed properties that arose after we took title to the property was 2%.

There was a decrease in impairment allowances from $1.0 bn at 31 December 2015 to $0.2bn at the end of 2016, reflecting reduced levels of delinquency, and lower levels of both new impaired loans and loan balances outstanding as a result of continued liquidation of the portfolio.

Across the first and second lien residential mortgages in our US CML run-off portfolio, two months and over delinquent balances halved to $1.0bn during 2016.

Renegotiated real estate secured accounts in HSBC Finance reduced by $8.7bn or 82% and represented 67% at 31 December 2016 (2015: 91%) of our total renegotiated loans in North America, of which $1.3bn were classified as impaired (2015: $5.1bn). During 2016, the aggregate number of renegotiated loans in HSBC Finance reduced due to the portfolio repayments and further loan sales in the US CML run off portfolio.

Collateral and other credit enhancements held

(Audited)

The following table shows the values of the fixed charges we hold over specific assets where we have previously enforced, and are able to enforce, collateral in satisfying a debt because the borrower has failed to meet contractual obligations, and where the collateral is cash or can be realised by sale in an established market.

The collateral valuation excludes any adjustments for obtaining and selling the collateral and, in particular, loans shown as not collateralised or partially collateralised may also benefit from other forms of credit mitigants.

Report of the Directors | Risk

Residential mortgage loans including loan commitments by level of collateral
(Audited)

	Europe	Asia	MENA	North America	Latin America	Total	UK	Hong Kong
	$m	$m	$m	$m	$m	$m	$m	$m
Non-impaired loans and advances								
Fully collateralised	111,799	104,122	2,333	35,773	1,813	255,840	106,006	65,480
– LTV ratio: less than 50%	63,404	63,009	617	12,454	676	140,160	61,128	44,732
– 51% to 60%	19,129	18,198	369	8,124	316	46,136	18,094	10,656
– 61% to 70%	14,437	10,908	505	9,471	366	35,687	13,222	3,851
– 71% to 80%	9,029	7,370	659	4,374	253	21,685	8,433	2,958
– 81% to 90%	4,963	3,463	148	888	144	9,606	4,509	2,324
– 91% to 100%	837	1,174	35	462	58	2,566	620	959
Partially collateralised:								
Greater than 100% (A)	430	41	69	373	26	939	284	1
– 101% to 110%	150	20	15	179	17	381	106	1
– 111% to 120%	64	2	11	85	5	167	33	—
– greater than120%	216	19	43	109	4	391	145	—
Collateral on A	342	27	40	328	25	762	197	1
Non-impaired loans and advances	112,229	104,163	2,402	36,146	1,839	256,779	106,290	65,481
Impaired loans and advances								
Fully collateralised	1,213	247	59	2,905	85	4,509	1,059	42
– LTV ratio: less than 50%	580	109	21	825	8	1,543	521	34
– 51% to 60%	222	49	3	527	3	804	200	4
– 61% to 70%	180	24	13	540	4	761	158	1
– 71% to 80%	122	29	4	449	3	607	101	1
– 81% to 90%	66	19	9	336	67	497	52	1
– 91% to 100%	43	17	9	228	—	297	27	1
Partially collateralised:								
Greater than 100% (B)	80	7	73	182	—	342	42	—
– 101% to 110%	37	3	10	94	—	144	17	—
– 111% to120%	12	2	12	38	—	64	7	—
– greater than 120%	31	2	51	50	—	134	18	—
Collateral on B	66	5	64	152	—	287	33	—
Impaired loans and advances	1,293	254	132	3,087	85	4,851	1,101	42
At 31 Dec 2016	113,522	104,417	2,534	39,233	1,924	261,630	107,391	65,523
Non impaired loans and advances								
Fully collateralised	127,697	100,102	2,560	41,567	1,869	273,795	122,221	61,784
– LTV ratio: less than 50%	70,732	59,212	714	12,369	710	143,737	68,362	42,589
– 51% to 60%	24,069	16,625	442	8,266	387	49,789	23,068	9,193
– 61% to 70%	17,449	12,548	532	10,472	378	41,379	16,755	5,252
– 71% to 80%	10,184	7,813	576	6,279	256	25,108	9,593	2,391
– 81% to 90%	4,258	2,773	265	2,556	104	9,956	3,930	1,379
– 91% to 100%	1,005	1,131	31	1,625	34	3,826	513	980
Partially collateralised:								
Greater than 100% (A)	535	168	51	1,208	13	1,975	321	97

– 101% to110%	212	154	16	709	7	1,098	126	97
– 111% to 120%	76	5	5	288	2	376	29	—
– greater than 120%	247	9	30	211	4	501	166	—
Collateral on A	430	155	41	1,147	11	1,784	221	95
Non-impaired loans and advances	128,232	100,270	2,611	42,775	1,882	275,770	122,542	61,881
Impaired loans and advances								
Fully collateralised	1,392	222	59	6,713	109	8,495	1,191	46
– LTV ratio: less than 50%	513	105	23	1,247	90	1,978	469	42
– 51% to 60%	270	38	8	990	6	1,312	254	2
– 61% to 70%	249	29	10	1,199	5	1,492	204	1
– 71% to 80%	171	18	6	1,257	5	1,457	143	1
– 81% to 90%	102	25	7	1,184	2	1,320	72	—
– 91% to 100%	87	7	5	836	1	936	49	—
Partially collateralised:								
Greater than 100% (B)	178	8	18	628	1	833	49	—
– 101% to110%	130	3	1	375	1	510	15	—
– 111% to 120%	11	2	3	147		163	5	—
– greater than 120%	37	3	14	106		160	29	—
Collateral value on B	160	6	13	547	—	726	36	—
Impaired loans	1,570	230	77	7,341	110	9,328	1,240	46
At 31 Dec 2015	129,802	100,500	2,688	50,116	1,992	285,098	123,782	61,927

Supplementary information

Gross loans and advances to customers by country

	First lien residential mortgages	Other personal	Property-related	Commercial, international trade and other	Total
	$m	$m	$m	$m	$m
Europe	108,008	38,491	28,485	164,465	339,449
– UK	101,822	17,820	21,707	124,341	265,690
– France	2,676	13,786	5,220	22,153	43,835
– Germany	1	192	413	8,322	8,928
– Switzerland	506	5,848	213	1,660	8,227
– other	3,003	845	932	7,989	12,769
Asia	98,072	36,628	70,426	161,940	367,066
– Hong Kong	63,566	24,558	54,219	88,921	231,264
– Australia	10,134	757	2,164	6,804	19,859
– India	1,280	388	1,040	5,979	8,687
– Indonesia	63	334	165	4,384	4,946
– Mainland China	7,192	1,107	4,788	20,451	33,538
– Malaysia	2,719	3,065	1,693	4,179	11,656
– Singapore	6,194	4,502	2,920	11,832	25,448
– Taiwan	4,036	671	55	5,074	9,836
– other	2,888	1,246	3,382	14,316	21,832
Middle East and North Africa (excluding Saudi Arabia)	2,535	5,209	2,580	22,107	32,431
– Egypt	—	272	73	1,327	1,672
– Turkey	301	1,554	247	2,214	4,316
– UAE	1,981	1,867	1,883	13,037	18,768
– other	253	1,516	377	5,529	7,675
North America	39,239	5,717	16,672	51,355	112,983
– US	22,756	2,676	11,835	38,199	75,466
– Canada	15,220	2,831	4,586	12,515	35,152
– other	1,263	210	251	641	2,365
Latin America	1,924	3,975	1,646	9,880	17,425
– Mexico	1,803	2,849	1,528	7,118	13,298
– other	121	1,126	118	2,762	4,127
At 31 Dec 2016	249,778	90,020	119,809	409,747	869,354
Europe	125,098	42,568	33,277	187,576	388,519
– UK	117,346	20,797	25,700	149,327	313,170
– France	3,606	12,130	6,070	20,380	42,186
– Germany	4	203	347	7,941	8,495
– Switzerland	511	8,045	224	834	9,614
– other	3,631	1,393	936	9,094	15,054
Asia	94,606	38,101	67,577	157,616	357,900
– Hong Kong	60,943	24,389	50,825	80,609	216,766
– Australia	9,297	726	1,592	6,448	18,063
– India	1,248	431	637	5,728	8,044
– Indonesia	56	346	71	4,965	5,438
– Mainland China	5,716	1,645	6,185	23,703	37,249
– Malaysia	2,792	3,113	1,993	4,947	12,845
– Singapore	7,743	5,392	3,334	11,021	27,490
– Taiwan	3,866	629	126	5,291	9,912

– other	2,945	1,430	2,814	14,904	22,093
Middle East and North Africa (excluding Saudi Arabia)	2,704	6,861	2,900	26,222	38,687
– Egypt	1	549	104	2,097	2,751
– Turkey	446	2,414	302	4,231	7,393
– UAE	1,854	2,286	1,833	14,199	20,172
– other	403	1,612	661	5,695	8,371
North America	50,117	8,069	16,014	56,690	130,890
– US	34,382	4,813	11,435	42,439	93,069
– Canada	14,418	3,029	4,315	13,490	35,252
– other	1,317	227	264	761	2,569
Latin America	1,986	3,972	1,622	10,433	18,013
– Mexico	1,881	2,828	1,498	7,844	14,051
– other	105	1,144	124	2,589	3,962
At 31 Dec 2015	274,511	99,571	121,390	438,537	934,009

The above tables analyse loans and advances by industry sector and by the location of the principal operations of the lending subsidiary or, in the case of the operations of The Hongkong

and Shanghai Banking Corporation, HSBC Bank plc, HSBC Bank Middle East and HSBC Bank USA, by the location of the lending branch.

Report of the Directors | Risk

HSBC Holdings
(Audited)
Risk in HSBC Holdings is overseen by the HSBC Holdings Asset and Liability Management Committee (‘Holdings ALCO’). The major risks faced by HSBC Holdings are credit risk, liquidity risk and market risk (in the form of interest rate risk and foreign exchange risk), of which the most significant is credit risk.
Credit risk in HSBC Holdings primarily arises from transactions with Group subsidiaries and from guarantees issued in support of obligations assumed by certain Group operations in the normal conduct of their business. It principally represents claims on Group subsidiaries in Europe and North America.
In HSBC Holdings, all financial instruments carrying amount represents the maximum exposure to credit risk. Derivatives have an offset balance of $1.8bn at 31 December 2016
(2015: $2.5bn).

The credit quality of loans and advances and financial investments, both of which consist of intra-Group lending, is assessed as ‘strong’ or ‘good’, with 100% of the exposure being neither past due nor impaired (2015: 100%).
Securitisation exposures and other structured products
The following table summarises the carrying amount of our ABS exposure by categories of collateral and includes assets held in the GB&M legacy credit portfolio with a carrying value of $11bn (2015: $15bn).
At 31 December 2016, the available-for-sale reserve in respect of ABSs was a deficit of $749m (2015: deficit of $1,021m). For 2016, the impairment write-back in respect of ABSs was
$121m (2015: write-back of $85m).

Carrying amount of HSBC’s consolidated holdings of ABSs

	Trading	Available for sale	Held to maturity	Designated at fair value through profit or loss	Loans and receivables	Total	Of which held through consolidated SEs
	$m	$m	$m	$m	$m	$m	$m
Mortgage-related assets:							
Sub-prime residential	63	1,544	—	—	104	1,711	618
US Alt-A residential	—	1,453	5	—	39	1,497	1,382
US Government agency and sponsored enterprises: MBSs	247	13,070	12,788	—	—	26,105	—
Other residential	662	362	—	—	54	1,078	152
Commercial property	348	1,146	—	—	141	1,635	707
Leveraged finance-related assets	175	1,284	—	—	70	1,529	735
Student loan-related assets	140	2,865	—	—	11	3,016	2,616
Other assets	1,278	730	—	19	48	2,075	404
At 31 Dec 2016	2,913	22,454	12,793	19	467	38,646	6,614
Mortgage-related assets:							
Sub-prime residential	73	2,247	—	1	132	2,453	1,075
US Alt-A residential	—	1,989	7	—	55	2,051	1,796
US Government agency and sponsored enterprises: MBSs	166	15,082	13,997	—	—	29,245	—

Other residential	812	780	—	—	108	1,700	253
Commercial property	590	2,308	—	—	201	3,099	1,656
Leveraged finance-related assets	240	2,294	—	—	149	2,683	1,310
Student loan-related assets	236	2,991	—	—	25	3,252	2,679
Other assets	1,184	880	—	23	128	2,215	565
At 31 Dec 2015	3,301	28,571	14,004	24	798	46,698	9,334

Risk elements in the loan portfolio

Unless otherwise stated, the disclosure of credit risk elements in this section reflects US accounting practice and classifications. The purpose of the disclosure is to present within the US disclosure framework those elements of the loan portfolios with a greater risk of loss. The three main classifications of credit risk elements presented are:

- impaired loans;
- unimpaired loans contractually more than 90 days past due as to interest or principal; and
- troubled debt restructurings not included in the above.

Interest forgone on impaired and restructured loans

	2016	2015
	$m	$m
Europe	189	276
Asia	180	164
Middle East and North Africa	155	138
North America	387	1,097
Latin America	267	409
Year ended 31 Dec	1,178	2,084

Interest recognised on impaired and restructured loans

	2016	2015
	$m	$m
Europe	71	92
Asia	62	57
Middle East and North Africa	21	27
North America	413	832
Latin America	98	248
Year ended 31 Dec	665	1,256

Impaired loans

A loan is impaired, and an impairment allowance is recognised, when there is objective evidence of a loss event that has an effect on the cash flows of the loan that can be reliably estimated. In accordance with IFRSs, we recognise interest income on assets after they have been written down as a result of an impairment loss.

The balance of impaired loans at 31 December 2016 was $5.6bn lower than at 31 December 2015. This reduction was largely due to the continued run-off of the CML portfolio and reductions in corporate individually assessed impaired loans in Europe.

Unimpaired loans more than 90 days past due

Examples of unimpaired loans more than 90 days past due include individually assessed mortgages that are in arrears more than 90 days where there are no other indicators of impairment, but where the value of collateral is sufficient to repay both the principal debt and all potential interest for at least one year; and short-term trade facilities past due more than 90 days for technical reasons such as delays in documentation, but where there is no concern over the creditworthiness of the counterparty.

The amount of unimpaired loans contractually more than 90 days past due as to principal or interest at 31 December 2016 was $18m, $114m lower than at 31 December 2015. The decrease was primarily in Middle East and North Africa.

Troubled debt restructurings

Under US GAAP, a troubled debt restructuring ('TDR') is a loan, the terms of which have been modified for economic or legal reasons related to the borrower's financial difficulties to grant a concession to the borrower that the lender would not otherwise consider. A modification that results in a delay in payment that is considered insignificant is not regarded as a concession for the purposes of this disclosure. The SEC requires separate disclosure of any loans that meet the definition of a TDR that are not included in the previous two loan categories. These are classified as TDRs in the table on page 140. Loans that have been identified as a TDR under the US guidance retain this designation until maturity or derecognition. This treatment differs from the Group's impaired loans disclosure convention under IFRSs under which a loan may return to unimpaired status after demonstrating a significant reduction in the risk of non-payment of future cash flows. As a result, reported TDRs include those loans that have returned to unimpaired status under the Group's disclosure convention for renegotiated loans.

The balance of TDRs not included as impaired loans at 31 December 2016 was $3.4bn, $2.9bn lower than 2015 mainly due to a reduction in North America.

Potential problem loans

Potential problem loans are loans where information on possible credit problems among borrowers causes management to seriously doubt their ability to comply with the loan repayment terms. The following concentrations of credit risk have a higher risk of containing potential problem loans.

'Personal lending' on page 133 includes disclosure about certain homogeneous groups of loans that are collectively assessed for impairment, which may represent exposures to potential problem loans, including interest only mortgages and affordability mortgages, including adjustable rate mortgages. Collectively assessed loans and advances, although not classified as impaired until more than 90 days past due, are assessed collectively for losses that have been incurred but have not yet been individually identified. For details of our impairment policies on loans and advances and financial investments, see Note 1 to the Financial Statements.

'Renegotiated loans and forbearance' on page 124 includes disclosure about the credit quality of loans whose contractual terms have been changed at some point in the life of the loan because of significant concerns about the borrower's ability to make contractual payments when due. Renegotiated loans are classified as impaired when:

- there has been a change in contractual cash flow as a result of a concession that the lender would otherwise not consider; and
- it is probable that without the concession, the borrower would be unable to meet contractual payment obligations in full.

This presentation applies unless the concession is insignificant and there are no other indicators of impairment. The renegotiated loan will continue to be disclosed as impaired until there is sufficient evidence to demonstrate a significant reduction in the risk of non-repayment of future cash flows, and there are no other indicators of impairment.

Renegotiated loans that are not classified as impaired may have a higher risk of becoming delinquent in the future, and may therefore be potential problem loans. Further information regarding the credit quality classification of renegotiated loans can be found on page 107.

'Areas of special interest' on page 100 includes information on oil and gas exposures. Refinancing risk in the commercial real estate sector is a separate area of focus and is covered on page 129.

Risk elements in the loan portfolio by geographical region.
The table below sets out the amount of risk elements in loan portfolios included within loans and advances to customers and banks in the consolidated balance sheet, trading loans classified

as in default and assets obtained by taking possession of security. The table excludes the amount of risk elements in loan portfolios classified as 'Assets held for sale' in the consolidated balance sheet.

Risk elements in the loan portfolio by geographical region

	2016	2015	2014	2013	2012
	$m	$m	$m	$m	$m
Impaired loans					
Europe	8,062	9,265	9,709	12,654	10,852
Asia	2,499	2,375	2,048	1,623	1,624
Middle East and North Africa	2,230	2,178	2,514	2,859	2,767
North America	4,842	8,930	11,694	15,123	20,345
Latin America	595	1,030	3,365	4,244	3,188
	18,228	23,778	29,330	36,503	38,776
Unimpaired loans contractually more than 90 days past due as to principal or interest					
Europe	—	7	6	25	33
Asia	—	2	1	33	14
Middle East and North Africa	15	96	59	56	108
North America	3	27	3	13	69
Latin America	—	—	3	—	—
	18	132	72	127	224
Troubled debt restructurings (not included in the classifications above)					
Europe	1,900	1,495	1,652	1,427	1,306
Asia	269	284	267	277	236
Middle East and North Africa	549	584	778	406	593
North America	518	3,698	3,932	4,643	3,813
Latin America	130	164	353	482	1,001
	3,366	6,225	6,982	7,235	6,949
Trading loans classified as in default					
North America	—	—	4	133	166
Risk elements on loans					
Europe	9,962	10,767	11,367	14,106	12,191
Asia	2,768	2,661	2,316	1,933	1,874
Middle East and North Africa	2,794	2,858	3,351	3,321	3,468
North America	5,363	12,655	15,633	19,912	24,393
Latin America	725	1,194	3,721	4,726	4,189
	21,612	30,135	36,388	43,998	46,115
Assets held for sale					
Europe	16	23	28	44	51
Asia	46	19	14	10	19
Middle East and North Africa	1	1	1	2	—
North America	57	116	186	370	319

Latin America	22	20	16	27	55
	142	179	245	453	444
Total risk elements					
Europe	9,978	10,790	11,395	14,150	12,242
Asia	2,814	2,680	2,330	1,943	1,893
Middle East and North Africa	2,795	2,859	3,352	3,323	3,468
North America	5,420	12,771	15,819	20,282	24,712
Latin America	747	1,214	3,737	4,753	4,244
At 31 Dec	21,754	30,314	36,633	44,451	46,559
	%	%	%	%	%
Loan impairment allowances as a percentage of risk elements on loans	36.3	31.8	34.0	34.7	35.2

Supplementary information

Gross loans and advances by industry sector over five years

	2016	2015	2014	2013	2012
	$m	$m	$m	$m	$m
Personal	339,798	374,082	393,554	410,728	415,093
– first lien residential mortgages	249,778	274,511	286,524	299,875	301,862
– other personal	90,020	99,571	107,030	110,853	113,231
Corporate and commercial	465,827	499,513	542,625	545,981	517,120
– manufacturing	80,643	95,858	106,986	113,850	112,149
– international trade and services	150,042	159,019	180,791	184,668	169,389
– commercial real estate	64,171	67,926	73,293	74,846	76,760
– other property-related	55,638	53,464	52,387	44,832	40,532
– government	8,442	7,455	6,143	7,277	10,785
– other commercial	106,891	115,791	123,025	120,508	107,505
Financial	151,855	150,833	163,016	170,627	164,013
– non-bank financial institutions	63,729	60,414	50,818	50,523	46,871
– banks	88,126	90,419	112,198	120,104	117,142
Total gross loans and advances	957,480	1,024,428	1,099,195	1,127,336	1,096,226
Impaired loans and advances to customers	18,228	23,758	29,283	36,428	38,671
Impairment allowances on loans and advances to customers	7,850	9,555	12,337	15,143	16,112
Loan impairment charge	3,350	3,592	4,055	6,048	8,160
– new allowances net of allowance releases	3,977	4,400	5,010	7,344	9,306
– recoveries	(627)	(808)	(955)	(1,296)	(1,146)

Loan impairment charges by industry sector over five years

	2016	2015	2014	2013	2012
	$m	$m	$m	$m	$m
Loan impairment charge/(release)					
Personal	1,703	1,834	1,803	3,196	5,362
Corporate and commercial	1,608	1,769	2,256	2,974	2,802
Financial	39	(11)	(4)	(122)	(4)
Year ended 31 Dec	3,350	3,592	4,055	6,048	8,160

Charge for impairment losses as a percentage of average gross loans and advances to customers

	2016	2015	2014	2013	2012
	%	%	%	%	%
New allowances net of allowance releases	0.46	0.48	0.53	0.81	1.00
Recoveries	(0.07)	(0.09)	(0.10)	(0.14)	(0.12)
Total charge for impairment losses	0.39	0.39	0.43	0.67	0.88
Amount written off net of recoveries	0.32	0.37	0.58	0.59	0.93

Movement in impairment allowances over five years

	2016	2015	2014	2013	2012
	$m	$m	$m	$m	$m
Impairment allowances at 1 Jan	9,573	12,386	15,201	16,169	17,636
Amounts written off	(3,456)	(4,194)	(6,379)	(6,655)	(9,812)
– personal	(1,602)	(2,707)	(3,733)	(4,367)	(6,905)
– corporate and commercial	(1,830)	(1,473)	(2,425)	(2,229)	(2,677)
– financial	(24)	(14)	(221)	(59)	(230)
Recoveries of amounts written off in previous years	627	808	955	1,296	1,146
– personal	515	681	818	1,097	966
– corporate and commercial	109	124	128	198	172
– financial	3	3	9	1	8
Loan impairment charge	3,350	3,592	4,055	6,048	8,160
– exchange and other movements	(2,244)	(3,019)	(1,446)	(1,657)	(961)
Impairment allowances at 31 Dec	7,850	9,573	12,386	15,201	16,169
Impairment allowances					
– individually assessed	4,932	5,420	6,244	7,130	6,629
– collectively assessed	2,918	4,153	6,142	8,071	9,540
Impairment allowances at 31 Dec	7,850	9,573	12,386	15,201	16,169
	%	%	%	%	%
Amount written off net of recoveries as a percentage of average gross loans and advances to customers	0.3	0.4	0.6	0.6	1.0

Movement in renegotiated loans and advances to customers

	2016				2015			
	Personal	Corporate and commercial	Financial	Total	Personal	Corporate and commercial	Financial	Total
	$m	$m	$m	$m	$m	$m	$m	$m
Renegotiated loans as at 1 Jan	13,974	8,369	616	22,959	17,593	9,160	742	27,495
Loans renegotiated in the year without derecognition	1,076	2,947	1	4,024	1,440	2,594	24	4,058
Loans renegotiated in the year resulting in recognition of a new loan	—	183	—	183	74	333	201	608
Net repayments and other	(10,292)	(3,934)	(100)	(14,326)	(5,133)	(3,718)	(351)	(9,202)
– Repayments	(1,401)	(2,644)	(2)	(4,047)	(2,045)	(1,896)	(132)	(4,073)
– Amounts written off	(158)	(614)	(2)	(774)	(454)	(445)	(2)	(901)
– Other	(8,733)	(676)	(96)	(9,505)	(2,634)	(1,377)	(217)	(4,228)
Renegotiated loans at 31 Dec	4,758	7,565	517	12,840	13,974	8,369	616	22,959

Country distribution of outstandings and cross-border exposures

We control the risk associated with cross-border lending through a centralised structure of internal country limits. Exposures to individual countries and cross-border exposure in the aggregate are kept under continual review.

The following table summarises the aggregate of our in-country foreign currency and cross-border outstandings by type of borrower to countries which individually represent in

excess of 0.75% of our total assets. The classification is based on the country of residence of the borrower but also recognises the transfer of country risk in respect of third-party guarantees, eligible collateral held and residence of the head office when the borrower is a branch. In accordance with the Bank of England Country Exposure Report (Form CE) guidelines, outstandings comprise loans and advances (excluding settlement accounts), amounts receivable under finance leases, acceptances, commercial bills, certificates of deposit and debt and equity securities (net of short positions), and exclude accrued interest and intra-HSBC exposures.

In-country foreign currency and cross-border amounts outstanding

	Footnotes	Banks	Government and official institutions	Other	Total
		$bn	$bn	$bn	$bn
At 31 Dec 2016					
US		4.4	41.9	19.5	65.8
Mainland China		20.8	9.2	24.3	54.3
UK		21.0	9.3	24.0	54.3
Germany		12.3	19.9	8.1	40.3
Hong Kong		4.5	0.4	32.1	37.0
Japan		10.5	22.6	9.9	43.0
France		6.4	8.1	12.1	26.6
Canada	72	5.9	8.0	6.7	20.6
At 31 Dec 2015					
US		4.7	51.3	24.7	80.7
Mainland China		21.2	6.8	26.0	54.0
UK		23.1	9.2	25.3	57.6
Germany		7.0	23.1	6.9	37.0
Hong Kong		3.1	0.5	30.0	33.6
Japan		7.6	19.4	14.4	41.4
France	72	4.2	7.1	13.0	24.3
Canada	72	6.2	8.3	7.5	22.0
At 31 Dec 2014					
US		6.8	30.3	32.4	69.5
Mainland China		26.5	5.7	28.5	60.7
UK		24.0	8.3	41.8	74.2
Germany		7.7	26.6	6.7	41.0
Hong Kong		8.1	0.4	29.0	37.5
Japan		9.0	15.7	12.2	36.9
France		7.3	3.1	11.6	22.1

For footnote, see page 79.

Liquidity and funding risk profile

Liquidity and funding risk in 2016

A summary of our current policies and practices regarding the management of liquidity and funding risk is set out on page 143.

The liquidity position of the Group remained strong in 2016. The amount of our unencumbered liquid assets was $560bn. We recognised $447bn of these liquid assets for the purposes of the Group consolidated LCR, which was

136%.

Management of liquidity and funding risk

Liquidity coverage ratio

The Liquidity Coverage Ratio ('LCR') aims to ensure that a bank has sufficient unencumbered high-quality liquid assets ('HQLA') to meet its liquidity needs in a 30-calendar-day liquidity stress scenario. HQLA consist of cash or assets that can be converted into cash at little or no loss of value in markets. We reported a Group European Commission ('EC') LCR at 31 December 2016 of 136% (31 December 2015: 116%) to the PRA.

We assume no transferability of liquidity from non-EU entities other than to the extent currently permitted. This results in $113bn of HQLA being excluded from the Group's LCR.

The ratio of total consolidated HQLA to the EC LCR denominator at 31 December 2016 was 171% (31 December 2015: 142%),

reflecting the additional $113bn (31 December 2015: $94bn) of HQLAs excluded from the Group LCR.

At 31 December 2016, all the Group's principal operating entities were within the LCR risk tolerance level established by the Board and applicable under the Group's internal liquidity and funding risk management framework ('LFRF').

The liquidity position of the Group can also be represented by the stand-alone ratios of each of our principal operating entities. The Board and RMM decide the criteria for categorising an operating entity as a principal entity. The main criterion is a material balance sheet size. The following table displays the individual LCR levels for our principal operating entities on an EC LCR basis. The ratios for operating entities in non-EU jurisdictions can vary from local LCR measures due to differences in the way non-EU regulators have implemented the Basel III recommendations.

Operating entities' LCRs

		At Dec	
		2016	2015
	Footnotes	%	%
HSBC UK liquidity group	51	123	107
The Hongkong and Shanghai Banking Corporation – Hong Kong Branch	52	185	150
The Hongkong and Shanghai Banking Corporation – Singapore Branch	52	154	189
HSBC Bank USA		130	116
HSBC France	53	122	127
Hang Seng Bank		218	199
HSBC Canada	53	142	142
HSBC Bank China		253	183
HSBC Middle East – UAE Branch		241	
HSBC Mexico		177	
HSBC Private Bank		178	

For footnotes, see page 164.

Net stable funding ratio

The Net Stable Funding Ratio ('NSFR') requires institutions to maintain sufficient stable funding relative to required stable funding, and reflects a bank's long-term funding profile (funding with a term of more than a year). It is designed to complement the LCR.

At 31 December 2016, the Group's principal operating entities were within the NSFR risk tolerance level established by the Board and applicable under the LFRF.

The table below displays the NSFR levels for the principal HSBC operating entities.

Our NSFR levels were not disclosed at the last year-end, so there are no comparatives.

Operating entities' NSFRs

	Footnotes	At 31 Dec 2016 %
HSBC UK liquidity group	51	116
The Hongkong and Shanghai Banking Corporation – Hong Kong Branch	52	157
The Hongkong and Shanghai Banking Corporation – Singapore Branch	52	112
HSBC Bank USA		120
HSBC France	53	120
Hang Seng Bank		162
HSBC Canada	53	139
HSBC Bank China		149
HSBC Middle East – UAE Branch		141
HSBC Mexico		128
HSBC Private Bank		155

Depositor concentration and term funding maturity concentration

The LCR and NSFR metrics assume a stressed outflow based on a portfolio of depositors within each deposit segment. The validity of these assumptions is challenged if the portfolio of depositors is not large enough to avoid depositor concentration. Operating entities are exposed to term re-financing concentration risk if the current maturity profile results in future maturities being overly concentrated in any defined period.

At 31 December 2016, all principal operating entities were within the risk tolerance levels set for depositor concentration and term funding maturity concentration. These risk tolerances were established by the Board and are applicable under the LFRF.

Liquid assets of HSBC's principal operating entities

The table below shows the unweighted liquidity value of assets categorised as liquid, which is used for the purposes of calculating the LCR metric.

This reflects the stock of unencumbered liquid assets at the reporting date, using the regulatory definition of liquid assets. The amount recognised by entity at the Group level is different from the amount recognised at a solo entity level, reflecting where liquidity cannot be freely transferred up to Group.

Liquid assets of HSBC's principal entities

		31 Dec 2016	
		Recognised at Group and entity level	Recognised at entity level only
	Footnotes	$m	$m
HSBC UK liquidity group	51		
Level 1		143,884	143,884
Level 2a		2,085	2,085
Level 2b		7,663	7,663
The Hongkong and Shanghai Banking Corporation – Hong Kong Branch			
Level 1		48,342	98,963
Level 2a		23,790	23,790
Level 2b		3,450	3,450
HSBC Bank USA			
Level 1		53,409	72,931
Level 2a		14,995	14,995
Level 2b		10	10
Hang Seng Bank			
Level 1		21,798	37,525
Level 2a		1,474	1,474
Level 2b		199	199
Total of HSBC's other principal entities	54		
Level 1		74,239	90,579
Level 2a		6,240	6,240
Level 2b		226	226

For footnotes, see page 164.

Sources of funding

(Audited)

Our primary sources of funding are customer current accounts and customer savings deposits payable on demand or at short notice. We issue wholesale securities (secured and unsecured) to supplement our customer deposits and change the currency mix, maturity profile or location of our liabilities.

The following 'Funding sources and uses' table provides a consolidated view of how our balance sheet is funded, and should be read in light of the LFRF, which requires operating entities to manage liquidity and funding risk on a stand-alone basis.

The table analyses our consolidated balance sheet according to the assets that primarily arise from operating activities and the sources of funding primarily supporting these activities. Assets and liabilities that do not arise from operating activities are presented as a net balancing source or deployment of funds.

In 2016, the level of customer accounts continued to exceed the level of loans and advances to customers. The positive funding gap was predominantly deployed in liquid assets (cash and balances with central banks and financial investments) as required by the LFRF.

Loans and advances to banks continued to exceed deposits by banks, meaning the Group remained a net unsecured lender to the banking sector.

For a summary of sources and utilisation of repos and stock lending, see the Risk Management section on page 101.

Funding sources and uses

	2016	2015
	$m	$m
Sources		
Customer accounts	1,272,386	1,289,586

Deposits by banks	59,939	54,371
Repurchase agreements – non-trading	88,958	80,400
Debt securities in issue	65,915	88,949
Liabilities of disposal groups held for sale	2,790	36,840
Subordinated liabilities	20,984	22,702
Financial liabilities designated at fair value	86,832	66,408
Liabilities under insurance contracts	75,273	69,938
Trading liabilities	153,691	141,614
– repos	1,428	442
– stock lending	3,643	8,859
– settlement accounts	15,271	10,530
– other trading liabilities	133,349	121,783
Total equity	182,578	197,518
At 31 Dec	2,009,346	2,048,326
Uses		
Loans and advances to customers	861,504	924,454
Loans and advances to banks	88,126	90,401
Reverse repurchase agreements – non-trading	160,974	146,255
Assets held for sale	4,389	43,900
Trading assets	235,125	224,837
– reverse repos	4,780	438
– stock borrowing	5,427	7,118
– settlement accounts	17,850	12,127
– other trading assets	207,068	205,154
Financial investments	436,797	428,955
Cash and balances with central banks	128,009	98,934
Net deployment in other balance sheet assets and liabilities	94,422	90,590
At 31 Dec	2,009,346	2,048,326

Wholesale term debt maturity profile

The maturity profile of our wholesale term debt obligations is set out in the following table 'Wholesale funding cash flows payable by HSBC under financial liabilities by remaining contractual maturities'.

The balances in the table are not directly comparable with those in the consolidated balance sheet as the table presents gross cash flows relating to principal payments and not the balance sheet carrying value, which include debt securities and subordinated liabilities measured at fair value.

Wholesale funding cash flows payable by HSBC under financial liabilities by remaining contractual maturities

	Due not more than 1 month	Due over 1 month but not more than 3 months	Due over 3 months but not more than 6 months	Due over 6 months but not more than 9 months	Due over 9 months but not more than 1 year	Due over 1 year but not more than 2 years	Due over 2 years but not more than 5 years	Due over 5 years	Total
	$m	$m	$m	$m	$m	$m	$m	$m	$m
Debt securities issued	7,462	10,110	11,834	6,930	8,043	21,906	43,764	44,164	154,213
– unsecured CDs and CP	691	5,906	5,530	3,152	2,384	242	133	12	18,050
– unsecured senior MTNs	837	1,706	3,727	2,699	3,580	13,626	30,519	36,240	92,934
– unsecured senior structured notes	1,088	1,675	1,389	882	2,066	5,940	8,344	3,885	25,269
– secured covered bonds	1,584	—	295	71	—	207	1,357	2,559	6,073
– secured asset-backed commercial paper	3,196	—	—	—	—	—	—	—	3,196
– secured ABS	11	23	893	126	13	91	908	439	2,504
– others	55	800	—	—	—	1,800	2,503	1,029	6,187
Subordinated liabilities	13	63	145	—	500	1,775	7,292	32,179	41,967
– subordinated debt securities	13	63	145	—	500	1,775	6,881	30,425	39,802
– preferred securities	—	—	—	—	—	—	411	1,754	2,165
At 31 Dec 2016	7,475	10,173	11,979	6,930	8,543	23,681	51,056	76,343	196,180
Debt securities issued	19,447	11,803	20,565	6,712	5,274	20,150	43,463	27,398	154,812
– unsecured CDs and CP	5,830	8,426	11,250	2,944	1,224	955	108	10	30,747
– unsecured senior MTNs	4,229	2,240	7,130	2,687	1,711	10,850	27,239	18,407	74,493
– unsecured senior structured notes	883	964	1,544	875	2,166	4,158	9,741	5,262	25,593
– secured covered bonds	—	—	—	—	—	2,074	1,619	2,577	6,270
– secured asset-backed commercial paper	8,414	—	—	—	—	—	—	—	8,414
– secured ABS	20	173	195	206	173	313	1,554	114	2,748
– others	71	—	446	—	—	1,800	3,202	1,028	6,547
Subordinated liabilities	—	816	—	—	34	648	6,826	34,423	42,747
– subordinated debt securities	—	—	—	—	34	648	6,338	32,494	39,514

– preferred securities	—	816	—	—	—	—	488	1,929	3,233
At 31 Dec 2015	19,447	12,619	20,565	6,712	5,308	20,798	50,289	61,821	197,559

Analysis of on-balance sheet encumbered and unencumbered assets and off-balance sheet collateral

On-balance sheet encumbered and unencumbered assets

The table on page 148, 'Analysis of on-balance sheet encumbered and unencumbered assets', summarises the total on-balance sheet assets capable of supporting future funding and collateral needs, and shows the extent to which they are currently pledged for this purpose. This disclosure aims to facilitate an understanding of available and unrestricted assets that could be used to support potential future funding and collateral needs.

During 2016 cash collateral given and reported within loans and advances to banks and customers, reflecting initial and variable cash margins, was reclassified from 'unencumbered assets' to 'encumbered assets' to align with our Pillar 3 disclosure. Furthermore a portfolio of mortgages, classified as 'unencumbered assets' in 2015 was reclassified to 'Assets positioned at central banks' (i.e. pre-positioned plus encumbered) in 2016. Comparative data have been restated.

Under 'Off-balance sheet collateral' below we discuss the off-balance sheet collateral received and re-pledged, and the level of available unencumbered off-balance sheet collateral.

For a summary of our policy on collateral management and definition of encumbrance, see the Risk Management section on page 101.

Off-balance sheet collateral

The fair value of assets accepted as collateral that we are permitted to sell or repledge in the absence of default was $269bn at 31 December 2016 (2015: $228bn). The fair value of any such collateral actually sold or re-pledged was $157bn (2015: $150bn). We are obliged to return equivalent securities. These transactions are conducted under terms that are usual and customary to standard reverse repo, stock borrowing and der

ivative transactions.

The fair value of collateral received and re-pledged in relation to reverse repos, stock borrowing and derivatives is reported on a gross basis. The related balance sheet receivables and payables are reported on a net basis where required under IFRS offset criteria. As a consequence of reverse repo, stock borrowing and derivative transactions where the collateral received could be sold or re-pledged but had not been, we held $112bn (2015: $78bn) of unencumbered collateral available to support potential future funding and collateral needs at 31 December 2016.

Under the terms of our current collateral obligations under derivative contracts (which are ISDA compliant CSA contracts and contracts entered into for pension obligations), and based on an estimate of the positions at 31 December 2016, we calculate that we could be required to post additional collateral of up to $0.3bn (2015: $0.4bn) in the event of a one-notch downgrade in third-party agencies' credit rating of HSBC's debt.

This would increase to $0.8 bn (2015: $0.7bn) in the event of a two-notch downgrade.

Encumbered and unencumbered assets

Definitions of the categories included in the table ‘Analysis of on-balance sheet encumbered and unencumbered assets’:

- ‘Assets encumbered as a result of transactions with counterparties other than central banks as a result of covered bonds’ are any assets on our balance sheet pledged against our covered bonds issuance with a counterparty which is not central bank and as a result the assets are unavailable to the bank to secure funding, satisfy collateral needs or be sold to reduce potential future funding requirements.
- ‘Assets encumbered as a result of transactions with counterparties other than central banks as a result of securitisation’ are any assets on our balance sheet pledged against securitisations with a counterparty which is not central bank including asset-backed commercial paper, collateralised debt obligations, residential mortgage-backed securities, or structured investment vehicles paper and as a result the assets are unavailable to the bank to secure funding, satisfy collateral needs or be sold to reduce potential future funding requirements.
- ‘Assets encumbered as a result of transactions with counterparties other than central banks – Other’ are assets on our balance sheet (other than covered bonds and securitisation above) which have been pledged with a counterparty which is not central bank as a collateral against an existing liability, and as a result are assets which are unavailable to the bank to secure funding, satisfy collateral needs or sold to reduce potential future funding requirements. Examples include assets pledged for sale and repurchase and stock lending transactions and certain property assets.
- ‘Assets positioned at central banks (i.e. pre-positioned plus encumbered)’ are any assets that are eligible for emergency central bank liquidity/funding or under central bank pre-existing arrangements for funding without further due diligence work required. Any transferable customer loan that is central bank eligible such as pre-positioned central bank UK mortgages and US mortgages accepted by the Federal Reserve Bank and assets on our balance sheet which have been pledged with central bank as collateral against an existing liability, and as a result are assets which are unavailable to the bank to secure funding, satisfy collateral needs or be sold to reduce potential future funding requirements.
- ‘Unencumbered – readily available assets’ are assets considered by the bank to be readily available in the normal course of business to secure funding, meet collateral needs, or be sold to reduce potential future funding requirements, and are not subject to any restrictions on their use for these purposes.
- ‘Unencumbered – other assets capable of being encumbered’ are assets where there are no restrictions on their use to secure funding, meet collateral needs, or be sold to reduce potential future funding requirements, but they are not readily realisable in the normal course of business in their current form.
- ‘Unencumbered – reverse repo/stock borrowing receivables and derivative assets’ are assets related specifically to reverse repo, stock borrowing and derivative transactions. They are shown separately as these on-balance sheet assets cannot be pledged but often give rise to the receipt of non-cash assets which are not recognised on the balance sheet, and can additionally be used to raise secured funding, meet additional collateral requirements or be sold.
- ‘Unencumbered – cannot be encumbered’ are assets that have not been pledged and which we have assessed could not be pledged and therefore could not be used to secure funding, meet collateral needs, or be sold to reduce potential future funding requirements. An example is assets held by the Group’s insurance subsidiaries that back liabilities to policyholders and support the solvency of these entities.

Historically, the Group has not recognised any contingent liquidity value for assets other than those assets defined under the LFRF as being liquid assets, and any other negotiable instruments that under stress are assumed to be realisable after three months, even though they may currently be realisable. This approach has generally been driven by our appetite not to place any reliance on central banks. In a few cases, we have recognised the contingent value of discrete pools of assets, but the amounts involved are insignificant. As a result, we have reported the majority of our loans and advances to customers and banks in the category ‘Other realisable assets’ as management would need to perform additional actions in order to make the assets transferable and readily realisable.

Analysis of on-balance sheet encumbered and unencumbered assets

	Assets encumbered as a result of transactions with counterparties other than central banks			Assets positioned at central banks (i.e. pre-positioned plus encumbered)	Unencumbered assets not positioned at central banks				Total
	As a result of covered bonds	As a result of securitisations	Other		Assets readily available for encumbrance	Other assets capable of being encumbered	Reverse repos/stock borrowing receivables and derivative assets	Assets that cannot be encumbered	
	$m	$m	$m	$m	$m	$m	$m	$m	$m
Cash and balances at central banks	—	—	10	82	123,363	326	—	4,228	128,009
Items in the course of collection from other banks	—	—	—	—	—	—	—	5,003	5,003
Hong Kong Government certificates of indebtedness	—	—	—	—	—	—	—	31,228	31,228
Trading assets	—	—	62,962	2,504	131,420	7,419	10,207	20,613	235,125
– treasury and other eligible bills	—	—	981	2,150	11,309	11	—	—	14,451
– debt securities	—	—	34,144	354	59,231	318	—	7	94,054
– equity securities	—	—	2,645	—	59,394	1,565	—	—	63,604
– loans and advances to banks	—	—	10,532	—	1,331	1,910	5,386	5,610	24,769
– loans and advances to customers	—	—	14,660	—	155	3,615	4,821	14,996	38,247
Financial assets designated at fair value	—	—	—	—	835	20	—	23,901	24,756
– treasury and other eligible	—	—	—	—	150	—	—	54	204

bills									
– debt securities	—	—	—	—	442	—	—	3,747	4,189
– equity securities	—	—	—	—	243	20	—	20,021	20,284
– loans and advances to banks and customers	—	—	—	—	—	—	—	79	79
Derivatives	—	—	—	—	—	—	290,872	—	290,872
Loans and advances to banks	—	1	3,903	6,719	2,051	50,824	2,045	22,583	88,126
Loans and advances to customers	6,258	8,365	10,425	67,208	15,941	732,242	4,027	17,038	861,504
Reverse repurchase agreements – non-trading	—	—	—	—	—	—	160,974	—	160,974
Financial investments	—	—	16,537	17,983	331,154	10,765	—	60,358	436,797
– treasury and other eligible bills	—	—	537	3,766	93,566	1,143	—	214	99,226
– debt securities	—	—	16,000	14,217	236,003	7,904	—	58,780	332,904
– equity securities	—	—	—	—	1,585	1,718	—	1,364	4,667
Prepayments, accrued income and other assets	—	—	2,358	—	8,368	27,099	—	26,084	63,909
Current tax assets	—	—	—	—	—	—	—	1,145	1,145
Interest in associates and joint ventures	—	—	345	—	62	19,329	—	293	20,029
Goodwill and intangible assets	—	—	—	—	—	—	—	21,346	21,346
Deferred tax	—	—	—	—	—	—	—	6,163	6,163
At 31 Dec 2016	6,258	8,366	96,540	94,496	613,194	848,024	468,125	239,983	2,374,986

Analysis of on-balance sheet encumbered and unencumbered assets (continued)

	Assets encumbered as a result of transactions with counterparties other than central banks			Assets positioned at central banks (i.e. pre-positioned plus encumbered)	Unencumbered assets not positioned at central banks				Total
	As a result of covered bonds	As a result of securitisations	Other		Assets readily available for encumbrance	Other assets capable of being encumbered	Reverse repos/stock borrowing receivables and derivative assets	Assets that cannot be encumbered	
	$m	$m	$m	$m	$m	$m	$m	$m	$m
Cash and balances at central banks	—	—	—	98	95,545	350	—	2,941	98,934
Items in the course of collection from other banks	—	—	—	—	—	—	—	5,768	5,768
Hong Kong Government certificates of indebtedness	—	—	—	—	—	—	—	28,410	28,410
Trading assets	—	—	56,188	1,573	138,070	8,269	7,520	13,217	224,837
– treasury and other eligible bills	—	—	1,099	984	5,618	128	—	—	7,829
– debt securities	—	—	25,890	492	72,377	233	—	46	99,038
– equity securities	—	—	4,616	—	59,430	2,445	—	—	66,491
– loans and advances to banks	—	—	10,410	—	456	2,890	2,763	5,784	22,303
– loans and advances to customers	—	—	14,173	97	189	2,573	4,757	7,387	29,176
Financial assets designated at fair value	—	—	—	—	1,775	1,244	—	20,833	23,852
– treasury and other eligible bills	—	—	—	—	258	—	—	138	396
– debt securities	—	—	—	—	1,327	265	—	2,749	4,341

– equity securities	—	—	—	—	178	979	—	17,838	18,995
– loans and advances to banks and customers	—	—	—	—	12	—	—	108	120
Derivatives	—	—	—	—	—	—	288,476	—	288,476
Loans and advances to banks	—	1,329	2,900	1,702	2,054	61,602	815	19,999	90,401
Loans and advances to customers	6,947	15,288	9,769	64,984	15,730	790,929	1,531	19,276	924,454
Reverse repurchase agreements – non-trading	—	—	—	—	—	—	146,255	—	146,255
Financial investments	—	—	25,078	8,150	325,101	14,753	—	55,873	428,955
– treasury and other eligible bills	—	—	509	3,675	98,866	1,177	—	324	104,551
– debt securities	—	—	24,561	4,475	224,355	11,124	—	54,054	318,569
– equity securities	—	—	8	—	1,880	2,452	—	1,495	5,835
Prepayments, accrued income and other assets	—	—	1,188	—	4,685	65,190	—	27,235	98,298
Current tax assets	—	—	—	—	—	—	—	1,221	1,221
Interest in associates and joint ventures	—	—	—	—	51	18,794	—	294	19,139
Goodwill and intangible assets	—	—	—	—	—	—	—	24,605	24,605
Deferred tax	—	—	—	—	—	—	—	6,051	6,051
At 31 Dec 2015	6,947	16,617	95,123	76,507	583,011	961,131	444,597	225,723	2,409,656

Contractual maturity of financial liabilities

The balances in the table below do not agree directly with those in our consolidated balance sheet as the table incorporates, on an undiscounted basis, all cash flows relating to principal and future coupon payments (except for trading liabilities and derivatives not treated as hedging derivatives). Undiscounted cash flows payable in relation to hedging derivative liabilities are classified according to their contractual maturities. Trading liabilities and derivatives not treated as hedging derivatives are included in the 'On demand' time bucket and not by contractual maturity.

A maturity analysis of repos and debt securities in issue included in trading liabilities is presented in Note 29 on the Financial Statements.

In addition, loans and other credit-related commitments, financial guarantees and similar contracts are generally not recognised on our balance sheet. The undiscounted cash flows potentially payable under financial guarantees and similar contracts are classified on the basis of the earliest date they can be called.

Cash flows payable by HSBC under financial liabilities by remaining contractual maturities
(Audited)

	On demand	Due within 3 months	Due between 3 and 12 months	Due between 1 and 5 years	Due after 5 years
	$m	$m	$m	$m	$m
Deposits by banks	40,277	10,222	3,284	5,233	1,033
Customer accounts	1,079,866	145,932	38,273	8,676	559
Repurchase agreements – non-trading	18,134	66,801	2,929	1,048	—
Trading liabilities	153,691	—	—	—	—
Financial liabilities designated at fair value	1,307	2,265	5,003	34,707	61,929
Derivatives	274,283	287	1,129	2,472	1,727
Debt securities in issue	9	13,118	19,492	29,487	8,089
Subordinated liabilities	1	400	1,378	10,302	21,552
Other financial liabilities	45,569	15,844	3,050	1,525	843
	1,613,137	254,869	74,538	93,450	95,732
Loan and other credit-related commitments	410,950	95,751	63,729	57,019	28,395
Financial guarantees and similar contracts	12,608	4,647	10,301	8,138	1,378
At 31 Dec 2016	2,036,695	355,267	148,568	158,607	125,505
Deposits by banks	42,182	6,643	1,452	4,029	107
Customer accounts	1,076,595	160,368	43,289	10,964	263
Repurchase agreements – non-trading	13,181	64,109	2,144	535	543
Trading liabilities	141,614	—	—	—	—
Financial liabilities designated at fair value	327	4,077	6,149	24,642	41,365
Derivatives	276,141	255	970	1,721	1,652
Debt securities in issue	377	25,910	23,886	35,499	6,993
Subordinated liabilities	—	803	971	10,151	28,132
Other financial liabilities	59,298	17,476	7,226	10,188	1,014
	1,609,715	279,641	86,087	97,729	80,069
Loan and other credit-related commitments	425,000	93,149	73,115	60,078	15,089
Financial guarantees and similar contracts	12,579	5,727	15,091	9,915	2,805
At 31 Dec 2015	2,047,294	378,517	174,293	167,722	97,963

HSBC Holdings

Liquidity risk in HSBC Holdings is overseen by Holdings ALCO. This risk arises because of HSBC Holdings' obligation to make payments to debt holders as they fall due. The liquidity risk related to these cash flows is managed by matching external debt obligations with internal loan cash flows and by maintaining an appropriate liquidity buffer that is monitored by Holdings ALCO.

The balances in the table below are not directly comparable with those on the balance sheet of HSBC Holdings as the table incorporates, on an undiscounted basis, all cash flows relating

to principal and future coupon payments (except for derivatives not treated as hedging derivatives). Undiscounted cash flows payable in relation to hedging derivative liabilities are classified according to their contractual maturities. Derivatives not treated as hedging derivatives are included in the 'On demand' time bucket.

In addition, loan commitments and financial guarantees and similar contracts are generally not recognised on our balance sheet. The undiscounted cash flows potentially payable under financial guarantees and similar contracts are classified on the basis of the earliest date on which they can be called.

Cash flows payable by HSBC Holdings under financial liabilities by remaining contractual maturities (Audited)

	On demand	Due within 3 months	Due between 3 and 12 months	Due between 1 and 5 years	Due after 5 years
	$m	$m	$m	$m	$m
Amounts owed to HSBC undertakings	—	2,051	—	105	—
Financial liabilities designated at fair value	—	314	960	11,964	25,665
Derivatives	3,841	—	—	592	592
Debt securities in issue	—	157	478	8,393	19,164
Subordinated liabilities	—	196	598	4,461	20,899
Other financial liabilities	—	1,343	164	—	—
	3,841	4,061	2,200	25,515	66,320
Loan commitments	—	—	—	—	—
Financial guarantees and similar contracts	7,619	—	—	—	—
At 31 Dec 2016	11,460	4,061	2,200	25,515	66,320
Amounts owed to HSBC undertakings	257	1,375	424	110	—
Financial liabilities designated at fair value	—	1,145	655	5,202	20,779
Derivatives	2,065	—	—	213	—
Debt securities in issue	—	15	47	250	1,176
Subordinated liabilities	—	229	699	5,149	25,474
Other financial liabilities	—	1,426	152	—	—
	2,322	4,190	1,977	10,924	47,429
Loan commitments	—	—	—	—	—
Financial guarantees and similar contracts	68,333	—	—	—	—
At 31 Dec 2015	70,655	4,190	1,977	10,924	47,429

Market risk profile

Market risk in 2016

Market risk is the risk that movements in market factors, such as foreign exchange rates, interest rates, credit spreads, equity prices and commodity prices, will reduce our income or the value of our portfolios. Exposure to market risk is separated into two portfolios:

- trading portfolios; and
- non-trading portfolios.

Market risk exposures arising from our insurance manufacturing operations are discussed on page 115.

A summary of our current policies and practices regarding the management of market risk is set out on page 110.

Global markets were influenced by the increase in US interest rates in line with market expectation. Bond yields continued to rise and global stock markets continued to be supported by expectations of fiscal expansion in the US in the wake of the new US presidential elections. The US monetary tightening contrasts with the ECB extending its quantitative easing programme, highlighting the divergence in monetary policies

during the year.

In China, the prospect of a slowdown in the economy in the first half of 2016, and uncertainty around the trade relationship with the US, following the elections, led to further depreciation of the renminbi. Chinese policymakers will attempt to keep this process gradual in order to avoid disruptive capital outflows.

In the UK, following the decision to leave the EU, concerns persist about the upcoming exit negotiations and the ultimate nature of the EU-UK relationship.

Capital flows to the emerging markets remained weak, with some central banks increasing local interest rates to reduce reserve outflows.

Trading value at risk ('VaR') spiked in quarter one, due to higher market volatility impacting the foreign exchange and credit spread asset classes. For the remainder of the year, exposures in all asset classes were managed down.

Non-trading VaR increased during the year as higher interest rates, especially in US dollars, caused the duration of non-trading assets to increase.

Trading portfolios

Value at risk of the trading portfolios

Trading VaR predominantly resides within Global Markets. It was relatively stable at 31 December 2016 compared with 31 December 2015. During the year, the trading VaR composition changed in that interest rate trading VaR increased but was offset by decreases in both credit spread and equity trading VaR components.

The daily levels of total trading VaR over the last year are set out in the graph below.

Daily VaR (trading portfolios), 99% 1 day ($m)

Trading VaR
IR trading
Equity trading
CS trading
FX trading
Diversification

The Group trading VaR for the year is shown in the table below.

Trading VaR, 99% 1 day[55]
(Audited)

	Foreign exchange (FX) and commodity	Interest rate (IR)	Equity (EQ)	Credit spread (CS)	Portfolio diversification[52]	Total[53]
	$m	$m	$m	$m	$m	$m
Balance at 31 Dec 2016	8.9	49.7	11.8	5.9	(23.5)	52.8
Average	11.1	42.8	20.4	13.5	(30.3)	57.5
Maximum	16.9	64.2	32.4	28.1		91.5
Minimum	5.4	31.8	11.8	5.0		42.1
Balance at 31 Dec 2015	8.0	34.9	21.4	13.9	(24.9)	53.3
Average	14.7	46.0	19.6	15.5	(35.7)	60.1
Maximum	25.4	57.0	29.0	23.3		77.9
Minimum	6.3	32.6	11.9	9.8		47.5

For footnotes, see page 164.

Back-testing

In 2016, the Group experienced two back-testing exceptions against hypothetical profit and loss: a loss exception in February, driven by Libor against overnight index spread widening on long positions; and a profit exception in June, driven by significant devaluations in sterling and the euro against the US dollar resulting from the UK's referendum on EU membership.

There was no evidence of model errors or control failures.

The back-testing result excludes exceptions due to changes in fair value adjustments.

Non-trading portfolios

Value at risk of the non-trading portfolios

Non-trading VaR of the Group includes contributions from all global businesses. There is no commodity risk in the non-trading portfolios. The increase in non-trading VaR during 2016 was due primarily to the lengthening of the duration in the non-trading book from higher interest rates, especially US rates.

The increase in non-trading interest rate was offset by a decrease in the credit spread VaR component and an increase in portfolio diversification effects.

Non-trading VaR includes the interest rate risk in the banking book transferred to and managed by Balance Sheet Management ('BSM') and the non-trading financial instruments held by BSM. The management of interest rate risk in the banking book and the role of BSM are described further in Interest rate risk in the banking book section below.

Non-trading VaR excludes the insurance operations which are discussed further on page 159 and the interest rate risk in the banking book arising from HSBC Holdings.

The daily levels of total non-trading VaR over the last year are set out in the graph below.

Daily VaR (non-trading portfolios), 99% 1 day ($m)

Non-trading VaR

IR non-trading

CS non-trading

Diversification

The Group non-trading VaR for the year is shown in the table below.

Non-trading VaR, 99% 1 day
(Audited)

	Interest rate (IR)	Credit spread (CS)	Portfolio diversification[52]	Total[53]
	$m	$m	$m	$m
Balance at 31 Dec 2016	157.0	46.5	(32.1)	171.4
Average	131.6	52.8	(32.1)	152.3
Maximum	171.9	82.8		182.1
Minimum	100.2	36.9		123.3
Balance at 31 Dec 2015	114.1	72.7	(54.0)	132.8
Average	97.5	65.7	(42.0)	121.2
Maximum	131.5	89.4		156.8
Minimum	70.5	52.1		91.5

For footnotes, see page 164.

Non-trading VaR excludes equity risk on available-for-sale securities, structural foreign exchange risk and interest rate risk on fixed-rate securities issued by HSBC Holdings. This section and the sections below describe the scope of HSBC's management of market risks in non-trading books.

Equity securities classified as available for sale

Fair value of equity securities
(Audited)

	Footnotes	2016 $bn	2015 $bn
Private equity holdings	58	1.2	1.9
Investment to facilitate ongoing business	59	1.5	1.9
Other strategic investments		2.0	2.1
At 31 Dec		4.7	5.9

For footnotes, see page 164.

The table above sets out the maximum possible loss on shareholders' equity from available-for-sale equity securities. The fair value of equity securities classified as available for sale reduced from $5.9bn to $4.7bn. The decrease in private equity holdings was largely due to fund distributions and the reclassification of the investment in certain funds as an associate investment. The decrease in business facilitation equities was largely due to the sale of the Visa investment.

Market risk balance sheet linkages

Below are the balance sheet lines in the Group's consolidated position that are subject to market risk.

Trading assets and liabilities

The Group's trading assets and liabilities are in almost all cases originated by GB&M. These assets and liabilities are treated as traded risk for the purposes of market risk management, other than a limited number of exceptions, primarily in Global Banking where the short-term acquisition and disposal of the assets are linked to other non-trading related activities such as loan origination.

Derivative assets and liabilities

We undertake derivative activity for three primary purposes: to create risk management solutions for clients, to manage the portfolio risks arising from client business, and to manage and hedge our own risks. Most of our derivative exposures arise from sales and trading activities within GB&M, and are treated as traded risk for market risk management purposes.

The assets and liabilities included in trading VaR give rise to a large proportion of the income included in net trading income. As set out on page 216, HSBC's net trading income in 2016 was $9,452m (2015: $8,723m). Adjustments to trading income such as valuation adjustments do not feed the trading VaR model.

For information on the accounting policies applied to financial instruments at fair value, see Note 13 on the Financial Statements.

Structural foreign exchange exposures

For our policies and procedures for managing structural foreign exchange exposures, see page 111 of the Risk management section.

HSBC's structural foreign exchange exposures are represented by the net asset value of its foreign exchange equity and subordinated debt investments in subsidiaries, branches, joint ventures and associates with non-US dollar functional currencies. Gains or losses on structural foreign exchange exposures are recognised in other comprehensive income.

Net structural foreign exchange exposures

	2016	2015
	$m	$m
Currency of structural exposure		
Hong Kong dollars	32,472	28,270
Pound sterling[1]	27,527	32,701
Chinese renminbi	24,504	24,117
Euros	17,397	19,966
Indian rupees	3,901	3,645
Mexican pesos	3,826	4,228
Canadian dollars	3,734	3,595
Saudi riyals	3,690	3,109
Swiss francs	2,226	2,642
Malaysian ringgit	2,079	1,994
UAE dirhams	2,073	1,898
Singapore dollars	1,995	1,454
Taiwanese dollars	1,753	1,702
Australian dollars	1,667	1,396
Indonesian rupiah	1,439	1,303
Korean won	1,260	1,296
Argentine pesos	860	875
Brazilian real	755	2,865
Turkish lira	734	1,006
Thai baht	736	662
Others, each less than $700m	5,728	6,038
At 31 Dec	140,356	144,762

1 During 2016, we entered into new forward exchange contracts amounting to $1.5bn (2015: $2.6bn) in order to manage our sterling structural foreign exchange exposure.

Shareholders' equity would decrease by $2,247m (2015: $2,633m) if euro and sterling foreign currency exchange rates weakened by 5% relative to the US dollar.

Net interest income sensitivity

The following table sets out the assessed impact on our base case projected net interest income ('NII') for 2016 (excluding insurance) of a series of four quarterly parallel shocks of 25 basis points to the current market-implied path of interest rates worldwide at the beginning of each quarter from 1 January 2017.

The sensitivities shown represent our assessment as to the change in expected base case net interest income under the two rate scenarios, assuming that all other non-interest rate risk variables remain constant, and there are no management actions. In deriving our base case net interest income projections, the repricing rates of assets and liabilities used are derived from current yield curves, thereby reflecting current market expectations of the future path of interest rates. The scenarios therefore represent interest rate shocks to the current market implied path of rates.

The NII sensitivities shown are indicative and based on simplified scenarios, including the assumption that the balance sheet size and structure remains static, other than instances where the size of the balances or repricing is deemed interest rate sensitive (non-interest bearing current account migration and fixed rate loan early prepayment) and where non-traded VaR is assumed to contractually run off. The limitations of this analysis are discussed within the 'Risk management' section on page 101.

Assuming no management response, a sequence of such rises ('up-shock') would increase expected net interest income for 2016 by $1,709m (2015: $1,251m), while a sequence of such falls ('down-shock') would decrease planned net interest income by $2,406m (2015: $2,258m).

The NII sensitivity of the Group can be split into three key components: the structural sensitivity arising from the four global businesses excluding BSM and Markets, the sensitivity of the funding of the trading book (Markets) and the sensitivity of BSM.

The structural sensitivity is positive in a rising rate environment and negative in a falling rate environment. The sensitivity of
the funding of the trading book is negative in a rising rate environment and positive in a falling rate environment, and in terms of the impact on profit the change in NII would be expected to be offset by a similar change in net trading income. The sensitivity of BSM will depend on its position. Typically, assuming no management response, the sensitivity of BSM is negative in a rising rate environment and positive in a falling rate environment.

The NII sensitivity figures also incorporate the effect of any interest rate behaviouralisation applied and the effect of any assumed repricing across products under the specific interest rate scenario. They do not incorporate the effect of any management decision to change the HSBC balance sheet composition.

The NII sensitivity in BSM arises from a combination of the techniques that BSM use to mitigate the transferred interest rate risk and the methods they use to optimise net revenues in line with their defined risk mandate. The figures in the table below do not incorporate the effect of any management decisions within BSM, but in reality it is likely that there would be some short-term adjustment in BSM positioning to offset the NII effects of the specific interest rate scenario where necessary.

The NII sensitivity arising from the funding of the trading book is comprised of the expense of funding trading assets, while the revenue from these trading assets is reported in net trading income. This leads to an asymmetry in the NII sensitivity figures which is cancelled out in our global business results, where we include both net interest income and net trading income. It is likely, therefore, that the overall effect on profit before tax of the funding of the trading book will be much less pronounced than the figures in the following table.

Net interest income sensitivity[60]
(Audited)

	US dollar bloc $m	Rest of Americas bloc $m	Hong Kong dollar bloc $m	Rest of Asia bloc $m	Sterling bloc $m	Euro bloc $m	Total $m
Change in 2016 net interest income arising from a shift in yield curves of:							

+25 basis points at the beginning of each quarter	605	47	504	280	61	212	1,709
–25 basis points at the beginning of each quarter	(1,024)	(41)	(797)	(292)	(261)	9	(2,406)
Change in 2015 net interest income arising from a shift in yield curves of:							
+25 basis points at the beginning of each quarter	410	72	217	369	135	49	1,251
–25 basis points at the beginning of each quarter	(691)	(74)	(645)	(290)	(528)	(30)	(2,258)

For footnote, see page 164.

We expect NII to rise in the rising rate scenario and fall in the falling rate scenario. This is due to a structural mismatch between our assets and liabilities (on balance we would expect our assets to reprice more quickly, and to a greater extent, than our liabilities).

Economic value of equity

The table below sets out the assessed impact on our base case economic value of equity (‘EVE’) of an immediate parallel

upward shock of 200 basis points (‘bps’) (up 200bps) and an immediate parallel downward shock of 200 basis points (down 200bps) to the market-implied path of interest rates worldwide on 1 January 2017.

The economic value of equity remains higher than the book value of equity under base case, up 200bps and down 200bps scenarios.

Economic value of equity

	US dollar bloc	Rest of Americas bloc	Hong Kong dollar bloc	Rest of Asia bloc	Sterling bloc	Euro bloc	Total
	$m	$m	$m	$m	$m	$m	$m
Change in economic value of equity as at 31 Dec 2016 arising from an immediate shift in yield curves of:							
+200 basis points	1,616	(596)	1,492	(103)	(684)	(597)	1,128
–200 basis points	(7,455)	531	(2,591)	(159)	(792)	58	(10,408)

Sensitivity of capital and reserves

Under CRD IV, available-for-sale ('AFS') reserves are included as part of CET1 capital. We measure the potential downside risk to the CET1 ratio due to interest rate and credit spread risk in the AFS portfolio by the portfolio's stressed VaR, using a 99% confidence level and an assumed holding period of one quarter. At December 2016, the stressed VaR of the portfolio was $3.2bn.

We monitor the sensitivity of reported cash flow hedging reserves to interest rate movements on a monthly basis by assessing the expected reduction in valuation of cash flow hedges due to parallel movements of plus or minus 100bps in all yield curves. These particular exposures form only a part of our overall interest rate exposure.

The following table describes the sensitivity of our cash flow hedge reported reserves to the stipulated movements in yield curves and the maximum and minimum month-end figures during the year. The sensitivities are indicative and based on simplified scenarios.

Sensitivity of cash flow hedging reported reserves to interest rate movements

		Maximum impact	Minimum impact
	$m	$m	$m
At 31 Dec 2016			
+100 basis point parallel move in all yield curves	(1,051)	(1,173)	(1,051)
As a percentage of total shareholders' equity	(0.6)%	(0.7)%	(0.6)%
–100 basis point parallel move in all yield curves	1,080	1,080	1,145
As a percentage of total shareholders' equity	0.6%	0.6%	0.7%
At 31 Dec 2015			
+100 basis point parallel move in all yield curves	(1,235)	(1,259)	(1,137)
As a percentage of total shareholders' equity	(0.66)%	(0.67)%	(0.60)%
–100 basis point parallel move in all yield curves	1,224	1,232	1,133
As a percentage of total shareholders' equity	0.65%	0.65%	0.60%

Third-party assets in Balance Sheet Management

For our BSM governance framework, see page 112 of 'Risk management'.

Third-party assets in BSM increased by 9% during 2016. Deposits with central banks increased by $28bn, predominantly in North America and Europe, due to deployment of increased commercial surplus, partly offset by decrease in the UK due to foreign exchange movements as sterling depreciated against the US dollar.

Financial investments increased by $17bn due to increases in Europe and Asia, as commercial surplus was deployed into government bonds.

Third-party assets in Balance Sheet Management

	2016	2015
	$m	$m
Cash and balances at central banks	98,996	71,116
Trading assets	414	639
Loans and advances:		
– to banks	37,287	42,059
– to customers	2,564	2,773
Reverse repurchase agreements	35,143	29,760
Financial investments	352,419	335,543
Other	4,555	4,277
At 31 Dec	531,378	486,167

Defined benefit pension schemes

Market risk arises within our defined benefit pension schemes to the extent that the obligations of the schemes are not fully matched by assets with determinable cash flows.

For details of our defined benefit schemes, including asset allocation, see Note 5 on the Financial Statements, and for pension risk management see page 117.

Additional market risk measures applicable only to the parent company

The principal tools used in the management of market risk are VaR for foreign exchange rate risk and the projected sensitivity of HSBC Holdings' net interest income to future changes in yield curves and interest rate gap repricing tables for interest rate risk.

Foreign exchange risk

Total foreign exchange VaR arising within HSBC Holdings in 2016 was as follows:

HSBC Holdings – foreign exchange VaR

	2016	2015
	$m	$m
At 31 Dec	32.1	45.6
Average	44.4	42.3
Minimum	32.1	32.9
Maximum	58.2	47.1

The foreign exchange risk largely arises from loans to subsidiaries of a capital nature that are not denominated in the functional currency of either the provider or the recipient and which are accounted for as financial assets. Changes in the carrying amount of these loans due to foreign exchange rate differences are taken directly to HSBC Holdings' income statement. These loans, and most of the associated foreign exchange exposures, are eliminated on consolidation.

Sensitivity of net interest income

HSBC Holdings monitors NII sensitivity over a five-year time horizon reflecting the longer-term perspective on interest rate risk management appropriate to a financial services holding company. These sensitivities assume that any issuance where HSBC Holdings has an option to reimburse at a future call date is called at this date. The table below sets out the effect on

HSBC Holdings' future NII over a five-year time horizon of incremental 25 basis point parallel falls or rises in all yield curves worldwide at the beginning of each quarter during the 12 months from 1 January 2016.

Assuming no management actions, a sequence of such rises would increase planned NII for the next five years by $746m (2015: increase of $247m), while a sequence of such falls would decrease planned NII by $723m (2015: decrease of $266m).

Sensitivity of HSBC Holdings' net interest income to interest rate movements[60]

	US dollar bloc	Sterling bloc	Euro bloc	Total
	$m	$m	$m	$m
Change in projected net interest income as at 31 Dec arising from a shift in yield curves				
2016				
of +25 basis points at the beginning of each quarter				
0-1 year	84	6	0	90
2-3 years	299	20	6	325
4-5 years	304	20	8	332
of -25 basis points at the beginning of each quarter				
0-1 year	(84)	(4)	—	(88)
2-3 years	(299)	(13)	—	(312)
4-5 years	(304)	(19)	(1)	(324)
2015				
of +25 basis points at the beginning of each quarter				
0-1 year	57	15	—	72
2-3 years	118	43	7	168
4-5 years	(23)	43	(12)	8
of -25 basis points at the beginning of each quarter				
0-1 year	(57)	(14)	(6)	(77)
2-3 years	(118)	(43)	(22)	(183)
4-5 years	23	(43)	15	(5)

For footnote, see page 164.

The interest rate sensitivities tabulated above are indicative and based on simplified scenarios. The figures represent hypothetical movements in NII based on our projected yield curve scenarios, HSBC Holdings' current interest rate risk profile and assumed changes to that profile during the next five years.

Changes to assumptions concerning the risk profile over the next five years can have a significant impact on the NII sensitivity for that period. However, the figures do not take into account the effect of actions that could be taken to mitigate this interest rate risk.

Interest rate repricing gap table

The interest rate risk on the fixed-rate securities issued by HSBC Holdings is not included within the Group VaR but is managed

on a repricing gap basis. The interest rate repricing gap table below analyses the full-term structure of interest rate mismatches within HSBC Holdings' balance sheet.

Repricing gap analysis of HSBC Holdings

	Total	Up to 1 year	From over 1 to 5 years	From over 5 to 10 years	More than 10 years	Non-interest bearing
	$m	$m	$m	$m	$m	$m
Cash at bank and in hand:						
– balances with HSBC undertakings	—	—	—	—	—	—
Derivatives	2,184	—	—	—	—	2,184
Loans and advances to HSBC undertakings	77,680	72,288	279	405	—	4,708
Financial investments in HSBC undertakings	3,555	2,675	731	8	—	141
Investments in subsidiaries	96,183	—	—	—	—	96,183
Other assets	1,488	—	105	—	—	1,383
Total assets	181,090	74,963	1,115	413	—	104,599
Amounts owed to HSBC undertakings	(2,157)	(105)				(2,052)
Financial liabilities designated at fair values	(30,145)	(1,109)	(7,344)	(12,588)	(6,422)	(2,682)
Derivatives	(5,018)	—	—	—	—	(5,018)
Debt securities in issue	(21,824)	(4,199)	(2,997)	(11,708)	(3,916)	996
Other liabilities	(1,628)	—	—	—	—	(1,628)
Subordinated liabilities	(15,200)	—	(3,267)	(2,000)	(9,445)	(488)
Total equity	(105,118)	—	—	—	—	(105,118)
Total liabilities and equity	(181,090)	(5,413)	(13,608)	(26,296)	(19,783)	(115,990)
Off-balance sheet items attracting interest rate sensitivity		(57,089)	13,608	26,296	13,441	3,743
Net interest rate risk gap at 31 Dec 2016		12,461	1,115	413	(6,342)	(7,647)
Cumulative interest rate gap		12,461	13,576	13,989	7,647	—

Cash at bank and in hand:						
– balances with HSBC undertakings	242	242	—	—	—	—
Derivatives	2,467	—	—	—	—	2,467
Loans and advances to HSBC undertakings	44,350	42,661	279	405	—	1,005
Financial investments in HSBC undertakings	4,285	2,985	—	731	—	569
Investments in subsidiaries	97,770	—	—	—	—	97,770
Other assets	1,080	—	109	—	—	971
Total assets	150,194	45,888	388	1,136		102,782
Amounts owed to HSBC undertakings	(2,152)	(781)	—	—	—	(1,371)
Financial liabilities designated at fair values	(19,853)	(1,741)	(3,239)	(7,032)	(4,312)	(3,628)
Derivatives	(2,278)	—	—	—	—	(2,278)
Debt securities in issue	(960)	—	—	(963)	—	3
Other liabilities	(15,895)	—	(3,374)	(3,500)	(9,119)	98
Subordinated liabilities	(1,642)	—	—	—	—	(1,642)

Total equity	(107,414)	—	—	—	—	(107,414)
Total liabilities and equity	(150,194)	(2,522)	(6,613)	(11,495)	(13,332)	(116,232)
Off-balance sheet items attracting interest rate sensitivity	—	(22,748)	5,351	10,722	5,763	912
Net interest rate risk gap at 31 Dec 2015	—	20,618	(874)	363	(7,569)	(12,538)
Cumulative interest rate gap	—	20,618	19,744	20,107	12,538	—

Operational risk profile

Operational risk is the risk to achieving our strategy or objectives as a result of inadequate or failed internal processes, people and systems or from external events. It arises from day-to-day operations or external events, and is relevant to every aspect of our business.

Responsibility for minimising operational risk lies with HSBC's staff. All staff are required to manage the operational risks of the business and operational activities for which they are responsible.

A summary of our current policies and practices regarding the management of operational risk is set out on page 113.

Operational risk exposures in 2016

HSBC continued to strengthen those controls that manage our most material risks in 2016. Among other measures, we:

- further embedded Global Standards into the operational risk management framework to ensure that we know our customers, ask the right questions and escalate concerns to prevent financial crime;
- implemented a number of initiatives to raise our standards in relation to the conduct of our business, as described on page 114 of the 'Regulatory compliance risk management' section;
- increased monitoring and enhanced detective controls to manage those fraud risks which arise from new technologies and new ways of banking;
- strengthened internal security controls to prevent cyber-attacks;
- improved controls and security to protect customers when using digital channels; and
- enhanced third-party risk management capability to enable the consistent risk assessment of any third-party service.

Further information on the nature of these risks is provided in 'Top and emerging risks' on page 89.

Operational risk losses in 2016

Operational risk losses in 2016 are lower than in 2015, reflecting a reduction in losses incurred relating to large legacy conduct-related events. Conduct-related costs included in significant items are outlined on page 78. The profile of operational risk losses below shows the distribution of losses for 2015 and 2016 against event types.

Operational risk losses

	2016	2015
	%	%
Business disruption and system failures	—	—
Clients, products and business practices	57	74
Damage to physical assets	—	—
Employee practices and workplace safety	1	1
Execution, delivery and process management	34	13
External fraud	8	11
Internal fraud	—	1
Total	100	100

Insurance manufacturing operations risk profile

Insurance manufacturing operations risk in 2016

The majority of the risk in our insurance business derives from manufacturing activities and can be categorised as financial risk or insurance risk. Financial risks include market risk, credit risk and liquidity risk. Insurance risk is the risk, other than financial risk, of loss transferred from the holder of the insurance contract to the issuer (HSBC).

A summary of our current policies and practices regarding the management of insurance risk is set out on page 115.

HSBC's bancassurance model

We operate an integrated bancassurance model that provides insurance products principally for customers with whom we have a banking relationship.

The insurance contracts we sell relate to the underlying needs of our banking customers, which we can identify from our point-of-sale contacts and customer knowledge. The majority of sales are of savings and investment products and term and credit life contracts.

By focusing largely on personal and SME lines of business, we are able to optimise volumes and diversify individual insurance risks. We choose to manufacture these insurance products in HSBC subsidiaries based on an assessment of operational scale and risk appetite. Manufacturing insurance allows us to retain the risks and rewards associated with writing insurance contracts by keeping part of the underwriting profit and investment income within the Group.

We have life insurance manufacturing subsidiaries in nine countries (Argentina, mainland China, France, Hong Kong, Malaysia, Malta, Mexico, Singapore and the UK). We also have life insurance manufacturing associates in Saudi Arabia and India.

Where we do not have the risk appetite or operational scale to be an effective insurance manufacturer, we engage with a handful of leading external insurance companies in order to provide insurance products to our customers through our banking network and direct channels. These arrangements are generally structured with our exclusive strategic partners and earn the Group a combination of commissions, fees and a share of profits. We distribute insurance products in all of our geographical regions.

Insurance products are sold through all global businesses, but predominantly by RBWM and CMB through our branches and direct channels worldwide.

The sale of our Brazilian insurance operations completed on 1 July 2016. These operations were reported as part of the disposal group held for sale at 31 December 2015.

Measurement

(Audited)

The risk profile of our insurance manufacturing businesses is measured using an economic capital approach. Assets and liabilities are measured on a market value basis, and a capital requirement is defined to ensure that there is a less than one in

200 chance of insolvency over a one-year time horizon, given the risks that the businesses are exposed to. The methodology for the economic capital calculation is largely aligned to the pan-European Solvency II insurance capital regulations, which were applicable from January 2016. The economic capital coverage ratio (economic net asset value divided by the economic capital requirement) is a key risk appetite measure.

The business has a current appetite to remain above 140% with a tolerance of 110%. In addition to economic capital, the regulatory solvency ratio is also a metric used to manage risk appetite on an entity basis.
The tables below show the composition of assets and liabilities by contract type and by geographical region.

Balance sheet of insurance manufacturing subsidiaries by type of contract[67]
(Audited)

	Footnotes	With DPF	Unit-linked	Other contracts[61]	Shareholder assets and liabilities[62]	Total
		$m	$m	$m	$m	$m
Financial assets		57,004	8,877	13,021	5,141	84,043
– trading assets		—	—	2	—	2
– financial assets designated at fair value		12,134	8,592	2,889	684	24,299
– derivatives		212	2	13	46	273
– financial investments – HTM	63	25,867	—	5,329	2,919	34,115
– financial investments – AFS	63	14,359	—	4,206	1,355	19,920
– other financial assets	64	4,432	283	582	137	5,434
Reinsurance assets		498	322	1,048	—	1,868
PVIF	65	—	—	—	6,502	6,502
Other assets and investment properties		1,716	5	171	525	2,417
Total assets		59,218	9,204	14,240	12,168	94,830
Liabilities under investment contracts designated at fair value		—	2,197	3,805	—	6,002
Liabilities under insurance contracts		58,800	6,949	9,524	—	75,273
Deferred tax	66	13	3	7	1,166	1,189
Other liabilities		—	—	—	1,805	1,805
Total liabilities		58,813	9,149	13,336	2,971	84,269
Total equity		—	—	—	10,561	10,561
Total liabilities and equity at 31 Dec 2016		58,813	9,149	13,336	13,532	94,830
Financial assets		53,521	8,840	11,691	5,531	79,583
– trading assets		—	—	2	—	2
– financial assets designated at fair value		11,119	8,435	2,718	1,015	23,287
– derivatives		160	1	33	62	256
– financial investments – HTM	63	22,840	—	4,189	3,050	30,079
– financial investments – AFS	63	15,077	—	4,020	1,233	20,330
– other financial assets	64	4,325	404	729	171	5,629
Reinsurance assets		202	264	951	—	1,417
PVIF	65	—	—	—	5,685	5,685
Other assets and investment properties		1,726	7	139	4,576	6,448
Total assets		55,449	9,111	12,781	15,792	93,133
Liabilities under investment contracts designated at fair value		—	2,256	3,771	—	6,027

Liabilities under insurance contracts		55,023	6,791	8,124	—	69,938
Deferred tax	66	11	—	14	1,056	1,081
Other liabilities		—	—	—	5,553	5,553
Total liabilities		55,034	9,047	11,909	6,609	82,599
Total equity		—	—	—	10,534	10,534
Total liabilities and equity at 31 Dec 2015		55,034	9,047	11,909	17,143	93,133

For footnotes, see page 164.

Balance sheet of insurance manufacturing subsidiaries by geographical region[67, 68]
(Audited)

		Europe	Asia	Latin America	Total
	Footnotes	$m	$m	$m	$m
Financial assets		26,238	56,371	1,434	84,043
– trading assets		—	—	2	2
– financial assets designated at fair value		10,171	13,618	510	24,299
– derivatives		187	86	—	273
– financial investments – HTM	63	—	33,624	491	34,115
– financial investments – AFS	63	13,812	5,735	373	19,920
– other financial assets	64	2,068	3,308	58	5,434
Reinsurance assets		362	1,499	7	1,868
PVIF	65	711	5,682	109	6,502
Other assets and investment properties		871	1,493	53	2,417
Total assets		28,182	65,045	1,603	94,830
Liabilities under investment contracts designated at fair value		1,321	4,681	—	6,002
Liabilities under insurance contracts		24,310	49,793	1,170	75,273
Deferred tax	66	238	919	32	1,189
Other liabilities		841	914	50	1,805
Total liabilities		26,710	56,307	1,252	84,269
Total equity		1,472	8,738	351	10,561
Total liabilities and equity at 31 Dec 2016		28,182	65,045	1,603	94,830
Financial assets		26,897	51,087	1,599	79,583
– trading assets		—	—	2	2
– financial assets designated at fair value		9,987	12,668	632	23,287
– derivatives		163	93	—	256
– financial investments – HTM	63	—	29,496	583	30,079
– financial investments – AFS	63	14,525	5,503	302	20,330
– other financial assets	64	2,222	3,327	80	5,629
Reinsurance assets		287	1,122	8	1,417
PVIF	65	807	4,761	117	5,685
Other assets and investment properties		919	1,358	4,171	6,448
Total assets		28,910	58,328	5,895	93,133
Liabilities under investment contracts designated at fair value		1,376	4,651	—	6,027
Liabilities under insurance contracts		24,699	43,975	1,264	69,938
Deferred tax	66	274	767	40	1,081
Other liabilities		832	974	3,747	5,553
Total liabilities		27,181	50,367	5,051	82,599
Total equity		1,729	7,961	844	10,534
Total liabilities and equity at 31 Dec 2015		28,910	58,328	5,895	93,133

For footnotes, see page 164.

Key risk types

The key risk for the insurance operation is market risk, followed by insurance risk. Credit and liquidity risk, while significant for the bank, are minor for our insurance operations.

Market risk

(Audited)

Description and exposure

Market risk is the risk of changes in market factors affecting HSBC's capital or profit. Market factors include interest rates, equity and growth assets, spread risk and foreign exchange rates.

Our exposure varies depending on the type of contract issued. Our most significant life insurance products are contracts with discretionary participating features ('DPF') issued in France and Hong Kong. These products typically include some form of capital guarantee or guaranteed return on the sums invested by the policyholders, to which discretionary bonuses are added if allowed by the overall performance of the funds. These funds are primarily invested in bonds, with a proportion allocated to other asset classes to provide customers with the potential for enhanced returns.

DPF products expose HSBC to the risk of variation in asset returns, which will impact our participation in the investment

performance. In addition, in some scenarios the asset returns can become insufficient to cover the policyholders' financial guarantees, in which case the shortfall has to be met by HSBC. Reserves are held against the cost of such guarantees, calculated by stochastic modelling.

Where local rules require, these reserves are held as part of liabilities under insurance contracts. Any remainder is accounted for as a deduction from the present value of in-force ('PVIF') long-term insurance business on the relevant product. The table below shows the total reserve held for the cost of guarantees, the range of investment returns on assets supporting these products and the implied investment return that would enable the business to meet the guarantees.

The cost of guarantees decreased to $625m (2015: $748m) primarily due to changes to the profit-sharing mechanism on DPF contracts with guarantees in Hong Kong, which primarily reduced the cost of guarantees on portfolios reported in the 2.1% to 4.0% category. In addition, there was a movement in cost of guarantees from the 2.1% to 4.0% category, to the 0.1% to 2.0% category due to reducing average guarantees on certain portfolios. The real annual return guarantees reported in 2015 relate to insurance operations in Brazil, which were sold on 1 July 2016.

For unit-linked contracts, market risk is substantially borne by the policyholder, but some market risk exposure typically

remains, as fees earned are related to the market value of the linked assets.

Financial return guarantees[67]
(Audited)

		2016			2015		
		Investment returns implied by guarantee	Current yields	Cost of guarantees	Investment returns implied by guarantee	Current yields	Cost of guarantees
	Footnotes	%	%	$m	%	%	$m
Capital		0.0	0.0 – 3.0	59	0.0	0.0 – 3.8	85
Nominal annual return		0.1 – 2.0	3.7 – 3.8	64	0.1 – 1.9	3.9 – 3.9	4
Nominal annual return	69	2.1 – 4.0	3.0 – 4.4	426	2.0 – 4.0	3.8 – 4.0	603
Nominal annual return		4.1 – 5.0	3.0 – 4.1	76	4.1 – 5.0	3.8 – 4.1	28
Real annual return	70	n/a	n/a	n/a	0.0 – 6.0	5.9 – 6.1	28
At 31 Dec				625			748

For footnotes, see page 164.

Sensitivities

Changes in financial market factors, from the economic assumptions in place at the start of the year, had a negative impact on reported profit before tax of $386m (2015: $13m negative). The following table illustrates the effects of selected interest rate, equity price and foreign exchange rate scenarios on our profit for the year and the total equity of our insurance manufacturing subsidiaries.

Where appropriate, the effects of the sensitivity tests on profit after tax and equity incorporate the impact of the stress on the PVIF. The relationship between the profit and total equity and the risk factors is non-linear, therefore the results disclosed should not be extrapolated to measure sensitivities to different levels of stress. For the same reason, the impact of the stress is

not symmetrical on the upside and downside. The sensitivities are stated before allowance for management actions which may mitigate the effect of changes in the market environment. The sensitivities presented allow for adverse changes in policyholder behaviour that may arise in response to changes in market rates.

Interest rate movements have a greater impact on total equity as changes in market value of available-for-sale bonds are not recognised in profit after tax.

Changes in sensitivity compared to 2015 were primarily driven by the impact of decreasing yields in France on the projected cost of options and guarantees and by the adoption of a more market-aligned PVIF methodology in Singapore.

Sensitivity of HSBC's insurance manufacturing subsidiaries to market risk factors
(Audited)

		2016		2015	
		Effect on profit after tax	Effect on total equity	Effect on profit after tax	Effect on total equity
	Footnote	$m	$m	$m	$m

+100 basis point parallel shift in yield curves		63	(494)	39	(474)
–100 basis point parallel shift in yield curves	71	(182)	490	(213)	404
10% increase in equity prices		189	190	176	176
10% decrease in equity prices		(191)	(191)	(158)	(158)
10% increase in US dollar exchange rate compared with all currencies		19	19	16	16
10% decrease in US dollar exchange rate compared with all currencies		(19)	(19)	(16)	(16)

For footnote, see page 164.

Credit risk

(Audited)

Description and exposure

Credit risk is the risk of financial loss if a customer or counterparty fails to meet their obligation under a contract. It arises in two main areas for our insurance manufacturers:

- risk of default by debt security counterparties after investing premiums to generate a return for policyholders and shareholders; and
- risk of default by reinsurance counterparties and non-reimbursement for claims made after ceding insurance risk.

The amounts outstanding at the balance sheet date in respect of these items are shown in the table on page 160.

The credit quality of the reinsurers' share of liabilities under insurance contracts is assessed as 'satisfactory' or higher (as defined on page 107), with 100% of the exposure being neither past due nor impaired (2015: 100%).

Credit risk on assets supporting unit-linked liabilities is predominantly borne by the policyholder; therefore, our exposure is primarily related to liabilities under non-linked insurance and investment contracts and shareholders' funds. The credit quality of insurance financial assets is included in the table on page 121.

Liquidity risk

(Audited)

Description and exposure

Liquidity risk is the risk that an insurance operation, though solvent, either does not have sufficient financial resources available to meet its obligations when they fall due, or can secure them only at excessive cost.

The following table shows the expected undiscounted cash flows for insurance liabilities at 31 December 2016. The liquidity risk exposure is wholly borne by the policyholder in the case of unit-linked business and is shared with the policyholder for non-linked insurance.

The profile of the expected maturity of insurance contracts at 31 December 2016 remained comparable with 2015.

The remaining contractual maturity of investment contract liabilities is included in Note 29.

Expected maturity of insurance contract liabilities[67]
(Audited)

	Expected cash flows (undiscounted)				
	Within 1 year	1-5 years	5-15 years	Over 15 years	Total
	$m	$m	$m	$m	$m
Unit-linked	630	2,468	5,101	9,513	17,712
With DPF and Other contracts	5,582	23,136	40,621	40,447	109,786
At 31 Dec 2016	6,212	25,604	45,722	49,960	127,498
Unit-linked	549	2,164	5,945	11,080	19,738
With DPF and Other contracts	5,356	22,796	37,585	38,649	104,386
At 31 Dec 2015	5,905	24,960	43,530	49,729	124,124

For footnotes, see page 164.

Insurance risk

Description and exposure

Insurance risk is the risk of loss through adverse experience, in either timing or amount, of insurance underwriting parameters (non-economic assumptions). These parameters include mortality, morbidity, longevity, lapses and unit costs.

The principal risk we face is that, over time, the cost of the contract, including claims and benefits, may exceed the total amount of premiums and investment income received.

The tables on pages 160 and 161 analyse our life insurance risk exposures by type of contract and by geographical region.

The insurance risk profile and related exposures remain largely consistent with those observed at 31 December 2015.

Sensitivities

(Audited)

The table below shows the sensitivity of profit and total equity to reasonably possible changes in non-economic assumptions across all our insurance manufacturing subsidiaries.

Mortality and morbidity risk is typically associated with life insurance contracts. The effect on profit of an increase in mortality or morbidity depends on the type of business being written. Our largest exposures to mortality and morbidity risk exist in Hong Kong and Singapore.

Sensitivity to lapse rates depends on the type of contracts being written. For a portfolio of term assurance, an increase in lapse rates typically has a negative effect on profit due to the loss of future income on the lapsed policies. However, some contract lapses have a positive effect on profit due to the existence of policy surrender charges. We are most sensitive to a change in lapse rates on unit-linked and universal life contracts in Hong Kong and Singapore, and DPF contracts in France.

Expense rate risk is the exposure to a change in the cost of administering insurance contracts. To the extent that increased expenses cannot be passed on to policyholders, an increase in expense rates will have a negative effect on our profits.

Sensitivity analysis

(Audited)

	2016	2015
	$m	$m
Effect on profit after tax and total equity at 31 Dec		

10% increase in mortality and/or morbidity rates	(71)	(70)
10% decrease in mortality and/or morbidity rates	75	75
10% increase in lapse rates	(80)	(90)
10% decrease in lapse rates	93	102
10% increase in expense rates	(89)	(85)
10% decrease in expense rates	87	83

Footnotes to Risk

Liquidity and funding

51 The HSBC UK Liquidity Group shown comprises four legal entities: HSBC Bank plc (including all overseas branches, and SPEs consolidated by HSBC Bank plc for Financial Statement purposes), Marks and Spencer Financial Services plc, HSBC Private Bank (UK) Ltd and HSBC Trust Company (UK) Limited, managed as a single operating entity, in line with the application of UK liquidity regulation as agreed with the UK PRA.

52 The Hongkong and Shanghai Banking Corporation – Hong Kong branch and The Hongkong and Shanghai Banking Corporation – Singapore branch represent the material activities of the Hongkong and Shanghai Banking Corporation. Each branch is monitored and controlled for liquidity and funding risk purposes as a stand-alone operating entity.

53 HSBC France and HSBC Canada represent the consolidated banking operations of the Group in France and Canada, respectively. HSBC France and HSBC Canada are each managed as single distinct operating entities for liquidity purposes.

54 The total shown for other principal HSBC operating entities represents the combined position of all the other operating entities overseen directly by the Risk Management Meeting of the GMB.

Market risk

55 Trading portfolios comprise positions arising from the market-making and warehousing of customer-derived positions.

56 Portfolio diversification is the market risk dispersion effect of holding a portfolio containing different risk types. It represents the reduction in unsystematic market risk that occurs when combining a number of different risk types; for example, interest rate, equity and foreign exchange, together in one portfolio. It is measured as the difference between the sum of the VaR by individual risk type and the combined total VaR. A negative number represents the benefit of portfolio diversification. As the maximum and minimum occurs on different days for different risk types, it is not meaningful to calculate a portfolio diversification benefit for these measures.

57 The total VaR is non-additive across risk types due to diversification effects.

58 Investments in private equity are primarily made through managed funds that are subject to limits on the amount of investment. Potential new commitments are subject to risk appraisal to ensure that industry and geographical concentrations remain within acceptable levels for the portfolio as a whole. Regular reviews are performed to substantiate the valuation of the investments within the portfolio.

59 Investments held to facilitate ongoing business include holdings in government-sponsored enterprises and local stock exchanges.

60 Instead of assuming that all interest rates move together, we group our interest rate exposures into currency blocs whose rates are considered likely to move together. See page 281, 'Cautionary statement regarding forward-looking statements'.

Risk management of insurance operations

61 'Other Contracts' includes term assurance, credit life insurance, universal life insurance and investment contracts not included in the 'Unit-linked' or 'With DPF' columns.

62 At 31 December 2015, 'Shareholder assets and liabilities' included assets and liabilities classified as held for sale in respect of the disposal of operations in Brazil, which was completed on 1 July 2016. The assets, comprising mainly debt and equity securities and PVIF, were reported within 'Other assets and investment properties' and totalled \$4.1bn. The liabilities classified as held for sale, comprising mainly liabilities under insurance contracts and liabilities under investment contracts, were reported within 'Other liabilities' and totalled \$3.7bn. No assets and liabilities relating to insurance businesses were held for sale at 31 December 2016.

63 Financial investments held to maturity ('HTM') and available for sale ('AFS').

64 Comprise mainly loans and advances to banks, cash and inter-company balances with other non-insurance legal entities.

65 Present value of in-force long-term insurance business.

66 'Deferred tax' includes the deferred tax liabilities arising on recognition of PVIF.

67 Does not include associated insurance companies SABB Takaful Company and Canara HSBC Oriental Bank of Commerce Life Insurance Company Limited.

68 HSBC has no insurance manufacturing subsidiaries in Middle East and North Africa or North America.

69 A block of contracts in France with guaranteed nominal annual returns in the range 1.25%-3.72% is reported entirely in the 2.1%-4.0% category in line with the average guaranteed return of 2.6% offered to policyholders by these contracts.

70 Real annual return guarantees provide the policyholder a guaranteed return in excess of the rate of inflation, and are supported by inflation-linked debt securities with yields that are also expressed in real terms.

71 Where a -100 basis point parallel shift in the yield curve would result in a negative interest rate, the effects on profit after tax and total equity have been calculated using a minimum rate of 0%.

Country distribution of outstandings and cross-border exposures

72 These balances were between 0.75% and 1% of total assets. All other balances were above 1%.

Capital

Capital highlights

- Our common equity tier 1 (‘CET1’) ratio of 13.6% was up from 11.9% at the end of 2015, mainly due to a change in the regulatory treatment of Bank of Communications Co., Limited ('BoCom').
- Our CET1 capital base reduced during the year by $14.3bn, driven by unfavourable foreign currency movements of $7.7bn, a $5.6bn reduction due to the BoCom change, and the $2.5bn share buy-back.
- A decrease in RWAs in 2016 of $245.8bn from continued implementation of RWA-reduction initiatives, the BoCom change and favourable foreign currency movements, supported the increase in capital ratios.

Capital overview

Capital ratios

		At 31 Dec	
		2016	2015
	Footnote	%	%
CRD IV end point			
Common equity tier 1 ratio	1	13.6	11.9
CRD IV transitional			
Common equity tier 1 ratio	1	13.6	11.9
Tier 1 ratio		16.1	13.9
Total capital ratio		20.1	17.2

Total regulatory capital and risk-weighted assets

		At 31 Dec	
		2016	2015
	Footnote	$m	$m
CRD IV end point			
Common equity tier 1 capital	1	115,984	130,863
CRD IV transitional			
Common equity tier 1 capital	1	116,552	130,863
Additional tier 1 capital		21,470	22,440
Tier 2 capital		34,336	36,530
Total regulatory capital		172,358	189,833
Transitional risk-weighted assets	1	857,181	1,102,995

1 Due to transitional provisions in the threshold deduction our CET1 and RWAs are different for transitional and end point. At 31 December 2016, end point RWAs were $855.8bn.

RWAs by risk types

	RWAs	Capital required [1]
	$bn	$bn
Credit risk	655.7	52.5
Counterparty credit risk	62.0	5.0
Market risk	41.5	3.3
Operational risk	98.0	7.8
At 31 Dec 2016	857.2	68.6

1 ‘Capital required’ represents the Pillar 1 capital charge at 8% of RWAs.

Capital management
(Audited)
Our objective in the management of Group capital is to maintain appropriate levels of capital to support our business strategy, and meet our regulatory and stress testing related requirements.
Approach and policy
Our approach to capital management is driven by our strategic and organisational requirements, taking into account the regulatory, economic and commercial environment. It is our objective to maintain a strong capital base to support the risks inherent in our business and invest in accordance with our strategy, meeting both consolidated and local regulatory capital requirements at all times. Our policy on capital management is underpinned by a capital management framework and our internal capital adequacy assessment process (‘ICAAP’), which enables us to manage our capital in a consistent manner. The framework incorporates a number of different capital measures calculated on an economic capital and regulatory capital basis. The internal capital adequacy assessment process brings together regulatory and internal capital resources and requirements with HSBC’s business model, strategy, performance and planning, risks to capital, and the implications of stress testing to assess the bank’s capital position.
Our assessment of capital adequacy is aligned to our assessment of risks. These include credit, market, operational, pensions, insurance, structural foreign exchange risk, residual risks and interest rate risk in the banking book.
Planning and performance
Capital plans and RWA plans form part of the Annual Operating Plan that is approved by the Board. Revised RWA forecasts are submitted to the GMB on a monthly basis and reported RWAs are monitored against plan.
The responsibility for global capital allocation principles and decisions rests with the Group Finance Director. Through our internal governance processes, we seek to maintain discipline over our investment and capital allocation decisions, and seek to ensure that returns on investment meet the Group’s management objectives. Our strategy is to allocate capital to businesses and entities to support growth objectives where above hurdle returns have been identified and their regulatory and economic capital needs.
We manage business returns by use of a return on risk-weighted assets (‘RoRWA’) measure. In 2016, we augmented this through the introduction of financial information and metrics on the consumption of, and returns on, capital by global business to support management’s assessment of business performance and the allocation of capital resources. We plan to further embed this in 2017.
Risks to capital
Outside the stress testing framework, other risks may be identified that have the potential to affect our RWAs and/or capital position. The downside or upside scenarios are assessed against our capital management objectives and mitigating actions are assigned as necessary.
Stress testing
In addition to an annual internal stress test, the Group is subject to supervisory stress testing in many jurisdictions. Supervisory stress testing requirements are increasing in frequency and in the granularity with which the results are required. These exercises include the programmes of the PRA, the FRB, the EBA, the ECB and the HKMA, as well as stress tests undertaken in other jurisdictions. We take into account the results of all such regulatory stress testing and our internal stress test when assessing our internal capital requirements. The outcome of stress testing exercises carried out by the PRA will also feed

into a PRA buffer under the Pillar 2 requirements, where required.

Capital generation

HSBC Holdings is the provider of equity capital to its subsidiaries and also provides them with non-equity capital where necessary. These investments are substantially funded by HSBC Holdings' own capital issuance and profit retention. As part of its capital management process, HSBC Holdings seeks to maintain a prudent balance between the composition of its capital and its investment in subsidiaries.

Capital

Transitional own funds disclosure

(Audited)

		At 31 Dec	
		2016	2015
Ref*		$m	$m
	Common equity tier 1 ('CET1') capital: instruments and reserves		
1	Capital instruments and the related share premium accounts	21,310	20,858
	– ordinary shares	21,310	20,858
2	Retained earnings[1]	125,442	122,304
3	Accumulated other comprehensive income (and other reserves)[1]	560	8,832
5	Minority interests (amount allowed in consolidated CET1)	3,878	3,519
5a	Independently reviewed interim net profits net of any foreseeable charge or dividend[1]	(1,899)	8,670
6	Common equity tier 1 capital before regulatory adjustments	149,291	164,183
	Common equity tier 1 capital: regulatory adjustments		
7	Additional value adjustments	(1,358)	(1,151)
8	Intangible assets (net of related deferred tax liability)	(15,037)	(20,650)
10	Deferred tax assets that rely on future profitability excluding those arising from temporary differences (net of related tax liability)	(1,696)	(1,204)
11	Fair value reserves related to gains or losses on cash flow hedges	(52)	(52)
12	Negative amounts resulting from the calculation of expected loss amounts	(4,025)	(4,920)
14	Gains or losses on liabilities at fair value resulting from changes in own credit standing	1,052	(495)
15	Defined-benefit pension fund assets	(3,680)	(4,009)
16	Direct and indirect holdings of own CET1 instruments	(1,573)	(839)
19	Direct, indirect and synthetic holdings by the institution of the CET1 instruments of financial sector entities where the institution has a significant investment in those entities (amount above 10% threshold and net of eligible short positions)	(6,370)	—
28	Total regulatory adjustments to common equity tier 1	(32,739)	(33,320)
29	Common equity tier 1 capital	116,552	130,863
	Additional tier 1 ('AT1') capital: instruments		
30	Capital instruments and the related share premium accounts	11,259	9,261
31	– classified as equity under IFRSs	11,259	9,261
33	Amount of qualifying items and the related share premium accounts subject to phase out from AT1	7,946	8,972
34	Qualifying tier 1 capital included in consolidated AT1 capital (including minority interests not included in CET1) issued by subsidiaries and held by third parties	2,419	4,388
35	– of which: instruments issued by subsidiaries subject to phase out	1,522	2,842
36	Additional tier 1 capital before regulatory adjustments	21,624	22,621
	Additional tier 1 capital: regulatory adjustments		

37	Direct and indirect holdings of own AT1 instruments	(60)	(60)
41b	Residual amounts deducted from AT1 capital with regard to deduction from tier 2 (‘T2’) capital during the transitional period	(94)	(121)
	– direct and indirect holdings by the institution of the T2 instruments and subordinated loans of financial sector entities where the institution has a significant investment in those entities	(94)	(121)
43	Total regulatory adjustments to additional tier 1 capital	(154)	(181)
44	Additional tier 1 capital	21,470	22,440
45	Tier 1 capital (T1 = CET1 + AT1)	138,022	153,303
	Tier 2 capital: instruments and provisions		
46	Capital instruments and the related share premium accounts	16,732	15,863
47	Amount of qualifying items and the related share premium accounts subject to phase out from T2	5,695	6,645
48	Qualifying own funds instruments included in consolidated T2 capital (including minority interests and AT1 instruments not included in CET1 or AT1) issued by subsidiaries and held by third parties	12,323	14,344
49	– of which: instruments issued by subsidiaries subject to phase out	12,283	14,330
51	Tier 2 capital before regulatory adjustments	34,750	36,852
	Tier 2 capital: regulatory adjustments		
52	Direct and indirect holdings of own T2 instruments	(40)	(40)
55	Direct and indirect holdings by the institution of the T2 instruments and subordinated loans of financial sector entities where the institution has a significant investment in those entities (net of eligible short positions)	(374)	(282)
57	Total regulatory adjustments to tier 2 capital	(414)	(322)
58	Tier 2 capital	34,336	36,530
59	Total capital (TC = T1 + T2)	172,358	189,833

* The references identify the lines prescribed in the EBA template, which are applicable and where there is a value.

1 In the comparative period, profits and other comprehensive income have been reallocated from row 2 into rows 5a and 3 respectively. In addition, retained earnings and profits pertaining to the deconsolidation of insurance and other entities have been reallocated from row 3 to rows 2 and 5a.

Throughout 2016, we complied with the Prudential Regulation Authority's ('PRA') regulatory capital adequacy requirements, including those relating to stress testing.

Following a clarification of policy by the PRA, at 30 September 2016 the regulatory treatment of our investment in BoCom changed from proportional consolidation of RWAs to a deduction from capital (subject to regulatory thresholds). The revised regulatory treatment is more consistent with our financial reporting treatment, aligning with the equity method of accounting, and better reflects our relationship with BoCom, including the nature of our obligations and financial commitments.

CET1 capital decreased during the year by $14.3bn, primarily because of:

- unfavourable foreign currency translation differences of $7.8bn;
- a $5.6bn reduction from the change in treatment of BoCom; and
- the $2.5bn share buy-back.

These decreases were partly offset by:

- $2.4bn from the sale of our operations in Brazil.

Risk-weighted assets

RWAs

RWAs decreased in 2016 by $245.8bn, of which $38.1bn was due to foreign currency translation differences. RWA initiatives reduced RWAs by $143.2bn, partly offset by book size movements increasing RWAs by $38.7bn. The change of regulatory treatment of our investment in BoCom reduced RWAs by $120.9bn.

The following comments describe RWA movements in 2016, excluding foreign currency translation differences.

RWA initiatives

The main drivers of these reductions were:

- $69.8bn as a result of reduced exposures, refined calculations and process improvements;
- $41.8bn from the sale of our activities in Brazil; and
- $31.6bn through the continued reduction in Legacy Credit and US run-off portfolios.

Book size

Book size movements increased RWAs by $38.7bn, principally from:

- increased corporate lending in GB&M and CMB, increasing RWAs by $32bn in Asia and Europe;
- movements in market parameters increasing counterparty credit risk and market risk by $11.7bn; and
- offset by a decrease in operational risk RWAs of $3.4bn reflecting the decrease of average income over three years.

RWAs by global business

	RBWM	CMB	GB&M	GPB	Corporate Centre	Total
	$bn	$bn	$bn	$bn	$bn	$bn
Credit risk	84.6	250.6	170.8	12.2	137.5	655.7
Counterparty credit risk	—	—	59.1	0.2	2.7	62.0
Market risk	—	—	38.5	—	3.0	41.5
Operational risk	30.5	25.3	32.0	2.9	7.3	98.0
At 31 Dec 2016	115.1	275.9	300.4	15.3	150.5	857.2
Credit risk	99.7	278.1	189.6	14.4	294.1	875.9
Counterparty credit risk	—	—	64.3	0.3	4.6	69.2
Market risk	—	—	40.7	—	1.8	42.5
Operational risk	31.0	24.1	35.7	3.3	21.3	115.4
At 31 Dec 2015	130.7	302.2	330.3	18.0	321.8	1,103.0

RWAs by geographical region

	Europe	Asia	MENA	North	Latin	Total

				America	America	
	$bn	$bn	$bn	$bn	$bn	$bn
Credit risk	205.8	260.0	49.0	118.5	22.4	655.7
Counterparty credit risk	30.9	16.1	1.2	12.6	1.2	62.0
Market risk[1]	30.8	21.3	1.4	6.8	0.5	41.5
Operational risk	30.9	36.6	7.5	12.8	10.2	98.0
At 31 Dec 2016	298.4	334.0	59.1	150.7	34.3	857.2
Credit risk	231.6	373.6	59.2	156.4	55.1	875.9
Counterparty credit risk	31.9	17.1	2.0	14.6	3.6	69.2
Market risk	30.5	21.9	1.5	6.5	1.6	42.5
Operational risk	33.2	47.1	7.9	14.1	13.1	115.4
At 31 Dec 2015	327.2	459.7	70.6	191.6	73.4	1,103.0

1 RWAs are non-additive across geographical regions due to market risk diversification effects within the Group.

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RWA movement by global business by key driver

	Credit risk, counterparty credit risk and operational risk						
	RBWM	CMB	GB&M	GPB	Corporate Centre	Market risk	Total RWAs
	$bn	$bn	$bn	$bn	$bn	$bn	$bn
RWAs at 1 Jan 2016	130.8	302.1	289.6	18.0	320.0	42.5	1,103.0
RWA movements							
RWA initiatives	(10.1)	(39.0)	(48.1)	(0.3)	(39.8)	(5.9)	(143.2)
Foreign exchange movement	(4.1)	(15.7)	(10.1)	(0.7)	(7.5)	—	(38.1)
Acquisitions and disposals	—	—	—	—	—	—	—
Book size	0.7	16.6	22.9	(1.5)	(4.9)	4.9	38.7
Book quality	(1.5)	7.7	8.5	—	0.3	—	15.0
Model updates	(0.9)	—	(0.1)	—	—	—	(1.0)
– portfolios moving onto IRB[1] approach	—	—	(0.1)	—	—	—	(0.1)
– new/updated models	(0.9)	—	—	—	—	—	(0.9)
Methodology and policy	0.2	4.2	(0.8)	(0.2)	(120.6)	—	(117.2)
– internal updates	1.0	4.2	(0.8)	(0.2)	(1.0)	—	3.2
– external updates – regulatory	(0.8)	—	—	—	(119.6)	—	(120.4)
Total RWA movement	(15.7)	(26.2)	(27.7)	(2.7)	(172.5)	(1.0)	(245.8)
RWAs at 31 Dec 2016	115.1	275.9	261.9	15.3	147.5	41.5	857.2

1 Internal ratings based.

RWA movement by geographical region by key driver

	Credit risk, counterparty credit risk and operational risk						
	Europe	Asia	MENA	North America	Latin America	Market risk	Total RWAs
	$bn	$bn	$bn	$bn	$bn	$bn	$bn
RWAs at 1 Jan 2016	296.7	437.8	69.1	185.0	71.9	42.5	1,103.0
RWA movements							
RWA initiatives	(28.4)	(19.1)	(3.6)	(43.6)	(42.6)	(5.9)	(143.2)
Foreign exchange movement	(26.9)	(7.8)	(6.5)	0.9	2.2	—	(38.1)
Acquisitions and disposals	—	—	—	—	—	—	—
Book size	20.4	12.6	(1.4)	0.2	2.0	4.9	38.7
Book quality	4.1	7.6	0.2	2.8	0.3	—	15.0
Model updates	0.2	—	—	(1.2)	—	—	(1.0)
– portfolios moving onto IRB[1] approach	(0.1)	—	—	—	—	—	(0.1)
– new/updated models	0.3	—	—	(1.2)	—	—	(0.9)
Methodology and policy	1.5	(118.4)	(0.1)	(0.2)	—	—	(117.2)
– internal updates	2.6	0.6	(0.1)	(0.2)	0.3	—	3.2
– external updates – regulatory	(1.1)	(119.0)	—	—	(0.3)	—	(120.4)
Total RWA movement	(29.1)	(125.1)	(11.4)	(41.1)	(38.1)	(1.0)	(245.8)
RWAs at 31 Dec 2016	267.6	312.7	57.7	143.9	33.8	41.5	857.2

1 Internal ratings based.

Leverage ratio

Leverage ratio

		At 31 Dec	
		2016	2015
Ref*		$bn	$bn
21	Total leverage ratio exposure	2,354.4	2,794.4
20	Tier 1 capital (end point)	127.3	140.2
22	Leverage ratio	5.4%	5.0%
EU-23	Choice on transitional arrangements for the definition of the capital measure	Fully phased in	Fully phased in
	Total leverage ratio exposure – quarterly average	2,438.7	2,869.4
	Leverage ratio – quarterly average	5.4%	5.0%

* The references identify the lines prescribed in the EBA template.

Our leverage ratio calculated on CRR basis was 5.4% at 31 December 2016, up from 5.0% at 31 December 2015. This was mainly due to a reduction in the exposure measure resulting from the change in regulatory treatment of our investment in BoCom.

The Group's UK leverage ratio on a modified basis, excluding qualifying central bank balances, was 5.7%. This modification to the leverage ratio exposure measure was made following recommendations by the Bank of England's Financial Policy Committee.

The Financial Policy Committee has stated that it intends to recalibrate the leverage ratio in 2017 to take account of this modification. HSBC's UK leverage ratio on a modified basis should be considered in this context.

At 31 December 2016, our UK minimum leverage ratio requirement of 3% was supplemented by an additional leverage ratio buffer of 0.2%. This additional buffer translates to a value of $5bn. The countercyclical leverage ratio buffer results in no capital impact. We comfortably exceeded these leverage requirements.

Pillar 3 disclosure requirements

Pillar 3 of the Basel regulatory framework is related to market discipline and aims to make firms more transparent by requiring publication, at least annually, of wide-ranging information on their risks, capital and management. Pillar 3 Disclosures 2016 is published on our website, www.hsbc.com, under Investor Relations.

Corporate Governance Report

Statement of compliance

The statement of corporate governance practices set out on pages 170 to 212 and the information referred to therein constitutes the Corporate Governance Report of HSBC Holdings. The websites referred to do not form part of this Report.

Relevant corporate governance codes	
UK Corporate Governance Code	www.frc.org.uk
Hong Kong Corporate Governance Code (set out in Appendix 14 to the Rules Governing the Listing of Securities on the Stock Exchange of Hong Kong Limited)	www.hkex.com.hk
Descriptions of the roles and responsibilities of the: – Group Chairman – Group Chief Executive – Senior Independent Director	www.hsbc.com/about-hsbc/corporate-governance/board-committees
Board and senior management	www.hsbc.com/about-hsbc/leadership
Roles and responsibilities of the Board and its committees	www.hsbc.com/about-hsbc/corporate-governance/board-committees
Board's policies on: – Diversity – Shareholder communication	www.hsbc.com/investor-relations/governance/corporate-governance-codes
Global Internal Audit Charter	www.hsbc.com/investor-relations/governance/internal-control

HSBC is subject to corporate governance requirements in both the UK and Hong Kong. During 2016, HSBC complied with the applicable provisions of the UK Corporate Governance Code, and also the requirements of the Hong Kong Corporate Governance Code.

Under the Hong Kong Code the Audit Committee should be responsible for the oversight of all risk management and internal control systems. HSBC's Group Risk Committee is responsible for oversight of internal control, other than internal control over financial reporting, and risk management systems. This is permitted under the UK Corporate Governance Code.

The Board has codified obligations for transactions in HSBC Group securities in accordance with the requirements of the Market Abuse Regulation and the rules governing the listing of securities on The Stock Exchange of Hong Kong Limited ('HKEx'), save that the HKEx has granted waivers from strict compliance with the rules that take into account accepted practices in the UK, particularly in respect of employee share plans. HSBC is in discussion with the HKEx to update these waivers to take account of the Market Abuse Regulation. Following specific enquiry, each Director has confirmed that he or she has complied with their obligations in respect of transacting in Group securities during the year.

The Board

The Board aims to promote the Group's long-term success, deliver sustainable value to shareholders and promote a culture of openness and debate.

Led by the Group Chairman, the Board sets the Group's strategy and risk appetite. It also approves capital and operating plans for achieving strategic objectives, on the recommendation of management.

Powers of the Board

The Board is responsible for overseeing the management of HSBC globally and, in so doing, may exercise its powers, subject to any relevant laws, regulations and HSBC Holdings' Articles of Association (the 'Articles of Association'). Although the Board delegates day-to-day management of the business and implementation of strategy to the Group Chief Executive, certain matters, including annual operating plans, risk appetite and performance targets, procedures for monitoring and control of operations, approval of credit or market risk limits, acquisitions, disposals, investments, capital expenditure or realisation or creation of a new venture, specified senior appointments and any substantial change in balance sheet management policy are reserved by the Board for approval.

Executive Directors

The Group Chairman, the Group Chief Executive, the Group Finance Director and the Group Chief Risk Officer are HSBC employees.

Non-executive Directors

The Board comprises a majority of independent non-executive Directors. Their role is to constructively challenge, scrutinise the performance of management and help develop proposals on strategy. They also review the performance of management in meeting agreed goals and objectives and monitor the Group's risk profile.

The Board considers all non-executive Directors to be independent of HSBC. The Board has concluded that there are no relationships or circumstances likely to affect any individual non-executive Director's judgement. To satisfy the Rules Governing the Listing of Securities on the HKEx, all non-executive Directors have provided confirmation of their independence during the year. Sam Laidlaw has served on the Board for more than nine years and, in that respect only, does not meet the usual criteria for independence set out in the UK Corporate Governance Code and the Hong Kong Corporate Governance Code. The Board has determined Sam Laidlaw to be independent in character and judgement, notwithstanding his length of service, taking into account his continuing level of constructive challenge of management and strong contribution to Board discussions. He will, however, be retiring from the Board at the conclusion of the forthcoming AGM.

Role and support of Directors

The roles of Group Chairman and Group Chief Executive are separate, with a clear division of responsibilities between the running of the Board and executive responsibility for running HSBC's business. Their respective roles are set out in writing and are available on the website at www.hsbc.com/about-hsbc/corporate-governance/board-committees, along with the role description of the Senior Independent Director ('SID').

Executive Directors
Douglas Flint, CBE, 61
Group Chairman
Appointed to the Board: December 1995
Group Chairman since December 2010
Skills and experience: Douglas has extensive board-level experience and knowledge of governance primarily having served on the boards of HSBC and BP plc, and as a partner of KPMG. He has expertise in finance and risk management in banking, multinational financial reporting, treasury and securities trading operations. He joined HSBC as Group Finance Director in 1995 and, prior to becoming Chairman in 2010, his responsibilities broadened to Chief Financial Officer, and Executive Director for Risk and Regulation.
He is a member of the Institute of Chartered Accountants of Scotland and a Fellow of the Chartered Institute of Management Accountants.
Current appointments include: Board member of the Institute of International Finance, member of the International Business Leaders Advisory Councils of the mayors of both Beijing and Shanghai, a UK Business Ambassador at the invitation of the UK Prime Minister, non-executive Chairman of the Just Finance Foundation, trustee of the Royal Marsden Cancer Charity Board and a member of its Investment Committee.
Stuart Gulliver, 57
Group Chief Executive
Appointed to the Board: May 2008
Group Chief Executive since January 2011
Skills and experience: Stuart has more than 36 years' international banking experience, having joined HSBC in 1980. He played a leading role in developing and expanding Global Banking and Markets, and has held key roles in the Group's operations worldwide, working in London, Hong Kong, Tokyo, Kuala Lumpur and the United Arab Emirates. Former appointments include Chairman of HSBC Bank plc, HSBC Bank Middle East Limited, HSBC Private Banking Holdings (Suisse) SA and HSBC France. He was also Deputy Chairman of HSBC Trinkaus & Burkhardt AG and a member of its supervisory board.
Current appointments include: Chairman of the Group Management Board, and The Hongkong and Shanghai Banking Corporation Limited.
Iain Mackay, 55
Group Finance Director
Appointed to the Board: December 2010
Skills and experience: Iain has extensive financial and international experience, having worked in London, Paris, the US, Africa and Asia. He joined HSBC in 2007 as Chief Financial Officer of HSBC North America Holdings Inc. Other former

appointments include director of Hang Seng Bank Limited; Chief Financial Officer, HSBC Asia-Pacific. Before joining HSBC, Iain worked at General Electric ('GE'), serving as Controller of its Global Consumer Finance Unit, Chief Financial Officer of GE Consumer Finance Americas, and Chief Financial Officer of GE Healthcare – Global Diagnostic Imaging. Iain is a member of the Institute of Chartered Accountants of Scotland.
Current appointments include: Member of the Board of Trustees of the British Heart Foundation and chairman of its audit and risk committee.
Marc Moses, 59
Group Chief Risk Officer
Appointed to the Board: January 2014
Skills and experience: Marc joined HSBC in 2005 as Chief Financial and Risk Officer for Global Banking and Markets, and in December 2010 became Group Chief Risk Officer. He has extensive risk management and financial experience. Marc is a Fellow of the Institute of Chartered Accountants in England and Wales. He was European chief financial officer at J.P. Morgan and an audit partner at PricewaterhouseCoopers.
Independent non-executive Directors
Phillip Ameen, 68

Independent non-executive Director
Appointed to the Board: January 2015

Member of the Group Audit Committee.
Skills and experience: As a Certified Public Accountant with extensive financial and accounting experience, Phillip served as Vice President, Comptroller, and Principal Accounting Officer of GE. Prior to joining General Electric, he was a partner of KPMG. He also served on the International Financial Reporting Interpretations Committee of the International Accounting Standards Board, the Accounting Standards Executive Committee of the American Institute of Certified Public Accountants and the Financial Accounting Standards Board Emerging Issues Task Force. He was also Chairman of the Committee on Corporate Reporting of Financial Executives International, Chairman of Skyonic Corporation and a trustee of the Financial Accounting Foundation.
Current appointments include: A non-executive director of HSBC North America Holdings Inc., HSBC Bank USA N.A., HSBC Finance Corporation and HSBC USA Inc.
Kathleen Casey, 50
Independent non-executive Director
Appointed to the Board: March 2014
Member of the Group Audit Committee and the Financial System Vulnerabilities Committee.

Skills and experience: Kathleen has extensive financial regulatory policy experience. She is a former Commissioner of the US Securities and Exchange Commission, and acted as its principal representative in multilateral and bilateral regulatory dialogues with the G-20 Financial Stability Board and the International Organisation of Securities Commissions. Other former appointments include Staff Director and Counsel to the United States Senate Committee on Banking, Housing, and Urban Affairs; Chair of the Alternative Investment Management Association; and Legislative Director and Chief of Staff for a US Senator.
Current appointments include: Senior adviser to Patomak Global Partners and to a number of public bodies in the US.
Laura Cha, GBS, 67
Independent non-executive Director
Appointed to the Board: March 2011
Chair of the Philanthropic & Community Investment Oversight Committee, and a member of the Conduct & Values Committee and the Nomination Committee.
Skills and experience: Laura has extensive regulatory and policy making experience in the finance and securities sector in Hong Kong and mainland China. She is the former Vice Chairman of the China Securities Regulatory Commission. Other former appointments include serving as a non-executive director of Bank of Communications Co., Limited; Hong Kong Exchanges and Clearing Limited; and Tata Consultancy Services Limited. She also served as chair of the University Grants Committee in Hong Kong, and was Deputy Chairman of the Securities and Futures Commission in Hong Kong.
Current appointments include: A non-executive Deputy Chairman of The Hongkong and Shanghai Banking Corporation Limited, Chairman of Hong Kong's Financial Services Development Council and a non-executive director of China Telecom Corporation Limited, Unilever PLC and Unilever N.V.
Henri de Castries, 62
Independent non-executive Director
Appointed to the Board: March 2016
Skills and experience: Henri has more than 25 years' international experience in the financial services industry. He joined AXA in 1989 and his roles included responsibility for the group's asset management, financial and real-estate businesses, the oversight of North American and UK operations, and the preparation and execution of all the group's major mergers and acquisitions undertaken in the 1990s. Henri retired as Chairman and Chief Executive Officer of AXA SA on 1 September 2016. Other former appointments include serving as a director of AllianceBernstein Corporation.
Current appointments include: Chairman of Institut Montaigne, a French think-tank; non-executive director of Nestlé S.A. and a non-executive director of the French National Foundation for Political Science.

Lord Evans of Weardale, 59
Independent non-executive Director
Appointed to the Board: August 2013
Chairman of the Financial System Vulnerabilities Committee, and a member of the Conduct & Values Committee and the Philanthropic & Community Investment Oversight Committee.
Skills and experience: Jonathan has extensive experience in national security policy and operations. He was formerly Director General of the UK's Security Service (MI5) with responsibility for its leadership, policy and strategy, and areas including international and domestic counter-terrorism, counter-espionage and counter-proliferation activities, and cybersecurity. Jonathan held various positions during a 30-year career in the Security Service, which included responsibility for the oversight of the Joint Terrorist Analysis Centre and the Centre for the Protection of National Infrastructure, and attending the National Security Council.
Current appointments include: A non-executive director of Ark Data Centres and an adviser to various cybersecurity and technology companies.
Joachim Faber, 66
Independent non-executive Director

Appointed to the Board: March 2012
Chairman of the Group Risk Committee.
Skills and experience: Joachim has extensive international experience in banking and asset management. He is a former Chief Executive Officer of Allianz Global Investors AG and is a member of the management board of Allianz SE. He spent 14 years with Citicorp, holding positions in Trading and Project Finance, and as Head of Capital Markets for Europe, North America and Japan. He was also chairman of various Allianz subsidiaries. He was previously a member of the supervisory board and chairman of the audit and risk committee of OSRAM Licht AG. He was also a member of the German Council for Sustainable Development and a member of the advisory board of the Siemens Group Pension Board.
Current appointments include: Chairman of the supervisory board of Deutsche Börse AG and the Shareholder Committee of Joh. A. Benckiser SARL, and a director of Coty Inc. and Allianz France S.A.
Sam Laidlaw, 61
Independent non-executive Director
Appointed to the Board: January 2008
Chairman of the Group Remuneration Committee and the Nomination Committee.
Skills and experience: Sam has had responsibility for businesses in four continents and has particular experience in the energy sector. He was Chief Executive Officer of Centrica plc and lead non-executive board member of the UK

Department for Transport. He was also an Executive Vice President of Chevron Corporation and a member of the UK Prime Minister's Business Advisory Group. He is a qualified solicitor with a Master's in business administration.
Current appointments include: Chair of the National Centre for Universities and Business, Chair of the Global Leadership Council for the Saïd Business School and Executive Chairman of Neptune Oil & Gas Limited. Sam was also appointed as a non-executive director of Rio Tinto plc and Rio Tinto Limited on 10 February 2017.
Irene Lee, 63
Independent non-executive Director
Appointed to the Board: July 2015
Skills and experience: Irene has more than 30 years' finance industry experience, having held senior investment banking and fund management positions in the UK, the US and Australia, including positions at Citibank and the Commonwealth Bank of Australia. Other former appointments include serving as a member of the Advisory Council of J.P. Morgan Australia and the Australian Takeovers Panel.
Current appointments include: Executive Chairman of Hysan Development Company Limited and a non-executive director of The Hongkong and Shanghai Banking Corporation Limited, Hang Seng Bank Limited, Cathay Pacific Airways Limited, CLP Holdings Limited and Noble Group Limited.
John Lipsky, 70
Independent non-executive Director
Appointed to the Board: March 2012
Member of the Group Risk Committee, the Nomination Committee and the Group Remuneration Committee.
Skills and experience: John worked for J.P. Morgan in Chile, New York, Washington and London, and interacted with financial institutions, central banks and governments in many countries. He served at the International Monetary Fund as First Deputy Managing Director, Acting Managing Director and Special Adviser. Other former appointments include serving as a trustee of the Economic Club of New York, a Global Policy Adviser for Anderson Global Macro, LLC and Chairman of the World Economic Forum's Global Agenda Council on the International Monetary System.
Current appointments include: Senior appointments and advisory positions in international economic research organisations.
Rachel Lomax, 71
Senior Independent Director
Appointed to the Board: December 2008
Senior Independent Director since April 2015
Chair of the Conduct & Values Committee, and a member of the Group Risk Committee and the Nomination Committee.

Skills and experience: Rachel was Deputy Governor of the Bank of England, and Permanent Secretary at the UK Government Departments for Transport and Work and Pensions, and the Welsh Office. She was a non-executive director of Reinsurance Group of America Inc. and The Scottish American Investment Company P.L.C.
Current appointments include: A non executive director of Arcus European Infrastructure Fund GP LLP, Heathrow Airport Holdings Limited, SETL Development Limited and Serco Group plc, as well as Chairman of the latter's corporate responsibility committee.
Heidi Miller, 63
Independent non-executive Director
Appointed to the Board: September 2014
Member of the Group Risk Committee.
Skills and experience: Heidi is a former President of International at JP Morgan Chase, and was responsible for leading the global expansion and the international business strategy across its investment bank, asset management, and treasury and securities services divisions. She was also a non-executive director of Merck & Co., Inc. and Progressive Corp.; Executive Vice President and Chief Financial Officer of Bank One Corporation; Senior Executive Vice President of Priceline.com Inc.; and Executive Vice President and Chief Financial Officer of Citigroup Inc.
Current appointments include: Chair of HSBC North American Holdings Inc., a non-executive director of First Data Corporation and General Mills Inc., and an advisory director of SRS Acquiom LLC.

David Nish, 56
Independent non-executive Director
Appointed to the Board: May 2016
Member of the Group Audit Committee.
Skills and experience: David served as Chief Executive Officer of Standard Life plc between 2010 and 2015, having joined as Finance Director in 2006. David led its investment in technology, complementary acquisitions and the disposal of the group's Canadian operations. Other former appointments include Group Finance Director of Scottish Power plc, non-executive director of HDFC Life (India) and partner of Price Waterhouse. He is a qualified chartered accountant.
Current appointments include: A non-executive director of Vodafone plc, London Stock Exchange Group plc, UK Green Investment Bank plc and Zurich Insurance Group.
Jonathan Symonds, CBE, 57
Independent non-executive Director
Appointed to the Board: April 2014
Chairman of the Group Audit Committee and a member of the Conduct & Values Committee.

Skills and experience: Jonathan is a former Chief Financial Officer of Novartis AG and AstraZeneca plc. He was also a partner and Managing Director of Goldman Sachs, a partner of KPMG, and a non-executive director and chair of the Audit Committee of Diageo plc. He is a fellow of the Institute of Chartered Accountants in England and Wales.
Current appointments include: Chairman of HSBC Bank plc, Innocoll AG and Proteus Digital Health Inc., and a non-executive director of Genomics England Limited.
Jackson Tai, 66
Independent non-executive Director
Appointed to the Board: September 2016
Member of the Group Risk Committee and the Financial System Vulnerabilities Committee.
Skills and experience: Jackson was formerly Vice Chairman and Chief Executive of DBS Group and DBS Bank Ltd, having served the group as Chief Financial Officer and then as President and Chief Operating Officer. He previously worked at JP Morgan & Co. Incorporated as an investment banker in New York, Tokyo and San Francisco. Other former appointments include non-executive director of Bank of China Limited, Singapore Airlines, NYSE Euronext, ING Groep N.V., CapitaLand Ltd, SingTel Ltd. and Jones Lang LaSalle Inc. Jackson also served as Vice-Chairman of Islamic Bank of Asia.
Current appointments include: Non-executive director of Eli Lilly and Company, Koninklijke Philips Electronics N.V., MasterCard Incorporated and the Canada Pension Plan Investment Board.
Pauline van der Meer Mohr, 57
Independent non-executive Director
Appointed to the Board: September 2015
Member of the Group Remuneration Committee, the Group Nomination Committee and the Conduct & Values Committee.
Skills and experience: Pauline has extensive legal and human resources experience across a number of different sectors, and contributed to the Dutch Banking Code Monitoring Commission. Former appointments include President of Erasmus University Rotterdam; Senior Executive Vice President and Head of Group Human Resources at ABN AMRO Bank NV; Group Human Resources Director at TNT NV; HR Director, Information Technology, Royal Dutch Shell Group; and Senior Legal Counsel, Shell International.
Current appointments include: President of the supervisory board of EY Netherlands and member of the supervisory boards of ASML Holding N.V. and Royal DSM N.V.

Paul Walsh, 61
Independent non-executive Director
Appointed to the Board: January 2016
Member of the Group Remuneration Committee and the Group Nomination Committee.
Skills and experience: Paul was Group Chief Executive of Diageo plc for 12 years, having originally joined the Board of its predecessor, Grand Metropolitan plc, in 1995. He was also a non-executive director of Unilever PLC, United Spirits Limited and Centrica plc. Paul is a Fellow of the Chartered Institute of Management Accountants.
Current appointments include: Non-executive Chairman of Compass Group PLC, Avanti Communications Group Plc and Chime Communications Limited, and a non-executive director of FedEx Corporation and RM2 International S.A.
Group Company Secretary
Ben Mathews, 49
Group Company Secretary
Ben joined HSBC in June 2013 and became Group Company Secretary in July 2013. He is a Fellow of the Institute of Chartered Secretaries and Administrators. Former appointments include Group Company Secretary of Rio Tinto plc and of BG Group plc.
Role of the Group Company Secretary
All Directors have access to the advice and services of the Group Company Secretary, who is responsible to the Board for ensuring that Board procedures and all applicable rules and regulations are complied with, and for advising the

Board on corporate governance matters.

Under the direction of the Group Chairman, the Group Company Secretary is responsible for ensuring good information flows within the Board and its committees and between senior management and non-executive Directors, as well as facilitating induction and assisting with professional development as required.

Group Managing Directors

Samir Assaf, 56

Chief Executive, Global Banking and Markets

Samir joined HSBC in 1994 and became a Group Managing Director in 2011. He is Chairman and a non-executive director of HSBC France; a director of HSBC Trinkaus & Burkhardt AG and The Saudi British Bank. Former appointments include: a director of HSBC Bank plc; HSBC Global Asset Management Limited and HSBC Bank Egypt S.A.E.; and Head of Global Markets for Europe, Middle East and Africa.

Peter Boyles, 61

Chief Executive Officer of Global Private Banking

Peter joined HSBC in 1975 and became a Group Managing Director in 2013. He is Chairman of HSBC Private Bank (Monaco) SA and a director of HSBC Global Asset Management Limited and HSBC Private Bank (UK) Limited. Former appointments include: Chief Executive of HSBC France; a director of HSBC Bank plc, HSBC Bank Malta p.l.c. and HSBC Trinkaus & Burkhardt AG.

Patrick Burke, 55

President and Chief Executive Officer of HSBC USA

Patrick joined HSBC in 1989 and became a Group Managing Director in 2015. He is Chairman of HSBC Bank USA, N.A., HSBC Finance Corporation, HSBC USA Inc. and HSBC Global Asset Management (USA) Inc.

John Flint, 48

Chief Executive Officer, Retail Banking and
Wealth Management

John joined HSBC in 1989 and became a Group Managing Director in 2013. Former appointments include: a director of HSBC Private Banking Holdings (Suisse) SA, a director of HSBC Bank Canada, Chief of Staff to the Group Chief Executive and Group Head of Strategy and Planning, Chief Executive Officer HSBC Global Asset Management, Group Treasurer and Deputy Head of Global Markets.

Pierre Goad, 55

Group Head of Employee Insight and Communications

Pierre first joined HSBC in 2001. In 2010 he left and joined Zurich Insurance Group as Head of Communications. He rejoined HSBC in 2011 and became a Group Managing Director in 2015. He is a director of HSBC Bank Canada. Former appointments include: Global Head of Communications; and Head of Corporate Development, Europe, Middle East and Global Businesses.

Pam Kaur, 53

Group Head of Internal Audit

Pam joined HSBC and became a Group Managing Director in 2013. She is a co-opted member of The Institute of Chartered Accountants in England and Wales. Former appointments include: Global Head of Group Audit for Deutsche Bank AG; Chief Financial Officer and Chief Operating Officer of the Restructuring and Risk Division, Royal Bank of Scotland Group plc; Group Head of Compliance and AML, Lloyds TSB; and Global Director of Compliance, Global Consumer Group, Citigroup.

Stuart Levey, 53

Chief Legal Officer

Stuart joined HSBC and became a Group Managing Director in 2012. Former appointments include: Under Secretary for Terrorism and Financial Intelligence in the US Department of the Treasury; Senior Fellow for National Security and Financial Integrity at the Council on Foreign Relations; Principal Associate Deputy Attorney General at the US Department of Justice; and a Partner at Miller, Cassidy, Larroca & Lewin LLP and at Baker Botts LLP.

Andy Maguire, 50

Group Chief Operating Officer

Andy joined HSBC in 2014 as Group Chief Operating Officer and became a Group Managing Director in 2015. He is Chairman of HSBC Global Services (UK) Limited; a director of HSBC Global Services Limited and HSBC Group Management Services Limited. He was formerly a Managing Partner (UK and Ireland) of the Boston Consulting Group.

Paulo Maia, 58
Chief Executive, Latin America
Paulo joined HSBC in 1993 and became a Group Managing Director on 1 February 2016. He is Chairman of Grupo Financiero HSBC Mexico S.A. de C.V., HSBC Argentina Holdings S.A. and a Director of HSBC North America Holdings Inc. Former appointments include: Chief Executive of HSBC Bank Canada and HSBC Bank Australia Limited.

Noel Quinn, 55
Chief Executive, Global Commercial Banking
Noel joined HSBC in 1992 when the Group acquired Midland Bank and became a Group Managing Director on 1 September 2016. Former appointments include: Head of Specialised and Equity Finance, Director of Strategy & Development for Commercial Banking, Head of Commercial Finance Europe, Head of Commercial Banking UK and Head of Commercial Banking Asia.

Antonio Simoes, 41
Chief Executive, HSBC Bank plc
Antonio joined HSBC in 2007 and became a Group Managing Director on 1 February 2016. He is a director of HSBC Bank plc and HSBC France. Former appointments include: Chief Executive of HSBC UK; Head of Retail Banking and Wealth Management, Europe; and Chief of Staff to the Group Chief Executive and Group Head of Strategy and Planning . He is the Chairman of the Practitioner Panel of the FCA. He was formerly a Partner of McKinsey & Company.

Peter Wong, 65
Deputy Chairman and Chief Executive,
The Hongkong and Shanghai Banking Corporation Limited
Peter joined HSBC in 2005 and became a Group Managing Director in 2010. He is Chairman of HSBC Bank (China) Company Limited and HSBC Bank Malaysia Berhad, and a non-executive director of Hang Seng Bank Limited. He is also non-executive Vice Chairman of Bank of Communications Co Ltd and an independent non-executive Director of Cathay Pacific Airways Limited. Former appointments include: Vice Chairman of HSBC Bank (Vietnam) Ltd; a director of HSBC Bank Australia Limited; and a director of Ping An Insurance (Group) Company of China, Ltd.

Board of Directors

Appointment, retirement and re-election of Directors

Appointments to the Board are made on merit and candidates are considered against objective criteria, having due regard to the benefits of diversity on the Board. A rigorous selection process, overseen by the Nomination Committee and based upon agreed requirements using an external search consultancy, is followed in relation to the appointment of non-executive Directors.

During the year Henri de Castries, David Nish, Jackson Tai and Paul Walsh were appointed to the Board. Their biographies can be found on pages 171 to 174.

The number of Directors must not be less than five nor exceed 25. The Board may at any time appoint any person as a Director, either to fill a vacancy or as an addition to the existing Board. The Board may appoint any Director to hold any employment or executive office and may revoke or terminate any such appointment. Shareholders may, by ordinary resolution, appoint a person as a Director or remove any Director before the expiration of his or her period of office.

Newly appointed Directors retire at the Annual General Meeting ('AGM') following appointment and are eligible for election. All Directors are nominated for annual re-election by shareholders subject to continued satisfactory performance based upon an assessment by the Group Chairman and the Nomination Committee.

Non-executive Directors are appointed for an initial three-year term and, subject to re-election by shareholders at AGMs, are typically expected to serve two three-year terms. The Board may invite a Director to serve additional periods. Any term beyond six years is subject to particularly rigorous review.

The terms and conditions of appointment of non-executive Directors are set out in a letter of appointment, which includes the expectations of them and the time estimated for them to meet their commitment to the Group. The current anticipated minimum time commitment, which is subject to periodic review and adjustment by the Board, is 30 days per year. Non-executive Directors are also advised that the time they need to devote to the Group may be considerably more if they serve on Board Committees or as other matters require. All non-executive Directors have confirmed they can meet this requirement, taking into account any other commitments they have at the time of appointment, and most devote considerably more time.

During their term of appointment, non-executive Directors are expected to consult the Group Chairman or the Group Company Secretary if they are considering whether to accept or vary any commitments outside the Group. The agreement of the Group Chairman is required if any additional or changed commitment might affect the time that a Director is able to devote to his or her role with the Group.

Letters setting out the terms of appointment of each non-executive Director are available for inspection at the registered office of HSBC Holdings. The Board diversity policy is available at www.hsbc.com/investor-relations/governance/corporate-governance-codes.

Induction

Formal induction programmes are arranged for newly appointed Directors, based on the individual's needs, skills and experience. Typically, these consist of a series of meetings with other Directors and senior executives, as well as local site visits, to provide familiarity with the business. Directors also receive comprehensive guidance from the Group Company Secretary on the Group's governance framework and associated policies, as well as their duties as Directors on the Board. During the year Henri de Castries, David Nish, Paul Walsh and Jackson Tai completed a formal induction programme.

Operation of the Board

The Board regularly reviews reports on performance against financial and other strategic objectives, key business challenges, risk, business developments, and investor and external relations. During 2016, it also considered presentations on strategy and performance by each of the global businesses and across the principal geographical areas.

All of HSBC's activities involve the measurement, evaluation, acceptance and management of risk or combinations of risks. The Board, advised by the Group Risk Committee ('GRC'), Conduct & Values Committee ('CVC') and the

Financial System Vulnerabilities Committee ('FSVC'), promotes a strong risk governance culture which shapes the Group's attitude to risk. The Board and these committees oversee the development and maintenance of a strong risk management framework.

The Group Company Secretary will ensure that agenda and supporting papers are distributed in advance of Board and Board committee meetings to allow reasonable time for review and to facilitate full discussion at the meetings.

The Chairman met with the non-executive Directors without the other executive Directors in attendance. The SID also facilitated meetings of the non-executive Directors without the attendance of executive Directors, including that of the Group Chairman.

The Directors are encouraged to have free and open contact with management at all levels and full access to all relevant information. When attending off-site Board meetings and when travelling for other reasons, non-executive Directors are encouraged to visit local business operations and meet local management.

Directors may take independent professional advice, if necessary, at HSBC Holdings' expense.

Conflicts of interest, indemnification of Directors and contracts of significance

The Board has established a policy and procedures relating to Directors' conflicts of interest. Where conflicts of interest arise, the Board has the power to authorise them. A review of those conflicts which have been authorised, and the terms of those authorisations, is undertaken by the Board annually.

The Articles of Association state that Directors are entitled to be indemnified out of the assets of HSBC Holdings against claims from third parties in respect of certain liabilities. All Directors have the benefit of directors' and officers' liability insurance.

None of the Directors had, during the year, a material interest, directly or indirectly, in any contract of significance with any HSBC company. Each Director is routinely reminded of their obligations in respect of transacting in HSBC Group securities and has confirmed that he or she has complied with regulatory requirements.

Board performance evaluation

The Board is committed to regular, independent evaluation of its own effectiveness and that of its committees. For 2015/16, an independent review was undertaken by Heidrick & Struggles/JCA Group, an independent third-party firm that has no other connection with HSBC Holdings. The process involved an extensive series of interviews and meetings with the non-executive Directors, together with input from members of the Group Management Board. Actions arising from the review were presented and discussed in detail with the Board in February 2016 and then tracked throughout the remainder of the year and reported to the Board.

Given the ongoing nature of these actions, a follow-up review is to be conducted during the first half of 2017, the outcome of which will be published in the 2017 Annual Report. In the interim period, the performance evaluation of the individual Directors was conducted internally, as provided for under the UK Corporate Governance Code, by the Group Chairman and the SID.

Set out below are areas of particular focus from the 2015/16 review that the Board has addressed during the year:

Theme	Action taken
Agenda management	Board agendas were revised to allow for a greater focus on business strategy and financial and operational performance. A rolling cycle of annual deep dives across each of the four global businesses and the Group's principal geographical regions was established. A detailed presentation of the technology and digital opportunities facing the Group was also arranged with an explanation of how the Group is currently responding to them and the Group's longer-term strategic response. Improvements were made to the process for the preparation, submission and distribution of management information and Board and Committee papers.
Committee efficiency	The operation of the Committees was reviewed to improve efficiency and address overlaps and any gaps in their responsibilities.
Continued development of the cohesive relationship between non-executive Directors and senior management	More opportunities were created for senior management to interact with non-executive Directors both inside and outside formal Board meetings, and to increase Board exposure to other high potential managers in the Group.
Succession planning	There has been a continued focus by the Board, through the Nomination Committee, on executive and non-executive succession planning. A committee has been established to oversee succession planning for the Group Chairman.

Director performance evaluation

Non-executive Directors' individual performance evaluation is undertaken annually by the Group Chairman. This involves a discussion about a Director's individual contribution, explores individual training and development needs, and the time commitment that is required to continue to deliver the role effectively. The Group Chairman has confirmed that all non-executive Directors continue to perform effectively, contribute positively to the governance of HSBC and are able to fully commit the time required for their roles.

Executive Directors' individual performance evaluation is undertaken as part of the performance management process for all employees. The results are considered by the Group Remuneration Committee when determining variable pay awards each year.

The Group Chairman's performance is evaluated by the non-executive Directors, led by the SID.

Training and development

Training and development is provided for each Director, and is regularly reviewed by the Group Chairman supported by the Group Company Secretary. All executive Directors develop and refresh their skills and knowledge through day-to-day interactions and briefings with senior management of the Group's businesses and functions.

A two-day forum for all of the Group's non-executive Directors was held during the year. Awareness and discussion sessions were conducted by senior executives and subject matter experts on emerging technologies, financial crime compliance, regulatory initiatives and other business developments. The following Directors attended these sessions: David Nish, Joachim Faber, John Lipsky, Jonathan Symonds, Kathleen Casey and Paul Walsh. Jonathan Symonds and Joachim Faber hosted a separate forum for the Chairs of the Group's audit and risk committees globally.

In addition, all members of the Group Audit Committee ('GAC') received refresher training in IFRS 9 and the Committee Chairs received training in the requirements of the Senior Managers Regime. As part of their induction programme, David Nish, Henri de Castries and Paul Walsh received training on the Volcker Rule.

Shareholder engagement

Communication with shareholders is given high priority by the Board and a copy of its policy is available at www.hsbc.com. Extensive information about HSBC and its activities is provided to shareholders in the Annual Report and Accounts, the Strategic Report and the Interim Report as well as at www.hsbc.com.

To compliment these, there is regular dialogue with institutional investors. Enquiries from individuals on matters relating to their shareholdings and HSBC's business are welcomed.

Directors are encouraged to develop an understanding of the views of major shareholders. Non-executive Directors are invited to attend analyst presentations and other meetings with institutional investors and their representative bodies. An annual governance breakfast is also held, which gives institutional investors an opportunity to engage with the non-executive Directors and senior management on governance matters. All executive Directors hold regular meetings with institutional investors and feedback from these meetings is routinely provided to the Board.

As SID, Rachel Lomax is available to shareholders if they have concerns that cannot be resolved or for which the normal channels would be inappropriate. She may be contacted via the Group Company Secretary at 8 Canada Square, London E14 5HQ.

The AGM and other general meetings

The 2017 AGM will be held at the Queen Elizabeth II Conference Centre, Broad Sanctuary, Westminster, London SW1P 3EE on Friday 28 April at 11.00am and a live webcast will be available on www.hsbc.com. A recording of the proceedings will be available on www.hsbc.com shortly after the conclusion of the AGM until 28 May 2017. An informal meeting of shareholders will be held at 1 Queen's Road Central, Hong Kong on Monday 24 April at 4.30pm. Shareholders are encouraged to attend these meetings. Shareholders may send enquiries to the Board in writing via the Group Company Secretary, HSBC Holdings plc, 8 Canada Square, London E14 5HQ or by sending an email to shareholderquestions@hsbc.com.

Shareholders may require the Directors to call a general meeting other than an AGM as provided by the UK Companies Act 2006. Requests to call a general meeting may be made by members representing at least 5% of the paid-up capital of HSBC Holdings that carries the right of voting at its general meetings (excluding any paid-up capital held as treasury shares). A request must state the general nature of the business to be dealt with at the meeting and may include the text of a resolution that may properly be moved and is intended to be moved at the meeting. A request may be in hard copy form or in electronic form and must be authenticated by the person or persons making it. A request may be made in writing to HSBC Holdings at its UK address, referred to in the paragraph above or by sending an email to shareholderquestions@hsbc.com. At any general meeting convened on such request, no business shall be transacted except that stated by the requisition or proposed by the Board.

Report of the Directors | Corporate Governance

Board Committees

The Board has seven standing committees and a Chairman's Committee. In the case of the FSVC and the Philanthropic & Community Investment Oversight Committee, membership includes co-opted non-Director members as well as non-executive Directors.

The Chairs of each Committee report matters of significance to the Board after each meeting and the minutes of the meetings are made available to all Board members.

The detailed roles and responsibilities of each Committee are set out in its terms of reference, which can be found on the website at www.hsbc.com/about-hsbc/corporate-governance/board-committees.

Committee interaction

The Board places significant reliance on its Committees and delegates a broad range of responsibilities to them. It is therefore important that, while unnecessary duplications between each remit of the Committees should be avoided, effective links should exist between Committees and the Board where required.

Principal subsidiaries

The GRC works closely with the GAC to strengthen alignment with the major regional and global business risk and audit committees.

The GAC and GRC make a number of recommendations to the Board in relation to the preparation of the financial statements which are supported by certificates from the principal subsidiaries.

Whistleblowing

The GAC and the CVC are responsible for reviewing the Group's whistleblowing procedures and received regular updates on relevant concerns raised under these procedures, together with management actions taken in response.

Committee effectiveness

The effectiveness of the Committees is evaluated as part of the overall performance evaluation of the Board as referred to above. In addition, the Committees review the papers and the effectiveness of each meeting as a standing agenda item to ensure that they continue to be effective, challenging and well-managed, and review a rolling planner of proposed committee business.

2016 Board and Committee attendance

	AGM	Board	Group Audit Committee	Group Risk Committee	Group Remuneration Committee	Nomination Committee	Financial System Vulnerabilities Committee	Conduct & Values Committee	Philanthropic & Community Investment Oversight Committee
Number of meetings held*	1	8	8	9	9	7	7	6	3
Group Chairman									
Douglas Flint	1	8	—	—	—	—	—	—	—
Executive Directors									
Stuart Gulliver	1	8	—	—	—	—	—	—	—
Iain Mackay	1	8	—	—	—	—	—	—	—
Marc Moses	1	8	—	—	—	—	—	—	—
Non-executive Directors									
Phillip Ameen	1	8	7	—	—	—	—	—	—

Kathleen Casey	1	8	8	—	—	—	7	—	—
Laura Cha	1	8	—	—	—	7	—	6	3
Henri de Castries[1]	1	5/5	—	—	—	—	—	—	—
Lord Evans of Weardale	1	8	—	—	—	—	7	6	3
Joachim Faber	1	8	—	9	—	—	—	—	—
Rona Fairhead[2]	1	4/4	—	—	—	3/4	1/2	—	—
Sam Laidlaw	1	8	—	—	9	7	—	—	—
Irene Lee	1	8	—	—	—	—	—	—	—
John Lipsky	1	8	—	9	8	7	—	—	—
Rachel Lomax[3]	1	8	2/2	8	—	7	—	6	—
Heidi Miller	1	8	—	9	—	—	—	—	—
David Nish[4]	1	4/4	3/4	—	—	—	—	—	—
Sir Simon Robertson[2]	1	4/4	—	—	4/4	—	—	—	—
Jonathan Symonds	1	8	8	—	—	—	—	5	—
Jackson Tai[5]	—	2/2	—	2/2	—	—	1/2	—	—
Pauline van der Meer Mohr[6]	1	7	—	—	9	3/3	—	6	—
Paul Walsh[7]	1	7	—	—	8	3/3	—	—	—

* Board meetings in 2016 were held in London and Hong Kong. In addition to the Board meetings listed there were also 11 Chairman's Committee meetings held in 2016.

1 Appointed to the Board 1 March 2016.

2 Resigned from the Board 22 April 2016.

3 Resigned from the Group Audit Committee 20 April 2016.

4 Appointed to the Board 1 May 2016. Attended AGM as part of his induction.

5 Appointed to the Board 12 September 2016.

6 Appointed to the Group Nomination Committee 22 April 2016.

7 Appointed to the Board 1 January 2016 and to the Group Nomination Committee 1 May 2016.

Group Audit Committee
Members
Jonathan Symonds (Chairman)
Phillip Ameen
Kathleen Casey
David Nish (appointed on 1 May 2016)
Rachel Lomax (resigned on 20 April 2016)
Role and responsibilities
The GAC has non-executive responsibility for matters relating to financial reporting, including Pillar 3 disclosures and internal control over financial reporting.
Governance
The Group Finance Director, Group Chief Accounting Officer, Group Head of Internal Audit and other members of senior management routinely attend meetings of the GAC. The external auditor, PwC, also attended all meetings. The Chairman of the GAC had regular meetings to discuss agenda planning and specific issues as they arose during the year.
How the Committee discharges its responsibilities
Financial reporting
The GAC reviews HSBC's financial and reporting judgements and their application to the Group's financial reporting, including Pillar 3 disclosures. It also reviews presentations to external analysts including the key financial metrics relating to HSBC's strategic actions.
The GAC assesses the adequacy of resources of the accounting and financial reporting function. It also monitors the legal and regulatory environment.
Internal controls
The GAC assesses the effectiveness of the internal control system for financial reporting and any developments affecting it in support of the Board's assessment of internal control over financial reporting in accordance with section 404 of the Sarbanes-Oxley Act.
The GAC has received confirmation that executive management has taken or is taking the necessary actions to remedy any failings or weaknesses identified through the operation of the Groups framework of controls.
Further detail of how the Board reviews the effectiveness of key aspects of internal control can be found on page 183.
External audit
The GAC meets privately with the external auditor at every Committee meeting and the GAC Chairman maintains regular contact with the audit partner throughout the year.
The GAC reviews the external auditor's approach and strategy for the annual audit.
All non-audit services provided by PwC are pre-approved by the GAC in accordance with the auditor independence policy to ensure that services do not create a conflict. The auditor independence policy has been revised with effect from 1 January 2017 to take account of the UK implementation of new EU audit rules. Details of the significant engagements for non-audit services are contained in Note 6.
A policy is in place and monitored by the GAC on hiring employees or former employees of the external auditor.
Internal Audit
The GAC approves Internal Audit's annual plan, resource and budget, and reviews the performance of the Group Head of Internal Audit and the performance and effectiveness of its head. The Group Head of Internal Audit reports to the Chairman of the GAC and the Committee regularly meets with the Group Head of Internal Audit without other management present.

Compliance with Regulatory Requirements
The Board is satisfied that each member of the GAC is independent according to SEC criteria, may be regarded as audit committee financial experts for the purposes of section 407 of the Sarbanes-Oxley Act and has recent and relevant financial experience for the purposes of the UK and Hong Kong Corporate Governance Codes.
The Committee has complied with the relevant parts of the Competition and Markets Authority Final Order on the statutory audit market for the year ended 31 December 2016.

Principal activities and significant issues considered during 2016

External auditor

The Committee assessed the effectiveness of PwC as the Group's external auditor, using a questionnaire which focused on the overall audit process, its effectiveness and the quality of output. It concluded that PwC had performed a high-quality and effective audit in 2016.

Fees payable to PwC for the year ended 31 December 2016 totalled $111.1m, of which $39.8m or 35.8% was payable in respect of non-audit services. A further breakdown of the fees paid to the auditors for each of the last three financial years can be found in Note 6 on the Financial Statements.

The GAC considered PwC to be independent and PwC, in accordance with professional ethical standards, provided the GAC with written confirmation of its independence for the duration of 2016.

The GAC has therefore recommended to the Board that PwC be reappointed as auditor. Resolutions concerning the reappointment of PwC and their audit fee for 2017 will be proposed to shareholders at the 2017 AGM.

Internal Audit

The GAC concluded that the Internal Audit function remained effective.

Finance transformation project

The Finance function has embarked on a large scale three-year transformation project to respond to the future needs of a changing industry facing increased regulatory demands.

The project also included embedding internal controls and improving the consistency of critical financial processes across the Group.

Internal control framework

The GAC continued to monitor the progress being made to upgrade entity level controls and remediate issues identified in 2015.

In particular, the GAC continued to monitor the remediation of controls over access management in IT and the next phase in terms of the enhancement of strategic controls. The GAC was encouraged by the progress being made.

Changing regulatory landscape

Given the changing legal and regulatory landscape, the GAC continued to receive detailed presentations and updates from management on the Group's readiness to implement IFRS 9 Financial Instruments and the revised Basel framework's Pillar 3 disclosure requirements.

Significant accounting judgements considered during 2016 included:

Key area	Action taken
Appropriateness of provisioning for legal proceedings and regulatory matters	The GAC received reports from management on the recognition and amounts of provisions, the existence of contingent liabilities, and the disclosures relating to provisions and contingent liabilities for legal proceedings and regulatory matters. Specific areas addressed included provisioning arising from investigations by US regulators and law enforcement agencies relating to trading activities in the foreign exchange market and competition law investigations relating to foreign exchange activities in a number of jurisdictions; and management's judgement regarding provisions and contingent liabilities in connection with investigations of HSBC's Swiss Private Bank by a number of tax administration, regulatory and law enforcement authorities. The GAC also considered management's assumptions and judgements relating to the disclosure of a contingent liability in respect of investigations into historical sales of US mortgage securitisations by The United States Attorney for the District of Colorado for potential violations of The Financial Industry Reform, Recovery and Enforcement Act of 1989, 12 U.S.C. § 1833a.
Quarterly and annual reporting	The GAC considered key judgements in relation to quarterly and annual reporting. In addition, it considered external analysts' presentations and key financial metrics included in HSBC's strategic actions.
Loan impairment, allowances and charges	The GAC considered loan impairment allowances for personal and wholesale lending. Significant judgements and estimates for personal lending included a review of loss emergence periods across the retail loan portfolios and the potential impact of the UK electorate's vote to leave the EU. For wholesale lending, the GAC considered management's judgements and assumptions in respect of the recognition of judgemental collective impairment allowances for oil and gas exposures, and judgements relating to impairment allowances recognised for individual identified cases, as at 31 December 2016, and noted the ongoing monitoring for signs of credit deterioration that could result from the UK electorate's vote to leave the EU.
Valuation of financial instruments	The GAC considered the key valuation metrics and judgements involved in the determination of the fair value of financial instruments. The GAC considered the valuation control framework, valuation metrics, significant year-end judgements and emerging valuation topics.
Viability statement	Under the obligations of the UK Corporate Governance Code the Directors have carried out a robust assessment of the principal risks for the Group and parent company. The GAC has considered the Directors' judgement in concluding that the Group and parent company will be able to continue in operation and meet liabilities as they fall due, and that it is appropriate that the viability statement covers a period of three years.
UK customer remediation	The GAC considered the provisions for redress for mis-selling of payment protection insurance ('PPI') policies, in the UK, including management's judgements regarding the effect of the proposed time-bar for claims ending June 2019. The GAC also considered provisions in relation to the implications of a 2014 UK court case ('Plevin') for the non-disclosure of levels of commission regarding the historical sales of PPI products, pending finalised guidance from the Financial Conduct Authority ('FCA').
Bank of Communications Co., Limited ('BoCom') impairment testing	During the year, the GAC considered the regular impairment reviews of HSBC's investment in BoCom. When testing investments in associates for impairment, IFRS requires the carrying amount to be compared with the higher of fair value and value in use. The GAC reviewed a number of aspects of management's work in this area, including the sensitivity of the result of the impairment review to estimates and assumptions of projected future cash flows and the discount rate. It was concluded that the investment was not impaired.
Goodwill impairment testing	The GAC noted the process and results of the 1 July 2016 annual goodwill impairment test and the review of impairment indicators at 30 June 2016 and 31 December 2016. During the year,

	impairment indicators were noted for GPB Europe and GBM Europe. No impairment was recognised for GBM Europe. The GAC considered management's judgements in respect of the impairment charge of $0.8bn relating to GPB Europe goodwill in H1 2016, and the further impairment charge of $2.4bn in Q4 2016, resulting in the impairment of the entire balance of goodwill for GPB Europe in 2016. There were two main factors which led to indicators of impairment being identified: • during the year, revised forecast cash flows became available; and • management adjusted the discount rates used in the goodwill tests due to the results of the UK EU Referendum decision.
Hedge accounting	The GAC considered management's judgements relating to the partial discontinuation of a hedging relationship in France in December 2016. The GAC discussed the control weaknesses, which were limited to France, and noted management's actions to address them.
Recognition of deferred tax assets	In considering the recoverability of the Group's deferred tax assets, the GAC reviewed the recognition of deferred tax assets in the US and, in the first half of 2016, in the Brazil operations which were sold in July 2016, and the associated projections of future taxable income.
Operating segments	The GAC considered the change in reportable segments during the year under IFRS 8, from regions to global businesses, and the introduction of a Corporate Centre segment.

Group Risk Committee

Members

Joachim Faber (Chairman)
John Lipsky
Rachel Lomax
Heidi Miller
Jackson Tai (appointed on 12 September 2016)

Role and responsibilities

The GRC has non-executive responsibility for the oversight of risk-related matters and the principal risks impacting the Group, risk governance and internal control systems (other than internal financial control systems). The GRC is updated on, but is not directly responsible for, overseeing risks relating to

financial crime, cyber-crime and information security, anti-bribery and corruption, and culture and conduct. These risks are overseen by the FSVC and the CVC.

Governance

The Group Chief Risk Officer, Group Finance Director, Chief Legal Officer, Group Head of Internal Audit, Global Head of Regulatory Compliance, Global Head of Financial Crime Compliance, Group Head of Financial Crime Risk and other members of senior management attended meetings of the GRC by invitation to contribute to discussions relating to their areas of expertise.

The GRC works closely with the GAC to ensure that any areas of significant overlap are appropriately addressed and to improve inter-committee communication.

The GRC holds meetings with the Group Chief Risk Officer and, separately, with the Group Head of Internal Audit without management present.

How the Committee discharges its responsibilities

As a standing item on the rolling planner the GRC reviews the Group Risk Appetite Statement (‘RAS’), the risk map (which describes the Group’s risk profile by risk type across the global businesses) and a report on the top and emerging risks (together with mitigating actions for the identified risks). This also identifies any areas where management needed to assess vulnerabilities via stress testing.

Page 89 provides further information on the top and emerging risks, the risk map and the risk appetite for the Group.

The GRC receives presentations on a range of topics, including stress testing and briefings on developments in the regulatory environment. In addition, the GRC requests reports and updates from management on risk-related issues for in-depth consideration and receives regular reports on matters discussed at the Risk Management Meeting of the Group Management Board (‘GMB’). It has continued to invite senior management from the global businesses and functions to present their risk control frameworks, which has led to enhanced discussions of the risk environment.

Any revisions to the RAS are reviewed bi-annually by GRC and any changes are recommended to the Board. The GRC regularly reviews the Group’s risk profile against the key performance metrics set out in the RAS. It reviews management’s assessment of risk and provides scrutiny of management’s proposed mitigating actions.

Regular reports are received on legal and regulatory risks. Management actions to mitigate these risks are reviewed and the potential impact of future developments in this area on the Group are considered.

Principal activities and significant issues considered during 2016

The Group Risk Appetite Statement (‘RAS’) and monitoring of the Group risk profile against the RAS

There were no significant changes to the RAS in 2016.

Stress testing

The PRA and EBA stress testing exercises and the results of stress testing were closely monitored and reviewed prior to submission. Reports were received over the course of the stress testing exercise and the Committee met an additional four times during the year solely to consider stress testing related matters, including additional stress tests specific to oil and gas exposures and the UK electorate's vote to leave the EU.

Execution risk

Regular reports were received from the Group Chief Operating Officer, who updated each meeting on the progress and status of the Group’s highest-priority programmes and mitigating measures being introduced to manage the identified risks appropriately.

Monitoring of this risk and challenging management’s assessment of execution risk and corresponding mitigating actions remains a priority for the GRC.

Internal control and risk management

The GRC reviewed the Group’s risk management framework and system of internal control (other than internal financial control systems, which were covered by the GAC) and the developments affecting them over the course of 2016, as part of the Board’s assessment of internal control.

In 2016 the Group Risk Committee appointed an external independent expert to assess the effectiveness of the committee.

Further detail of how the Board reviews the effectiveness of key aspects of internal control can be found on page 183.

Financial System Vulnerabilities Committee

Members

Lord Evans of Weardale (Chairman)

Kathleen Casey

Jackson Tai (appointed on 12 September 2016)

Rona Fairhead (resigned on 22 April 2016)

Nick Fishwick, CMG (non-Director member)

Dave Hartnett, CB (non-Director member)

William Hughes, CBE QPM (non-Director member)

Nehchal Sandhu (non-Director member)

Leonard Schrank (non-Director member)
The Honourable Juan Zarate (non-Director member)
Sir William Patey (non-Director member appointed
1 November 2016)
David Irvine (non-Director member appointed
1 November 2016)

The eight non-Director members support the Committee's work and between them have extensive experience in geopolitical risk, financial crime risk, international security, cybersecurity and law enforcement matters.

Role and responsibilities

The Committee has non-executive responsibility for the oversight of matters related to financial crime and system abuse, in particular anti-money laundering; sanctions; terrorist financing and proliferation financing; anti-bribery and corruption; and cybersecurity. It is also responsible for monitoring, reviewing and advising the Board on the effectiveness of the policies and procedures established by Management to ensure that HSBC meets its obligations to regulatory and law enforcement agencies.

Principal activities and significant issues considered during 2016

Financial crime

During the year, the Committee monitored the Group's progress on the implementation of Global Standards and reviewed and discussed findings from country visits conducted by the Monitor.

Anti-bribery and corruption

The Committee reviewed the activities underway to address key bribery and corruption risks and management's progress with the implementation of a more robust anti-bribery and corruption compliance framework.

Engaging with the Monitor

The Committee was responsible for liaising with the Monitor to ensure his recommendations were acted on.

The information security environment and cybersecurity risk

During the year, the Committee reviewed HSBC's progress towards improving the Group's cybersecurity and the actions being taken to mitigate exposure to cyber risk. It also monitored significant developments in the information security environment and progress delivering strategic financial crime risk management IT solutions.

Further information on key activities of the Committee can be found in the 'Financial crime risk management' section on page 114.

Conduct & Values Committee
Members
Rachel Lomax (Chair)
Laura Cha
Lord Evans of Weardale
Jonathan Symonds
Pauline van der Meer Mohr
Role and responsibilities
The CVC has non-executive responsibility for oversight of culture and conduct risk. It is responsible for HSBC's policies, procedures and standards and ensuring that the Group conducts business responsibly and consistently adheres to HSBC Values. The CVC is also responsible for Group policies and procedures for capturing and responding to whistleblowing reports. Reporting to the GAC where necessary in relation to allegations relating to accounting, internal controls over financial reporting or audit matters.
Principal activities and significant issues considered during 2016
Conduct
During the year the Committee reviewed the implementation of the Group's conduct approach and, in particular, how effectively global programmes were being cascaded through the organisation.
Sustainability
The Committee was responsible for reviewing how effectively the Group sought to satisfy itself that it was meeting its sustainability commitments.
Modern Slavery Act
The Committee and Board reviewed and approved the Group's Human Rights and Modern Slavery Act statement.
Further information on conduct can be found in the 'How we do business' section of the Strategic Report and in the Financial Review.
Group Remuneration Committee
Members
Sam Laidlaw (Chairman)
John Lipsky
Pauline van der Meer Mohr
Paul Walsh
Sir Simon Robertson (resigned on 22 April 2016)
Role and responsibilities
The Committee is responsible for setting the over-arching principles, parameters and governance framework of the Group's remuneration policy, and the remuneration of executive Directors and other senior Group employees. The Committee regularly reviews the Group's remuneration policy in the context of consistent and effective risk management and the regulatory requirements of multiple jurisdictions. No Directors are involved in deciding their own remuneration.
A full report on the role and activities of the Committee is set out on pages 191 to 211.

Nomination Committee
Members
Sam Laidlaw (Chairman)
Laura Cha
John Lipsky
Rachel Lomax
Pauline van der Meer Mohr (appointed on 22 April 2016)
Paul Walsh (appointed on 1 May 2016)

Rona Fairhead (resigned on 22 April 2016)
Role and responsibilities
The Nomination Committee has non-executive responsibility for leading the Board appointment process and for identifying and nominating potential candidates for appointment to the Board. The Committee is responsible for succession planning for both executive and non-executive Directors and membership of Board committees.
The Nomination Committee regularly reviews the Board's structure, size and composition (including skills, knowledge, experience, independence and diversity). It recommends any changes to the Board.
An external search consultancy is used in relation to the appointment of non-executive Directors. It has no additional connection with HSBC. A separate external search consultancy is primarily used for certain senior executive hires.
Principal activities and significant issues considered during 2016
Succession planning
A committee was established with specific responsibility for succession planning for the Group Chairman, comprising all the Nomination Committee members plus Jonathan Symonds, Jonathan Evans and Joachim Faber, being the chairs of the GAC, FSVC and GRC respectively.
Diversity
The Committee took responsibility for the implementation of the Board's diversity policy against two objectives: at least 30% of candidates being women and only using external search consultants signed up to the Voluntary Code of Conduct for Executive Search Firms.
Philanthropic & Community Investment Oversight
Committee
Members
Laura Cha (Chair)
Lord Evans of Weardale
Sir Malcolm Grant (non-Director member)
Stephen Moss (non-Director member)
Lord Janvrin (non-Director member)
Role and responsibilities
The Philanthropic & Community Investment Oversight Committee has non-executive responsibility for HSBC's philanthropic and community investment activities in support of the Group's corporate sustainability objectives. The Committee was established as a committee of the Board in 2014 to oversee activity which includes both the Group's monetary contributions and also employee volunteering.
Principal activities and significant issues considered during 2016
Charitable giving
The Committee was responsible for reviewing the Group's risk appetite for charitable donations and the budget for future years and long-term committed funds.

Community investment

During the year, the Committee reviewed and endorsed the Group’s annual community investment budget and the proposed allocation of this budget across agreed sustainability themes.

Chairman’s Committee

The Chairman’s Committee acts on behalf of the Board between scheduled Board meetings to facilitate ad hoc and other business requiring Board approval. It meets when necessary, with the required number of attendees determined by the nature of the proposed business to be discussed, as set out in its terms of reference.

Group Management Board

The GMB is a forum chaired by the Group Chief Executive to provide him with recommendations and advice, and assist him in his day-to-day management of HSBC and its subsidiaries as delegated by the Board.

There are special meetings of the GMB that provide oversight of risk matters (the Risk Management Meeting, chaired by the Group Chief Risk Officer) and of Global Standards (the Global Standards Steering Meeting, chaired by the Group Head of Financial Crime Risk).

Internal control

The Board is responsible for maintaining and reviewing the effectiveness of risk management and internal control systems, and for determining the aggregate level and types of risks the Group is willing to take in achieving its strategic objectives.

To meet this requirement and to discharge its obligations under the FCA Handbook and the PRA Handbook, procedures have been designed for safeguarding assets against unauthorised use or disposal; for maintaining proper accounting records; and for ensuring the reliability and usefulness of financial information used within the business or for publication.

These procedures can only provide reasonable assurance against material mis-statement, errors, losses or fraud. They are designed to provide effective internal control within the Group and accord with the Financial Reporting Council's guidance for directors issued in 2014, internal control and related financial and business reporting. The procedures have been in place throughout the year and up to 21 February 2017, the date of approval of this Annual Report and Accounts 2016.

In 2014, the GAC endorsed the adoption of the COSO 2013 framework for the monitoring of risk management and internal control systems to satisfy the requirements of Section 404 of the Sarbanes-Oxley Act of 2002.

The key risk management and internal control procedures include the following:

- The Group’s Global Standards Manual (‘GSM’) outlines the core principles within which the Group must operate wherever we conduct business. The GSM overlays all other policies and procedures throughout the Group. The requirements of the GSM are mandatory, apply to and must be observed by all businesses within the Group, regardless of the nature or location of their activities.
- Delegation of authority within limits set by the Board: subject to certain matters reserved for the Board, the Group Chief Executive has been delegated authority limits and powers within which to manage the day-to-day affairs of the Group, including the right to sub-delegate those limits and powers. Each relevant group managing director or executive Director has delegated authority within which to manage the day-to-day affairs of the business or function for which he or she is accountable. Delegation of authority from the

Board requires those individuals to maintain a clear and appropriate apportionment of significant responsibilities and to oversee the establishment and maintenance of systems of control that are appropriate to their business or function. Authorities to enter into credit and market risk exposures are delegated with limits to line management of Group companies. The concurrence of the appropriate global function is required, however, to credit proposals with specified higher risk characteristics. Credit and market risks are measured and reported at subsidiary company level and aggregated for risk concentration analysis on a Group-wide basis.

- Risk identification and monitoring: Systems and procedures are in place to identify, assess, control and monitor the material risk types facing HSBC. Our risk measurement and reporting systems are designed to help ensure that risks are comprehensively captured with all the attributes necessary to support well-founded decisions, that those attributes are accurately assessed and that information is delivered in a timely manner for those risks to be successfully managed and mitigated.

- Changes in market conditions/practices: processes are in place to identify new risks arising from changes in market conditions/practices or customer behaviours, which could expose HSBC to heightened risk of loss or reputational damage. The Group employs a top and emerging risks framework at all levels of the organisation, which enables it to identify current and forward-looking risks and to take action which either prevents them materialising or limits their impact.
- Responsibility for risk management: All employees are responsible for identifying and managing risk within the scope of their role as part of the three lines of defence model, which is an activity-based model to delineate management accountabilities and responsibilities for risk management and the control environment. The second line of defence sets the policy and guidelines for managing specific risk areas, provides advice and guidance in relation to the risk, and challenges the first line of defence (the risk owners) on effective risk management.
- Strategic plans: strategic plans are prepared for global businesses, global functions and geographical regions within the framework of the Group's overall strategy. Annual Operating Plans, informed by detailed analysis of risk appetite describing the types and quantum of risk that the Group is prepared to take in executing its strategy, are prepared and adopted by all major HSBC operating companies and set out the key business initiatives and the likely financial effects of those initiatives.
- IT operations: centralised control is exercised over all IT developments and operations. Common systems are employed for similar business processes wherever practicable.
- Subsidiary certifications to GRC: half-yearly confirmations are provided to the GRC from the risk committees of principal subsidiary companies confirming that the committees have challenged management on the quality of the information provided, reviewed the actions proposed by management to address any emerging issues or trends indicating material divergence from the Group's risk appetite and that the risk management and internal control systems in place are operating effectively.

The key risk management and internal control procedures over financial reporting include the following:

- Disclosure Committee: the Disclosure Committee, which is chaired by the Group Company Secretary, supports the discharge of the Group's obligations under relevant legislation and regulation including the UK and Hong Kong Listing Rules, the Market Abuse Regulation and SEC rules.

In so doing the Committee is empowered to (i) determine whether a new event or circumstances should be disclosed, including the form and timing of such disclosure and (ii) review all material disclosures made or to be made by the Group. The membership of the Disclosure Committee includes the Group Finance Director, Group Chief Risk Officer, Chief Legal Officer, Group Chief Accounting Officer, Global Head of Public Affairs, Global Head of Investor Relations, Group Head of Strategy and Planning and Group Financial Controller. The integrity of disclosures is underpinned by structures and processes within the Global Finance and Global Risk functions that support rigorous analytical review of financial reporting and the maintenance of proper accounting records.

- Financial reporting: the Group's financial reporting process is controlled using documented accounting policies and reporting formats, supported by detailed instructions and guidance on reporting requirements, issued to all reporting entities within HSBC in advance of each reporting period end. The submission of financial information from each reporting entity is subject to certification by the responsible financial officer, and analytical review procedures at reporting entity and Group levels.
- Subsidiary certifications to the GAC: half-yearly confirmations are provided to the GAC from the audit committees of principal subsidiary companies regarding whether their financial statements have been prepared in accordance with Group policies, present fairly the state of affairs of the relevant principal subsidiary and are prepared on a going concern basis.

The internal control responsibilities of the GRC and GAC were complemented by the activities of the CVC and the FSVC which, respectively, oversaw internal control over conduct-related matters and financial crime compliance. Collectively, these controls are designed to provide effective internal control within the Group.

The GRC and the GAC have received confirmation that executive management has taken or is taking the necessary actions to remedy any failings or weaknesses identified through the operation of the Group's framework of controls. In 2015, deficiencies in the design and operational effectiveness of a number of controls associated with IT privileged access were identified. Significant improvement in the control environment has been observed as a result of management's progress on the execution of the IT privileged access remediation programme. Management has assessed the effectiveness of relevant IT, business, monitoring and period-end mitigating controls for 2016.

The Directors, through the GRC and the GAC, have conducted an annual review of the effectiveness of the Group's system of risk management and internal control covering all material controls, including financial, operational and compliance controls, risk management systems, the adequacy of resources, qualifications and experience of staff of the accounting and financial reporting function and the Global Risk function, and their training programmes and budget. The annual review of the effectiveness of the Group's system of risk management and internal control over financial reporting was conducted with reference to the COSO framework. The annual review of other controls was undertaken using the Group's risk management framework, further details of which can be found on pages 101 to 104. Based on the assessment performed, the Directors concluded that for the year ended 31 December 2016, the Group's internal controls were effective.

Internal audit

The Global Internal Audit function, which is centrally controlled, provides independent and objective assurance of the design and operating effectiveness of the Group's framework of risk management, control and governance processes, focusing on

the areas of greatest risk. As mentioned previously, the Group Head of Internal Audit reports to the Chairman of the GAC and frequent meetings are held between them during the year. Administratively the Group Head of Internal Audit reports to the Group Chief Executive. Executive management is responsible for ensuring that issues raised by the Global Internal Audit function are addressed within an appropriate and agreed timetable. Confirmation to this effect must be provided to Global Internal Audit.

Going concern

The Directors considered it appropriate to prepare the financial statements on the going concern basis.

In making their going concern assessment, the Directors have considered a wide range of detailed information relating to present and potential conditions, including projections for profitability, cash flows, capital requirements and capital resources.

In carrying out their assessment of the principal risks, the Directors considered a wide range of information including:

- Details of the Group’s business and operating models, and strategy.
- Details of the Group’s approach to managing risk and allocating capital.
- A summary of the Group’s financial performance, and its capital position and annual operating plan.
- Enterprise-wide risk management reports, including the Group’s risk appetite profile (see page 101), top and emerging risks (see page 89) and risk map (see page 103).
- Reports and updates regarding regulatory and internal stress testing exercises (see page 103). In 2016, the published Bank of England ('BoE') stress test results for HSBC showed that our capital ratios after taking account of CRD IV restrictions and strategic management actions exceeded the BoE’s requirements. The results for HSBC included an assumed dividend payment in the first year of the severe stress projection period.
- Reports and updates from management on risk-related issues selected for in-depth consideration.
- Reports and updates on the Group’s compliance-related initiatives connected to the resolution of the investigations by US and UK regulatory and law enforcement authorities in December 2012, and also regulatory developments more generally.
- Legal reports.

Share capital and other disclosures

Share buy-back

On 4 August 2016, HSBC Holdings commenced a share buy-back of its ordinary shares of $0.50 each for up to a maximum consideration of $2.5bn which concluded on, 19 December 2016. The purpose of the buy-back was to reduce HSBC’s number of outstanding ordinary shares, and was funded from a portion of the proceeds received from the sale of the Group’s operations in Brazil in July 2016. Further information on this disposal can be found on page 273.

The nominal value of shares purchased during 2016 was $162,636,704 and the aggregate consideration paid by HSBC was £1,970,091,769.

The table that follows outlines details of the shares purchased on a monthly basis during 2016. At 31 December 2016, the total number of shares purchased was 325,273,407, representing

1.61% of the shares in issue and 1.64% of the shares in issue (excluding treasury shares).

Month	Number of shares	Highest price paid per share	Lowest price paid per share	Average price paid per share	Aggregate price paid	Maximum value of shares that may yet be purchased
		£	£	£	£	$
Aug-16	37,287,407	5.6950	5.1140	5.4551	203,408,308	2,233,620,166
Sep-16	79,160,560	5.9420	5.5650	5.7336	453,876,095	1,636,117,416
Oct-16	72,211,730	6.3210	5.7850	6.1503	444,125,860	1,085,362,266
Nov-16	82,231,879	6.4560	5.8840	6.2433	513,399,612	448,362,392
Dec-16	54,381,831	6.7530	6.2010	6.5331	355,281,894	58

Dividends

Dividends for 2016

First, second and third interim dividends for 2016, each of $0.10 per ordinary share, were paid on 6 July 2016, 28 September 2016 and 6 December 2016, respectively. Note 8 on the Financial Statements gives more information on the dividends declared in 2016. On 21 February 2017, the Directors declared a fourth interim dividend for 2016 of $0.21 per ordinary share in lieu of a final dividend, which will be payable on 6 April 2017 in cash in US dollars, or in sterling or Hong Kong dollars at exchange rates to be determined on 27 March 2017, with a scrip dividend alternative. As the fourth interim dividend for 2016 was declared after 31 December 2016 it has not been included in the balance sheet of HSBC as a liability. The reserves available for distribution at 31 December 2016 were $42bn.

A quarterly dividend of $15.50 per 6.20% non-cumulative US dollar preference share, Series A ('Series A dollar preference share'), (equivalent to a dividend of $0.3875 per Series A American Depositary Share ('ADS'), each of which represents one-fortieth of a Series A dollar preference share), and £0.01 per Series A sterling preference share was paid on 15 March, 15 June, 15 September and 15 December 2016.

Dividends for 2017

Quarterly dividends of $15.50 per Series A dollar preference share (equivalent to a dividend of $0.3875 per Series A American Depositary Share, each of which represents one-fortieth of a Series A dollar preference share) and £0.01 per Series A sterling preference share was declared on 8 February 2017 for payment on 15 March 2017.

Share capital

Issued share capital

The nominal value of HSBC Holdings' issued share capital paid up at 31 December 2016 was $10,095,807,607 divided into 20,191,586,214 ordinary shares of $0.50 each, 1,450,000 non-cumulative preference shares of $0.01 each and one non-cumulative preference share of £0.01, representing approximately 99.9999%, 0.0001%, and 0%, respectively, of the nominal value of HSBC Holdings' total issued share capital paid up at 31 December 2016.

Rights, obligations and restrictions attaching to shares

The rights and obligations attaching to each class of ordinary and non-cumulative preference shares in our share capital are set out in full in our Articles of Association. The Articles of Association may be amended by special resolution of the shareholders and can be found on our website at www.hsbc.com/about-hsbc/corporate-governance/corporate-governance-codes.

Ordinary shares

HSBC Holdings has one class of ordinary share, which carries no right to fixed income. There are no voting restrictions on the issued ordinary shares, all of which are fully paid. On a show of hands, each member present has the right to one vote at general meetings. On a poll, each member present or voting by proxy is entitled to one vote for every $0.50 nominal value of share capital held. There are no specific restrictions on transfers of ordinary shares, which are governed by the general provisions of the Articles of Association and prevailing legislation.

At the 2016 AGM, shareholders gave authority to the Directors to offer a scrip dividend alternative on any dividend (including interim dividends) declared up to the conclusion of the AGM in 2019.

Information on the policy adopted by the Board for paying interim dividends on the ordinary shares may be found on page 307, under the heading 'Shareholder Information'.

Dividend waivers

HSBC Holdings employee benefit trusts, holding shares in HSBC Holdings in connection with the operation of its share plans, have lodged standing instructions to waive dividends on shares held by them that have not been allocated to employees. The total amount of dividends waived during 2016 was $2.9m.

Preference shares

The preference shares, which have preferential rights to income and capital, do not, in general, confer a right to attend and vote at general meetings.

There are three classes of preference shares in the share capital of HSBC Holdings: non-cumulative preference shares of $0.01 each ('dollar preference shares'); non-cumulative preference shares of £0.01 each ('sterling preference shares'); and non-cumulative preference shares of €0.01 ('euro preference shares'). The dollar preference shares in issue are Series A dollar preference shares and the sterling preference share in issue is a Series A sterling preference share. There are no euro preference shares in issue.

Information on dividends declared for 2016 and 2017 may be found on page 247, under the heading 'Dividends' and in Note 8 on the Financial Statements.

Further details of the rights and obligations attaching to the HSBC Holdings' issued share capital may be found in Note 32 on the Financial Statements.

Report of the Directors | Corporate Governance

Share capital changes in 2016

The following events occurred during the year in relation to the ordinary share capital of HSBC Holdings:

Scrip dividends

	HSBC Holdings ordinary shares issued on	number	Aggregate nominal value $	Market value per share $	£
Issued in lieu of					
Fourth interim dividend for 2015	20 Apr 2016	63,677,983	31,838,992	6.4120	4.5069
First interim dividend for 2016	6 Jul 2016	111,088,990	55,544,495	6.3288	4.3274
Second interim dividend for 2016	28 Sep 2016	139,914,936	69,957,468	7.1015	5.4468
Third interim dividend for 2016	6 Dec 2016	122,620,319	61,310,160	7.6227	6.2420

All-employee share plans

	Number	Aggregate nominal value $		Exercise price from £	to £
HSBC Holdings savings-related share option plans					
HSBC ordinary shares issued in £	4,230,999	2,115,500	£	4.0472	5.4738
HSBC ordinary shares issued in HK$	63,091	31,546	HK$	55.4701	63.9864
HSBC ordinary shares issued in $	17,053	8,527	$	7.1456	8.2094
HSBC ordinary shares issued in €	42,880	21,440	€	5.3532	6.0657
Options over HSBC ordinary shares lapsed	15,437,427	7,718,714			
Options over HSBC ordinary shares granted in response to approximately 15,500 applications from HSBC employees in the UK on 21 Sep 2016	15,043,601				
HSBC International Employee Share Purchase Plan	102,252	51,126	£	4.1750	6.6010

HSBC share plans

	HSBC Holdings ordinary shares issued	Aggregate nominal value $	Market value per share from £	to £
Vesting of awards under the HSBC Share Plan and HSBC Share Plan 2011	64,730,777	32,365,389	4.3000	6.7380

Compliance with Hong Kong Listing Rule 13.25A(2)

HSBC Holdings has been granted a waiver from strict compliance with Rule 13.25A(2) of the Rules Governing the Listing of Securities on the Stock Exchange of Hong Kong.

Under this waiver, HSBC's obligation to file a Next Day Return following the issue of new shares pursuant to the vesting of share awards granted under its share plans to persons who are not Directors, would only be triggered where it falls within one of the circumstances set out under Rule 13.25A(3).

Authorities to allot and to purchase shares and pre emption rights

At the AGM in 2016, shareholders renewed the general authority for the Directors to allot new shares up to 13,138,649,236 ordinary shares, 15,000,000 non-cumulative preference shares of £0.01 each, 15,000,000 non-cumulative preference shares of $0.01 each and 15,000,000 non-cumulative preference shares of €0.01 each. Within this, the Directors have authority to allot up to a maximum of 1,970,797,386 ordinary shares wholly for cash to persons other than existing shareholders. Shareholders also renewed the authority for the Directors to make market purchases of up to 1,970,797,386 ordinary shares. The Directors exercised this authority during the year and purchased 325,273,407 ordinary shares.

In addition, shareholders gave authority for the Directors to grant rights to subscribe for, or to convert any security into, no more than 3,941,594,772 ordinary shares in relation to any issue by HSBC Holdings or any member of the Group of contingent convertible securities that automatically convert into or are exchanged for ordinary shares in HSBC Holdings in prescribed circumstances. Further details about the issue of contingent convertible securities may be found in Note 32 on the Financial Statements.

Other than as disclosed in the tables above headed 'Share capital changes in 2016', the Directors did not allot any shares during 2016.

Debt securities

In 2016, following its capital plan, HSBC Holdings issued the equivalent of $36.0bn of debt securities in the public capital markets in a range of currencies and maturities, including $2.0bn of contingent convertible, $2.6bn of subordinated and $31.4bn of senior securities to ensure it meets the current and proposed regulatory rules, including those relating to the availability of adequate total loss-absorbing capacity. For additional information on capital instruments and bail-inable debt, refer to Notes 28 and 32 on pages 276 and 285 and to the Fixed Income Securities section in the HSBC Investor Relations website.

Treasury shares

In accordance with the terms of a waiver granted by the Hong Kong Stock Exchange on 19 December 2005, HSBC Holdings will comply with the applicable law and regulation in the UK in relation to the holding of any shares in treasury and with the conditions of the waiver in connection with any shares it may hold in treasury. Pursuant to Chapter 6 of the UK Companies Act 2006, 325,273,407 ordinary shares are currently held in treasury. This was the maximum number of shares held at any time during 2016; representing 1.61% of the shares in issue. The nominal value of shares purchased during 2016 was $162,636,704.

Notifiable interests in share capital

At 31 December 2016, HSBC Holdings had received the following notification of major holdings of voting rights pursuant to the requirements of Rule 5 of the Disclosure and Transparency Rules:

- BlackRock, Inc. gave notice on 25 October 2016 that on 24 October 2016 it had the following: an indirect interest in HSBC Holdings ordinary shares of 1,172,083,824; qualifying financial instruments with 1,794,677 voting rights that may be acquired if the instruments are exercised or converted; and financial instruments with similar economic effect to qualifying financial instruments which refer to 4,861,174 voting rights, each representing 5.89%, 0.00% and 0.02%, respectively, of the total voting rights at that date.

At 31 December 2016, according to the register maintained by HSBC Holdings pursuant to section 336 of the Securities and Futures Ordinance of Hong Kong:

- JPMorgan Chase & Co. gave notice on 27 October 2016 that on 24 October 2016 it had the following interests in HSBC Holdings ordinary shares: a long position of 924,250,502 shares; a short position of 162,867,748 shares; and a lending pool of 437,566,359 shares, each representing 4.60%, 0.81% and 2.18%, respectively, of the ordinary shares in issue at that date; and
- BlackRock, Inc. gave notice on 25 October 2016 that on 21 October 2016 it had the following interests in HSBC Holdings ordinary shares: a long position of 1,305,933,089 shares and a short position of 14,892,793 shares, each representing 6.51% and 0.07%, respectively, of the ordinary shares in issue at that date.

Since 31 December 2016 to date, no further such notifications had been received.

Sufficiency of float

In compliance with the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited at least 25% of the total issued share capital has been held by the public at all times during 2016 and up to the date of this report.

Dealings in HSBC Holdings listed securities

HSBC Group has policies and procedures that, except where permitted by statute and regulation, prohibit specified transactions in respect of its securities listed on The Stock Exchange of Hong Kong Limited. Except for dealings as intermediaries or as trustees by subsidiaries of HSBC Holdings, neither HSBC Holdings nor any of its subsidiaries has purchased, sold or redeemed any of its securities listed on The Stock Exchange of Hong Kong Limited during the year ended 31 December 2016.

Directors' interests

Pursuant to the requirements of the UK Listing Rules and according to the register of Directors' interests maintained by HSBC Holdings pursuant to section 352 of the Securities and Futures Ordinance of Hong Kong, the Directors of HSBC Holdings at 31 December 2016 had interests, all beneficial unless otherwise stated, in the shares or debentures of HSBC Holdings and its associated corporations as shown below. Save as stated no further interests were held by Directors and no Directors or their connected persons were awarded or exercised any right to subscribe for any shares or debentures in any HSBC corporation during the year.

No Directors held any short position as defined in the Securities and Futures Ordinance of Hong Kong in the shares or debentures of HSBC Holdings and its associated corporations.

Directors' Remuneration Report

Directors' interests – shares and debentures

	Footnotes	At 1 Jan 2016	At 31 Dec 2016 Beneficial owner	Child under 18 or spouse	Jointly with another person	Trustee	Total interests[1]
HSBC Holdings ordinary shares							
Phillip Ameen	2	5,000	5,000	—	—	—	5,000
Kathleen Casey	2	3,540	8,620	—	—	—	8,620
Laura Cha		5,200	5,200	—	—	—	5,200
Henri de Castries		—	16,165	—	—	—	16,165
Lord Evans of Weardale		7,416	9,170	—	—	—	9,170
Joachim Faber		45,778	66,605	—	—	—	66,605
Douglas Flint	3	401,450	402,158	—	—	—	402,158
Stuart Gulliver		2,861,265	3,167,323	176,885	—	—	3,344,208
Sam Laidlaw	4	38,012	39,444	—	—	1,416	40,860
Irene Lee		—	10,000	—	—	—	10,000
John Lipsky	2	16,165	16,165	—	—	—	16,165
Rachel Lomax		18,900	18,900	—	—	—	18,900
Iain Mackay		223,872	345,469	—	—	—	345,469
Heidi Miller	2	3,695	3,975	—	—	—	3,975
Marc Moses		624,643	824,241	—	—	—	824,241
David Nish		—	—	50,000	—	—	50,000
Jonathan Symonds		21,771	16,886	4,885	—	—	21,771
Jackson Tai	2	—	10,160	—	21,445	—	31,605
Pauline van der Meer Mohr		—	15,000	—	—	—	15,000
Paul Walsh		—	5,079	—	—	—	5,079

1 Executive Directors' other interests in HSBC Holdings ordinary shares arising from the HSBC Holdings savings-related share option plans and the HSBC Share Plan 2011 are set out in the Scheme interests in the Directors' Remuneration Report on page 191. At 31 December 2016, the aggregate interests under the Securities and Futures Ordinance of Hong Kong in HSBC Holdings ordinary shares, including interests arising through employee share plans were: Douglas Flint – 405,077; Stuart Gulliver – 6,576,482; Iain Mackay – 1,842,063; and Marc Moses – 2,626,463. Each Director's total interests represents less than 0.04% of the shares in issue and 0.04% of the shares in issue (excluding treasury shares).

2 Phillip Ameen has an interest in 1,000, Kathleen Casey has an interest in 1,724, John Lipsky has an interest in 3,233, Heidi Miller has an interest in 795 and Jackson Tai has an interest in 6,321 listed ADS, which are categorised as equity derivatives under Part XV of the Securities and Futures Ordinance of Hong Kong. Each ADS represents five HSBC Holdings ordinary shares.

3 Since the end of the year, the number of HSBC Holdings ordinary shares held by Douglas Flint has increased by 22, following an acquisition, through regular monthly contributions in the HSBC Holdings UK Share Incentive Plan.

4 Sam Laidlaw has a non-beneficial interest in 1,416 shares that he holds as a trustee.

There have been no changes in the shares or debentures of the Directors from 31 December 2016 to the date of this report excluding those disclosed in footnote 3 of the above table.

Listing Rule 9.8.4

The information to be disclosed in the Annual Report and Accounts pursuant to UK Listing Rule 9.8.4 is contained within the Corporate Governance Report.

Employees

At 31 December 2016, HSBC had a total workforce of 241,000 full and part-time employees compared with 264,000 at the end of 2015 and 266,000 at the end of 2014. Our main centres of employment were the UK with approximately

45,000 employees, India 37,000, Hong Kong 29,000, mainland China 24,000, Mexico 16,000, the US 13,000 and France 9,000.
We encourage employees to perform at their best, and create an environment to make that possible. We also encourage employees to speak up, and reflect our purpose and values in the decisions we make and how we make them, as these decisions shape the future of our customers and colleagues.
Employee relations
We consult with and, where appropriate, negotiate with employee representative bodies. It is our policy to maintain well developed communications and consultation programmes with all employee representative bodies and there have been no material disruptions to our operations from labour disputes during the past five years.

Diversity and inclusion
HSBC is committed to building a culture where individuals are valued, respected and supported; where different ideas, backgrounds, styles and perspectives are actively sought out to create business value; and where advancement is based on objective criteria. Focus continues on the diversity profile of our workforce to help ensure it is reflective of the communities in which we operate and the customers we serve.
Building a more inclusive workplace is part of everyone's role at HSBC. Our Global Diversity Policy makes clear the responsibility of all employees and workers to treat colleagues with dignity and respect and to create an inclusive environment free from discrimination, bullying, harassment or victimisation, irrespective of their age, colour, disability, ethnic or national origin, gender, gender identity/expression, marital status, pregnancy, race, religion or belief, or sexual orientation. Our employees are expected to demonstrate openness to different ideas and cultures, and their performance in this respect is reviewed in our year-end review process.
Diversity and inclusion carries the highest level of executive support at HSBC, and oversight of our diversity agenda and related activities resides with the Global Diversity and Inclusion sub-function. We also operate governance forums covering diversity and inclusion at global line, regional and country levels.
Employee development
The development of our employees is essential to the future strength of our business. We continue to develop and implement practices that build employee capability, and identify, develop and deploy talented employees to ensure an appropriate supply of high calibre individuals with the values, skills and experience for current and future senior management positions.

In 2016, we focused on developing technical skills, experiences and behaviours necessary to deliver against our Global Standards commitments, along with several Group-wide cultural programmes for employees and managers as part of our 'At Our Best' initiative.

Employment of people with a disability

We believe in providing equal opportunities for all employees. The employment of people with a disability is included in this commitment and the recruitment, training, career development and promotion of people with a disability is based on the aptitudes and abilities of the individual. Should employees become disabled during their employment with us, efforts are made to continue their employment and, if necessary, appropriate training and reasonable equipment and facilities are provided.

Health and safety

HSBC is committed to providing a safe physical environment for our customers and employees, as well as those who work with us. We aim always to meet the minimum health and safety standards required by law wherever we operate and, where reasonably practical, to exceed them.

Everyone at HSBC has a responsibility for helping to create a safe working environment. Employees are expected to take ownership of their safety and are encouraged and empowered to report any concerns.

Chief operating officers have overall responsibility for ensuring that the correct policies, procedures and safeguards are put into practice. This includes making sure that everyone in HSBC has access to appropriate information, instruction, training and supervision.

In 2016, we completed three major global projects to help us understand the risks we face, educate and inform our staff, and improve the buildings in which we operate. We have:

- Concluded a survey of earthquake resilience in more than 1,500 HSBC buildings located in countries at medium to high risk of earthquakes;
- Conducted more than 250 asbestos surveys in countries without bans or controls on the use of the potentially harmful material; and
- Completed more than 1,800 fire risk assessments of our buildings around the world.

Employee health and safety

	Footnote	2016	2015	2014
Number of employee workplace fatalities	1	1	—	2
Accidents involving more than three days' absence		75	110	96
All accident rate per 100,000 employees		241	274	388

1 Non-HSBC staff working on HSBC-related activity.

Remuneration policy

The quality and commitment of our employees is fundamental to our success and accordingly the Board aims to attract, retain and motivate the very best people. As trust and relationships are vital in our business our goal is to recruit those who are committed to making a long-term career with the Group.

HSBC's reward strategy supports this objective through balancing both short-term and sustainable performance. Our remuneration strategy is designed to reward competitively the achievement of long-term sustainable performance and attract and motivate the very best people who are committed to maintaining a long-term career with the Group while performing their role in the long-term interests of our stakeholders.

In order to ensure alignment between remuneration and our business strategy, individual remuneration is determined through assessment of performance delivered against both annual and long-term objectives summarised in performance scorecards, and adherence to the HSBC Values of being 'open, connected and dependable' and acting with 'courageous integrity'. Altogether, performance is judged, not only on what is achieved over the short and long term, but also on how it is achieved, as the latter contributes to the sustainability of the Group.

The financial and non-financial measures incorporated in the annual and long-term scorecards are carefully considered to ensure alignment with the long-term strategy of the Group.

Further information on the Group's approach to remuneration is given on page 191.

Employee share plans

Share options and discretionary awards of shares granted under HSBC share plans align the interests of employees with the creation of shareholder value. The table below sets out the particulars of outstanding options, including those held by employees working under employment contracts that are regarded as 'continuous contracts' for the purposes of the Hong Kong Employment Ordinance. The options were granted at nil consideration. No options have been granted to substantial shareholders and suppliers of goods or services, nor in excess of the individual limit for each share plan. No options were cancelled by HSBC during the year.

A summary for each plan of the total number of the options which were granted, exercised or lapsed during 2016 is shown in the table below. Further details required to be disclosed pursuant to Chapter 17 of the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited are available on our website at http://www.hsbc.com/about-hsbc/corporate-governance/employee-share-plans and on the website of The Stock Exchange of Hong Kong Limited at www.hkex.com.hk, or can be obtained upon request from the Group Company Secretary, 8 Canada Square, London E14 5HQ.

Particulars of options held by Directors of HSBC Holdings are set out on page 203.

Note 5 on the Financial Statements gives details of share-based payments, including discretionary awards of shares granted under HSBC share plans.

All-employee share plans

HSBC operates all-employee share option plans under which options are granted over HSBC ordinary shares. Subject to leaver provisions, options are normally exercisable after three to five years. During 2016, options were granted at the mid- market price for HSBC Holdings ordinary shares quoted on the London Stock Exchange which, as derived from the Daily Official List on 20 September 2016, the day prior to grant, was £5.83.

The UK Sharesave will terminate on 23 May 2025 unless the Directors resolve to terminate the plans at an earlier date. There will be no further grants under the HSBC Holdings Savings-Related Share Option Plan: International.

The HSBC International Employee Share Purchase Plan was introduced in 2013 and now includes employees based in 26 jurisdictions.

Directors' Remuneration Report

HSBC Holdings All-employee Share Option Plans

							HSBC Holdings ordinary shares				
Dates of awards		Exercise price		Exercisable			At	Granted	Exercised	Lapsed	At
from	to	from	to	from	to	Footnotes	1 Jan 2016	during year	during year	during year	31 Dec 2016
Savings-Related Share Option Plan						1					
21 Apr 2010	21 Sep 2016	(£) 4.0472	(£) 5.4738	1 Aug 2015	30 Apr 2022		71,709,819	15,043,601	3,834,045	14,141,959	68,777,416
Savings-Related Share Option Plan: International						2					
21 Apr 2010	24 Apr 2012	(£) 4.4621	(£) 5.4573	1 Aug 2014	31 Jan 2018		1,130,991	—	396,954	293,728	440,309
21 Apr 2010	24 Apr 2012	($) 7.1456	($) 8.2094	1 Aug 2014	31 Jan 2018		665,445	—	17,053	430,654	217,738
21 Apr 2010	24 Apr 2012	(€) 5.3532	(€) 6.0657	1 Aug 2015	31 Jan 2018		153,610	—	42,880	23,814	86,916
21 Apr 2010	24 Apr 2012	(HK$) 55.4701	(HK$) 63.9864	1 Aug 2015	31 Jan 2018		1,114,830	—	63,091	547,272	504,467

1 The weighted average closing price of the shares immediately before the dates on which options were exercised was £5.75.

2 The weighted average closing price of the shares immediately before the dates on which options were exercised was £5.10.

On behalf of the Board
Douglas Flint
Group Chairman
HSBC Holdings plc
Registered number 617987
21 February 2017

Directors' Remuneration Report

All disclosures in the Directors' Remuneration Report are unaudited unless otherwise stated.
Disclosures marked as audited should be considered audited in the context of financial statements taken as a whole.

Annual Statement from the Group
Remuneration Committee Chairman

Dear Shareholder,

The Group Remuneration Committee ('the Committee') is guided by a series of principles. These are set out in the Strategic Report on page 28, but it is worth mentioning a few here to help explain our work.

To attract and retain talent, remuneration at HSBC must be competitive. However, we place a strong emphasis on linking pay to performance. We particularly emphasise the need for performance that benefits the Group over the long-term, and reflects HSBC Values and the highest standards of conduct.

In 2016, we introduced a new remuneration policy for our executive Directors. It reflected feedback from shareholders, especially in its introduction of a long-term incentive ('LTI') award with a three-year forward-looking performance period, a seven-year deferral period, and a reduction in the cash in lieu of pension allowance for the executive Directors. I believe the new policy achieves strong alignment between the interests of our executive Directors and shareholders, and the performance measures for the new LTI award will reward long-term sustainable performance.

We were pleased that the new policy received strong support at our Annual General Meeting ('AGM') in April 2016, with over 96% of shareholders voting in favour.

This year's Remuneration Report shows how the Committee has applied the new policy, aligning executive pay with the Group's performance, both for the year and against its long-term strategic objectives.

Performance achieved during 2016

Reported profit before tax for the year fell 62% to $7.1bn. However, on an adjusted basis, excluding significant items and currency translation differences, profit before tax was $19.3bn, broadly in line with prior-year. The Group's cost performance improved as prior-year initiatives gained traction and substantially offset higher loan impairment charges and marginally lower revenues.

The Group is now more than a year into implementing the strategic actions set out in its Investor Update in June 2015. These aim to improve returns, deliver cost savings, reduce RWAs, rebuild profitability in Mexico and the US, optimise and capture value from our international network, and complete the implementation of Global Standards programme to help combat financial crime.

Measures were incorporated into the 2016 annual incentive scorecards of the executive Directors to align their pay with progress against achievement of these objectives.

The Group made strong progress in a number of areas. It reduced RWAs by $143bn in 2016, taking it more than 97% of the way towards its target for the end of 2017. It achieved cost savings of $2.25bn, despite continued investment in compliance, regulatory programmes and growth. Furthermore, it is on its way to restoring profitability in Mexico. In the second half of 2016, it executed a share buy-back worth approximately $2.5bn as a way of distributing capital to shareholders. In 2016, in sterling terms, our share price increased by 23% and the total shareholder return was 32%.

Group variable pay pool and risk adjustments

The Group variable pay pool is used to fund performance-related pay across the Group. In determining the size of the pool for 2016, the Committee took into consideration the Group's financial performance, fines, penalties and customer redress costs, as well as progress implementing and embedding Global Standards.

The total value of the pool for 2016 was $3,035m, which was 12.3% lower than the $3,462m figure for 2015.

In particular, the 2016 pool included the following reductions of:

- $194m for the fines, penalties and cost of customer redress faced by the Group; and
- $309m for:
  - financial performance in certain key areas, in particular, profit before tax, return on risk-weighted assets and adjusted jaws;
  - performance against certain metrics in our Group risk appetite profile; and
  - continued work required to address financial crime compliance issues and the embedding of Global Standards within our businesses.

In addition to the pool adjustments, we reduced variable pay awards to certain individuals by $12.1m in aggregate to reflect their involvement in certain notable events and individual transgressions.

Executive Directors' remuneration for 2016

In line with the policy approved by shareholders, we have reduced the cash in lieu of pension from 50% of base salary to 30% for executive Directors. This has resulted in fixed pay, including allowances, reducing by 7% in 2016. No increases in fixed pay are proposed for 2017.

The 2016 annual incentive scorecard outcome for financial measures was 35.3% for Stuart Gulliver, 30.0% for Iain Mackay and 15.0% for Marc Moses, reflecting their individual scorecards and the performance achieved in cost savings, reductions in RWAs and achievements against our strategic objectives.

Since establishing the new Financial Crime Risk function in
July 2016, there has been a significant focus on transition from a programme of change to business-as-usual financial crime management across all countries, regions and global businesses. But there is more to be done. The Committee exercised its discretion to reduce the Global Standards assessments for executive Directors down to 65%. This was based on feedback received from the Monitor, matters arising from risk and compliance incidents, and a number of unsatisfactory internal audits covering anti-money laundering ('AML') and sanctions-related issues.

Details of the annual incentive scorecard outcome are provided on page 199.

In line with the new policy, no Group Performance Share Plan ('GPSP') awards were made in respect of the year ended 31 December 2016. This has resulted in a significant decrease in the total single figure of remuneration for executive Directors when compared with the year ending 31 December 2015.

The new LTI award for our executives, awarded while taking into account performance in the financial year ended 31 December 2016, is subject to a forward-looking three-year performance period (1 January 2017 to 31 December 2019) and a seven-year deferral period. This ensures a significant proportion of executive Directors' pay continues to be deferred. This, together with the fact that the majority of compensation is awarded in shares, helps ensure it is aligned with the achievement of our long-term strategic objectives, and the long-term interests of shareholders and other stakeholders. Details of the performance measures for the LTI award to be granted in 2017 in respect of 2016, and the relevant targets for each measure, are provided on page 202.

Implementation of policy for 2017

This year will be the final one for implementing the strategic actions set out in the Investor Update. The 2017 annual incentive scorecards for the executive Directors are designed to drive delivery against these objectives.

Details of the performance measures for the 2017 annual incentive scorecards are on page 207. However, for reasons of commercial sensitivity, the specific targets for each measure will not be disclosed until the end of the 2017 performance period, when performance against the targets will also be disclosed.

Fees for non-executive Directors were reviewed by the Committee in 2016. Recognising the growing regulatory responsibilities and time commitment required from our non executive Directors, their fees have been increased with effect from 1 January 2017. A travel allowance has also been introduced for non-UK based non-executive Directors to reflect the additional time commitment required for travel. The details of the increases are provided on page 194.

The Committee will continue to monitor the remuneration arrangements for executive Directors, and meet with our major

shareholders on implementation of the policy in 2017. The Committee will also continue to monitor any reform proposed for corporate governance and executive pay, and will consider any changes that may be required to our approach on remuneration in this regard.

Our annual report on remuneration

The following sections of this Remuneration Report provide an overview of the policy for executive Directors, which was approved by shareholders at the 2016 AGM, and details of remuneration decisions made for executive Directors in 2016. The report also covers the application of the 2016 policy to other Group employees.

As Chairman of the Committee, I hope you will support the report.

Finally, I will be retiring as a non-executive Director of the Group and as chairman of this Committee at the conclusion of the 2017 AGM. I am delighted that Pauline van der Meer Mohr, who is already a member of the Committee, has agreed to succeed me as chairman at that time.

Sam Laidlaw
Chairman
Group Remuneration Committee
21 February 2017

Directors’ Remuneration policy

The tables below summarise our remuneration policy for executive and non-executive Directors. The policy was approved at the AGM on 22 April 2016 and is intended to apply for three performance years until the AGM in 2019. The full remuneration

policy can be found on pages 288 to 299 of our Annual Report and Accounts 2015 and in the Directors' Remuneration Policy Supplement 2016 of this Annual Report and Accounts 2016, which is available in the Investor Relations section of www.hsbc.com.

Remuneration policy summary – executive Directors

Elements	Operation	Implementation in 2017
Base salary To attract and retain key talent by being market competitive and rewarding ongoing contribution to role.	• Paid in cash on a monthly basis. • Base salary increases will not exceed 15% in total during the three-year term of the policy.	No change from 2016. • Douglas Flint: £1,500,000 • Stuart Gulliver: £1,250,000 • Iain Mackay: £700,000 • Marc Moses: £700,000
Fixed pay allowance To deliver fixed pay required to reflect the role, skills and experience of the Directors and to maintain a competitive total remuneration package for retention of key talent.	• Non-pensionable and paid in shares. • Released annually on a pro rata basis over five years, starting from the March immediately following the end of the financial year in which the shares were granted. • Dividends paid on the vested shares held during the retention period.	No change from 2016. • Douglas Flint: Nil • Stuart Gulliver: £1,700,000 • Iain Mackay: £950,000 • Marc Moses: £950,000
Pension To attract and retain key talent by being market competitive.	• Directors receive cash in lieu of a pension equal to 30% of base salary.	No change from 2016.
Benefits To provide benefits in accordance with local market practice.	• Include, for example, the provision of medical insurance, income protection insurance, health assessment, life assurance, club membership, tax return assistance, car benefit and travel assistance, including any tax due on the benefit. • Additional benefits may also be provided where an executive is relocated or spends a substantial proportion of their time in more than one jurisdiction for business purposes.	No change from 2016.
Annual incentive To drive and reward performance against annual financial, non-financial and personal objectives which are consistent	• Maximum opportunity for annual incentive award is 215% of base salary. •	• See page 207 for details of performance measures. •

with the strategy and align to shareholder interests.	Performance is measured against an annual scorecard and varies by individual. • On vesting, shares are subject to a minimum retention period of at least six months.	Shares issued are subject to a retention period of up to one year after vesting.
Long-term incentive ('LTI') To incentivise sustainable long-term alignment with shareholder interests.	• Maximum opportunity for LTI award is 320% of base salary. • Award is subject to a three-year forward-looking performance period. • Performance is measured against a long-term scorecard. 60% is based on financial outcomes and 40% is based on non-financial outcome, including risk and strategy-related measures. • Awards vest in five equal instalments with the first vesting on or around the third anniversary of the grant date, and the last vesting on or around the seventh anniversary of the grant date. • Awards are discretionary and subject to malus during the vesting period and claw-back for a period of seven to 10 years from the date of award.	• Details of the performance measures and targets for awards to be made in 2017 (in respect of 2016) are set out on page 202. • For awards to be made in respect of 2017, the measures and targets will be determined at the end of 2017 for the performance period commencing on 1 January 2018. • On vesting, awards are subject to a retention period of up to one year. • Number of shares to be awarded can be determined using a share price discounted for dividend yield.
Shareholding guideline To ensure appropriate alignment with the interest of our shareholders.	The shareholding guidelines as a percentage of base salary are: • Group Chairman: 100% • Group Chief Executive: 400% • Group Finance Director and Group Chief Risk Officer: 300%	No change from 2016.

Executive Directors are also entitled to participate in all employee share plans, such as HSBC Sharesave, on the same basis as all other employees. The policy on payment for loss of office is detailed online in the Directors' Remuneration Policy Supplement 2016.

Directors' Remuneration Report

Remuneration policy summary – non-executive Directors

Non-executive Directors are not employees and receive a fee for their services. The policy for non-executive Directors is to pay:

- base fees; and
- further fees for the role of Senior Independent Director ('SID') and additional Board duties such as chairmanship or membership of a committee.

Expenses incurred in performing their roles and any related tax due are also reimbursed. All non-executive Directors have a shareholding guideline of 15,000 shares, which has to be

achieved within five years from 2014 or their appointment if later.

The Committee has reviewed the fee levels payable to non-executive Directors and decided an increase will be applied to reflect growing regulatory responsibilities and time commitment. A travel allowance of £4,000 will also be introduced for non-UK based non-executive Directors to reflect the additional time commitment required for travel. The increases in fees is within the 20% maximum increase during the three-year term of the remuneration policy. Fees for 2017 are detailed below.

Category		2016 fees £	2017 fees £
Base fee		95,000	110,000
SID		45,000	54,000
Audit, Risk, Remuneration, Financial System Vulnerabilities and Conduct & Values Committees	Chairman	50,000	60,000
	Member	30,000	30,000
Nomination Committee	Chairman	40,000	40,000
	Member	25,000	25,000
Philanthropic & Community Investment Oversight Committee	Chairman	25,000	25,000
	Member	15,000	15,000

Service contracts

Executive Directors

	Douglas Flint	Stuart Gulliver	Iain Mackay	Marc Moses
Contract date (rolling)	14 Feb 2011	10 Feb 2011	4 Feb 2011	27 Nov 2014
Notice period (Director & HSBC)	12 months	12 months	12 months	12 months

Letters setting out the terms of appointment of each executive Director are available for inspection at HSBC Holdings' registered office. Consistent with the best interests of the Group, the Committee will seek to minimise termination payments. Directors may be eligible for a payment in relation to statutory rights.

The Directors' biographies are set out on pages 171 to 174, and include those directorships provided for under Capital Requirement Directive IV ('CRD IV').

Non-executive Directors

Non-executive Directors are appointed for fixed terms not exceeding three years, which may be renewed subject to their re-election by shareholders at AGMs. Non-executive Directors do not have service contracts, but are bound by letters of appointment issued for and on behalf of HSBC Holdings. There are no obligations in the non-executive Director's letters of appointment which could give rise to remuneration payments or payments for loss of office.

Non-executive Directors' current terms of appointment will expire as follows:

2017 AGM	2018 AGM	2019 AGM	2020 AGM
Kathleen Casey	Phillip Ameen	Henri de Castries	David Nish
Laura Cha	Joachim Faber	Irene Lee	Jackson Tai
Lord Evans of Weardale	John Lipsky	Pauline van der Meer Mohr	
Sam Laidlaw	Rachel Lomax	Paul Walsh	
Jonathan Symonds	Heidi Miller		

Remuneration policy for all employees

The Committee oversees the Group's remuneration policy and its application to the wider employee population. The Committee periodically reviews the adequacy and effectiveness of the policy and ensures that it:

- meets the commercial requirement to remain competitive;
- is affordable;
- allows flexibility in response to prevailing circumstances;
- is compliant with regulatory requirements;
- aligns with the long-term interests of our stakeholders; and
- is consistent with effective risk management.

The mix of fixed and variable pay granted to an employee corresponds to the individual's role, local market factors and regulatory requirements. The variable pay for all material risk takers ('MRTs') is restricted to a maximum of 200% of their fixed pay. Individuals are identified as MRTs based on the qualitative and quantitative criteria set out in the Regulatory Technical Standard EU 604/2014 and additional criteria determined by the Committee. The table provides an overview of the different remuneration elements for our employees.

Component of remuneration	Application
Fixed pay	• Attract and retain employees by paying market-competitive pay for the role, skills and experience required by the business. • This may include salary, fixed pay allowance, cash in lieu of pension and other cash allowances in accordance with local market practices. • These payments are fixed and do not vary with performance.
Pension and benefits	• Provided in accordance with local market practice. They include, but are not limited to, the provision of pensions, medical coverage, life insurance, health assessment, tax return preparation, legal fees and relocation allowances.
Annual incentive	• Awards to drive and reward performance based on annual financial and non-financial measures consistent with the medium-to-long-term strategy, shareholder interests and adherence to HSBC Values. • For MRTs, awards are normally subject to a 40% or 60% deferral, delivered in cash and/or shares, subject to a minimum six-month retention period. From 2016 onwards, the deferral period could be three, five or seven years, depending on the regulatory status of the employee. Deferred awards are subject to malus. All awards are subject to claw-back and compliance with local laws. • For all other employees, awards can be in the form of cash and/or shares. Awards above a specified threshold are subject to deferral based on a deferral table. All deferred awards are subject to malus. • HSBC operates an anti-hedging policy for all employees who are required to certify each year that they have not entered into any personal hedging strategies.

Link between performance and reward

Under our remuneration framework, pay decisions are based on a number of factors: business results, individual performance against scorecard objectives and adherence to HSBC Values, business principles, policies, procedures and Global Standards.

At the end of each performance year, assessment of performance against scorecard objectives, including non-financial and risk objectives, forms the basis of remuneration decisions. This helps ensure risk management is embedded and forms an integral part of all our activities.

The performance and remuneration of individuals in control functions is assessed according to a balanced scorecard of objectives specific to the functional role they undertake, to ensure their remuneration is determined independent of the performance of the business areas they control.

HSBC Values play a key role in ensuring the Group remains sound and sustainable. All employees are given a separate values-aligned behavioural rating, which informs their eligibility for variable pay and influences their variable pay determinations.

Regular reviews are undertaken to assess instances of non-compliance with risk procedures and expected behaviours. Instances of non-compliance are escalated for consideration in variable pay decisions, using our adjustment, malus and claw-back policies (see the next section).

The key features of our remuneration framework that enable us to achieve alignment between risk, reward and performance are set out below.

Key feature	Application

Scorecards	• Assessment of performance with reference to clear and relevant objectives set within a performance scorecard framework. • Global Standards including risk and compliance measures and conduct, set at a minimum of 25% of the scorecard for Group Management Board members.
Group variable pay pool calculation	• Fines and penalties are automatically included in the Committee's definition of profit. • Performance against metrics in the Group Risk Appetite Statement and Conduct Framework is taken into consideration.
Deferral of variable pay	• Deferral of a significant proportion of variable pay into HSBC shares and/or other instruments to tie recipients to the future performance of the Group and business units.
Malus/adjustment policy	• Allows cancellation/reduction of unvested deferred variable pay awards. Longer deferral period under PRA Remuneration Rules increases the time period over which malus can be applied. • This is in addition to our in-year variable pay adjustments and other disciplinary actions that can be taken under our global consequence management policy.
Claw-back policy	• Subject to compliance with local labour laws, allows us to recoup/reclaim paid awards in certain circumstances as defined by the PRA for a period of up to seven-years from grant (can be extended to 10 years for individuals in PRA designated Senior Management Function roles).
Retail/wealth compensation	• We removed commission based sales plans globally for Wealth in 2013 and Retail in 2014.

Directors' Remuneration Report

The following policies help embed values in our remuneration structure while ensuring greater global consistency in our

approach to achieving alignment between risk and reward.

Programmes	Application
Values rating for all employees	• To ensure performance is judged not only on what is achieved in the short and long term but also on how it is achieved, which contributes to the sustainability of the Group.
Performance management	• Strong correlation is expected between performance and values. • No discretionary variable pay for an unacceptable behaviour rating. • 2016 focus on moving away from traditional cycle-based performance management towards a culture of everyday performance and development.
Global consequence management policy	• Introduced to increase consistency in approach and actions taken. • Clear messaging to employees on impact of breaches as part of reward communications (through pay statements, manager guidelines, etc.).
Positive adjustments	• To focus on positive behaviours in the context of Global Standards through in-year positive variable pay adjustments.
Global recognition programme	• Circa 80% of the global employee population can now access a single HSBC recognition platform to perform values-based peer-to-peer recognition. • Includes communication of positive stories on our intranet (HSBC Now).

Variable pay adjustment, malus and claw-back

Where there are instances of conduct breaches, the actions below can be taken. The Committee has discretion to apply malus and claw-back under the policies it has adopted, taking into consideration an individual's proximity to, and responsibility

for, the issue in question. Where possible, an adjustment will be made to current-year variable pay, before the application of malus, then claw-back. This is in line with regulatory requirements.

Type of action	Type of variable pay award affected	Circumstances where it may apply (including, but not limited to)
Adjustment	• Current-year variable pay.	• Detrimental conduct, including conduct which brings the business into disrepute. • Involvement in events resulting in significant operational losses, or events which have caused or

		have the potential to cause significant harm to HSBC. • Non-compliance with HSBC Values and other mandatory requirements or policies.
Adjustment under the downward override policy	• Current-year variable pay for executive Directors and certain other senior executives.	• Downward override policy was introduced in 2014, based on the recommendations received from the independent Monitor as appointed by the US Deferred Prosecution Agreement ('DPA'). • A downward adjustment can be applied where there is: – insufficient yearly progress in developing an effective AML and sanctions compliance programme; or – non-compliance with the DPA and other relevant orders. • In deciding the application and degree of any such downward override to reduce variable pay awards, the Committee considers feedback from the Financial System Vulnerabilities Committee, the Monitor in relation to cooperation with their review and Legal.
Malus	• Unvested deferred awards granted in prior years.	• Detrimental conduct, including conduct which brings the business into disrepute. • Past performance being materially worse than originally reported. • Restatement, correction or amendment of any financial statements. • Improper or inadequate risk management. • Participation in, or responsibility for, conduct which results in significant losses.
Claw-back	• Vested or paid awards granted to MRTs on or after 1 January 2015 for seven years. • From 2016 onwards, this period may be extended to 10 years for employees under the PRA's Senior Manager Regime in the event of ongoing internal/regulatory investigation at the end of the seven-year period.	• Failing to meet appropriate standards and propriety. • Reasonable evidence of misconduct or material error that would justify, or would have justified, summary termination of a contract of employment. • HSBC or a business unit suffers a material failure of risk management in the context of Group risk-management standards, policies and procedures.

Annual report on remuneration

Remuneration Committee

Details of the roles, responsibility and membership of the Committee are set out on page 182. No executive Directors are involved in deciding their own remuneration.

Activities

The Committee met nine times during 2016. The following is a summary of the Committee's key activities during 2016. A copy of the Committee's terms of reference can be found on our website at www.hsbc.com/about-hsbc/corporate-governance/board-committees.

Details of the Committee's key activities

Month	Activities	Month	Activities
Jan	• Reviewed and approved pay review matters and regulatory filings. • Received updates on notable events. • Received updates on regulatory changes.	Jul	• Reviewed and approved regulatory filling for 2016. • Received updates on notable events.
Feb	• Approved 2015 performance year pay review matters. • Considered progress update on 2015 Monitor recommendations. • Approved 2015 Directors' Remuneration Report and Strategic Report including new policy for Directors. • Received updates on notable events. • Received updates on regulatory changes.	Sept	• Updated on high-priority programmes progress. • Reviewed 2016 performance year pay review matters. • Received updates on notable events. • Noted progress updates from 2016 Monitor recommendations. • Reviewed fixed pay framework. • Reviewed executive Directors' scorecards. • Approved Group-wide variable pay deferral policy.
Apr	• Met with Monitor to discuss incentivisation workstream. • Considered matters discussed with regulators and reviewed regulatory filings.	Oct and Nov	• Committee Chairman met with shareholders. • Reviewed 2016 performance year pay review matters. • Reviewed 2016 regulatory submissions. • Received updates on notable events. •

May	• Approved 2016 MRT list. • Received updates on notable events. • Considered shareholder feedback received on executive remuneration policy matters.	Dec	Reviewed long-term incentive scorecard. • Received updates on investor guidelines. • Approved 2016 performance year pay matters. • Approved 2016 regulatory submissions. • Reviewed executive Directors' scorecards and pay proposals. • Approved long-term incentive scorecard measures.

Advisers

The Committee received input and advice from different advisers on specific topics during 2016. Deloitte LLP ('Deloitte') was appointed by the Committee in 2015 as an objective, independent adviser to support the Committee on specific remuneration matters for executive Directors. The Committee made the appointment after considering invited proposals from a number of consultancy firms. In 2016, the Committee agreed to extend Deloitte's appointment for a further period of one year. Deloitte provided benchmarking data on remuneration policy matters and independent advice to the Committee. The Committee may request ad-hoc assistance from Deloitte.

Deloitte also provided services to the Group, comprising tax compliance and other advisory services. To ensure the advice from Deloitte was objective, the Committee required the advice to be independent and distinct from any internal review and analysis on remuneration policy matters. The Committee was satisfied the advice provided by Deloitte was objective and independent in 2016. Deloitte is a founding member of the Remuneration Consultants Group and voluntarily operates under the Code of Conduct in relation to executive remuneration consulting in the UK. For 2016, total fees of £168,150 were incurred in relation to its remuneration advice provided by Deloitte. This was based on pre-agreed fees and a time and materials basis.

During the year, the Group Chief Executive provided regular briefings to the Committee. In addition, the Committee received updates from the following employees as part of their roles with HSBC:

- Pierre Goad, Group Head of Human Resources (until August 2016);
- Donna Wong, Acting Group Head of Human Resources (from September 2016);
- Alexander Lowen, Group Head of Performance and Reward;
- Marc Moses, Group Chief Risk Officer;
- Iain Mackay, Group Finance Director;
- Colin Bell, Group Head of Financial Crime Risk;
- Robert Werner, Former Global Head of Financial Crime Compliance and Group Money Laundering Reporting Officer;
- Ralph Nash, Global Head of Financial Crime Compliance;
- John Flint, Chief Executive Retail Banking and Wealth Management;
- Stuart Levey, Chief Legal Officer; and
- Andy Maguire, Group Chief Operating Officer.

The Committee also received feedback and input from the Group Risk Committee, the Financial System Vulnerabilities Committee and the Conduct & Values Committee on risk and compliance-related matters relevant to remuneration. This included input from the Financial System Vulnerabilities Committee on the implementation and annual assessment of progress on the AML and sanctions compliance programme for the purposes of the Committee's determination on any adjustments to be made under the downward override policy.

Directors’ Remuneration Report

Single figure of remuneration

The following table shows the single figure total remuneration of each executive Director for 2016, together with comparative figures for 2015.

(Audited) (£000)		Base salary	Fixed pay allowance	Pension	Annual incentive	GPSP/LTI	Sub-total	Taxable benefits	Non-taxable benefits	Notional returns	Total
Douglas	2016	1,500	—	450	—	—	1,950	100	86	—	2,136
Flint	2015	1,500	—	750	—	—	2,250	151	95	—	2,496
Stuart	2016	1,250	1,700	375	1,695	—	5,020	557	71	27	5,675
Gulliver	2015	1,250	1,700	625	1,072	1,969	6,616	662	53	9	7,340
Iain	2016	700	950	210	987	—	2,847	52	37	17	2,953
Mackay	2015	700	950	350	1,068	1,101	4,169	54	28	5	4,256
Marc	2016	700	950	210	1,005	—	2,865	15	38	18	2,936
Moses	2015	700	950	350	827	1,101	3,928	6	29	5	3,968

Year-on-year single figure comparison

(Unaudited)

The GPSP was replaced by the LTI in 2016. As such, no GPSP award was made for 2016 and the value for 2016 is nil.

The first LTI award will be made in March 2017, with a performance period ending in 2019. Vesting of the first LTI award will be included in the single figure table for the financial year ending on 31 December 2019. For year-on-year

comparison purposes, if target performance is achieved over the three-year performance period, LTI payout for the 2016 award would be 50% of grant value. In this case, the 2016 single figure total remuneration of the executive Directors for year-on-year comparison would be (in £000) £7,670 for Stuart Gulliver, £4,069 for Iain Mackay and £4,052 for Marc Moses.

Illustration of release profile

The following chart provides an illustrative release profile for executive Directors.

Illustration of release profile

Fixed pay allowance	• Released in five equal annual instalments starting from March 2017.
Annual incentive	• Paid in immediately vested shares subject to minimum six-month retention period. • Subject to claw-back provisions for seven-years, which may be extended in the event of an ongoing internal/regulatory investigation.
Long-term incentive	• Award subject to three-year forward-looking performance period. • Subject to satisfaction of performance conditions, awards will vest in five equal annual instalments starting from the third anniversary of the grant date. • On vesting, shares are subject to a minimum six-month retention period.

Notes to the single figure of remuneration

(Audited)

Benefits

In the single figure of remuneration table above, 'Benefits' refers to:

- all taxable benefits (gross value before payment of tax) including provision of medical insurance, accommodation and car, club membership, tax gross-up for accommodation and car benefit; and
- non-taxable benefits including the provision of life assurance and other insurance cover.

The values of the significant benefits in the above table are set out below.

(Audited)

(£000)		Car benefit (UK and Hong Kong)[1]	Hong Kong bank-owned accommodation[2]	Tax expense on car benefit and Hong Kong bank-owned accommodation	Insurance benefit (non-taxable)[1]
Douglas	2016	—	—	—	75
Flint	2015	69	—	57	80
Stuart	2016	64	263	211	63
Gulliver	2015	87	281	275	—
Iain Mackay	2016	—	—	—	—
	2015	—	—	—	—
Marc Moses	2016	—	—	—	—
	2015	—	—	—	—

1 The car benefits, tax on car benefits and insurance benefits for Iain Mackay and Marc Moses are not included in the above table as they were not significant.

2 Based on the current market rental value of the bank-owned property in Hong Kong, as estimated by an external lease service provider, plus utility costs, rates, the taxable value of furniture and taking into account the business use of the property. The taxable value of the accommodation is considered to be 70% of the total of these amounts.

Notional returns

In the single figure of remuneration table above, ‘Notional returns’ refers to the notional return on deferred cash. The deferred cash portion of the annual incentive also includes a right to receive notional returns for the period between grant date and vesting date, which is determined by reference to the dividend yield on HSBC shares, calculated annually.

A payment of notional return is made annually in the same proportion as the vesting of the deferred awards on each vesting date. The amount is disclosed on a paid basis in the year in which the payment is made.

Determining executive Directors’ annual performance

(Audited)

Awards made to executive Directors reflected the Committee’s assessment of the extent to which they had achieved personal and corporate objectives set within their performance scorecard as agreed at the beginning of the year, which had been set to reflect the risk appetite and strategic priorities. In accordance with the downward override policy, the Committee also

consulted the Financial System Vulnerabilities Committee and took into consideration their feedback in relation to progress on enhancing AML and sanctions compliance along with progress in meeting the Group’s obligations under the US DPA and other relevant orders. The Committee also took into consideration the report of the independent Monitor in determining the scorecard outcomes.

In order for any annual incentive award to be made, each executive Director must meet a required behavioural rating which is assessed with reference to the HSBC Values. For 2016, all executive Directors met the required behavioural rating.

For 2016, the Committee exercised its discretion and reduced the Global Standards assessments from 75% to 65% for Stuart Gulliver, from 86% to 65% for Iain Mackay and from 74% to 65% for Marc Moses. This was based on feedback received from the Monitor, matters arising from risk and compliance incidents, and a number of unsatisfactory internal audits covering AML and sanctions-related issues.

The performance achieved by executive Directors in the year is shown in the table below.

Annual assessment

	Stuart Gulliver			Iain Mackay			Marc Moses		
	Weighting (%)	Assessment (%)	Outcome (%)	Weighting (%)	Assessment (%)	Outcome (%)	Weighting (%)	Assessment (%)	Outcome (%)
Profit before tax[1]	20.00	0.00	0.00	20.00	0.00	0.00	10.00	0.00	0.00
Deliver cost savings	20.00	100.00	20.00	20.00	100.00	20.00	–	–	–
Reduce Group RWAs	10.00	100.00	10.00	10.00	100.00	10.00	15.00	100.00	15.00
Strategic growth	10.00	52.70	5.27	–	–	–	–	–	–
Global Standards including risk and compliance	25.00	65.00	16.25	25.00	65.00	16.25	50.00	65.00	32.50
Personal objectives	15.00	81.27	12.19	25.00	80.00	20.00	25.00	80.00	20.00
Total	100.00		63.71	100.00		66.25	100.00		67.50
Maximum annual incentive opportunity (£000)			£2,660			£1,490			£1,490
Annual incentive (£000)			£1,695			£987			£1,005

1 Adjusted profit before tax, as defined for Group annual bonus pool calculation. This excludes the year-on-year effects of foreign currency translation differences, fair value movements on our own debt, business disposal gains and losses, acquisitions and goodwill, debt valuation adjustments, restructuring costs included in costs to achieve and variable pay expense. The adjusted profit before tax includes the cost of fines, penalties and costs of customer redress.

Financial performance

Annual assessment

Measure	Minimum (25% payout)	Maximum (100% payout)	Performance	Assessment
Profit before tax	$19.7bn	$20.6bn	$18.2bn	0 %
Deliver cost savings[1]	$34.0bn	$32.9bn	$30.7bn	100 %
Reduce Group RWAs	$100.0bn	$110.0bn	$143.0bn	100 %
Strategic growth[2]	Various	Various	Partly met targets for seven measures and did not meet minimum targets for two measures.	5.27 %

1 Measured by reference to Group adjusted cost base.

2 Strategic growth measures on optimising global network, rebuilding NAFTA region profitability, delivering growth above GDP from international network, pivot to Asia and renminbi internationalisation.

Directors’ Remuneration Report

Non-financial performance

The table below provides an overview of the non-financial performance achieved by each executive Director.

Stuart Gulliver

	Performance	Assessment	
Global Standards including risk and compliance • Effective risk management in compliance with AML, sanctions and anti-bribery and corruption policies. • Enhancement of customer due diligence. • Implementation and embedding of global conduct programme. • Progress on embedding Global Standards.	• Progressive implementation of the most effective Global Standards to combat financial crime across the Group continues, including related attestations by country chief executive officers. • AML and sanctions policy outcomes strengthened with strategic deployments covering client due diligence, sanctions screening and transaction monitoring. • Empirical measurements used to assess sustainable operational effectiveness in financial crime compliance. • Conduct programme implementation progressed largely to plan. • For 2016, the Committee exercised its discretion and reduced the Global Standards assessments from 75% to 65%. This was based on feedback received from the Monitor, matters arising from risk and compliance incidents, and a number of unsatisfactory internal audits covering AML and sanctions-related issues.	65.0	%
Personal objectives • Progress transactions in Brazil and Turkey. • Progress key milestones on set-up of UK ring-fenced bank. • Delivery of other high-priority projects. • People development including diversity.	• Completed sale of operations in Brazil and maintained a presence to serve large corporate clients. Restructuring of business in Turkey to make it a profitable franchise largely complete. • Overall implementation of high-priority programmes is fully met including the establishment of the ring-fenced bank in the UK which is on track for completion by 1 July 2018. • Comprehensive review of diversity and inclusion completed. Refreshed diversity and inclusion strategy and targets. • Exceeded target for female share of promotions into senior management.	81.3	%

Iain Mackay

	Performance	Assessment	
Global Standards including risk and compliance • Strengthen governance and control around financial processes.	• Continued enhancement of the Sarbanes Oxley framework and alignment with the operational risk management framework ('ORMF'). Delivery of 2016 milestones for the controls optimisation project which is on track to be completed by April 2017. •	65.0	%

• Delivery of controls optimisation project. • Implementation and embedding of global conduct programme. • Enhancement of operational risk management framework. • Successful delivery of stress testing in key markets.	• Effective execution of operational risk management through embedding of the three lines of defence, with remediation plans in place to address any gaps identified against ORMF. • Continued progress to comply with regulatory requirements including 2016 stress tests for the PRA, European Banking Authority and US Federal Reserve Bank, and successful submission of the inaugural Group-wide individual liquidity adequacy assessment process. • Embedding of the tax risk management framework in businesses and functions continues. Significant progress achieved in embedding US Foreign Account Tax Compliance Act ('FATCA') related measures, common reporting standards and tax transparency. • Implementation of global conduct programme milestones and outcomes were largely met. • For 2016, the Committee exercised its discretion and reduced the Global Standards assessments from 86% to 65%. This was based on feedback received from the Monitor, matters arising from risk and compliance incidents, and a number of unsatisfactory internal audits covering AML and sanctions-related issues.		
Personal objectives • Deliver cost savings. • Implementation of consistent capital management framework. • Progress key milestones on set-up of UK ring-fenced bank. • People development including diversity.	• 2016 Global Finance function direct costs and FTE targets met via significant restructuring (transforming the function from geographically aligned to a global operating model), accompanied by enhancements of technology, demand management, process re-engineering and off-shoring. Material progress achieved in the strengthening of the Global Finance Centre. • Activities to implement business segmentation on track and further enhancements to the capital management framework delivered. • New internal liquidity framework fully implemented. • Delivery against 2016 milestones for UK ring-fencing requirements and other high-priority programmes were fully met. • Delivery of the Global Finance function people agenda, including implementation of accelerated development programmes for targeted employees, the sponsorship and development of careers and capabilities of employees, and improvement of gender diversity in the function.	80.0	%

Marc Moses

	Performance	Assessment
Global Standards including risk and compliance • Effective risk management in compliance with AML, sanctions and anti-bribery and corruption policies. • Enhancement of customer due diligence. • Implementation and embedding of global conduct programme. • Enhancement of operational risk management framework. • Implementation of US risk management measures.	• Global Financial Crime Compliance function focus progressed, although not as quickly as planned. Progress in enhancing know your customer, customer due diligence, and effective risk management in compliance with AML, sanctions, anti-bribery and corruption policies and Global Standards, were somewhat met as certain key components were not fully developed at the mid-year. • Management oversight of Global Financial Crime Risk function activities were effectively handed over to the newly appointed Group Head of Financial Crime Risk following the establishment of the new Financial Crime Risk function. • The conduct programme implementation progressed largely to plan. • Our operational risk transformation programme on track with all key milestones delivered. Embedding of the three lines of defence framework continues with the management of 'High' rated residual risks, mitigating actions and remediation activities largely meeting expectations. However, further work to self-identify issues is required. • Successfully completed all 2016 outcomes to enable compliance with conduct regulation. • For 2016, the Committee exercised its discretion and reduced the Global Standards assessments from 74% to 65%. This was based on feedback received from the Monitor, matters arising from risk and compliance incidents, and a number of unsatisfactory internal audits covering AML and sanctions-related issues.	65.0 %
Personal objectives • Deliver cost savings. • Successful delivery of stress testing. • Support business growth and improve RWA effectiveness/efficiency. • People development including diversity.	• Effective cost management driven through management of business performance and Global Risk function transformation activities including process re-engineering and location optimisation. • Satisfactorily progressed the 2016 PRA and European Banking Authority stress tests and stress testing for other key regulators. • RBWM expansion in the Pearl River Delta and creation of the risk infrastructure to launch credit cards in China fully met. Improved RWA effectiveness and efficiency within CMB and GBM to support overall reduction in Group RWAs. • Delivered Global Risk function people initiatives including performance and reward plans, mandatory and key learning initiatives, and strengthened gender diversity.	80.0 %

Directors' Remuneration Report

Awards under the long-term incentives
(Audited)
Under the new policy approved by shareholders, executive Directors are eligible to receive an LTI award. For the 2016 performance year, the award will be made in March 2017 with a three-year performance period starting 1 January 2017. For 2016, all executive Directors will be awarded an LTI grant

equivalent to 319% of base salary. The details of the measures that will be used to assess performance and payout are provided below. To the extent performance conditions are satisfied, the awards will vest in five equal annual instalments commencing from around the third anniversary of the grant date. On vesting, awards are subject to a minimum six-month retention period.

Performance conditions

Measures	Minimum (25% payout)	Target (50% payout)	Maximum (100% payout)	Weighting %
Average return on equity[1]	7.0%	8.5%	10.0%	20
Cost efficiency (adjusted jaws)	Positive	1.5%	3.0%	20
Relative total shareholder return[2]	At median of the peer group.	Straight-line vesting between minimum and maximum.	At upper quartile of the peer group.	20
Global Standards including risk and compliance • Status of DPA.	Not applicable	Not applicable	Met all commitments to achieve closure of the DPA and protect HSBC from further regulatory censure for financial crime compliance failings.	25
• Achieve and sustain compliance with Global Financial Crime Compliance policies and procedures.	Performance will be assessed by the Committee based on a number of qualitative and quantitative inputs such as feedback from the Financial System Vulnerabilities Committee, Group Financial Crime Risk assessment against Financial Crime Compliance objectives, outcome of assurance and audit reviews, and achievement of the long-term Group objectives and priorities during the performance period.			
Strategy • International client revenues. (Share of revenues supported by international network)	50%	51%	52%	15
• Revenue synergies. (Share of revenues supported by universal banking model)	22%	23%	24%	
• Employee engagement.	65%	67%	70%	

(Results of employee survey)				
• Customer. (Based on customer recommendation in home country markets)	Rank within top three in at least two of the four RBWM and CMB customer segments in home country markets.	Rank within top three in three of the four RBWM and CMB customer segments in home country markets.	Rank within top three in all four RBWM and CMB customer segments in home country markets.	
Total				100

1 Significant items are excluded from the profit attributable to ordinary shareholders of the company for the purpose of computing adjusted return on equity.

2 The peer group for the 2016 award is: Australia and New Zealand Banking Group, Bank of America, Barclays, BNP Paribas, Citigroup, Credit Suisse Group, DBS Group Holdings, Deutsche Bank, JPMorgan Chase & Co., Lloyds Banking Group, Standard Chartered and UBS Group.

Payments to past Directors

(Audited)

No payments were made to or in respect of former Directors in the year in excess of the minimum threshold of £50,000 set for this purpose.

Total pension entitlements

(Audited)

No employees who served as executive Directors during the year have a right to amounts under any HSBC final salary pension scheme for their services as executive Directors or are entitled to additional benefits in the event of early retirement. There is no retirement age set for Directors, but the normal retirement age for employees is 65.

External appointments

During 2016, Stuart Gulliver received S$10,000 in fees as a member of the Monetary Authority of Singapore International Advisory Panel, which was donated to charity.

Exit payments made in year

(Audited)

No payments for loss of office were made in 2016 to any person serving as a Director in the year or any previous years.

Scheme interests awarded during 2016

(Audited)

The table below sets out the scheme interests awarded to Directors in 2016 (for performance in 2015) as disclosed in the 2015 Directors' Remuneration Report. No non-executive Directors received scheme interests during the financial year.

Scheme awards in 2016
(Audited)

	Type of interest awarded	Basis on which award made	Date of award	Face value awarded[1] £000	Percentage receivable for minimum performance[1]	Number of shares awarded	Share price on date of grant[2]	End of performance period
Stuart Gulliver	Deferred cash	Annual incentive 2015	29 Feb 2016	322	—	n/a	n/a	31 Dec 2015
	Deferred shares	Annual incentive 2015	29 Feb 2016	322	—	68,845	£4.6735	31 Dec 2015
	Deferred shares	GPSP 2015	29 Feb 2016	1,969	—	421,232	£4.6735	31 Dec 2015
Iain Mackay	Deferred cash	Annual incentive 2015	29 Feb 2016	320	—	n/a	n/a	31 Dec 2015
	Deferred shares	Annual incentive 2015	29 Feb 2016	320	—	68,556	£4.6735	31 Dec 2015
	Deferred shares	GPSP 2015	29 Feb 2016	1,101	—	235,654	£4.6735	31 Dec 2015
Marc Moses	Deferred cash	Annual incentive 2015	29 Feb 2016	248	—	n/a	n/a	31 Dec 2015
	Deferred shares	Annual incentive 2015	29 Feb 2016	248	—	53,065	£4.6735	31 Dec 2015
	Deferred shares	GPSP 2015	29 Feb 2016	1,101	—	235,654	£4.6735	31 Dec 2015

1 Unvested awards determined based on performance achieved during the period to 31 December 2015. The overall award level could have been 0% of the maximum opportunity if minimum performance was achieved for the period to 31 December 2015. After grant, awards are subject to service condition and malus provisions.
2 Share price used is the closing mid-market price on the last working day preceding the date of grant.

GPSP awards were made based on performance up to the financial year-end preceding the grant date with no further performance conditions after grant. Vesting occurs five years after grant date and is normally subject to the Director remaining an employee until the vesting date. The net of tax shares which the Director becomes entitled to on the vesting date are subject to a retention requirement.
The above table does not include details of shares issued as part of the fixed pay allowances, as those shares vest immediately and are not subject to any service or performance conditions.

Directors' interests in shares
(Audited)
The shareholdings of all persons who were Directors in 2016, including the shareholdings of their connected persons, at 31 December 2016 are set out below. The table below shows the comparison of shareholdings to the company shareholding guidelines. There have been no changes in the shareholdings of the Directors from 31 December 2016 to the date of this report excluding those disclosed in footnote 8 of the below table.

Shares

(Audited)

	Shareholding guidelines[2] (% of salary)	Current shareholding as at Dec 2016[3] (% of salary)	At 31 Dec 2016			
				Scheme interests		
			Share interests[4] (number of shares)	Share options[5]	Shares awarded subject to deferral[1]	
					without performance conditions[4, 6]	with performance conditions[7]
Executive Directors						
Douglas Flint[8]	100%	170%	402,158	2,919	—	—
Stuart Gulliver	400%	1,691%	3,344,208	—	3,132,917	99,357
Iain Mackay	300%	312%	345,469	3,469	1,424,437	68,688
Marc Moses	300%	744%	824,241	—	1,735,488	66,734
Group Managing Directors[9]	250,000 shares	250,000 shares	n/a	n/a	n/a	n/a

1 The gross number of shares is disclosed. A portion of these shares will be sold at vesting to cover any income tax and social security which falls due at the time of vesting.

2 The current shareholding guideline does not count unvested share-based incentives.

3 An average of three-month closing share price as on 31 December 2016 (£6.3224) has been used to calculate current shareholding as a percentage of salary.

4 Under the annual incentive, in line with regulatory requirements, any deferred shares (net of tax) which the Director becomes entitled to are subject to a retention requirement, such that they must be held for a predefined period of time. To provide the executive Directors with appropriate flexibility, the Committee determined that, the requirement to hold these shares could be met either by (i) retaining the shares that vested from the underlying award (net of tax) or (ii) by separately retaining a number of shares equivalent to those that vested under the award. The Committee consider that such an arrangement results in the employee holding the same number of shares as per the original intention of the retention period as set out in the remuneration policy approved by shareholders in 2014.

5 All share options are unvested and unexercised.

6 Includes GPSP awards, which were made following an assessment of performance over the relevant period ending on 31 December immediately before the grant date but are subject to a five-year vesting period.

7 Awards granted in March 2013 are subject to service conditions and satisfactory completion of the DPA, as determined by the Committee. The DPA condition ends on the fifth anniversary of the award date unless the DPA is extended or otherwise continues beyond that date, in which case the awards will vest on the date on which the DPA expires and otherwise ceases to operate. This award will lapse if the Committee determines that the performance conditions are not satisfied.

8 Since the end of the year, the number of HSBC Holdings ordinary shares held by Douglas Flint has increased by 22, following an acquisition, through regular monthly contributions in the HSBC Holdings UK Share Incentive Plan.

9 All Group Managing Directors are expected to meet their minimum shareholding guideline by 2019 or within five years of the date of their appointment, whichever is later.

Share options

(Audited)

	Date of award	Exercise price £	Exercisable from[1]	until	At 1 Jan 2016	Exercised in year	At 31 Dec 2016
Douglas Flint	23 Sep 2014	5.1887	1 Nov 2019	30 April 2020	2,919	—	2,919
Iain Mackay	23 Sep 2014	5.1887	1 Nov 2017	30 April 2018	3,469	—	3,469

1 May be advanced to an earlier date in certain circumstances, such as retirement.

The above awards were made under HSBC UK Sharesave, an all-employee share plan under which eligible employees may be granted options to acquire HSBC Holdings ordinary shares. The exercise price is set at a 20% discount to the share price

immediately prior to the start of the invitation period. Employees may make contributions of up to £500 each month over a period of three or five years. The market value per ordinary share at 31 December 2016 was £6.5690. Market value is the mid-market price derived from the London Stock Exchange Daily Official List on the relevant date. Under the Securities and Futures Ordinance of Hong Kong, the options are categorised as unlisted physically settled equity derivatives.

Summary of shareholder return and Group Chief Executive remuneration

The following graph shows the total shareholder return ('TSR') performance against the FTSE 100 Total Return Index for the

eight-year period that ended on 31 December 2016. The FTSE 100 Total Return Index has been chosen as this is a recognised broad equity market index of which HSBC Holdings is a member. The single figure remuneration over the past eight years together with the outcomes of the respective annual incentive and long-term incentive awards are also presented below.

HSBC TSR and FTSE 100 Total Return Index

	2009	2010	2011	2012	2013	2014	2015	2016
Group Chief Executive	Michael Geoghegan	Michael Geoghegan	Stuart Gulliver	Stuart Gulliver	Stuart Gulliver	Stuart Gulliver	Stuart Gulliver	Stuart Gulliver
Total single figure £000	7,580	7,932	8,047	7,532	8,033	7,619	7,340	5,675
Annual incentive[1] (% of max.)	94%	82%	58%	52%	49%	54%	45%	64%
Long-term incentive[2,3] (% of max.)	25%	19%	50%	40%	49%	44%	41%	—

1 The 2012 annual incentive figure for Stuart Gulliver used for this table includes 60% of the annual incentive disclosed in the 2012 Directors' Remuneration Report which was deferred for five years and subject to service conditions and satisfactory completion of the DPA, as determined by the Committee. The DPA condition ends on the fifth anniversary of the award date unless the DPA is extended or otherwise continues beyond that date, in which case the awards will vest on the date on which the DPA expires and otherwise ceases to operate. This award will lapse if the Committee determines that the performance conditions are not satisfied.

2 Long-term incentive awards are included in the single figure for the year in which the performance period is deemed to be substantially completed. For GPSP awards this is the end of the financial year preceding the date of grant (GPSP awards shown in 2011 to 2015 therefore relate to awards granted in 2012 to 2016). For performance share awards that were awarded before introduction of GPSP, the value of awards that vested subject to satisfaction of performance conditions attached to those awards are included at the end of the third financial year following the date of grant (for example, performance share awards shown in 2010 relates to awards granted in 2008).

3 The GPSP was replaced by the LTI in 2016 and the value for GPSP is nil for 2016 as no GPSP award was made for 2016. The first LTI award will be made in March 2017, with a performance period ending in 2019. Vesting of the first LTI award will be included in the single figure table for the financial year ending on 31 December 2019. For year-on-year comparison purposes, if target performance is achieved over the three-year performance period, LTI payout for the 2016 award would be 50% of grant value. In this case, the single figure total remuneration of the executive Directors for year-on-year comparison would be (in £000) £7,670 for Stuart Gulliver.

Comparison of Group Chief Executive and all-employee pay

The following charts compare the changes in Group Chief Executive pay to changes in employee pay between 2015 and 2016, and provide a breakdown of total staff pay relative to the amount paid out in dividends.

Percentage change in remuneration between 2015 and 2016

	Group Chief Executive	Employee Group
Base salary [1]	0 %	4 %
Benefits [2, 3]	(12)%	(11)%
Annual incentive [4]	58 %	(5)%

1 Employee group consists of local full-time UK employees as representative of employees from different businesses and functions across the Group. Group Chief Executive's total fixed pay has not increased since 1 January 2014.

2 There has been no change in the benefits provided to the Group Chief Executive. The change in the value of the benefit is due to the change in the taxable value of the benefit as reported in the single figure table.

3 Employee group consists of UK employees eligible for taxable benefits which was deemed the most appropriate comparison for the Group Chief Executive given varying local requirements. There has been no change in the benefit coverage for employees from 2015 to 2016. The reduction in the average cost of benefits per employee is reflective of the decrease in the cost of providing such benefit on average.

4 Employee group consists of all employees globally, based on annual incentive pool as disclosed on page 29 and staff numbers (full-time equivalents at the financial year-end). The percentage change in annual incentive award of the Group Chief Executive is primarily driven by the difference in the 2015 and 2016 scorecard outcome, reflecting performance achieved in those years, and change in policy. Details of the 2016 total single figure of remuneration for the Group Chief Executive are on page 198.

Relative importance of spend on pay

ì î

26% 9%

Return to shareholder | Employee compensation and benefits

Dividends Share buy-back

The chart above shows the change in:

- total staff pay between 2015 and 2016; and
- dividends paid out in respect of 2015 and 2016.

We also executed a share buy-back worth approximately $2.5bn in the second half of 2016, and completed this early in the first quarter of 2017.

Directors' Remuneration Report

Non-executive Directors

The table below shows the total fees of non-executive Director for 2016, together with comparative figures for 2015.

Fees and benefits

(Audited)		Fees		Benefits[9]		Total	
(£000)	Footnotes	2016	2015	2016	2015	2016	2015
Phillip Ameen	1	440	403	43	13	483	416
Kathleen Casey		155	155	24	29	179	184
Henri de Castries (Appointed 1 Mar 2016)		79	—	4	—	83	—
Laura Cha	2	247	238	23	14	270	252
Lord Evans of Weardale		190	190	5	9	195	199
Joachim Faber	3	152	151	12	14	164	165
Rona Fairhead (Retired on 22 Apr 2016)	4	78	510	9	14	87	524
Sam Laidlaw		185	174	13	13	198	187
Irene Lee	5	268	184	10	2	278	186
John Lipsky		180	180	21	49	201	229
Rachel Lomax		254	253	6	11	260	264
Heidi Miller	6	536	175	35	31	571	206
David Nish (Appointed 1 May 2016)		83	—	22	—	105	—
Sir Simon Robertson (Retired on 22 Apr 2016)		49	195	2	12	51	207
Jonathan Symonds	7	520	520	7	1	527	521
Jackson Tai (Appointed 12 Sep 2016)		48	—	4	—	52	—
Pauline van der Meer Mohr	8	172	32	10	5	182	37
Paul Walsh (Appointed 1 Jan 2016)		142	—	6	—	148	—
Total		3,778	3,360	256	217	4,034	3,577
Total ($000)		5,097	5,135	345	332	5,442	5,467

1 Includes fees of £315,000 in 2016 (£278,000 in 2015) as a Director, Chairman of the Audit Committee and member of the Risk Committee of HSBC North America Holdings Inc.

2 Includes fees of £72,000 for 2016 (£63,000 for 2015) as a Director, Deputy Chairman and member of the Nomination Committee of The Hongkong and Shanghai Banking Corporation Limited.

3 Includes £7,000 (inclusive of VAT) in respect of his membership of a verwaltungsrat (advisory body) to HSBC Trinkaus & Burkhardt AG. These fees were received in respect of 2015 also, although they were not included in the disclosure.

4 Includes fees of £31,000 for 2016 (£360,000 in 2015) as Chairman of HSBC North America Holdings Inc.

5 Includes fees of £173,000 in 2016 as Director and member of the Audit Committee and the Risk Committee of The Hongkong and Shanghai Banking Corporation Limited and as Director, member of the Audit Committee and Chairman of the Risk Committee of Hang Seng Bank Limited.

6 Includes a fee of £411,000 as Chairman of HSBC North America Holdings Inc. following appointment on 1 January 2016.

7 Includes a fee of £345,000 in 2016 (£345,000 in 2015) as non-executive Chairman of HSBC Bank plc.

8 Appointed as a Director on 1 September 2015 and as a member of the Conduct & Values Committee and Group Remuneration Committee on 1 January 2016 and the Nomination Committee on 22 April 2016.

9 Benefits include accommodation and travel-related expenses relating to attendance at Board and other meetings at HSBC Holdings' registered office. Amounts disclosed have been grossed up using a tax rate of 45%, where relevant.

Non-executive Directors' interests in shares

(Audited)

The shareholdings of persons who were non-executive Directors in 2016, including the shareholdings of their connected persons, at 31 December 2016 are set out below. The table below shows the comparison of shareholdings to the company shareholding guidelines.

	Shareholding guidelines (number of shares)	Share interests (number of shares)
Phillip Ameen	15,000	5,000
Kathleen Casey	15,000	8,620
Laura Cha	15,000	5,200
Henri de Castries	15,000	16,165
Lord Evans of Weardale	15,000	9,170
Joachim Faber	15,000	66,605
Sam Laidlaw	15,000	40,860
Irene Lee	15,000	10,000
John Lipsky	15,000	16,165
Rachel Lomax	15,000	18,900
Heidi Miller	15,000	3,975
David Nish	15,000	50,000
Jonathan Symonds	15,000	21,771
Jackson Tai	15,000	31,605
Pauline van der Meer Mohr	15,000	15,000
Paul Walsh	15,000	5,079

Voting results from 2016 Annual General Meeting

The table below summarises the voting results at our last AGM.

	For	Against	Withheld
Remuneration Report	90.49% (8,327,033,672)	9.51% (875,494,490)	54,280,789
Remuneration Policy	96.05% (8,887,168,002)	3.95% (365,908,568)	35,165,873

Implementation of remuneration policy in 2017 for executive Directors

Implementation of fixed remuneration is disclosed on page 194 along with the remuneration policy summary. Further details on performance measures and weightings for the 2017 annual incentive award are provided below.

Annual incentive scorecards

The weightings and performance measures to apply to the 2017 annual incentive award for Stuart Gulliver, Iain Mackay and Marc Moses are disclosed below. These align to the Group's

strategic and financial objectives set out in our Investor Update in June 2015. The performance targets for the annual incentive are commercially sensitive and it would be detrimental to the Group's interests to disclose them at the start of the financial year. Subject to commercial sensitivity, we will disclose the targets after the end of a relevant financial year in that year's remuneration report.

2017 annual incentive scorecards

Executive Directors will be eligible for an annual incentive award of up to 213% of base salary.

	Stuart Gulliver	Iain Mackay	Marc Moses
Measures	%	%	%
Profit before tax[1]	20	10	10
Capital management	—	25	—
Deliver cost savings	20	10	—
Reduce Group RWAs	10	10	15
Strategic growth	10	—	—
Global Standards including risk and compliance	25	25	50
Personal objectives	15	20	25
Total	100	100	100

1 Adjusted profit before tax as defined for Group annual bonus pool calculation.

Details of the Global Standards and personal objectives measures are provided below.

	Stuart Gulliver	Iain Mackay	Marc Moses
Measures			
Global Standards including risk and compliance	• Achieve and sustain compliance with global financial crime compliance policies and procedures, and/or have approved dispensations in place. • Implement the operational risk management framework. • Implementation of global conduct programme and maturity level achieved	• Effective management of material operational risks. • Implementation of the operational risk management framework. • Proactively review and challenge the first line of defence to assess the adequacy of risk management activities relating to accounting and tax.	• Ensure the Global Risk function enables and supports Financial Crime Risk function to achieve and sustain compliance with global financial crime compliance policies and procedures. • Effective management of material operational risks. • Implementation of the operational risk management framework. • Proactively review and challenge the first line of defence to assess the adequacy of

	against the required conduct outcomes. • Effective risk management with AML, sanctions, anti-bribery and corruption policies and Global Standards.	• Implementation of global conduct programme and maturity level achieved against the required conduct outcomes. • Successful delivery of regulatory and internal stress tests in 2017.	risk management activities and fulfil risk steward responsibilities. • Manage credit and market risk, and oversee liquidity risk within the Board approved risk appetite. • Implementation of global conduct programme and maturity level achieved against the required conduct outcomes. • Successful delivery of regulatory and internal stress tests in 2017.
Personal objectives	• Ensure climate change is reflected across the Group's activities. • Optimise global network and reduce complexity. • Set-up UK ring-fenced bank headquartered in Birmingham and move the business to be ready for a UK departure from the EU. • Delivery of high-priority projects. • Improve customer satisfaction and employee diversity. • Complete succession and transition planning.	• Enhanced environmental, social and governance ('ESG') disclosures in collaboration with External Affairs function and global businesses. • Deliver Global Finance transformation. • Set-up UK ring-fenced bank headquartered in Birmingham and move the business to be ready for a UK departure from the EU. • Improve employee diversity. • Complete succession and transition planning.	• Develop processes to measure exposure to carbon-intensive and low-carbon-intensive activities. • Define opportunities to develop risk management policies and procedures consistent with Group risk appetite to protect the Group from climate change risk, and enable business activities supporting a transition to a low-carbon economy. • Pivot to Asia and support growth of customer lending. • Deliver Global Risk transformation. • Improve RWA effectiveness and efficiency. • Improve employee diversity. • Complete succession and transition planning.

Directors’ Remuneration Report

Long-term incentives

Details of the performance measures and targets for LTI awards to be made in 2017, in respect of 2016, are provided on page 202.

The performance measures and targets for awards to be made in respect of 2017, granted in 2018, will be provided in the Annual Reports and Accounts 2017.

Implementation of remuneration policy in 2017 for non-executive Directors

The Committee has reviewed the fee levels payable to the non-executive Directors and details can be found on page 193.

Additional remuneration disclosures

This section provides disclosures required under the Hong Kong Ordinances, Hong Kong Listing Rules, the US Securities and Exchange Commission Form 20-F and the Pillar 3 remuneration disclosures.

Payments on loss of office

The table below sets out the basis on which payments on loss of office may be made. Other than as set out in the table, there are no further obligations which could give rise to remuneration payments or payments for loss of office.

Component of remuneration	Approach taken
Fixed pay and benefits	Executive Directors may be entitled to payments in lieu of: • notice, which shall consist of base salary, pension entitlements and other contractual benefits, or an amount in lieu of; and/or • accrued but untaken holiday entitlement.
Annual incentives and long-term incentives	In exceptional circumstances as determined by the Committee, an executive Director may be eligible for annual incentives and long-term incentives based on the time worked in the performance year and on the individual executive Director’s contribution.
Unvested deferred awards	All unvested awards will be forfeited when an executive Director ceases employment voluntarily and is not deemed a good leaver. An executive Director may be considered a good leaver at the discretion of the Committee, and the following will apply: • unvested awards will continue to vest in line with the applicable vesting dates, subject to the original performance conditions, the share plan rules, malus and claw-back provisions; or • vested shares, subject to retention, will be released to the executive Director on cessation of employment.In the event of death, unvested awards will vest and will be released to the executive Director’s estate as soon as practicable. In respect of outstanding unvested awards, for an individual to be considered as a good leaver, the Committee needs to be satisfied that the executive has no current or future intention at the date of leaving HSBC of being employed by any competitor financial services firm. The Committee determines the list of competitor firms and length of time this restriction applies. If the Committee becomes aware of any evidence to the contrary before vesting, the award will lapse. If the executive Director is not deemed a good leaver for purposes of the GPSP, vested shares, subject to retention, will be released to the executive Director in three equal tranches on each of the first, second and third anniversary of cessation of employment.

Repatriation	Where an executive Director has been relocated as part of their employment, the Committee retains the discretion to pay the repatriation costs. This may include, but are not restricted to airfare, accommodation, shipment, storage, utilities, and any tax and social security that may be due in respect of such benefits.
Post-departure benefits	Applicable for the duration of the claw-back period, up to a maximum of seven years from date of departure for those who depart under good leaver provisions under the HSBC Share Plan and subject to non-compete provisions, in accordance with the terms of the policy. Benefits may include medical coverage, tax return preparation assistance and legal expenses for the duration of the claw-back period. The Committee also has the discretion to extend the post-departure benefit of medical coverage to former executive Directors, up to a maximum of seven years from their date of departure.
Legal claims	The Committee retains the discretion to make payments (including professional and outplacement fees) to mitigate against legal claims, subject to any such payments being made in accordance with the terms of an appropriate agreement waiving all claims against the Group.
Change of control	In the event of a change of control, outstanding awards will be treated in line with the provisions set out in the respective plan rules.

Employee compensation and benefits

Executive Directors

Set out below are details of compensation paid to executive Directors for the year ended 31 December 2016.

	Douglas Flint		Stuart Gulliver		Iain Mackay		Marc Moses	
	2016	2015	2016	2015	2016	2015	2016	2015
	£000	£000	£000	£000	£000	£000	£000	£000
Basic salaries, allowances and benefits in kind	2,136	2,496	3,953	4,290	1,949	2,082	1,913	2,035
Pension contributions	—	—	—	—	—	—	—	—
Performance-related pay paid or receivable [1,2]	—	—	1,695	3,041	987	2,169	1,005	1,928
Inducements to join paid or receivable	—	—	—	—	—	—	—	—
Compensation for loss of office	—	—	—	—	—	—	—	—
Notional return on deferred cash	—	—	27	9	17	5	18	5
Total	2,136	2,496	5,675	7,340	2,953	4,256	2,936	3,968
Total ($000)	2,882	3,815	7,656	11,218	3,984	6,505	3,961	6,065

1 For the 2016 performance year, Stuart Gulliver, Iain Mackay and Marc Moses will receive an LTI award with a face value of £3,990,000, £2,232,000 and £2,232,000, respectively, which is not included in the amount above. Vesting of the award is subject to the performance conditions detailed on page 202.

2 For the 2015 performance year, performance-related pay includes annual incentives and GPSP.

3 Deferred compensation accrued in 2016 for awards granted in prior years was £3,630,102 ($4,897,447) for Stuart Gulliver, £1,806,500 ($2,437,187) for Iain Mackay and £2,033,451 ($2,743,371) for Marc Moses. Deferred compensation accrued in 2015 for awards granted in prior years was £3,179,883 ($4,860,042) for Stuart Gulliver, £1,378,660 ($2,107,104) for Iain Mackay and £1,674,155 ($2,558,730) for Marc Moses.

The aggregate amount of Directors' emoluments as defined above (including both executive Directors and non-executive Directors) for the year ended 31 December 2016 was $23,925,335. As per our policy, benefits in kind may include, but are not limited to, the provision of medical insurance, income protection insurance, health assessment, life assurance, club membership, tax assistance, Hong Kong accommodation for Stuart Gulliver, car benefit, travel assistance, and relocation costs (including any tax due on the benefit, where applicable). Medical insurance benefit of £1,605 ($2,165) was provided to a past director, Alexander Flockhart, during the year ended 31 December 2016. Amounts are converted into US dollars based on the average year-to-date exchange rates for the respective year.

Emoluments of senior management and five highest paid employees

Set out below are details of emoluments paid to senior management (being here, executive Directors and Group Managing Directors of HSBC Holdings) for the year ended 31 December 2016 or for the period of appointment in 2016 as a Director or Group Managing Director. Details of remuneration paid to the five highest paid employees, including three executive Directors and two Group Managing Directors of HSBC Holdings, for the year ended 31 December 2016 are also presented below.

Emoluments

	Five highest paid employees	Senior management
	£000	£000
Basic salaries, allowances and benefits in kind	15,474	34,101
Pension contributions	82	251
Performance-related pay paid or receivable[1]	17,916	32,818
Inducements to join paid or receivable	—	—
Compensation for loss of office	—	2,669
Total	33,472	69,839
Total ($000)	45,158	94,222

1 Includes the face value of LTI awards at grant.

Directors' Remuneration Report

The emoluments of senior management were within the following bands:

Hong Kong dollars	US dollars	Number of highest paid employees	Number of senior management
HK$5,500,001 – 6,000,000	$708,536 – 772,948	—	1
HK$10,000,001 – 10,500,000	$1,288,246 – 1,352,658	—	1
HK$16,500,001 – 17,000,000	$2,125,606 – 2,190,018	—	1
HK$22,000,001 – 22,500,000	$2,834,142 – 2,898,554	—	1
HK$23,500,001 – 24,000,000	$3,027,379 – 3,091,791	—	1
HK$29,500,001 – 30,000,000	$3,800,326 – 3,864,738	—	1
HK$30,500,001 – 31,000,000	$3,929,151 – 3,993,563	—	1
HK$34,500,001 – 35,000,000	$4,444,449 – 4,508,862	—	1
HK$39,500,001 – 40,000,000	$5,088,572 – 5,152,985	—	1
HK$44,500,001 – 45,000,000	$5,732,695 – 5,797,108	—	1
HK$46,000,001 – 46,500,000	$5,925,932 – 5,990,345	—	1
HK$47,500,001 – 48,000,000	$6,119,169 – 6,183,581	—	1
HK$53,500,001 – 54,000,000	$6,892,117 – 6,956,529	1	1
HK$54,000,001 – 54,500,000	$6,956,529 – 7,020,941	1	1
HK$61,000,001 – 61,500,000	$7,858,302 – 7,922,714	1	1
HK$80,000,001 – 80,500,000	$10,305,969 – 10,370,381	1	1
HK$100,500,001 – 101,000,000	$12,946,874 – 13,011,286	1	1

Pillar 3 remuneration disclosures

The following tables show the remuneration awards made by HSBC to its MRTs for 2016. Individuals have been identified as

MRTs based on the qualitative and quantitative criteria set out in the Regulatory Technical Standard EU 604/2014 and additional criteria determined by the Committee.

Aggregate remuneration expenditure

	Global business aligned					
	Retail Banking and Wealth Management	Commercial Banking	Global Banking and Markets	Global Private Banking	Corporate Centre	Total
	$m	$m	$m	$m	$m	$m
2016	94.2	67.4	756.9	66.8	391.1	1,376.4

Includes salary and incentives awarded in respect of the performance year 2016 (including deferred component) and any pension or benefits outside of policy.

Remuneration – fixed and variable amounts – Group-wide

	Senior management[1]	MRTs (non-senior management)	Total
Number of MRTs	114	1,203	1,317
	$m	$m	$m
Fixed			
Cash-based	116.8	619.8	736.6
Shares-based	13.6	7.9	21.5
Total fixed	130.4	627.7	758.1
Variable[2]			
Cash	20.9	138.2	159.1
Non-deferred shares[3]	25.9	127.7	153.6
Deferred cash	29.1	116.3	145.4

Deferred shares	40.5	119.7	160.2
Total variable pay[4]	116.4	501.9	618.3

1 Definition of senior management for Pillar 3 disclosure includes our members of the Group Management Board, Group General Managers and non-executive Directors.
2 Variable pay awarded in respect of 2016.
3 Vested shares, subject to a six-month retention period.
4 In accordance with shareholder approval received on 23 May 2014, for each MRT the variable component of remuneration for any one year is limited to 200% of fixed component of the total remuneration of the MRT.

Remuneration – fixed and variable amounts – UK based

	Senior management[1]	MRTs (non-senior management)	Total
Number of MRTs	76	522	598
	$m	$m	$m
Total fixed	80.4	255.8	336.2
Variable[2]			
Cash	11.6	57.3	68.9
Non-deferred shares[3]	16.6	51.4	68.0
Deferred cash	16.3	47.7	64.0
Deferred shares	27.7	48.4	76.1
Total variable pay[4]	72.2	204.8	277.0

1 Definition of senior management for Pillar 3 disclosure includes our members of the Group Management Board, Group General Managers and non-executive Directors.
2 Variable pay awarded in respect of 2016.
3 Vested shares, subject to a six-month retention period.
4 In accordance with shareholder approval received on 23 May 2014, for each MRT the variable component of remuneration for any one year is limited to 200% of fixed component of the total remuneration of the MRT.

Deferred remuneration[1]

	Senior management	MRTs (non-senior management)	Total
	$m	$m	$m
Deferred remuneration at 31 Dec			
Outstanding, unvested	280.3	657.1	937.4
Awarded during the year	86.2	331.1	417.3
Paid out[2]	53.2	216.8	270.0
Reduced through malus	—	—	—

1 This table provides details of actions taken during performance year 2016. For details of variable pay awards granted for 2016, please refer to both the 'remuneration' tables above.
2 Vested shares are valued using the closing share price on the business day immediately preceding the vesting day.

Sign-on and severance payments

	Senior management	MRTs (non-senior management)	Total
Sign-on payments[1]			
Made during year ($m)	1.6	11.7	13.3
Number of beneficiaries	1	18	19
Severance payments[2]			
Awarded and made during year ($m)	3.2	4.0	7.2
Number of beneficiaries	1	7	8
Highest such award to a single person ($m)	3.2	1.8	5.0

1 Guaranteed variable pay awards granted to new hires and limited to their first year of service.
2 Represents non-standard termination payments made in excess of any local policies, standards or statutory amounts.

Material risk takers' remuneration by band[1]

	Senior management	MRTs (non-senior management)	Total
€0 – 1,000,000	37	917	954
€1,000,000 – 1,500,000	20	180	200
€1,500,000 – 2,000,000	13	53	66
€2,000,000 – 2,500,000	12	29	41
€2,500,000 – 3,000,000	10	13	23
€3,000,000 – 3,500,000	6	3	9

€3,500,000 – 4,000,000	3	2	5
€4,000,000 – 4,500,000	3	5	8
€4,500,000 – 5,000,000	1	—	1
€5,000,000 – 6,000,000	5	1	6
€6,000,000 – 7,000,000	2	—	2
€7,000,000 – 8,000,000	—	—	—
€8,000,000 – 9,000,000	1	—	1
€9,000,000 – 10,000,000	—	—	—
€10,000,000 – 11,000,000	1	—	1

1 Table prepared in euros in accordance with Article 450 of the European Union Capital Requirements Regulation, using the rates published by the European Commission for financial programming and budget for December of the reported year as published on its website.

Directors' Remuneration Report

Payments on loss of office

The table below sets out the basis on which payments on loss of office may be made. Other than as set out in the table, there are no further obligations which could give rise to remuneration payments or payments for loss of office.

Component of remuneration	Approach taken
Fixed pay and benefits	Executive Directors may be entitled to payments in lieu of: • notice, which shall consist of base salary, pension entitlements and other contractual benefits, or an amount in lieu of; and/or • accrued but untaken holiday entitlement.
Annual incentives and long-term incentives	In exceptional circumstances as determined by the Committee, an executive Director may be eligible for annual incentives and long-term incentives based on the time worked in the performance year and on the individual executive Director's contribution.
Unvested deferred awards	All unvested awards will be forfeited when an executive Director ceases employment voluntarily and is not deemed a good leaver. An executive Director may be considered a good leaver at the discretion of the Committee, and the following will apply: • unvested awards will continue to vest in line with the applicable vesting dates, subject to the original performance conditions, the share plan rules, malus and claw-back provisions; or • vested shares, subject to retention, will be released to the executive Director on cessation of employment.In the event of death, unvested awards will vest and will be released to the executive Director's estate as soon as practicable. In respect of outstanding unvested awards, for an individual to be considered as a good leaver, the Committee needs to be satisfied that the executive has no current or future intention at the date of leaving HSBC of being employed by any competitor financial services firm. The Committee determines the list of competitor firms and length of time this restriction applies. If the Committee becomes aware of any evidence to the contrary before vesting, the award will lapse. If the executive Director is not deemed a good leaver for purposes of the GPSP, vested shares, subject to retention, will be released to the executive Director in three equal tranches on each of the first, second and third anniversary of cessation of employment.
Repatriation	Where an executive Director has been relocated as part of their employment, the Committee retains the discretion to pay the repatriation costs. This may include, but are not restricted to airfare, accommodation, shipment, storage, utilities, and any tax and social security that may be due in respect of such benefits.
Post-departure benefits	Applicable for the duration of the claw-back period, up to a maximum of seven years from date of departure for those who depart under good leaver provisions under the HSBC Share Plan and subject to non-compete provisions, in accordance with the terms of the policy. Benefits may include medical coverage, tax return preparation assistance and legal expenses for the duration of the claw-back period. The Committee also has the discretion to extend the post-departure benefit of medical coverage to former executive Directors, up to a maximum of seven years from their date of departure.
Legal claims	

	The Committee retains the discretion to make payments (including professional and outplacement fees) to mitigate against legal claims, subject to any such payments being made in accordance with the terms of an appropriate agreement waiving all claims against the Group.
Change of control	In the event of a change of control, outstanding awards will be treated in line with the provisions set out in the respective plan rules.

Report of the Independent Registered Public Accounting Firm to the Board of Directors and Shareholders of HSBC Holdings plc

In our opinion, the accompanying consolidated balance sheets and the related consolidated statements of income, comprehensive income, changes in equity and cash flows (together the "financial statements") present fairly, in all material respects, the financial position of HSBC Holdings plc and its subsidiaries (the "Company") at 31 December 2016 and
31 December 2015, and the results of their operations and their cash flows for each of the two years in the period ended
31 December 2016 in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board and in conformity with International Financial Reporting Standards as adopted by the European Union. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of 31 December 2016, based on criteria established in Internal Control - Integrated Framework 2013 issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in Management's assessment of internal controls over financial reporting appearing on page 79. Our responsibility is to express opinions on these financial statements and on the Company's internal control over financial reporting based on our integrated audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

We also have audited the retrospective change in presentation of the segment information to the 2014 financial statements, as described in pages 59 to 62. In our opinion, the change in presentation is appropriate and has been consistently applied. We were not engaged to audit, review, or apply any procedures to the 2014 financial statements of the Company other than with respect to the change in presentation of the segment information, accordingly, we do not express an opinion or any other form of assurance on the 2014 financial statements taken as a whole.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorisations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorised acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

PricewaterhouseCoopers LLP
London, United Kingdom
21 February 2017

Report of Independent Registered Public Accounting Firm to the Board of Directors and Shareholders of HSBC Holdings plc

We have audited the accompanying consolidated income statement and consolidated statements of comprehensive income, changes in equity and cash flows, before the retrospective change in presentation of the segment information described on pages 59 to 62, of HSBC Holdings plc and its subsidiaries (together “HSBC") for the year ended 31 December 2014 on pages 216 to 306. These consolidated financial statements are the responsibility of HSBC’s management. Our responsibility is to express an opinion on these consolidated financial statements based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above, before the retrospective change in presentation of the segment information described on pages 59 to 62, present fairly, in all material respects, the results of operations and the cash flows of HSBC for the year ended 31 December 2014, in conformity with International Financial Reporting Standards (‘IFRSs’) as adopted by the European Union (‘EU’) and IFRSs as issued by the International Accounting Standards Board (‘IASB’).

We were not engaged to audit, review, or apply any procedures to the retrospective change in presentation of the segment information described on pages 59 to 62, and, accordingly, we do not express an opinion or any other form of assurance about whether such adjustments are appropriate and have been properly applied. Those adjustments were audited by a successor auditor.

KPMG Audit Plc
London, England
23 February 2015

Financial Statements

Notes on the Financial Statements

Financial Statements

Consolidated income statement

for the year ended 31 December

	Notes	2016 $m	2015 $m	2014 $m
Net interest income		29,813	32,531	34,705
– interest income		42,414	47,189	50,955
– interest expense		(12,601)	(14,658)	(16,250)
Net fee income		12,777	14,705	15,957
– fee income		15,669	18,016	19,545
– fee expense		(2,892)	(3,311)	(3,588)
Net trading income		9,452	8,723	6,760
– trading income excluding net interest income		8,066	6,948	4,853
– net interest income on trading activities		1,386	1,775	1,907
Net income/(expense) from financial instruments designated at fair value	2	(2,666)	1,532	2,473
– changes in fair value of long-term debt and related derivatives		(3,975)	863	508
– net income from other financial instruments designated at fair value		1,309	669	1,965
Gains less losses from financial investments		1,385	2,068	1,335
Dividend income		95	123	311
Net insurance premium income	3	9,951	10,355	11,921
Other operating income/(expense)		(971)	1,055	1,131
Total operating income		59,836	71,092	74,593
Net insurance claims and benefits paid and movement in liabilities to policyholders	3	(11,870)	(11,292)	(13,345)
Net operating income before loan impairment charges and other credit risk provisions		47,966	59,800	61,248
Loan impairment charges and other credit risk provisions	4	(3,400)	(3,721)	(3,851)
Net operating income		44,566	56,079	57,397
Employee compensation and benefits	5	(18,089)	(19,900)	(20,366)
General and administrative expenses		(16,473)	(17,662)	(18,565)
Depreciation and impairment of property, plant and equipment		(1,229)	(1,269)	(1,382)
Amortisation and impairment of intangible assets		(777)	(937)	(936)
Goodwill impairment of Global Private Banking – Europe	20	(3,240)	—	—
Total operating expenses		(39,808)	(39,768)	(41,249)
Operating profit	4	4,758	16,311	16,148
Share of profit in associates and joint ventures	17	2,354	2,556	2,532
Profit before tax		7,112	18,867	18,680
Tax expense	7	(3,666)	(3,771)	(3,975)
Profit for the year		3,446	15,096	14,705
Attributable to:				
– ordinary shareholders of the parent company		1,299	12,572	13,115
– preference shareholders of the parent company	8	90	90	90
– other equity holders	8	1,090	860	483
– non-controlling interests		967	1,574	1,017
Profit for the year		3,446	15,096	14,705
		$	$	$
Basic earnings per ordinary share	9	0.07	0.65	0.69
Diluted earnings per ordinary share	9	0.07	0.64	0.69

Consolidated statement of comprehensive income
for the year ended 31 December

	2016	2015	2014
	$m	$m	$m
Profit for the year	3,446	15,096	14,705
Other comprehensive income/(expense)			
Items that will be reclassified subsequently to profit or loss when specific conditions are met:			
Available-for-sale investments	(299)	(3,072)	2,972
– fair value gains/(losses)	475	(1,231)	4,794
– fair value gains reclassified to the income statement	(895)	(2,437)	(1,672)
– amounts reclassified to the income statement in respect of impairment losses	71	127	374
– income taxes	50	469	(524)
Cash flow hedges	(68)	(24)	188
– fair value (losses)/gains	(297)	704	1,512
– fair value losses/(gains) reclassified to the income statement	195	(705)	(1,244)
– income taxes	34	(23)	(80)
Share of other comprehensive income/(expense) of associates and joint ventures	54	(9)	80
– share for the year	54	(9)	78
– reclassified to income statement on disposal	—	—	2
Exchange differences	(8,092)	(10,945)	(8,903)
– foreign exchange gains reclassified to income statement on disposal of a foreign operation	1,894	—	(21)
– other exchange differences	(9,791)	(11,112)	(8,917)
– income tax attributable to exchange differences	(195)	167	35
Items that will not be reclassified subsequently to profit or loss:			
Remeasurement of defined benefit asset/liability	7	101	1,985
– before income taxes	(84)	130	2,419
– income taxes	91	(29)	(434)
Other comprehensive income for the year, net of tax	(8,398)	(13,949)	(3,678)
Total comprehensive income for the year	(4,952)	1,147	11,027
Attributable to:			
– ordinary shareholders of the parent company	(6,968)	(490)	8,672
– preference shareholders of the parent company	90	90	90
– other equity holders	1,090	860	483
– non-controlling interests	836	687	1,782
Total comprehensive income for the year	(4,952)	1,147	11,027

Financial Statements

Consolidated balance sheet
at 31 December

	Notes	2016 $m	2015 $m
Assets			
Cash and balances at central banks		128,009	98,934
Items in the course of collection from other banks		5,003	5,768
Hong Kong Government certificates of indebtedness		31,228	28,410
Trading assets	10	235,125	224,837
Financial assets designated at fair value	13	24,756	23,852
Derivatives	14	290,872	288,476
Loans and advances to banks		88,126	90,401
Loans and advances to customers		861,504	924,454
Reverse repurchase agreements – non-trading		160,974	146,255
Financial investments	15	436,797	428,955
Assets held for sale	22	4,389	43,900
Prepayments, accrued income and other assets	21	59,520	54,398
Current tax assets		1,145	1,221
Interests in associates and joint ventures	17	20,029	19,139
Goodwill and intangible assets	20	21,346	24,605
Deferred tax assets	7	6,163	6,051
Total assets at 31 Dec		2,374,986	2,409,656
Liabilities and equity			
Liabilities			
Hong Kong currency notes in circulation		31,228	28,410
Deposits by banks		59,939	54,371
Customer accounts		1,272,386	1,289,586
Repurchase agreements – non-trading		88,958	80,400
Items in the course of transmission to other banks		5,977	5,638
Trading liabilities	23	153,691	141,614
Financial liabilities designated at fair value	24	86,832	66,408
Derivatives	14	279,819	281,071
Debt securities in issue	25	65,915	88,949
Liabilities of disposal groups held for sale	22	2,790	36,840
Accruals, deferred income and other liabilities	26	41,501	38,116
Current tax liabilities		719	783
Liabilities under insurance contracts	3	75,273	69,938
Provisions	27	4,773	5,552
Deferred tax liabilities	7	1,623	1,760
Subordinated liabilities	28	20,984	22,702
Total liabilities at 31 Dec		2,192,408	2,212,138
Equity			
Called up share capital	32	10,096	9,842
Share premium account	32	12,619	12,421
Other equity instruments		17,110	15,112
Other reserves		(1,234)	7,109
Retained earnings		136,795	143,976
Total shareholders' equity		175,386	188,460

Non-controlling interests	31	7,192	9,058
Total equity at 31 Dec		182,578	197,518
Total liabilities and equity at 31 Dec		2,374,986	2,409,656

The accompanying notes on pages 226 to 303, the audited sections in 'Global businesses and regions' on pages 59 to 76, 'Risk' on pages 89 to 164, 'Capital' on pages 165 to 169 and 'Directors' Remuneration Report' on pages 191 to 208 form an integral part of these financial statements.

These financial statements were approved by the Board of Directors on 21 February 2017 and signed on its behalf by:

Douglas Flint	Iain Mackay
Group Chairman	Group Finance Director

Consolidated statement of cash flows
for the year ended 31 December

	Footnotes	2016 $m	2015 $m	2014 $m
Profit before tax		7,112	18,867	18,680
Adjustments for non-cash items:				
Depreciation, amortisation and impairment		5,212	2,181	2,251
Net gain from investing activities		(1,215)	(1,935)	(1,928)
Share of profits in associates and joint ventures		(2,354)	(2,556)	(2,532)
(Gain)/loss on disposal of subsidiaries, businesses, associates and joint ventures		1,743	—	41
Loan impairment losses gross of recoveries and other credit risk provisions		4,090	4,546	5,125
Provisions including pensions		2,482	3,472	3,609
Share-based payment expense		534	757	732
Other non-cash items included in profit before tax		(207)	(191)	(487)
Elimination of exchange differences	1	15,364	18,308	24,571
Changes in operating assets and liabilities				
Change in net trading securities and derivatives		4,395	24,384	(18,498)
Change in loans and advances to banks and customers		52,868	32,971	17,813
Change in reverse repurchase agreements – non-trading		(13,138)	(3,011)	18,900
Change in financial assets designated at fair value		(1,235)	2,394	3,269
Change in other assets		(6,591)	9,090	4,393
Change in deposits by banks and customer accounts		(8,918)	(65,907)	(17,443)
Change in repurchase agreements – non-trading		8,558	(26,481)	(56,788)
Change in debt securities in issue		(23,034)	960	(8,133)
Change in financial liabilities designated at fair value		17,802	(10,785)	(10,734)
Change in other liabilities		8,792	(4,549)	(716)
Dividends received from associates		689	879	757
Contributions paid to defined benefit plans		(726)	(664)	(681)
Tax paid		(3,264)	(3,852)	(3,573)
Net cash from operating activities		68,959	(1,122)	(21,372)
Purchase of financial investments		(457,084)	(438,376)	(384,199)
Proceeds from the sale and maturity of financial investments		430,085	399,636	382,837
Net cash flows from the purchase and sale of property, plant and equipment		(1,151)	(1,249)	(1,389)
Net cash inflow/(outflow) from disposal of customer and loan portfolios		9,194	2,023	(1,035)
Net investment in intangible assets		(906)	(954)	(903)
Net cash flow on disposal of subsidiaries, businesses, associates and joint ventures	2	4,802	8	(272)
Net cash from investing activities		(15,060)	(38,912)	(4,961)
Issue of ordinary share capital and other equity instruments		2,024	3,727	5,948
Net sales/(purchases) of own shares for market-making and investment purposes		523	331	(96)
Purchase of treasury shares		(2,510)	—	—
Redemption of preference shares and other equity instruments		(1,825)	(463)	(234)
Subordinated loan capital issued		2,622	3,180	3,500
Subordinated loan capital repaid		(595)	(2,157)	(3,163)
Dividends paid to shareholders of the parent company and non-controlling interests		(9,157)	(8,195)	(7,823)
Net cash from financing activities		(8,918)	(3,577)	(1,868)
Net increase/(decrease) in cash and cash equivalents		44,981	(43,611)	(28,201)

Cash and cash equivalents at 1 Jan		243,863	301,301	346,281
Exchange differences in respect of cash and cash equivalents		(14,294)	(13,827)	(16,779)
Cash and cash equivalents at 31 Dec		274,550	243,863	301,301
Cash and cash equivalents comprise:	3			
– cash and balances at central banks		128,009	98,934	129,957
– items in the course of collection from other banks		5,003	5,768	4,927
– loans and advances to banks of one month or less		77,318	70,985	89,285
– reverse repurchase agreements with banks of one month or less		55,551	53,971	68,930
– treasury bills, other bills and certificates of deposit less than three months		14,646	19,843	14,192
– less: items in the course of transmission to other banks		(5,977)	(5,638)	(5,990)
		274,550	243,863	301,301

Interest received was $42,586m (2015: $47,623m; 2014: $51,522m), interest paid was $12,027m (2015: $14,559m; 2014: $15,633m) and dividends received were $475m (2015: $914m; 2014: $1,199m).

1 Adjustment to bring changes between opening and closing balance sheet amounts to average rates. This is not done on a line-by-line basis, as details cannot be determined without unreasonable expense.

2 In July 2016, we completed the disposal of the Brazilian operations resulting in net cash inflow of $4.8bn.

3 At 31 December 2016 $35,501m (2015: $33,744m) was not available for use by HSBC, of which $21,108m (2015: $21,773m) related to mandatory deposits at central banks.

Financial Statements

Consolidated statement of changes in equity
for the year ended 31 December

				Other reserves[5]						
	Called up share capital and share premium[1]	Other equity instru-ments[2]	Retained earnings[3, 4]	Available-for-sale fair value reserve	Cash flow hedging reserve	Foreign exchange reserve	Merger reserve[6]	Total share-holders' equity	Non-controlling interests	Total equity
	$m	$m	$m	$m	$m	$m	$m	$m	$m	$m
At 1 Jan 2016	22,263	15,112	143,976	(189)	34	(20,044)	27,308	188,460	9,058	197,518
Profit for the year	—	—	2,479	—	—	—	—	2,479	967	3,446
Other comprehensive income (net of tax)	—	—	59	(271)	(61)	(7,994)	—	(8,267)	(131)	(8,398)
– available-for-sale investments	—	—	—	(271)	—	—	—	(271)	(28)	(299)
– cash flow hedges	—	—	—	—	(61)	—	—	(61)	(7)	(68)
– remeasurement of defined benefit asset/liability	—	—	5	—	—	—	—	5	2	7
– share of other comprehensive income of associates and joint ventures	—	—	54	—	—	—	—	54	—	54
– foreign exchange reclassified to income statement on disposal of a foreign operation	—	—	—	—	—	1,894	—	1,894	—	1,894
– exchange differences	—	—	—	—	—	(9,888)	—	(9,888)	(98)	(9,986)
Total comprehensive income for the year	—	—	2,538	(271)	(61)	(7,994)	—	(5,788)	836	(4,952)
Shares issued under employee remuneration and share plans	452	—	(425)	—	—	—	—	27	—	27
Shares issued in lieu of dividends and amounts arising thereon	—	—	3,040	—	—	—	—	3,040	—	3,040
Net increase in treasury shares	—	—	(2,510)	—	—	—	—	(2,510)	—	(2,510)
	—	1,998	—	—	—	—	—	1,998	—	1,998

Capital securities issued										
Dividends to shareholders	—	—	(11,279)	—	—	—	—	(11,279)	(919)	(12,198)
Cost of share-based payment arrangements	—	—	534	—	—	—	—	534	—	534
Other movements	—	—	921	(17)	—	—	—	904	(1,783)	(879)
At 31 Dec 2016	22,715	17,110	136,795	(477)	(27)	(28,038)	27,308	175,386	7,192	182,578
At 1 Jan 2015	21,527	11,532	137,144	2,143	58	(9,265)	27,308	190,447	9,531	199,978
Profit for the year	—	—	13,522	—	—	—	—	13,522	1,574	15,096
Other comprehensive income (net of tax)	—	—	73	(2,332)	(24)	(10,779)	—	(13,062)	(887)	(13,949)
– available-for-sale investments	—	—	—	(2,332)	—	—	—	(2,332)	(740)	(3,072)
– cash flow hedges	—	—	—	—	(24)	—	—	(24)	—	(24)
– remeasurement of defined benefit asset/liability	—	—	82	—	—	—	—	82	19	101
– share of other comprehensive income of associates and joint ventures	—	—	(9)	—	—	—	—	(9)	—	(9)
– exchange differences	—	—	—	—	—	(10,779)	—	(10,779)	(166)	(10,945)
Total comprehensive income for the year	—	—	13,595	(2,332)	(24)	(10,779)	—	460	687	1,147
Shares issued under employee remuneration and share plans	736	—	(589)	—	—	—	—	147	—	147
Shares issued in lieu of dividends and amounts arising thereon	—	—	3,162	—	—	—	—	3,162	—	3,162
Capital securities issued	—	3,580	—	—	—	—	—	3,580	—	3,580
Dividends to shareholders	—	—	(10,660)	—	—	—	—	(10,660)	(697)	(11,357)
Cost of share-based payment arrangements	—	—	757	—	—	—	—	757	—	757
Other movements	—	—	567	—	—	—	—	567	(463)	104

At 31 Dec 2015	22,263	15,112	143,976	(189	) 34	(20,044	) 27,308	188,460	9,058	197,518

Consolidated statement of changes in equity (continued)

	Called up share capital and share premium[1]	Other equity instru-ments[2]	Retained earnings[3, 4]	Other reserves[5] Available-for-sale fair value reserve	Cash flow hedging reserve	Foreign exchange reserve	Merger reserve[6]	Total share-holders' equity	Non-controlling interests	Total equity
	$m	$m	$m	$m	$m	$m	$m	$m	$m	$m
At 1 Jan 2014	20,550	5,851	128,728	97	(121)	(542)	27,308	181,871	8,588	190,459
Profit for the year	—	—	13,688	—	—	—	—	13,688	1,017	14,705
Other comprehensive income (net of tax)	—	—	2,066	2,025	189	(8,723)	—	(4,443)	765	(3,678)
– available-for-sale investments	—	—	—	2,025	—	—	—	2,025	947	2,972
– cash flow hedges	—	—	—	—	189	—	—	189	(1)	188
– remeasurement of defined benefit asset/liability	—	—	1,986	—	—	—	—	1,986	(1)	1,985
– share of other comprehensive income of associates and joint ventures	—	—	80	—	—	—	—	80	—	80
– exchange differences	—	—	—	—	—	(8,723)	—	(8,723)	(180)	(8,903)
Total comprehensive income for the year	—	—	15,754	2,025	189	(8,723)	—	9,245	1,782	11,027
Shares issued under employee remuneration and share plans	977	—	(710)	—	—	—	—	267	—	267
Shares issued in lieu of dividends and amounts arising thereon	—	—	2,709	—	—	—	—	2,709	—	2,709
Capital securities issued	—	5,681	—	—	—	—	—	5,681	—	5,681
Dividends to shareholders	—	—	(9,893)	—	—	—	—	(9,893)	(712)	(10,605)
Cost of share-based payment arrangements	—	—	732	—	—	—	—	732	—	732
Other movements	—	—	(176)	21	(10)	—	—	(165)	(127)	(292)
At 31 Dec 2014	21,527	11,532	137,144	2,143	58	(9,265)	27,308	190,447	9,531	199,978

1 For further details refer to Note 32.

2 During 2016, HSBC Holdings issued $2,000m of perpetual subordinated contingent convertible capital securities, after issuance costs of $6m and tax benefits of $4m. In 2015, HSBC Holdings issued $2,450m and €1,000m of perpetual subordinated contingent convertible capital securities, on which there were $12m of external issuance costs, $25m of intra-group issuance costs and $19m of tax. In 2014, HSBC Holdings issued $2,250m, $1,500m and €1,500m of perpetual subordinated contingent convertible capital securities, on which there were $13m of external issuance costs and $33m of intra-group issuance costs. Under IFRSs these issuance costs and tax benefits are classified as equity.

3 At 31 December 2016, retained earnings included 353,356,251 treasury shares (2015: 81,580,180; 2014: 85,337,430). The increase principally reflects the share buy-back initiative, with the purchase of 325,273,407 ordinary shares to reduce outstanding ordinary shares. In addition, treasury shares are also held within HSBC's Insurance business retirement funds for the benefit of policyholders or beneficiaries within employee trusts for the settlement of shares expected to be delivered under employee share schemes or bonus plans, and the market-making activities in Markets.

4 Cumulative goodwill amounting to $5,138m has been charged against reserves in respect of acquisitions of subsidiaries prior to 1 January 1998, including $3,469m charged against the merger reserve arising on the acquisition of HSBC Bank plc. The balance of $1,669m has been charged against retained earnings.

5 At 31 December 2015, our operations in Brazil were classified as held for sale (see Note 22). The cumulative amount of other reserves attributable to these operations were as follows: available-for-sale fair value reserve debit of $176m, cash flow hedging reserve credit of $34m and foreign exchange reserve debit of $2.6bn.

6 Statutory share premium relief under Section 131 of the Companies Act 1985 (the 'Act') was taken in respect of the acquisition of HSBC Bank plc in 1992, HSBC France in 2000 and HSBC Finance Corporation in 2003, and the shares issued were recorded at their nominal value only. In HSBC's consolidated financial statements the fair value differences of $8,290m in respect of HSBC France and $12,768m in respect of HSBC Finance Corporation were recognised in the merger reserve. The merger reserve created on the acquisition of HSBC Finance Corporation subsequently became attached to HSBC Overseas Holdings (UK) Limited ('HOHU'), following a number of intra-group reorganisations. During 2009, pursuant to Section 131 of the Companies Act 1985, statutory share premium relief was taken in respect of the rights issue and $15,796m was recognised in the merger reserve. The merger reserve includes a deduction of $614m in respect of costs relating to the rights issue, of which $149m was subsequently transferred to the income statement. Of this $149m, $121m was a loss arising from accounting for the agreement with the underwriters as a contingent forward contract. The merger reserve excludes the loss of $344m on a forward foreign exchange contract associated with hedging the proceeds of the rights issue.

Financial Statements

HSBC Holdings income statement
for the year ended 31 December

	Notes	2016 $m	2015 $m	2014 $m
Net interest expense		(424)	(438)	(486)
– interest income		1,380	866	944
– interest expense		(1,804)	(1,304)	(1,430)
Fee (expense)/income		(1)	39	47
Net trading income/(expense)		119	(349)	(215)
Net (expense)/income from financial instruments designated at fair value	2	(49)	276	438
Dividend income from subsidiaries		10,436	8,469	9,077
Other operating income		696	654	608
Total operating income		10,777	8,651	9,469
Employee compensation and benefits	5	(570)	(908)	(681)
General and administrative expenses		(4,014)	(3,434)	(2,522)
Impairment of subsidiaries		—	(26)	(38)
Total operating expenses		(4,584)	(4,368)	(3,241)
Profit before tax		6,193	4,283	6,228
Tax credit		402	570	299
Profit for the year		6,595	4,853	6,527

HSBC Holdings statement of comprehensive income
for the year ended 31 December

	2016 $m	2015 $m	2014 $m
Profit for the year	6,595	4,853	6,527
Other comprehensive income/(expense)			
Items that will be reclassified subsequently to profit or loss when specific conditions are met:			
Available-for-sale investments	(72)	(57)	116
– fair value gains/(losses)	(83)	(77)	152
– income taxes	11	20	(36)
Items that will not be reclassified subsequently to profit or loss:			
Changes in fair value of financial liabilities designated at fair value due to movement in own credit risk	(896)	—	—
– before income taxes	(1,030)	—	—
– income taxes	134	—	—
Other comprehensive income for the year, net of tax	(968)	(57)	116
Total comprehensive income for the year	5,627	4,796	6,643

HSBC Holdings balance sheet
at 31 December

	Notes	2016 $m	2015 $m
Assets			
Cash and balances with HSBC undertakings		247	242
Derivatives	14	2,148	2,467
Loans and advances to HSBC undertakings		77,421	44,350
Financial investments in HSBC undertakings		3,590	4,285
Prepayments, accrued income and other assets		503	265
Current tax assets		631	723
Investments in subsidiaries	18	95,850	97,770
Intangible assets		176	75
Deferred tax assets		232	17
Total assets at 31 Dec		180,798	150,194
Liabilities and equity			
Liabilities			
Amounts owed to HSBC undertakings		2,157	2,152
Financial liabilities designated at fair value	24	30,113	19,853
Derivatives	14	5,025	2,278
Debt securities in issue	25	21,805	960
Accruals, deferred income and other liabilities		1,651	1,642
Deferred tax liabilities		—	—
Subordinated liabilities	28	15,189	15,895
Total liabilities		75,940	42,780
Equity			
Called up share capital	32	10,096	9,842
Share premium account		12,619	12,421
Other equity instruments		17,004	15,020
Other reserves		37,483	37,907
Retained earnings		27,656	32,224
Total equity		104,858	107,414
Total liabilities and equity at 31 Dec		180,798	150,194

The accompanying notes on pages 226 to 303 and the audited sections in 'Global businesses and regions' on pages 59 to 76, 'Risk' on pages 89 to 164, 'Capital' on pages 165 to 169 and 'Directors' Remuneration Report' on pages 191 to 208 form an integral part of these financial statements.

These financial statements were approved by the Board of Directors on 21 February 2017 and signed on its behalf by:

Douglas Flint	Iain Mackay
Group Chairman	Group Finance Director

Financial Statements

HSBC Holdings statement of cash flows
for the year ended 31 December

	2016	2015	2014
	$m	$m	$m
Profit before tax	6,193	4,283	6,228
Adjustments for non-cash items:	48	114	52
– depreciation, amortisation and impairment	10	30	39
– charge for share-based payment	34	86	74
– other non-cash items included in profit before tax	4	(2)	(61)
Changes in operating assets and liabilities			
Change in loans to HSBC undertakings	(33,069)	(454)	3,474
Change in net trading securities and net derivatives	3,066	1,413	483
Change in other assets	(239)	(141)	7
Change in debt securities in issue	(1,633)	(49)	(149)
Change in financial liabilities designated at fair value	(1,229)	(1,228)	(694)
Change in other liabilities	(693)	(1,065)	(9,071)
Tax received	646	470	133
Net cash from operating activities	(26,910)	3,343	463
Purchase of financial investments in HSBC undertakings	—	(276)	(2,410)
Proceeds from the sale and maturity of financial investments in HSBC undertakings	610	—	300
Net cash outflow from acquisition of or increase in stake of subsidiaries	(2,073)	(2,118)	(1,603)
Repayment of capital from subsidiaries	3,920	790	3,505
Net investment in intangible assets	(109)	(79)	—
Net cash from investing activities	2,348	(1,683)	(208)
Issue of ordinary share capital and other equity instruments	2,381	4,216	6,559
Purchase of treasury shares	(2,510)	—	—
Subordinated loan capital issued	2,636	3,180	3,500
Subordinated loan capital repaid	(1,781)	(1,565)	(1,654)
Debt securities issued	32,080	0	—
Debt securities repaid	—	—	(1,634)
Dividends paid on ordinary shares	(7,059)	(6,548)	(6,611)
Dividends paid to holders of other equity instruments	(1,180)	(950)	(573)
Net cash from financing activities	24,567	(1,667)	(413)
Net increase/(decrease) in cash and cash equivalents	5	(7)	(158)
Cash and cash equivalents at 1 January	242	249	407
Cash and cash equivalents at 31 Dec	247	242	249
Cash and cash equivalents comprise			
Cash at bank with HSBC undertakings	247	242	249

Interest received was $2,605m (2015: $2,026m), interest paid was $2,910m (2015: $2,309m) and dividends received were $10,412m (2015: $8,469m).

HSBC Holdings statement of changes in equity
for the year ended 31 December

					Other reserves			
	Called up share capital	Share premium	Other equity instruments	Retained earnings[1]	Available-for-sale fair value reserve	Other paid-in capital[2]	Merger and other reserves	Total share-holders' equity
	$m	$m	$m	$m	$m	$m	$m	$m
At 1 Jan 2016	9,842	12,421	15,020	32,224	183	2,597	35,127	107,414
Profit for the year	—	—	—	6,595	—	—	—	6,595
Other comprehensive income (net of tax)	—	—	—	(896)	(72)	—	—	(968)
– available-for-sale investments	—	—	—	—	(72)	—	—	(72)
– changes in fair value of financial liabilities designated at fair value due to movement in own credit risk	—	—	—	(896)	—	—	—	(896)
Total comprehensive income for the year	—	—	—	5,699	(72)	—	—	5,627
Shares issued under employee share plans	35	417	—	(51)	—	—	—	401
Shares issued in lieu of dividends and amounts arising thereon	219	(219)	—	3,040	—	—	—	3,040
Net increase in treasury shares	—	—	—	(2,510)	—	—	—	(2,510)
Capital securities issued	—		1,984	—	—	—	—	1,984
Dividends to shareholders	—	—	—	(11,279)	—	—	—	(11,279)
Cost of share-based payment arrangements	—	—	—	34	—	—	—	34
Other movements	—	—	—	499	1	(353)	—	147
At 31 Dec 2016	10,096	12,619	17,004	27,656	112	2,244	35,127	104,858
At 1 Jan 2015	9,609	11,918	11,476	34,986	240	2,089	35,127	105,445
Profit for the year	—	—	—	4,853	—	—	—	4,853
Other comprehensive income (net of tax)	—	—	—	—	(57)	—	—	(57)
– available-for-sale investments	—	—	—	—	(57)	—	—	(57)
Total comprehensive income for the year	—	—	—	4,853	(57)	—	—	4,796
Shares issued under employee share plans	45	691	—	(59)	—	—	—	677
Shares issued in lieu of dividends and amounts arising thereon	188	(188)	—	3,162	—	—	—	3,162
Capital securities issued	—	—	3,544	—	—	—	—	3,544

Dividends to shareholders	—	—	—	(10,660)	—	—	—	(10,660)
Cost of share-based payment arrangements	—	—	—	86	—	—	—	86
Other movements	—	—	—	(144)	—	508	—	364
At 31 Dec 2015	9,842	12,421	15,020	32,224	183	2,597	35,127	107,414
At 1 Jan 2014	9,415	11,135	5,828	35,406	124	2,052	35,127	99,087
Profit for the year	—	—	—	6,527	—	—	—	6,527
Other comprehensive income (net of tax)	—	—	—	—	116	—	—	116
– available-for-sale investments	—	—	—	—	116	—	—	116
Total comprehensive income for the year	—	—	—	6,527	116	—	—	6,643
Shares issued under employee share plans	60	917	—	(53)	—	—	—	924
Shares issued in lieu of dividends and amounts arising thereon	134	(134)	—	2,709	—	—	—	2,709
Capital securities issued	—	—	5,648	—	—	—	—	5,648
Dividends to shareholders	—	—	—	(9,893)	—	—	—	(9,893)
Cost of share-based payment arrangements	—	—	—	74	—	—	—	74
Other movements	—	—	—	216	—	37	—	253
At 31 Dec 2014	9,609	11,918	11,476	34,986	240	2,089	35,127	105,445

Dividends per ordinary share at 31 December 2016 were $0.51 (2015: $0.50; 2014:$0.49).

1 At 31 December 2016, retained earnings included 325,499,152 ($2,499m) of treasury shares (2015: 67,881 ($1m); 2014: 179,419 ($3m)). The increase principally reflects the share buy-back initiative, with the purchase of 325,273,407 ordinary shares ($2,497m) to reduce outstanding ordinary shares. In addition, treasury shares are held to fund employee share plans.

2 Other paid-in capital arises from the exercise and lapse of share options granted to employees of HSBC Holdings subsidiaries.

Notes on the Financial Statements

1
Basis of preparation and significant accounting policies
1.1 Basis of preparation
(a) Compliance with International Financial Reporting Standards
The consolidated financial statements of HSBC and the separate financial statements of HSBC Holdings have been prepared in accordance with IFRSs as issued by the IASB, including interpretations ('IFRICS') issued by the IFRS Interpretations Committee, and as endorsed by the European Union ('EU'). At 31 December 2016, there were no unendorsed standards effective for the year ended 31 December 2016 affecting these consolidated and separate financial statements, and HSBC's application of IFRSs results in no differences between IFRSs as issued by the IASB and IFRSs as endorsed by the EU.
Standards adopted during the year ended 31 December 2016
There were no new standards applied during the year ended 31 December 2016 by HSBC.
The requirements of IFRS 9 'Financial Instruments' relating to the presentation of gains and losses on financial liabilities designated at fair value were adopted in the separate financial statements of HSBC Holdings. As a result, the effects of changes in those liabilities' credit risk is presented in other comprehensive income with the remaining effect presented in profit or loss. In accordance with the transitional requirements of IFRS 9, comparatives have not been restated. Adoption increased profit before tax by $896m with the opposite effect on other comprehensive income, with no effect on net assets.
During 2016, HSBC adopted a number of interpretations and amendments to standards which had an insignificant effect on the consolidated financial statements of HSBC and the separate financial statements of HSBC Holdings.
(b) Differences between IFRSs and Hong Kong Financial Reporting Standards
There are no significant differences between IFRSs and Hong Kong Financial Reporting Standards in terms of their application to HSBC and consequently there would be no significant differences had the financial statements been prepared in accordance with Hong Kong Financial Reporting Standards. The Notes on the Financial Statements, taken together with the Report of the Directors, include the aggregate of all disclosures necessary to satisfy IFRSs and Hong Kong reporting requirements.
(c) Future accounting developments
Minor amendments to IFRSs
The IASB has published a number of minor amendments to IFRSs in the 'Annual Improvements to IFRSs 2012-2014' and in a series of stand-alone amendments, one of which has not yet been endorsed for use in the EU. HSBC has not early adopted any of the amendments effective after 31 December 2016 and it expects they will have an insignificant effect, when adopted, on the consolidated financial statements of HSBC and the separate financial statements of HSBC Holdings.
Major new IFRSs
The IASB has published IFRS 9 'Financial Instruments', IFRS 15 'Revenue from Contracts with Customers' and IFRS 16 'Leases'. IFRS 9 and IFRS 15 have been endorsed for use in the EU and IFRS 16 has not yet been endorsed.
IFRS 9 'Financial Instruments'
In July 2014, the IASB issued IFRS 9 'Financial Instruments', which is the comprehensive standard to replace IAS 39 'Financial Instruments: Recognition and Measurement', and includes requirements for classification and measurement of financial assets and liabilities, impairment of financial assets and hedge accounting.
Classification and measurement
The classification and measurement of financial assets will depend on how these are managed (the entity's business model) and their contractual cash flow characteristics. These factors determine whether the financial assets are measured at amortised cost, fair value through other comprehensive income ('FVOCI') or fair value through profit or loss ('FVPL'). The combined effect of the application of the business model and the contractual cash flow characteristics tests may result in some differences in the population of financial assets measured at amortised cost or fair value compared with IAS 39. However, based on an assessment of financial assets performed to date and expectations around changes to balance sheet composition, HSBC expects that the overall impact of any change will

not be significant.
For financial liabilities designated to be measured at fair value, gains or losses relating to changes in the entity's own credit risk are to be included in other comprehensive income.
Impairment
The impairment requirements apply to financial assets measured at amortised cost and FVOCI, and lease receivables and certain loan commitments and financial guarantee contracts. At initial recognition, an impairment allowance (or provision in the case of commitments and guarantees) is required for expected credit losses ('ECL') resulting from default events that are possible within the next 12 months ('12-month ECL'). In the event of a significant increase in credit risk, an allowance (or provision) is required for ECL resulting from all possible default events over the expected life of the financial instrument ('lifetime ECL'). Financial assets where 12 month ECL is recognised are in 'stage 1'; financial assets that are considered to have experienced a significant increase in credit risk are in 'stage 2'; and financial assets for which there is objective evidence of impairment, so are considered to be in default or otherwise credit impaired, are in 'stage 3'.
The assessment of credit risk and the estimation of ECL are required to be unbiased and probability-weighted, and should incorporate all available information relevant to the assessment, including information about past events, current conditions and reasonable and supportable forecasts of economic conditions at the reporting date. In addition, the estimation of ECL should take into account the time value of money. As a result, the recognition and measurement of impairment is intended to be more forward-looking than under IAS 39, and the resulting impairment charge will tend to be more volatile. IFRS 9 will also tend to result in an increase in the total level of impairment allowances, since all financial assets will be assessed for at least 12-month ECL and the population of financial assets to which lifetime ECL applies is likely to be larger than the population for which there is objective evidence of impairment in accordance with IAS 39.

Hedge accounting

The general hedge accounting requirements aim to simplify hedge accounting, creating a stronger link with risk management strategy and permitting hedge accounting to be applied to a greater variety of hedging instruments and risks. However they do not explicitly address macro hedge accounting strategies, which are particularly important for banks. As a result, IFRS 9 includes an accounting policy choice to remain with IAS 39 hedge accounting.

Based on the analysis performed to date, HSBC expects to exercise the accounting policy choice to continue IAS 39 hedge accounting and therefore is not currently planning to change hedge accounting, although it will implement the revised hedge accounting disclosures required by the related amendments to IFRS 7 ‘Financial Instruments: Disclosures’.

Transition

The classification and measurement and impairment requirements are applied retrospectively by adjusting the opening balance sheet at the date of initial application, with no requirement to restate comparative periods. HSBC does not intend to restate comparatives. The mandatory application date for the standard as a whole is 1 January 2018, but it is possible to apply the revised presentation for certain liabilities measured at fair value from an earlier date. HSBC has early adopted the revised presentation of fair value gains and losses relating to an entity’s own credit risk on certain liabilities in the separate financial statements of HSBC Holdings from 1 January 2016, and since interim financial statements have been issued during 2016 without adoption, will adopt new requirements in the consolidated financial statements from 1 January 2017. If this presentation was applied in the consolidated financial statements at 31 December 2016, the effect would be to increase profit before tax with the opposite effect on other comprehensive income based on the change in fair value attributable to changes in HSBC’s credit risk for the year, with no effect on net assets. Further information on the change in fair value attributable to changes in credit risk, including HSBC’s credit risk, is disclosed in Note 24. HSBC is assessing the impact that the impairment requirements will have on the financial statements.

The joint Global Risk and Global Finance IFRS 9 Implementation Programme continues to progress with the documentation of Group accounting policy, the development of operating and system target operating models and the development, build and testing of risk modelling methodologies for the calculation of impairment nearing completion. HSBC intends to perform a parallel run during the second half of 2017 to gain a better understanding of the potential effect of the new standard and for the governance framework to gain experience. HSBC intends to quantify the potential impact of IFRS 9 once it is practicable to provide reliable estimates, which will be no later than in the Annual Report and Accounts 2017. Until reliable estimates of the impact are available, particularly on the interaction with the regulatory capital requirements, further information on the expected impact on the financial position and on capital planning cannot be provided. Further information about the application of IFRS 9 by HSBC is available on pages 347 to 352 of the Annual Report and Accounts 2015.

IFRS 15 ‘Revenue from Contracts with Customers’

In May 2014, the IASB issued IFRS 15 ‘Revenue from Contracts with Customers’. The original effective date of IFRS 15 has been delayed by one year and the standard is now effective for annual periods beginning on or after 1 January 2018 with early application permitted. IFRS 15 provides a principles-based approach for revenue recognition, and introduces the concept of recognising revenue for performance obligations as they are satisfied. The standard should be applied retrospectively, with certain practical expedients available. HSBC has assessed the impact of IFRS 15 and expects that the standard will have no significant effect, when applied, on the consolidated financial statements of HSBC and the separate financial statements of HSBC Holdings.

IFRS 16 ‘Leases’

In January 2016, the IASB issued IFRS 16 ‘Leases’ with an effective date for annual periods beginning on or after 1 January 2019. IFRS 16 results in lessees accounting for most leases within the scope of the standard in a manner similar to the way in which finance leases are currently accounted for under IAS 17 ‘Leases’. Lessees will recognise a ‘right of use’ asset and a corresponding financial liability on the balance sheet. The asset will be amortised over the length of the lease and the financial liability measured at amortised cost. Lessor accounting remains substantially the same as under IAS 17. HSBC is currently assessing the impact of IFRS 16, and it is not practicable to quantify the effect at the date of the publication of these financial statements. Existing operating lease commitments are set out in Note 34.

(d) Foreign currencies

HSBC's consolidated financial statements are presented in US dollars because the US dollar and currencies linked to it form the major currency bloc in which HSBC transacts and funds its business. The US dollar is also HSBC Holdings' functional currency because the US dollar and currencies linked to it are the most significant currencies relevant to the underlying transactions, events and conditions of its subsidiaries, as well as representing a significant proportion of its funds generated from financing activities.

Transactions in foreign currencies are recorded at the rate of exchange on the date of the transaction. Assets and liabilities denominated in foreign currencies are translated at the rate of exchange at the balance sheet date except non-monetary assets and liabilities measured at historical cost that are translated using the rate of exchange at the initial transaction date. Exchange differences are included in other comprehensive income or in the income statement depending on where the gain or loss on the underlying item is recognised.

In the consolidated financial statements, the assets, liabilities and results of foreign operations whose functional currency is not US dollars are translated into the Group's presentation currency at the reporting date. Exchange differences arising are recognised in other comprehensive income. On disposal of a foreign operation, exchange differences previously recognised in other comprehensive income are reclassified to the income statement.

(e) Presentation of information

Certain disclosures required by IFRSs have been included in the audited sections of this Annual Report and Accounts as follows:

- segmental disclosures are included in the 'Report of the Directors: Financial Review' on pages 30 to 79;
- disclosures concerning the nature and extent of risks relating to insurance contracts and financial instruments are included in the 'Report of the Directors: Risk' on pages 89 to 164;
- capital disclosures are included in the 'Report of the Directors: Capital' on pages 165 to 169; and

Notes on the Financial Statements

- disclosures relating to HSBC's securitisation activities and structured products are included in the 'Report of the Directors: Risk' on pages 89 to 164.

In accordance with HSBC's policy to provide disclosures that help investors and other stakeholders understand the Group's performance, financial position and changes to them, the information provided in the Notes on the Financial Statements and the Report of the Directors goes beyond the minimum levels required by accounting standards, statutory and regulatory requirements and listing rules. In addition, HSBC follows the British Bankers' Association Code for Financial Reporting Disclosure ('the BBA Code'). The BBA Code aims to increase the quality and comparability of UK banks' disclosures and sets out five disclosure principles together with supporting guidance. In line with the principles of the BBA Code, HSBC assesses good practice recommendations issued from time to time by relevant regulators and standard setters and will assess the applicability and relevance of such guidance, enhancing disclosures where appropriate.

(f) Critical accounting estimates and judgements

The preparation of financial information requires the use of estimates and judgements about future conditions. In view of the inherent uncertainties and the high level of subjectivity involved in the recognition or measurement of items highlighted as the critical accounting estimates and judgements in section 1.2 below, it is possible that the outcomes in the next financial year could differ from those on which management's estimates are based, resulting in materially different conclusions from those reached by management for the purposes of these Financial Statements.

Management's selection of HSBC's accounting policies which contain critical estimates and judgements reflects the materiality of the items to which the policies are applied and the high degree of judgement and estimation uncertainty involved.

(g) Segmental analysis

HSBC's chief operating decision-maker is the Group Chief Executive, supported by the Group Management Board ('GMB'), which operates as a general management committee under the direct authority of the Board, and operating segments are reported in a manner consistent with the internal reporting provided to the Group Chief Executive and the GMB.

Measurement of segmental assets, liabilities, income and expenses is in accordance with the Group's accounting policies. Segmental income and expenses include transfers between segments, and these transfers are conducted at arm's length. Shared costs are included in segments on the basis of the actual recharges made.

(h) Going concern

The financial statements are prepared on a going concern basis, as the Directors are satisfied that the Group and parent company have the resources to continue in business for the foreseeable future. In making this assessment, the Directors have considered a wide range of information relating to present and future conditions, including future projections of profitability, cash flows and capital resources.

1.2 Summary of significant accounting policies

(a) Consolidation and related policies

Investments in subsidiaries

Where an entity is governed by voting rights, HSBC consolidates when it holds, directly or indirectly, the necessary voting rights to pass resolutions by the governing body. In all other cases, the assessment of control is more complex and requires judgement of other factors, including having exposure to variability of returns, power to direct relevant activities and whether power is held as agent or principal.

Business combinations are accounted for using the acquisition method. The amount of non-controlling interest is measured either at fair value or at the non-controlling interest's proportionate share of the acquiree's identifiable net assets. This election is made for each business combination.

HSBC Holdings' investments in subsidiaries are stated at cost less impairment losses.

Goodwill

Goodwill is allocated to cash-generating units ('CGUs') for the purpose of impairment testing, which is undertaken at the lowest level at which goodwill is monitored for internal management purposes. HSBC's CGUs are based on geographical regions subdivided by global business, except for Global Banking and Markets, for which goodwill is

monitored on a global basis.
Impairment testing is performed at least once a year, or whenever there is an indication of impairment, by comparing the recoverable amount of a CGU with its carrying amount.
Goodwill is included in a disposal group if the disposal group is a CGU to which goodwill has been allocated or it is an operation within such a CGU. The amount of goodwill included in a disposal group is measured on the basis of the relative values of the operation disposed of and the portion of the CGU retained.
Critical accounting estimates and judgements
The review of goodwill for impairment reflects management's best estimate of the future cash flows of the CGUs and the rates used to discount these cash flows, both of which are subject to uncertain factors as follows:

- The future cash flows of the CGUs are sensitive to the cash flows projected for the periods for which detailed forecasts are available and to assumptions regarding the long-term pattern of sustainable cash flows thereafter. Forecasts are compared with actual performance and verifiable economic data, but they reflect management's view of future business prospects at the time of the assessment.
- The rates used to discount future expected cash flows can have a significant effect on their valuation and are based on the costs of capital assigned to individual CGUs. The cost of capital percentage is generally derived from a capital asset pricing model, which incorporates inputs reflecting a number of financial and economic variables, including the risk-free interest rate in the country concerned and a premium for the risk of the business being evaluated. These variables are subject to fluctuations in external market rates and economic conditions beyond management's control, are subject to uncertainty and require the exercise of significant judgement.

The accuracy of forecast cash flows is subject to a high degree of uncertainty in volatile market conditions. In such circumstances, management retests goodwill for impairment more frequently than once a year when indicators of impairment exist to ensure that the assumptions on which the cash flow forecasts are based continue to reflect current market conditions and management's best estimate of future business prospects.

HSBC sponsored structured entities

HSBC is considered to sponsor another entity if, in addition to ongoing involvement with the entity, it had a key role in establishing that entity or in bringing together relevant counterparties so the transaction that is the purpose of the entity could occur. HSBC is generally not considered a sponsor if the only involvement with the entity is merely administrative.

Interests in associates and joint arrangements

Joint arrangements are investments in which HSBC, together with one or more parties, has joint control. Depending on HSBC's rights and obligations, the joint arrangement is classified as either a joint operation or a joint venture. HSBC classifies investments in entities over which it has significant influence, and that are neither subsidiaries nor joint arrangements, as associates.

HSBC recognises its share of the assets, liabilities and results in a joint operation. Investments in associates and interests in joint ventures are recognised using the equity method. The attributable share of the results and reserves of joint ventures and associates are included in the consolidated financial statements of HSBC based on either financial statements made up to 31 December or pro-rated amounts adjusted for any material transactions or events occurring between the date the financial statements are available and 31 December.

Investments in associates and joint ventures are assessed at each reporting date and tested for impairment when there is an indication that the investment may be impaired. Goodwill on acquisitions of interests in joint ventures and associates is not tested separately for impairment but is assessed as part of the carrying amount of the investment.

Critical accounting estimates and judgements

Impairment testing of investments in associates involves significant judgement in determining the value in use, and in particular estimating the present values of cash flows expected to arise from continuing to hold the investment. The most significant judgements relate to the impairment testing of our investment in Bank of Communications Co., Limited ('BoCom'). Key assumptions used in estimating BoCom's value in use, the sensitivity of the value in use calculation to different assumptions and a sensitivity analysis that shows the changes in key assumptions that would reduce the excess of value in use over the carrying amount (the 'headroom') to nil are described in Note 17.

(b) Income and expense

Operating income

Interest income and expense

Interest income and expense for all financial instruments, excluding those classified as held for trading or designated at fair value are recognised in 'Interest income' and 'Interest expense' in the income statement using the effective interest method. However, as an exception to this, interest on debt securities issued by HSBC that are designated under the fair value option and derivatives managed in conjunction with those debt securities are included in interest expense.

Interest on impaired financial assets is recognised using the rate of interest used to discount the future cash flows for the purpose of measuring the impairment loss.

Non-interest income and expense

Fee income is earned from a diverse range of services provided by HSBC to its customers. Fee income is accounted for as follows:

- income earned on the execution of a significant act is recognised as revenue when the act is completed (for example, fees arising from negotiating a transaction, such as the acquisition of shares, for a third party); and
- income earned from the provision of services is recognised as revenue as the services are provided (for example, asset management services).

Net trading income comprises all gains and losses from changes in the fair value of financial assets and financial liabilities held for trading, together with the related interest income, expense and dividends.

Dividend income is recognised when the right to receive payment is established. This is the ex-dividend date for listed equity securities, and usually the date when shareholders approve the dividend for unlisted equity securities.

Net income/(expense) from financial instruments designated at fair value includes all gains and losses from changes in the fair value of financial assets and liabilities designated at fair value through profit or loss, including derivatives that are managed in conjunction with those financial assets and liabilities, and liabilities under investment contracts. Interest income, interest expense and dividend income in respect of those financial instruments are also included, except for interest arising from debt securities issued by HSBC and derivatives managed in conjunction with those debt securities, which is recognised in ‘Interest expense’.

The accounting policies for insurance premium income are disclosed in Note 1.2(f).

(c) Valuation of financial instruments

All financial instruments are initially recognised at fair value. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The fair value of a financial instrument on initial recognition is generally its transaction price (that is, the fair value of the consideration given or received). However, if there is a difference between the transaction price and the fair value of financial instruments whose fair value is based on a quoted price in an active market or a valuation technique that uses only data from observable markets, HSBC recognises the difference as a trading gain or loss at inception (‘day 1 gain or loss’). In all other cases, the entire day 1 gain or loss is deferred and recognised in the income statement over the life of the transaction until the transaction matures or is closed out, the valuation inputs become observable or HSBC enters into an offsetting transaction.

The fair value of financial instruments is generally measured on an individual basis. However, in cases where HSBC manages a group of financial assets and liabilities according to its net market or credit risk exposure, the fair value of the group of financial instruments is measured on a net basis but the underlying financial assets and liabilities are presented separately in the financial statements, unless they satisfy the IFRS offsetting criteria.

Notes on the Financial Statements

Critical accounting estimates and judgements

The majority of valuation techniques employ only observable market data. However, certain financial instruments are valued on the basis of valuation techniques that feature one or more significant market inputs that are unobservable, and for them the measurement of fair value is more judgemental. An instrument in its entirety is classified as valued using significant unobservable inputs if, in the opinion of management, a significant proportion of the instrument's inception profit or greater than 5% of the instrument's valuation is driven by unobservable inputs. 'Unobservable' in this context means that there is little or no current market data available from which to determine the price at which an arm's length transaction would be likely to occur. It generally does not mean that there is no data available at all upon which to base a determination of fair value (consensus pricing data may, for example, be used).

(d) Financial instruments measured at amortised cost

Loans and advances to banks and customers, held-to-maturity investments and most financial liabilities are measured at amortised cost. The carrying value of these financial assets at initial recognition includes any directly attributable transactions costs. If the initial fair value is lower than the cash amount advanced, such as in the case of some leveraged finance and syndicated lending activities, the difference is deferred and recognised over the life of the loan (as described in paragraph (c) above) through the recognition of interest income, unless the loan becomes impaired.

HSBC may commit to underwriting loans on fixed contractual terms for specified periods of time. When the loan arising from the lending commitment is expected to be held for trading, the commitment to lend is recorded as a derivative. When HSBC intends to hold the loan, a provision on the loan commitment is only recorded where it is probable that HSBC will incur a loss.

Impairment of loans and advances

Losses for impaired loans are recognised when there is objective evidence that impairment of a loan or portfolio of loans has occurred. Losses which may arise from future events are not recognised.

Individually assessed loans and advances

The factors considered in determining whether a loan is individually significant for the purposes of assessing impairment include the size of the loan, the number of loans in the portfolio, the importance of the individual loan relationship and how this is managed. Loans that are determined to be individually significant will be individually assessed for impairment, except when volumes of defaults and losses are sufficient to justify treatment under a collective methodology.

Loans considered as individually significant are typically to corporate and commercial customers, are for larger amounts and are managed on an individual basis. For these loans, HSBC considers on a case-by-case basis at each balance sheet date whether there is any objective evidence that a loan is impaired.

The determination of the realisable value of security is based on the most recently updated market value at the time the impairment assessment is performed. The value is not adjusted for expected future changes in market prices, though adjustments are made to reflect local conditions such as forced sale discounts.

Impairment losses are calculated by discounting the expected future cash flows of a loan, which include expected future receipts of contractual interest, at the loan's original effective interest rate or an approximation thereof, and comparing the resultant present value with the loan's current carrying amount.

Collectively assessed loans and advances

Impairment is assessed collectively to cover losses which have been incurred but have not yet been identified on loans subject to individual assessment or for homogeneous groups of loans that are not considered individually significant, generally retail lending portfolios.

Incurred but not yet identified impairment

Individually assessed loans for which no evidence of impairment has been specifically identified on an individual basis are grouped together according to their credit risk characteristics for a collective impairment assessment. This assessment captures impairment losses that HSBC has incurred as a result of events occurring before the balance sheet date which HSBC is not able to identify on an individual loan basis, and that can be reliably estimated. When information becomes available which identifies losses on individual loans within a group, those loans are removed from the group and assessed individually.

Homogeneous groups of loans and advances

Statistical methods are used to determine collective impairment losses for homogeneous groups of loans not considered individually significant. The methods used to calculate collective allowances are set out below:

- When appropriate empirical information is available, HSBC utilises roll-rate methodology, which employs statistical analyses of historical data and experience of delinquency and default to reliably estimate the amount of the loans that will eventually be written off as a result of the events occurring before the balance sheet date. Individual loans are grouped using ranges of past due days, and statistical estimates are made of the likelihood that loans in each range will progress through the various stages of delinquency and become irrecoverable. Additionally, individual loans are segmented based on their credit characteristics, such as industry sector, loan grade or product. In applying this methodology, adjustments are made to estimate the periods of time between a loss event occurring, for example because of a missed payment, and its confirmation through write-off (known as the loss identification period). Current economic conditions are also evaluated when calculating the appropriate level of allowance required to cover inherent loss. In certain highly developed markets, models also take into account behavioural and account management trends as revealed in, for example, bankruptcy and rescheduling statistics.
- When the portfolio size is small or when information is insufficient or not reliable enough to adopt a roll-rate methodology, HSBC adopts a basic formulaic approach based on historical loss rate experience, or a discounted cash flow model. Where a basic formulaic approach is undertaken, the period between a loss event occurring and its identification is estimated by local management, and is typically between six and 12 months.

Write-off of loans and advances
Loans (and the related impairment allowance accounts) are normally written off, either partially or in full, when there is no realistic prospect of recovery. Where loans are secured, this is generally after receipt of any proceeds from the realisation of security. In circumstances where the net realisable value of any collateral has been determined and there is no reasonable expectation of further recovery, write-off may be earlier.
Reversals of impairment
If the amount of an impairment loss decreases in a subsequent period, and the decrease can be related objectively to an event occurring after the impairment was recognised, the excess is written back by reducing the loan impairment allowance account accordingly. The write-back is recognised in the income statement.
Assets acquired in exchange for loans
When non-financial assets acquired in exchange for loans as part of an orderly realisation are held for sale, these assets are recorded as 'Assets held for sale.'
Renegotiated loans
Loans subject to collective impairment assessment whose terms have been renegotiated are no longer considered past due, but are treated as up-to-date loans for measurement purposes once a minimum number of payments required has been received. Where collectively assessed loan portfolios include significant levels of renegotiated loans, these loans are segregated from other parts of the loan portfolio for the purposes of collective impairment assessment to reflect their risk profile. Loans subject to individual impairment assessment, whose terms have been renegotiated, are subject to ongoing review to determine whether they remain impaired. The carrying amounts of loans that have been classified as renegotiated retain this classification until maturity or derecognition.
A loan that is renegotiated is derecognised if the existing agreement is cancelled and a new agreement made on substantially different terms or if the terms of an existing agreement are modified such that the renegotiated loan is substantially a different financial instrument. Any new loans that arise following derecognition events will continue to be disclosed as renegotiated loans and are assessed for impairment as above.
Critical accounting estimates and judgements
Loan impairment allowances represent management's best estimate of losses incurred in the loan portfolios at the balance sheet date. Management is required to exercise judgement in making assumptions and estimates when calculating loan impairment allowances on both individually and collectively assessed loans and advances.
Collective impairment allowances are subject to estimation uncertainty, in part because it is not practicable to identify losses on an individual loan basis due to the large number of individually insignificant loans in the portfolio. The estimation methods include the use of statistical analyses of historical information, supplemented with significant management judgement, to assess whether current economic and credit conditions are such that the actual level of incurred losses is likely to be greater or less than historical experience. Where changes in economic, regulatory or behavioural conditions result in the most recent trends in portfolio risk factors being not fully reflected in the statistical models, risk factors are taken into account by adjusting the impairment allowances derived solely from historical loss experience.
Risk factors include loan portfolio growth, product mix, unemployment rates, bankruptcy trends, geographical concentrations, loan product features, economic conditions such as national and local trends in housing markets, the level of interest rates, portfolio seasoning, account management policies and practices, changes in laws and regulations, and other influences on customer payment patterns. Different factors are applied in different regions and countries to reflect local economic conditions, laws and regulations. The methodology and the assumptions used in calculating impairment losses are reviewed regularly in the light of differences between loss estimates and actual loss experience. For example, roll rates, loss rates and the expected timing of future recoveries are regularly benchmarked against actual outcomes to ensure they remain appropriate.
For individually assessed loans, judgement is required in determining whether there is objective evidence that a loss event has occurred and, if so, the measurement of the impairment allowance. In determining whether there is objective evidence that a loss event has occurred, judgement is exercised in evaluating all relevant information on indicators of impairment, including the consideration of whether payments are contractually past due and the consideration of other factors indicating deterioration in the financial condition and outlook of borrowers affecting their ability to pay.

A higher level of judgement is required for loans to borrowers showing signs of financial difficulty in market sectors experiencing economic stress, particularly where the likelihood of repayment is affected by the prospects for refinancing or the sale of a specified asset. For those loans where objective evidence of impairment exists, management determines the size of the allowance required based on a range of factors such as the realisable value of security, the likely dividend available on liquidation or bankruptcy, the viability of the customer's business model and the capacity to trade successfully out of financial difficulties and generate sufficient cash flow to service debt obligations.

HSBC might provide loan forbearance to borrowers experiencing financial difficulties by agreeing to modify the contractual payment terms of loans in order to improve the management of customer relationships, maximise collection opportunities or avoid default or repossession. Where forbearance activities are significant, higher levels of judgement and estimation uncertainty are involved in determining their effects on loan impairment allowances. Judgements are involved in differentiating the credit risk characteristics of forbearance cases, including those which return to performing status following renegotiation. Where collectively assessed loan portfolios include significant levels of loan forbearance, portfolios are segmented to reflect the different credit risk characteristics of forbearance cases, and estimates are made of the incurred losses inherent within each forbearance portfolio segment. Forbearance activities take place in both retail and wholesale loan portfolios, but our largest concentration is in the US, in HSBC Finance's CML run-off portfolio.

The exercise of judgement requires the use of assumptions which are highly subjective and very sensitive to the risk factors, in particular to changes in economic and credit conditions across a large number of geographical areas. Many of the factors have a high degree of interdependency and there is no single factor to which our loan impairment allowances as a whole are sensitive.

Non-trading reverse repurchase and repurchase agreements

When securities are sold subject to a commitment to repurchase them at a predetermined price ('repos'), they remain on the balance sheet and a liability is recorded in respect of the consideration received. Securities purchased under commitments to resell ('reverse repos') are not recognised on the balance sheet and an asset is recorded in respect of the initial consideration paid. Non-trading repos and reverse repos are measured at amortised cost. The difference between the sale and repurchase price or between the purchase and resale price is treated as interest and recognised in net interest income over the life of the agreement.

Notes on the Financial Statements

(e) Financial instruments measured at fair value

Available-for-sale financial assets

Available-for-sale financial assets are recognised on the trade date when HSBC enters into contractual arrangements to purchase those instruments, and are normally derecognised when the securities are either sold or redeemed. They are subsequently remeasured at fair value, and changes therein are recognised in other comprehensive income until the assets are either sold or become impaired. Upon disposal, the cumulative gains or losses in other comprehensive income are recognised in the income statement as ‘Gains less losses from financial investments’.

Impairment of available-for-sale financial assets

Available-for-sale financial assets are assessed at each balance sheet date for objective evidence of impairment. Impairment losses are recognised in the income statement within ‘Loan impairment charges and other credit risk provisions’ for debt instruments and within ‘Gains less losses from financial investments’ for equities.

Available-for-sale debt securities

In assessing objective evidence of impairment at the reporting date, HSBC considers all available evidence, including observable data or information about events specifically relating to the securities which may result in a shortfall in the recovery of future cash flows. A subsequent decline in the fair value of the instrument is recognised in the income statement when there is objective evidence of impairment as a result of decreases in the estimated future cash flows. Where there is no further objective evidence of impairment, the decline in the fair value of the financial asset is recognised in other comprehensive income. If the fair value of a debt security increases in a subsequent period, and the increase can be objectively related to an event occurring after the impairment loss was recognised in the income statement, or the instrument is no longer impaired, the impairment loss is reversed through the income statement.

Available-for-sale equity securities

A significant or prolonged decline in the fair value of the equity below its cost is objective evidence of impairment. In assessing whether it is significant, the decline in fair value is evaluated against the original cost of the asset at initial recognition. In assessing whether it is prolonged, the decline is evaluated against the continuous period in which the fair value of the asset has been below its original cost at initial recognition.

All subsequent increases in the fair value of the instrument are treated as a revaluation and are recognised in other comprehensive income. Subsequent decreases in the fair value of the available-for-sale equity security are recognised in the income statement to the extent that further cumulative impairment losses have been incurred. Impairment losses recognised on the equity security are not reversed through the income statement.

Financial instruments designated at fair value

Financial instruments, other than those held for trading, are classified in this category if they meet one or more of the criteria set out below, and are so designated irrevocably at inception:

- the use of the designation removes or significantly reduces an accounting mismatch;
- when a group of financial assets, liabilities or both is managed and its performance is evaluated on a fair value basis, in accordance with a documented risk management or investment strategy; and
- where financial instruments contain one or more non-closely related embedded derivatives.

Designated financial assets are recognised when HSBC enters into contracts with counterparties, which is generally on trade date, and are normally derecognised when the rights to the cash flows expire or are transferred. Designated financial liabilities are recognised when HSBC enters into contracts with counterparties, which is generally on settlement date, and are normally derecognised when extinguished. Subsequent changes in fair values are recognised in the income statement in ‘Net income/(expense) from financial instruments designated at fair value’.

Under this criterion, the main classes of financial instruments designated by HSBC are:

Long-term debt issues

The interest and/or foreign exchange exposure on certain fixed rate debt securities issued has been matched with the interest and/or foreign exchange exposure on certain swaps as part of a documented risk management strategy.

Financial assets and financial liabilities under unit-linked and non-linked investment contracts

A contract under which HSBC does not accept significant insurance risk from another party is not classified as an insurance contract, other than investment contracts with discretionary participation features ('DPF'), but is accounted for as a financial liability. See Note 1.2(f) for investment contracts with DPF and contracts where HSBC accepts significant insurance risk. Customer liabilities under linked and certain non-linked investment contracts issued by insurance subsidiaries and the corresponding financial assets are designated at fair value. Liabilities are at least equivalent to the surrender or transfer value which is calculated by reference to the value of the relevant underlying funds or indices. Premiums receivable and amounts withdrawn are accounted for as increases or decreases in the liability recorded in respect of investment contracts. The incremental costs directly related to the acquisition of new investment contracts or renewing existing investment contracts are deferred and amortised over the period during which the investment management services are provided.

Derivatives

Derivatives are financial instruments that derive their value from the price of underlying items such as equities, interest rates or other indices. Derivatives are recognised initially and are subsequently measured at fair value. Derivatives are classified as assets when their fair value is positive or as liabilities when their fair value is negative; this includes embedded derivatives which are bifurcated from the host contract when they meet the definition of a derivative on a stand-alone basis.

Gains and losses from changes in the fair value of derivatives that do not qualify for hedge accounting are reported in 'Net trading income'. Gains and losses on derivatives managed in conjunction with financial instruments designated at fair value are reported in 'Net income/(expense) from financial instruments designated at fair value' together with the gains and losses on the economically hedged items. Where the derivatives are managed with debt securities issued by HSBC that are designated at fair value, the contractual interest is shown in ‘Interest expense’ together with the interest payable on the issued debt.

Hedge accounting

When derivatives are held for risk management purposes they are designated in hedge relationships where the required criteria for documentation and hedge effectiveness are met. HSBC enters into fair value hedges, cash flow hedges or hedges of net investments in foreign operations as appropriate to the risk being hedged.

Fair value hedge

Changes in the fair value of derivatives are recorded in the income statement, along with changes in the fair value of the hedged assets or liabilities attributable to the hedged risk. If a hedge relationship no longer meets the criteria for hedge accounting, hedge accounting is discontinued; the cumulative adjustment to the carrying amount of the hedged item is amortised to the income statement on a recalculated effective interest rate over the residual period to maturity, unless the hedged item has been derecognised, in which case it is recognised in the income statement immediately.

Cash flow hedge

The effective portion of changes in the fair value of derivatives is recognised in other comprehensive income; the ineffective portion of the change in fair value is recognised immediately in the income statement within ‘Net trading income’. The accumulated gains and losses recognised in other comprehensive income are reclassified to the income statement in the same periods in which the hedged item affects profit or loss. In hedges of forecast transactions that result in recognition of a non-financial asset or liability, previous gains and losses recognised in other comprehensive income are included in the initial measurement of the asset or liability. When a hedge relationship is discontinued, or partially discontinued, any cumulative gain or loss recognised in other comprehensive income remains in equity until the forecast transaction is recognised in the income statement. When a forecast transaction is no longer expected to occur, the cumulative gain or loss previously recognised in other comprehensive income is immediately reclassified to the income statement.

Net investment hedge

Hedges of net investments in foreign operations are accounted for in a similar way to cash flow hedges. A gain or loss on the effective portion of the hedging instrument is recognised in other comprehensive income; the residual change in fair value is recognised immediately in the income statement. Gains and losses previously recognised in other comprehensive income are reclassified to the income statement on the disposal, or part disposal, of the foreign operation.

Derivatives that do not qualify for hedge accounting

Non-qualifying hedges are derivatives entered into as economic hedges of assets and liabilities for which hedge accounting was not applied.

(f) Insurance contracts

A contract is classified as an insurance contract where HSBC accepts significant insurance risk from another party by agreeing to compensate that party on the occurrence of a specified uncertain future event. An insurance contract may also transfer financial risk, but is accounted for as an insurance contract if the insurance risk is significant. In addition, HSBC issues investment contracts with DPF which are also accounted for as insurance contracts as required by IFRS 4 ‘Insurance Contracts’.

Net insurance premium income

Premiums for life insurance contracts are accounted for when receivable, except in unit-linked insurance contracts where premiums are accounted for when liabilities are established.

Reinsurance premiums are accounted for in the same accounting period as the premiums for the direct insurance contracts to which they relate.

Net insurance claims and benefits paid and movements in liabilities to policyholders

Gross insurance claims for life insurance contracts reflect the total cost of claims arising during the year, including claim handling costs and any policyholder bonuses allocated in anticipation of a bonus declaration.

Maturity claims are recognised when due for payment. Surrenders are recognised when paid or at an earlier date on which, following notification, the policy ceases to be included within the calculation of the related insurance liabilities. Death claims are recognised when notified.

Reinsurance recoveries are accounted for in the same period as the related claim.

Liabilities under insurance contracts

Liabilities under non-linked life insurance contracts are calculated by each life insurance operation based on local actuarial principles. Liabilities under unit-linked life insurance contracts are at least equivalent to the surrender or transfer value, which is calculated by reference to the value of the relevant underlying funds or indices.

Future profit participation on insurance contracts with DPF

Where contracts provide discretionary profit participation benefits to policyholders, liabilities for these contracts include provisions for the future discretionary benefits to policyholders. These provisions reflect the actual performance of the investment portfolio to date and management's expectation of the future performance of the assets backing the contracts, as well as other experience factors such as mortality, lapses and operational efficiency, where appropriate. The benefits to policyholders may be determined by the contractual terms, regulation, or past distribution policy.

Investment contracts with DPF

While investment contracts with DPF are financial instruments, they continue to be treated as insurance contracts as required by IFRS 4. The Group therefore recognises the premiums for these contracts as revenue and recognises as an expense the resulting increase in the carrying amount of the liability.

Notes on the Financial Statements

In the case of net unrealised investment gains on these contracts, whose discretionary benefits principally reflect the actual performance of the investment portfolio, the corresponding increase in the liabilities is recognised in either the income statement or other comprehensive income, following the treatment of the unrealised gains on the relevant assets. In the case of net unrealised losses, a deferred participating asset is recognised only to the extent that its recoverability is highly probable. Movements in the liabilities arising from realised gains and losses on relevant assets are recognised in the income statement.

Present value of in-force long-term insurance business

HSBC recognises the value placed on insurance contracts and investment contracts with DPF, which are classified as long-term and in-force at the balance sheet date, as an asset. The asset represents the present value of the equity holders' interest in the issuing insurance companies' profits expected to emerge from these contracts written at the balance sheet date. The present value of in-force business ('PVIF') is determined by discounting those expected future profits using appropriate assumptions in assessing factors such as future mortality, lapse rates and levels of expenses, and a risk discount rate that reflects the risk premium attributable to the respective contracts. The PVIF incorporates allowances for both non-market risk and the value of financial options and guarantees. The PVIF asset is presented gross of attributable tax in the balance sheet and movements in the PVIF asset are included in 'Other operating income' on a gross of tax basis.

(g) Employee compensation and benefits

Share-based payments

HSBC enters into both equity-settled and cash-settled share-based payment arrangements with its employees as compensation for services provided by employees.

The vesting period for these schemes may commence before the grant date if the employees have started to render services in respect of the award before the grant date. Expenses are recognised when the employee starts to render service to which the award relates.

Cancellations result from the failure to meet a non-vesting condition during the vesting period, and are treated as an acceleration of vesting recognised immediately in the income statement. Failure to meet a vesting condition by the employee is not treated as a cancellation, and the amount of expense recognised for the award is adjusted to reflect the number of awards expected to vest.

Post-employment benefit plans

HSBC operates a number of pension schemes (including defined benefit and defined contribution) and post-employment benefit schemes.

Payments to defined contribution plans are charged as an expense as the employees render service.

Defined benefit pension obligations are calculated using the projected unit credit method. The net charge to the income statement mainly comprises the service cost and the net interest on the net defined benefit asset or liability, and is presented in operating expenses.

Re-measurements of the net defined benefit asset or liability, which comprise actuarial gains and losses, return on plan assets (excluding interest) and the effect of the asset ceiling (if any, excluding interest), are recognised immediately in other comprehensive income. The net defined benefit asset or liability represents the present value of defined benefit obligations reduced by the fair value of plan assets, after applying the asset ceiling test, where the net defined benefit surplus is limited to the present value of available refunds and reductions in future contributions to the plan.

The cost of obligations arising from other post-employment plans are accounted for on the same basis as defined benefit pension plans.

(h) Tax

Income tax comprises current tax and deferred tax. Income tax is recognised in the income statement except to the extent that it relates to items recognised in other comprehensive income or directly in equity, in which case the tax is recognised in the same statement as the related item appears.

Current tax is the tax expected to be payable on the taxable profit for the year and any adjustment to tax payable in respect of previous years. HSBC provides for potential current tax liabilities that may arise on the basis of the amounts expected to be paid to the tax authorities.

Deferred tax is recognised on temporary differences between the carrying amounts of assets and liabilities in the balance sheet, and the amounts attributed to such assets and liabilities for tax purposes. Deferred tax is calculated using the tax rates expected to apply in the periods in which the assets will be realised or the liabilities settled. Current and deferred tax is calculated based on tax rates and laws enacted, or substantively enacted, by the balance sheet date.

Critical accounting estimates and judgements

The recognition of a deferred tax asset relies on an assessment of the probability and sufficiency of future taxable profits, future reversals of existing taxable temporary differences and ongoing tax planning strategies. In the absence of a history of taxable profits, the most significant judgements relate to expected future profitability and to the applicability of tax planning strategies, including corporate reorganisations.

(i) Provisions, contingent liabilities and guarantees

Provisions

Provisions are recognised when it is probable that an outflow of economic benefits will be required to settle a present legal or constructive obligation that has arisen as a result of past events and for which a reliable estimate can be made.

Critical accounting estimates and judgements

Judgement is involved in determining whether a present obligation exists and in estimating the probability, timing and amount of any outflows. Professional expert advice is taken on the assessment of litigation, property (including onerous contracts) and similar obligations. Provisions for legal proceedings and regulatory matters typically require a higher degree of judgement than other types of provisions. When matters are at an early stage, accounting judgements can be difficult because of the high degree of uncertainty associated with determining whether a present obligation exists, and estimating the probability and amount of any outflows that may arise. As matters progress, management and legal advisers evaluate on an ongoing basis whether provisions should be recognised, revising previous judgements and estimates as appropriate. At more advanced stages, it is typically easier to make judgements and estimates around a better defined set of possible outcomes. However, the amount provisioned can remain very sensitive to the assumptions used. There could be a wide range of possible outcomes for any pending legal proceedings, investigations or inquiries. As a result, it is often not practicable to quantify a range of possible outcomes for individual matters. It is also not practicable to meaningfully quantify ranges of potential outcomes in aggregate for these types of provisions because of the diverse nature and circumstances of such matters and the wide range of uncertainties involved. Provisions for customer remediation also require significant levels of estimation and judgement. The amounts of provisions recognised depend on a number of different assumptions, such as, the volume of inbound complaints, the projected period of inbound complaint volumes, the decay rate of complaint volumes, the population identified as systemically mis-sold and the number of policies per customer complaint.

Contingent liabilities, contractual commitments and guarantees

Contingent liabilities

Contingent liabilities, which include certain guarantees and letters of credit pledged as collateral security, and contingent liabilities related to legal proceedings or regulatory matters, are not recognised in the financial statements but are disclosed unless the probability of settlement is remote.

Financial guarantee contracts

Liabilities under financial guarantee contracts which are not classified as insurance contracts are recorded initially at their fair value, which is generally the fee received or present value of the fee receivable.

HSBC Holdings has issued financial guarantees and similar contracts to other Group entities. HSBC elects to account for certain guarantees as insurance contracts in HSBC Holdings' financial statements, in which case they are measured and recognised as insurance liabilities. This election is made on a contract by contract basis, and is irrevocable.

2 Net income/(expense) from financial instruments designated at fair value

	2016	2015	2014
	$m	$m	$m
Net income/(expense) arising on:			
Financial assets			
Financial assets held to meet liabilities under insurance and investment contracts	1,480	531	2,300
Other financial assets designated at fair value	90	89	131
Derivatives managed with other financial assets designated at fair value	(43)	13	(19)
	1,527	633	2,412
Financial liabilities			
Liabilities to customers under investment contracts	(218)	34	(435)
HSBC's long-term debt issued and related derivatives	(3,975)	863	508
– changes in own credit spread on long-term debt	(1,792)	1,002	417
– derivatives managed in conjunction with HSBC's issued debt securities	(1,367)	(1,997)	333
– other changes in fair value	(816)	1,858	(242)
Other financial liabilities designated at fair value	(6)	3	(23)
Derivatives managed with other financial liabilities designated at fair value	6	(1)	11
	(4,193)	899	61
Year ended 31 Dec	(2,666)	1,532	2,473

HSBC Holdings

Net income/(expense) arising on HSBC Holdings’ long-term debt issued and related derivatives

	Footnotes	2016 $m	2015 $m	2014 $m
Net income/(expense) arising on:				
– changes in own credit spread on long-term debt	1	—	348	339
– derivatives managed in conjunction with HSBC Holdings’ issued debt securities		(642)	(927)	126
– other changes in fair value		593	855	(27)
Year ended 31 Dec		(49)	276	438

1 From 1 January 2016, HSBC Holdings adopted, in its separate financial statements, the requirements of IFRS 9 'Financial Instruments' relating to the presentation of gains and losses on financial liabilities designated at fair value. As a result, the effects of changes in those liabilities' credit risk is presented in other comprehensive income with the remaining effect presented in profit or loss.

Notes on the Financial Statements

3 Insurance business

Net insurance premium income

	Non-linked insurance	Linked life insurance	Investment contracts with DPF[1]	Total
	$m	$m	$m	$m
Gross insurance premium income	8,036	675	1,877	10,588
Reinsurers' share of gross insurance premium income	(629)	(8)	—	(637)
Year ended 31 Dec 2016	7,407	667	1,877	9,951
Gross insurance premium income	7,506	1,409	2,097	11,012
Reinsurers' share of gross insurance premium income	(648)	(9)	—	(657)
Year ended 31 Dec 2015	6,858	1,400	2,097	10,355
Gross insurance premium income	7,705	2,195	2,470	12,370
Reinsurers' share of gross insurance premium income	(441)	(8)	—	(449)
Year ended 31 Dec 2014	7,264	2,187	2,470	11,921

1 Discretionary participation features.

Net insurance claims and benefits paid and movement in liabilities to policyholders

	Non-linked insurance	Linked life insurance	Investment contracts with DPF[1]	Total
	$m	$m	$m	$m
Gross claims and benefits paid and movement in liabilities	8,778	1,321	2,409	12,508
– claims, benefits and surrenders paid	2,828	749	2,017	5,594
– movement in liabilities	5,950	572	392	6,914
Reinsurers' share of claims and benefits paid and movement in liabilities	(560)	(78)	—	(638)
– claims, benefits and surrenders paid	(112)	(14)	—	(126)
– movement in liabilities	(448)	(64)	—	(512)
Year ended 31 Dec 2016	8,218	1,243	2,409	11,870
Gross claims and benefits paid and movement in liabilities	7,746	1,398	2,728	11,872
– claims, benefits and surrenders paid	3,200	1,869	2,101	7,170
– movement in liabilities	4,546	(471)	627	4,702
Reinsurers' share of claims and benefits paid and movement in liabilities	(575)	(5)	—	(580)
– claims, benefits and surrenders paid	(153)	(64)	—	(217)
– movement in liabilities	(422)	59	—	(363)
Year ended 31 Dec 2015	7,171	1,393	2,728	11,292
Gross claims and benefits paid and movement in liabilities	7,770	2,765	3,188	13,723
– claims, benefits and surrenders paid	3,575	1,499	2,215	7,289
– movement in liabilities	4,195	1,266	973	6,434
Reinsurers' share of claims and benefits paid and movement in liabilities	(411)	33	—	(378)
– claims, benefits and surrenders paid	(176)	(88)	—	(264)
– movement in liabilities	(235)	121	—	(114)
Year ended 31 Dec 2014	7,359	2,798	3,188	13,345

1 Discretionary participation features.

Liabilities under insurance contracts

	Footnotes	Non-linked insurance	Linked life insurance	Investment contracts with DPF[1]	Total
		$m	$m	$m	$m
Gross liabilities under insurance contracts at 1 Jan 2016		40,538	6,791	22,609	69,938
Claims and benefits paid		(2,828)	(749)	(2,017)	(5,594)
Increase in liabilities to policyholders		8,778	1,321	2,409	12,508
Disposals/transfers to held-for-sale		—	—	—	—
Exchange differences and other movements	2	(445)	(414)	(720)	(1,579)
Gross liabilities under insurance contracts at 31 Dec 2016		46,043	6,949	22,281	75,273
Reinsurers' share of liabilities under insurance contracts		(1,500)	(320)	—	(1,820)
Net liabilities under insurance contracts at 31 Dec 2016		44,543	6,629	22,281	73,453
Gross liabilities under insurance contracts at 1 Jan 2015		36,973	11,820	25,068	73,861
Claims and benefits paid		(3,200)	(1,869)	(2,101)	(7,170)
Increase in liabilities to policyholders		7,746	1,398	2,728	11,872
Disposals/transfers to held-for-sale		(443)	(4,594)	—	(5,037)
Exchange differences and other movements	2	(538)	36	(3,086)	(3,588)
Gross liabilities under insurance contracts at 31 Dec 2015		40,538	6,791	22,609	69,938
Reinsurers' share of liabilities under insurance contracts		(1,115)	(263)	—	(1,378)
Net liabilities under insurance contracts at 31 Dec 2015		39,423	6,528	22,609	68,560

1 Discretionary participation features.

2 'Exchange differences and other movements' includes movements in liabilities arising from net unrealised investment gains recognised in other comprehensive income.

The key factors contributing to the movement in liabilities to policyholders included death claims, surrenders, lapses, liabilities to policyholders created at the initial inception of the policies, the declaration of bonuses and other amounts attributable to policyholders.

Notes on the Financial Statements

4 Operating profit

Operating profit is stated after the following items:

	2016 $m	2015 $m	2014 $m
Income			
Interest recognised on impaired financial assets	574	934	1,137
Fees earned on financial assets that are not at fair value through profit or loss (other than amounts included in determining the effective interest rate)	7,732	8,736	9,438
Fees earned on trust and other fiduciary activities	2,543	3,052	3,253
Expense			
Interest on financial instruments, excluding interest on financial liabilities held for trading or designated at fair value	(11,858)	(13,680)	(15,322)
Fees payable on financial liabilities that are not at fair value through profit or loss (other than amounts included in determining the effective interest rate)	(1,214)	(1,251)	(1,427)
Fees payable relating to trust and other fiduciary activities	(129)	(166)	(185)
Payments under lease and sublease agreements	(969)	(1,190)	(1,548)
– minimum lease payments	(945)	(1,058)	(1,199)
– contingent rents and sublease payments	(24)	(132)	(349)
UK bank levy	(922)	(1,421)	(1,066)
Restructuring provisions	(415)	(430)	(147)
Gains/(losses)			
Impairment of available-for-sale equity securities	(36)	(111)	(373)
Gains/(losses) recognised on assets held for sale	(206)	(244)	220
Gains on the partial sale of shareholding in Industrial Bank	—	1,372	—
Loss on disposal of Brazilian operations	(1,743)	—	—
Loan impairment charges and other credit risk provisions	(3,400)	(3,721)	(3,851)
– net impairment charge on loans and advances	(3,350)	(3,592)	(4,055)
– release of impairment on available-for-sale debt securities	63	17	319
– other credit risk provisions	(113)	(146)	(115)

External net operating income is attributed to countries on the basis of the location of the branch responsible for reporting the results or advancing the funds:

	Footnote	2016 $m	2015 $m	2014 $m
External net operating income by country	1	47,966	59,800	61,248
– UK		9,495	14,132	14,392
– Hong Kong		12,864	14,447	12,656
– US		5,094	5,541	5,736
– France		2,571	2,706	2,538
– other countries		17,942	22,974	25,926
– of which: Brazil		(204)	3,546	4,817

1 Net operating income before loan impairment charges and other credit risk provisions, also referred to as revenue.

5 Employee compensation and benefits

	2016 $m	2015 $m	2014 $m
Wages and salaries	15,735	17,245	17,477
Social security costs	1,312	1,600	1,666
Post-employment benefits	1,042	1,055	1,223

Year ended 31 Dec	18,089	19,900	20,366

Average number of persons employed by HSBC during the year by global business

	2016	2015	2014
Retail Banking and Wealth Management	137,234	155,859	156,397
Commercial Banking	45,912	51,007	50,519
Global Banking and Markets	47,623	49,912	47,219
Global Private Banking	8,322	8,934	8,799
Corporate Centre	7,842	2,721	1,833
Year ended 31 Dec	246,933	268,433	264,767

Average number of persons employed by HSBC during the year by geographical region

	Footnote	2016	2015	2014
Europe	1	71,196	68,408	68,163
Asia		122,282	121,438	116,492
Middle East and North Africa	1	12,021	14,467	14,477
North America		20,353	21,506	21,983
Latin America		21,081	42,614	43,652
Year ended 31 Dec		246,933	268,433	264,767

1 2015 and 2014 figures are restated for the changes explained on page 59.

Reconciliation of total incentive awards granted to income statement charge

	2016	2015	2014
	$m	$m	$m
Total incentive awards approved and granted for the current year	3,035	3,462	3,660
Less: deferred bonuses awarded, expected to be recognised in future periods	(323)	(387)	(359)
Total incentives awarded and recognised in the current year	2,712	3,075	3,301
Add: current year charges for deferred bonuses from previous years	371	483	425
Other	(128)	(40)	(114)
Income statement charge for incentive awards	2,955	3,518	3,612

Year in which income statement is expected to reflect deferred bonuses

	Charge recognised			Expected charge	
	2016	2015	2014	2017	2018 and beyond
	$m	$m	$m	$m	$m
Variable compensation from 2016 bonus pool	152	—	—	137	186
Variable compensation from 2015 bonus pool	168	253	—	128	76
Variable compensation from 2014 bonus pool and earlier	203	483	670	88	28
Total	523	736	670	353	290
Cash awards	163	168	150	102	98
Equity awards	360	568	520	251	192

Share-based payments

'Wages and salaries' includes the effect of share-based payments arrangements, of which $534m were equity settled (2015: $757m; 2014: $732m), as follows:

	2016	2015	2014
	$m	$m	$m
Restricted share awards	591	748	738
Savings-related and other share award option plans	33	43	36
Year ended 31 Dec	624	791	774

HSBC share awards

Award	Policy
Restricted share awards (including annual incentive awards delivered in shares) and GPSP	• An assessment of performance over the relevant period ending on 31 December is used to determine the amount of the award to be granted. • Deferred awards generally require employees to remain in employment over the vesting period and are not subject to performance conditions after the grant date. • Deferred share awards generally vest over a period of three years and GPSP awards vest after five years. • Vested shares may be subject to a retention requirement post-vesting. GPSP awards are retained until cessation of employment.

	• Awards granted from 2010 onwards are subject to a malus provision prior to vesting. • Awards granted to Material Risk Takers from 2015 onwards are subject to clawback post vesting.
International Employee Share Purchase Plan (‘ShareMatch’)	• The plan was first introduced in Hong Kong in 2013 and now includes employees based in 25 jurisdictions. • Shares are purchased in the market each quarter up to a maximum value of £750, or the equivalent in local currency. • Matching awards are added at a ratio of one free share for every three purchased. • Matching awards vest subject to continued employment and the retention of the purchased shares for a maximum period of two years and nine months.

Notes on the Financial Statements

Movement on HSBC share awards

	2016 Number (000s)	2015 Number (000s)
Restricted share awards outstanding at 1 Jan	118,665	116,483
Additions during the year	94,981	80,749
Released in the year	(76,552)	(75,235)
Forfeited in the year	(13,928)	(3,332)
Restricted share awards outstanding at 31 Dec	123,166	118,665
Weighted average fair value of awards granted ($)	7.25	9.67

HSBC share option plans

Main plans	Policy
Savings-related share option plans ('Sharesave')	• Two plans: the UK Plan and the International Plan. The last grant of options under the International Plan was in 2012. • From 2014, eligible employees can save up to £500 per month with the option to use the savings to acquire shares. • Exercisable within six months following either the third or fifth anniversaries of the commencement of a three-year or five-year contract, respectively. • The exercise price is set at a 20% (2015: 20%) discount to the market value immediately preceding the date of invitation.
HSBC Holdings Group share option plan	• Plan ceased in May 2005. • Exercisable between the third and 10th anniversaries of the date of grant.

Calculation of fair values

The fair values of share options are calculated using a Black-Scholes model. The fair value of a share award is based on the share price at the date of the grant.

Movement on HSBC share option plans

		Savings-related share option plans		HSBC Holdings Group share option plan	
	Footnotes	Number (000s)	WAEP[1] £	Number (000s)	WAEP[1] £
Outstanding at 1 Jan 2016		74,775	4.36	—	—
Granted during the year	2	15,044	4.40	—	—
Exercised during the year	3	(4,354)	5.02	—	—
Expired during the year		(15,438)	4.47	—	—
Outstanding at 31 Dec 2016		70,027	4.30	—	—
Weighted average remaining contractual life (years)		2.91		—	
Outstanding at 1 Jan 2015		66,366	4.89	6,374	7.29
Granted during the year	2	52,629	4.05	—	—
Exercised during the year	3	(21,120)	4.45	—	—
Expired during the year		(23,100)	5.11	(6,374)	7.29
Outstanding at 31 Dec 2015		74,775	4.36	—	—
Weighted average remaining contractual life (years)		3.92		—	

1 Weighted average exercise price.
2 The weighted average fair value of options granted during the year was $1.28 (2015: $1.09).
3 The weighted average share price at the date the options were exercised was $6.98 (2015: $8.50) and $0 (2015: $0) for the savings-related share option plans and HSBC Holdings Group share option plan, respectively.

Post-employment benefit plans

The Group operates pension plans throughout the world for its employees. 'Pension risk management' on page 117 contains details of the policies and practices associated with these pension plans. Some are defined benefit plans, of which the largest is the HSBC Bank (UK) Pension Scheme ('the principal plan').

The principal plan

The principal plan has a defined benefit section and a defined contribution section. The defined benefit section was closed to future benefit accrual in 2015, with defined benefits earned by employees at that date continuing to be linked to their salary while they remain employed by HSBC Bank. The plan is overseen by an independent corporate trustee, who has a fiduciary responsibility for the operation of the plan. Its assets are held separately from the assets of the Group.

The investment strategy of the plan is to hold the majority of assets in bonds, with the remainder in a diverse range of investments. It also includes some interest rate swaps to reduce interest rate risk and inflation swaps to reduce inflation risk.

The latest funding valuation of the plan at 31 December 2014 was carried out by Colin G Singer, of Willis Towers Watson Limited, who is a Fellow of the UK Institute and Faculty of Actuaries, using the projected unit credit method. At that date, the market value of the plan's assets was £24.6bn ($30.3bn) and this exceeded the value placed on its liabilities on an ongoing basis by £520m ($641m), giving a funding level of 102%. The main differences between the assumptions used for assessing the liabilities for this funding valuation and those used for IAS 19 (see 'Key actuarial assumptions' section below) are more prudent discount rate, inflation and longevity assumptions.

Although the plan was in surplus at the valuation date, HSBC agreed to make further contributions to the plan to support a lower-risk investment strategy over the longer term. These contributions amounted to £128m ($158m) in 2016 and are expected to amount to £64m ($79m) in each of 2017, 2018 and 2019, and £160m ($197m) in each of 2020 and 2021.

The chart below shows the expected profile of future benefits payable from the plan.

Future benefit payments ($bn)

The actuary also assessed the value of the liabilities if the plan were to be stopped and an insurance company asked to secure all future pension payments. This is generally larger than the amount needed on the ongoing basis described above because an insurance company would use more prudent assumptions and include an explicit allowance for the future administrative expenses of the plan. Under this approach, the amount of assets needed was estimated to be £31bn ($38bn) at 31 December 2014.

Income statement charge

	2016	2015	2014
	$m	$m	$m
Defined benefit pension plans	218	256	469
Defined contribution pension plans	783	793	687
Pension plans	1,001	1,049	1,156
Defined benefit and contribution healthcare plans	41	6	67
Year ended 31 Dec	1,042	1,055	1,223

Net assets/(liabilities) recognised on the balance sheet in respect of defined benefit plans

	Fair value of plan assets	Present value of defined benefit obligations	Effect of limit on plan surpluses	Total
	$m	$m	$m	$m
Defined benefit pension plans	42,397	(39,747)	(24)	2,626
Defined benefit healthcare plans	118	(711)	—	(593)
At 31 Dec 2016	42,515	(40,458)	(24)	2,033
Total employee benefit liabilities (within 'Accruals, deferred income and other liabilities')				(2,681)
Total employee benefit assets (within 'Prepayments, accrued income and other assets')				4,714
Defined benefit pension plans	41,424	(38,326)	(14)	3,084
Defined benefit healthcare plans	141	(762)	—	(621)
At 31 Dec 2015	41,565	(39,088)	(14)	2,463
Total employee benefit liabilities (within 'Accruals, deferred income and other liabilities')				(2,809)
Total employee benefit assets (within 'Prepayments, accrued income and other assets')				5,272

Notes on the Financial Statements

Defined benefit pension plans

Net asset/(liability) under defined benefit pension plans

	Fair value of plan assets		Present value of defined benefit obligations		Effect of the asset ceiling		Net defined benefit asset/(liability)	
	Principal plan	Other plans	Principal plan	Other plans	Principal plan	Other plans	Principal plan	Other plans
	$m	$m	$m	$m	$m	$m	$m	$m
At 1 Jan 2016	32,670	8,754	(27,675)	(10,651)	—	(14)	4,995	(1,911)
Current service cost	—	—	(70)	(235)	—	—	(70)	(235)
Past service cost and gains/(losses) from settlements	—	(1)	—	(39)	—	—	—	(40)
Service cost	—	(1)	(70)	(274)	—	—	(70)	(275)
Net interest income/(cost) on the net defined benefit asset/(liability)	1,085	294	(914)	(337)	—	(1)	171	(44)
Re-measurement effects recognised in other comprehensive income	6,449	671	(6,886)	(299)	—	(8)	(437)	364
– return on plan assets (excluding interest income)	6,449	671	—	—	—	—	6,449	671
– actuarial gains/(losses)	—	—	(7,029)	(152)	—	(8)	(7,029)	(160)
– other changes	—	—	143	(147)	—	—	143	(147)
Exchange differences	(6,097)	(534)	5,254	410	—	(1)	(843)	(125)
Contributions by HSBC	347	379	—	—	—	—	347	379
– normal	64	207	—	—	—	—	64	207
– special	283	172	—	—	—	—	283	172
Contributions by employees	—	30	—	(30)	—	—	—	—
Benefits paid	(970)	(623)	970	698	—	—	—	75
Administrative costs and taxes paid by plan	(42)	(15)	42	15	—	—	—	—
At 31 Dec 2016	33,442	8,955	(29,279)	(10,468)	—	(24)	4,163	(1,537)
Present value of defined benefit obligation relating to:								
– actives			(7,066)	(5,066)				
– deferreds			(9,219)	(2,306)				
– pensioners			(12,994)	(3,096)				
At 1 Jan 2015	35,244	9,580	(30,480)	(11,582)	—	(17)	4,764	(2,019)
Current service cost	—	—	(129)	(268)	—	—	(129)	(268)
Past service cost and gains/(losses) from settlements	—	(3)	(53)	71	—	—	(53)	68
Service cost	—	(3)	(182)	(197)	—	—	(182)	(200)
Net interest income/(cost) on the net defined benefit asset/(liability)	1,265	322	(1,088)	(371)	—	(2)	177	(51)
Re-measurement effects recognised in other comprehensive income	(1,521)	(394)	1,642	339	—	(30)	121	(85)
– return on plan assets (excluding interest income)	(1,521)	(394)	—	—	—	—	(1,521)	(394)
– actuarial gains/(losses)	—	—	1,392	339	—	(30)	1,392	309
– other changes	—	—	250	—	—	—	250	—

Exchange differences	(1,704)	(458)	1,443	529	—	35	(261)	106
Contributions by HSBC	376	279	—	—	—	—	376	279
– normal	159	227	—	—	—	—	159	227
– special	217	52	—	—	—	—	217	52
Contributions by employees	17	35	(17)	(35)	—	—	—	—
Benefits paid	(970)	(590)	970	649	—	—	—	59
Administrative costs and taxes paid by plan	(37)	(17)	37	17	—	—	—	—
At 31 Dec 2015	32,670	8,754	(27,675)	(10,651)	—	(14)	4,995	(1,911)
Present value of defined benefit obligation relating to:								
– actives			(6,310)	(5,350)				
– deferreds			(7,919)	(2,239)				
– pensioners			(13,446)	(3,062)				

HSBC expects to make $425m of contributions to defined benefit pension plans during 2017. Benefits expected to be paid from the plans to retirees over each of the next five years, and in aggregate for the five years thereafter, are as follows:

Benefits expected to be paid from plans

		2017	2018	2019	2020	2021	2022-2026
	Footnote	$m	$m	$m	$m	$m	$m
The principal plan	1	917	948	979	1,012	1,045	5,533
Other plans	1	427	468	489	505	536	2,492

1 The duration of the defined benefit obligation is 19.0 years for the principal plan under the disclosure assumptions adopted (2015: 17.0 years) and 13.9 years for all other plans combined (2015: 13.9 years).

Fair value of plan assets by asset classes

	31 Dec 2016				31 Dec 2015			
	Value	Quoted market price in active market	No quoted market price in active market	Thereof HSBC[1]	Value	Quoted market price in active market	No quoted market price in active market	Thereof HSBC[1]
	$m	$m	$m	$m	$m	$m	$m	$m
The principal plan								
Fair value of plan assets	33,442	29,379	4,063	878	32,670	29,370	3,300	513
– equities	5,386	4,722	664	—	5,730	4,990	740	—
– bonds	23,426	23,426	—	—	22,704	22,704	—	—
– derivatives	2,107	—	2,107	878	1,011	—	1,011	513
– other	2,523	1,231	1,292	—	3,225	1,676	1,549	—
Other plans								
Fair value of plan assets	8,955	7,631	1,324	239	8,754	7,882	872	148
– equities	2,255	1,502	753	—	2,434	1,900	534	1
– bonds	5,811	5,592	219	5	5,719	5,458	261	2
– derivatives	(89)	44	(133)	(85)	7	—	7	1
– other	978	493	485	319	594	524	70	144

1 The fair value of plan assets includes derivatives entered into with HSBC Bank plc as detailed in Note 36.

Post-employment defined benefit plans' principal actuarial financial assumptions

HSBC determines the discount rates to be applied to its obligations in consultation with the plans' local actuaries, on the basis of current average yields of high quality (AA-rated or equivalent) debt instruments with maturities consistent with those of the defined benefit obligations.

Key actuarial assumptions for the principal plan

	Discount rate	Inflation rate	Rate of increase for pensions	Rate of pay increase
	%	%	%	%
UK				
At 31 Dec 2016	2.50	3.50	3.20	4.00
At 31 Dec 2015	3.70	3.20	3.00	3.70
At 31 Dec 2014	3.70	3.20	3.00	3.70

Mortality tables and average life expectancy at age 65 for the principal plan

	Mortality table	Life expectancy at age 65 for a male member currently:		Life expectancy at age 65 for a female member currently:	
		Aged 65	Aged 45	Aged 65	Aged 45
UK					
At 31 Dec 2016	SAPS S2[1]	22.4	24.1	24.7	26.6
At 31 Dec 2015	SAPS S1[2]	23.6	25.0	24.9	26.7

1 Self-administered Pension Scheme ('SAPS') S2 table (Males: 'All Pensioners' version, Females: 'Normal Pensions' version) with a multiplier of 0.98 for both male and female pensioners. Improvements are projected in accordance with the Continuous Mortality Investigation ('CMI) core projection model 2015 with a long-term rate of improvement of 1.25% per annum. Separate tables assuming lighter mortality have been applied to higher paid pensioners.

2 Self-administered Pension Scheme ('SAPS') Light table with a multiplier of 1.01 for male pensioners and 1.02 for female pensioners. Improvements are projected in accordance with the Continuous Mortality Investigation ('CMI') core projection model 2015 with a long-term rate of improvement of 1.25% per annum.

The effect of changes in key assumptions on the principal plan

	Impact on HSBC Bank (UK) Pension Scheme Obligation			
	Financial impact of increase		Financial impact of decrease	
	2016	2015	2016	2015
	$m	$m	$m	$m
Discount rate – increase/decrease of 0.25%	(1,322)	(1,107)	1,419	1,180
Inflation rate – increase/decrease of 0.25%	735	747	(1,048)	(855)
Pension payments and deferred pensions – increase/decrease of 0.25%	1,305	990	(1,255)	(937)
Pay – increase/decrease of 0.25%	143	119	(139)	(119)
Change in mortality – increase of 1 year	1,326	670	n/a	n/a

Notes on the Financial Statements

HSBC Holdings

Employee compensation and benefit expense in respect of HSBC Holdings' employees in 2016 amounted to $571m (2015: $908m). The average number of persons employed during 2016 was 1,660 (2015: 2,656). Employees who are members of defined benefit pension plans are principally members of either the HSBC Bank (UK) Pension Scheme or the HSBC International Staff Retirement Benefits Scheme. HSBC Holdings pays contributions to such plans for its own employees in accordance with the schedules of contributions determined by the trustees of the plans and recognises these contributions as an expense as they fall due.

From 1 July 2016 employment costs of most employees are recognised by the ServCo group and the ServCo group has started providing services to HSBC Holdings. HSBC Holdings recognised a management charge of $406m for these services which is included under 'General and administrative expenses'.

Directors' emoluments

Details of directors' emoluments, pensions and their interests are disclosed in the Directors' Remuneration Report on page 191.

6 Auditors' remuneration

	Footnotes	2016 $m	2015 $m	2014 $m
Audit fees payable to PwC/KPMG	1, 2	65.7	62.0	40.6
Other audit fees payable		1.6	1.2	1.2
Year ended 31 Dec		67.3	63.2	41.8

Fees payable by HSBC to PwC/KPMG[2]

	Footnotes	2016 $m	2015 $m	2014 $m
Fees for HSBC Holdings' statutory audit	3	14.0	13.1	13.4
Fees for other services provided to HSBC		97.1	85.1	62.5
– audit of HSBC's subsidiaries	4	51.7	48.9	27.2
– audit-related assurance services	5	20.6	16.6	22.6
– taxation-related services:				
taxation compliance services		1.9	1.0	1.5
taxation advisory services		0.4	0.9	0.8
– other assurance services	6	4.5	2.8	0.7
– other non-audit services	6	18.0	14.9	9.7
Year ended 31 Dec		111.1	98.2	75.9

No fees were payable by HSBC to PwC or KPMG as principal auditor for the following types of services: internal audit services and services related to litigation, recruitment and remuneration.

Fees payable by HSBC's associated pension schemes to PwC/KPMG[2]

	2016 $000	2015 $000	2014 $000
Audit of HSBC's associated pension schemes	208	352	322
Audit related assurance services	4	5	5
Year ended 31 Dec	212	357	327

1 Included within the 2016 audit fees payable is a final fee adjustment of $4.2m related to the prior year audit in respect of overruns.

2 PwC became the Group's principal auditor in 2015. KPMG was the principal auditor during 2014.

3 Fees payable to PwC and KPMG for the statutory audit of the consolidated financial statements of HSBC and the separate financial statements of HSBC Holdings. They include amounts payable for services relating to the

consolidation returns of HSBC Holdings' subsidiaries which are clearly identifiable as being in support of the Group audit opinion.

4 Fees payable for the statutory audit of the financial statements of HSBC's subsidiaries, including the 2016 changes in scope and additional procedures performed due to the technology systems and data access controls matter as described on page 212.

5 Including services for assurance and other services that relate to statutory and regulatory filings, including comfort letters and interim reviews and work performed related to the implementation of IFRS 9.

6 Including other permitted services relating to advisory, corporate finance transactions, etc.

No fees were payable by HSBC's associated pension schemes to PwC or KPMG as principal auditor for the following types of services: audit-related assurance services, internal audit services, other assurance services, services related to corporate finance transactions, valuation and actuarial services, litigation, recruitment and remuneration, and information technology.

In addition to the above, the estimated fees paid to PwC by third parties other than HSBC amount to $4.3m (PwC 2015: $2.4m; KPMG 2014: $3.6m). In these cases, HSBC is connected with the contracting party and may therefore be involved in appointing PwC. These fees arise from services such as auditing mutual funds managed by HSBC and reviewing the financial position of corporate concerns which borrow from HSBC.

Fees payable for non-audit services for HSBC Holdings are not disclosed separately because such fees are disclosed on a consolidated basis for the HSBC Group.

7 Tax

Tax expense

	Footnotes	2016 $m	2015 $m	2014 $m
Current tax	1	3,669	3,797	3,950
– for this year		3,525	3,882	4,477
– adjustments in respect of prior years		144	(85)	(527)
Deferred tax		(3)	(26)	25
– origination and reversal of temporary differences		(111)	(153)	(477)
– effect of changes in tax rates		(4)	110	83
– adjustments in respect of prior years		112	17	419
Year ended 31 Dec		3,666	3,771	3,975

1 Current tax included Hong Kong profits tax of $1,118m (2015: $1,294m; 2014: $1,135m). The Hong Kong tax rate applying to the profits of subsidiaries assessable in Hong Kong was 16.5% (2015: 16.5%; 2014: 16.5%).

Tax reconciliation

The tax charged to the income statement differs from the tax charge that would apply if all profits had been taxed at the UK corporation tax rate as follows:

	2016 $m	%	2015 $m	%	2014 $m	%
Profit before tax	7,112		18,867		18,680	
Tax expense						
Taxation at UK corporation tax rate of 20.0% (2015: 20.25%; 2014: 21.5%)	1,422	20.0	3,821	20.25	4,016	21.50
Impact of differently taxed overseas profits in overseas locations	43	0.6	71	0.4	33	0.2
Items increasing tax charge in 2016 not in 2015:						
– non-deductible goodwill write-down	648	9.1	—	—	—	—
– non-deductible loss and taxes suffered on Brazil disposal	464	6.5	—	—	—	—
– UK tax losses not recognised	305	4.3	—	—	—	—
– adjustments in respect of prior period liabilities	256	3.6	(68)	(0.4)	(108)	(0.6)
– UK Banking Surcharge	199	2.8	—	—	—	—
– non-UK tax losses not recognised	147	2.1	—	—	—	—
Other items increasing tax charge in 2016:						
– local taxes and overseas withholding taxes	434	6.1	416	2.2	434	2.3
– other permanent disallowables	438	6.2	421	2.2	476	2.5
– bank levy	170	2.4	286	1.5	229	1.2
– non-deductible UK customer compensation	162	2.3	87	0.5	—	—
– other items	—	—	(116)	(0.6)	(22)	(0.1)
– non-deductible regulatory settlements	20	0.3	184	1.0	264	1.4
Items reducing tax charge in 2016:						
– non-taxable income and gains	(577)	(8.1)	(501)	(2.7)	(668)	(3.5)
– effect of profits in associates and joint ventures	(461)	(6.5)	(508)	(2.7)	(547)	(2.9)
– change in tax rates	(4)	(0.1)	110	0.6	22	0.1
Non-taxable income and gains - Industrial Bank	—	—	(227)	(1.2)	—	—
US deferred tax temporary differences previously not recognised	—	—	(184)	(1.0)	(154)	(0.8)
Other deferred tax temporary differences previously not recognised	—	—	(21)	(0.1)	—	—
Year ended 31 Dec	3,666	51.6	3,771	20.0	3,975	21.3

The Group's profits are taxed at different rates depending on the country in which the profits arise. The key applicable tax rates include Hong Kong (16.5%), USA (35%) and UK (20%). If the Group's profits were taxed at the statutory rates of the countries in which the profits arise then the tax rate for the year would have been 20.6% (2015: 20.65%). The effective tax rate for the year was 51.6% (2015: 20%) and was significantly higher than 2015 due to the non-deductible goodwill write-down and loss on disposal of Brazil, tax losses not recognised, adjustments in respect

of prior periods and the 8% UK banking surcharge, which became applicable from 1 January 2016.
Accounting for taxes involves some estimation because the tax law is uncertain and its application requires a degree of judgement, which authorities may dispute. Liabilities are recognised based on best estimates of the probable outcome, taking into account external advice where appropriate. We do not expect significant liabilities to arise in excess of the amounts provided. HSBC only recognises current and deferred tax assets where recovery is probable.

Notes on the Financial Statements

Movement of deferred tax assets and liabilities

	Footnotes	Loan impairment provisions	Unused tax losses and tax credits	Derivatives, FVOD[1] and other investments	Insurance business	Expense provisions	Other	Total
		$m	$m	$m	$m	$m	$m	$m
Assets		1,351	1,388	1,400	—	1,271	1,050	6,460
Liabilities		—	—	(230)	(1,056)	—	(883)	(2,169)
At 1 Jan 2016		1,351	1,388	1,170	(1,056)	1,271	167	4,291
Income statement	3	(279)	876	18	(123)	(370)	(314)	(192)
Other comprehensive income		—	—	28	—	—	259	287
Equity		—	—	—	—	—	20	20
Foreign exchange and other adjustments		(122)	(52)	(49)	9	(8)	356	134
At 31 Dec 2016		950	2,212	1,167	(1,170)	893	488	4,540
Assets	2	950	2,212	1,441	—	893	1,857	7,353
Liabilities	2	—	—	(274)	(1,170)	—	(1,369)	(2,813)
Assets		2,264	1,332	1,764	—	1,244	836	7,440
Liabilities		—	—	(233)	(861)	—	(759)	(1,853)
At 1 Jan 2015		2,264	1,332	1,531	(861)	1,244	77	5,587
Income statement		45	379	(557)	(143)	418	(116)	26
Other comprehensive income		—	—	22	—	156	321	499
Reclassification to 'Assets held for sale'		(673)	(186)	76	87	(386)	(136)	(1,218)
Equity		—	—	—	—	—	4	4
Foreign exchange and other adjustments		(285)	(137)	98	(139)	(161)	17	(607)
At 31 Dec 2015		1,351	1,388	1,170	(1,056)	1,271	167	4,291
Assets	2	1,351	1,388	1,400	—	1,271	1,050	6,460
Liabilities	2	—	—	(230)	(1,056)	—	(883)	(2,169)

1 Fair value of own debt.

2 After netting off balances within countries, the balances as disclosed in the accounts are as follows: deferred tax assets $6,163m (2015: $6,051m); and deferred tax liabilities $1,623m (2015: $1,760m).

3 Excludes a tax credit of $195m relating to deferred tax balances in Brazil, which were included within 'Assets held for sale' prior to disposal.

In applying judgement in recognising deferred tax assets, management has critically assessed all available information, including future business profit projections and the track record of meeting forecasts.

The net deferred tax asset of $4.5bn (2015: $4.3bn) includes $4.8bn (2015: $4.5bn) deferred tax assets relating to the US, of which $2bn deferred tax asset relates to US tax losses that expire in 16-20 years. Management expects the US deferred tax asset to be substantially recovered in six to seven years, with the majority recovered in the first five years. The most recent financial forecasts approved by management covers a five-year period and the forecasts have been extrapolated beyond five years by assuming that performance remains constant after the fifth year. The forecasts also include additional tax losses in 2017 – these losses expire in 2037 and are expected to be utilised by 2023.

The US reported a loss for the current period, mainly due to the Household International class action litigation settlement. Excluding the Household International class action settlement the US would have reported a profit for the current year. In addition, the US reported a profit in 2014 and 2015. Management does not expect the current year loss to adversely impact future deferred tax asset recovery to a significant extent.

The US deferred tax asset has been calculated using the current federal tax rate of 35%. Any possible future reduction of the US federal tax rate from 35% would reduce the value of the US deferred tax assets and create a tax charge in the period in which any change in the tax rate is enacted. This tax charge should be ultimately offset by the benefit of reduced US tax charges in future years.

Unrecognised deferred tax

The amount of gross temporary differences, unused tax losses and tax credits for which no deferred tax asset is recognised in the balance sheet was $18.2bn (2015: $15.5bn). These amounts included unused state losses arising in the Group's US operations of $12.3bn (2015: $11.3bn). Of the total amounts unrecognised, $4.9bn (2015: $3.1bn) had no expiry date, $1.0bn (2015: $0.9bn) was scheduled to expire within 10 years and the remaining balance is expected to expire after 10 years.

Deferred tax is not recognised in respect of the Group's investments in subsidiaries and branches where HSBC is able to control the timing of remittance or other realisation and where remittance or realisation is not probable in the foreseeable future. The aggregate temporary differences relating to unrecognised deferred tax liabilities arising on investments in subsidiaries and branches is $10.6bn (2015: $9.1bn) and the corresponding unrecognised deferred tax liability is $0.7bn (2015: $0.6bn).

8 Dividends

Dividends to shareholders of the parent company

	2016			2015			2014		
	Per share $	Total $m	Settled in scrip $m	Per share $	Total $m	Settled in scrip $m	Per share $	Total $m	Settled in scrip $m
Dividends paid on ordinary shares									
In respect of previous year:									
– fourth interim dividend	0.21	4,137	408	0.20	3,845	2,011	0.19	3,582	1,827
In respect of current year:									
– first interim dividend	0.10	1,981	703	0.10	1,951	231	0.10	1,906	284
– second interim dividend	0.10	1,991	994	0.10	1,956	160	0.10	1,914	372
– third interim dividend	0.10	1,990	935	0.10	1,958	760	0.10	1,918	226
Total	0.51	10,099	3,040	0.50	9,710	3,162	0.49	9,320	2,709
Total dividends on preference shares classified as equity (paid quarterly)	62.00	90		62.00	90		62.00	90	

Total coupons on capital securities classified as equity

			2016		2015	2014
				Total	Total	Total
	Footnotes	First call date	Per security	$m	$m	$m
Perpetual subordinated capital securities	1, 3					
– $2,200m		Apr 2013	$2.032	179	179	179
– $3,800m		Dec 2015	$2.000	304	304	304
Perpetual subordinated contingent convertible securities	2, 3					
– $2,250m issued at 6.375%		Sep 2024	$63.750	143	143	—
– $1,500m issued at 5.625%		Jan 2020	$56.250	84	70	—
– €1,500m issued at 5.250%		Sep 2022	€52.500	88	86	—
– $2,450m issued at 6.375%		Mar 2025	$63.750	156	78	—
– €1,000m issued at 6.000%		Sep 2023	€60.000	67	—	—
– $2,000m issued at 6.875%		Jun 2021	$68.750	69	—	—
Total				1,090	860	483

1 Discretionary coupons are paid quarterly on the perpetual subordinated capital securities, in denominations of $25 per security.

2 Discretionary coupons are paid semi-annually on the perpetual subordinated contingent convertible securities, in denominations of 1,000 per security.

3 Further details of these securities can be found in Note 32.

After the end of the year, the Directors declared a fourth interim dividend in respect of the financial year ended 31 December 2016 of $0.21 per ordinary share, a distribution of approximately $4,172m. The fourth interim dividend will be payable on 6 April 2017 to holders on the Principal Register in the UK, the Hong Kong Overseas Branch Register or the Bermuda Overseas Branch Register on 24 February 2017. No liability was recorded in the financial statements in respect of the fourth interim dividend for 2016.

On 17 January 2017, HSBC paid a coupon on its $2,200m subordinated capital securities of $0.508 per security, a distribution of $45m. On 17 January 2017, HSBC paid a coupon on its $1,500m subordinated contingent convertible securities of $28.125 per security, a distribution of $42m. No liability was recorded in the balance sheet at 31 December 2016 in respect of these coupon payments.

Notes on the Financial Statements

9 Earnings per share

Basic earnings per ordinary share is calculated by dividing the profit attributable to ordinary shareholders of the parent company by the weighted average number of ordinary shares outstanding, excluding own shares held. Diluted earnings per ordinary share is calculated by dividing the basic earnings, which require no adjustment for the effects of dilutive potential ordinary shares, by the weighted average number of ordinary shares outstanding, excluding own shares held, plus the weighted average number of ordinary shares that would be issued on conversion of dilutive potential ordinary shares.

Profit attributable to the ordinary shareholders of the parent company

	2016	2015	2014
	$m	$m	$m
Profit attributable to shareholders of the parent company	2,479	13,522	13,688
Dividend payable on preference shares classified as equity	(90)	(90)	(90)
Coupon payable on capital securities classified as equity	(1,090)	(860)	(483)
Year ended 31 Dec	1,299	12,572	13,115

Basic and diluted earnings per share

		2016			2015			2014		
		Profit	Number of shares	Per share	Profit	Number of shares	Per share	Profit	Number of shares	Per share
	Footnote	$m	(millions)	$	$m	(millions)	$	$m	(millions)	$
Basic	1	1,299	19,753	0.07	12,572	19,380	0.65	13,115	18,960	0.69
Effect of dilutive potential ordinary shares			92			137			96	
Diluted	1	1,299	19,845	0.07	12,572	19,517	0.64	13,115	19,056	0.69

1 Weighted average number of ordinary shares outstanding (basic) or assuming dilution (diluted).

The weighted average number of dilutive potential ordinary shares excludes 10m employee share options that were anti dilutive (2015: 7m; 2014: 6m).

10 Trading assets

		2016	2015
	Footnote	$m	$m
Treasury and other eligible bills		14,451	7,829
Debt securities		94,054	99,038
Equity securities		63,604	66,491
Trading securities		172,109	173,358
Loans and advances to banks	1	24,769	22,303
Loans and advances to customers	1	38,247	29,176
At 31 Dec		235,125	224,837

1 Loans and advances to banks and customers include settlement accounts, stock borrowing, reverse repos and other amounts.

Trading Securities[1]

		2016	2015
	Footnotes	$m	$m
US Treasury and US Government agencies	2	17,010	14,833
UK Government		9,493	10,177
Hong Kong Government		7,970	6,495
Other governments		49,229	48,567
Asset-backed securities	3	2,668	3,135
Corporate debt and other securities		22,135	23,660

Equity securities	63,604	66,491
At 31 Dec	172,109	173,358

1 Included within these figures are debt securities issued by banks and other financial institutions of $14,630m (2015: $16,403m), of which $789m (2015: $1,034m) are guaranteed by various governments.
2 Includes securities that are supported by an explicit guarantee issued by the US Government.
3 Excludes asset-backed securities included under US Treasury and US Government agencies.

11 Fair values of financial instruments carried at fair value

Control framework

Fair values are subject to a control framework designed to ensure that they are either determined or validated by a function independent of the risk taker.

Where fair values are determined by reference to externally quoted prices or observable pricing inputs to models, independent price determination or validation is used. For inactive markets, HSBC sources alternative market information, with greater weight given to information that is considered to be more relevant and reliable. Examples of the factors considered are price observability, instrument comparability, consistency of data sources, underlying data accuracy and timing of prices.

For fair values determined using valuation models, the control framework includes development or validation by independent support functions of the model logic, inputs, model outputs and adjustments. Valuation models are subject to a process of due diligence before becoming operational and are calibrated against external market data on an ongoing basis.

Changes in fair value are generally subject to a profit and loss analysis process and are disaggregated into high-level categories including portfolio changes, market movements and other fair value adjustments.

The majority of financial instruments measured at fair value are in GB&M. GB&M's fair value governance structure comprises its Finance function, Valuation Committees and a Valuation Committee Review Group. Finance is responsible for establishing procedures governing valuation and ensuring fair values are in compliance with accounting standards. The fair values are reviewed by the Valuation Committees, which consist of independent support functions. These Committees are overseen by the Valuation Committee Review Group, which considers all material subjective valuations.

Financial liabilities measured at fair value

In certain circumstances, HSBC records its own debt in issue at fair value, based on quoted prices in an active market for the specific instrument. When quoted market prices are unavailable, the own debt in issue is valued using valuation techniques, the inputs for which are either based on quoted prices in an inactive market for the instrument or are estimated by comparison with quoted prices in an active market for similar instruments. In both cases, the fair value includes the effect of applying the credit spread which is appropriate to HSBC's liabilities. The change in fair value of issued debt securities attributable to the Group's own credit spread is computed as follows: for each security at each reporting date, an externally verifiable price is obtained or a price is derived using credit spreads for similar securities for the same issuer. Then, using discounted cash flow, each security is valued using a Libor-based discount curve. The difference in the valuations is attributable to the Group's own credit spread. This methodology is applied consistently across all securities.

Structured notes issued and certain other hybrid instruments are included within trading liabilities and are measured at fair value. The credit spread applied to these instruments is derived from the spreads at which HSBC issues structured notes.

Gains and losses arising from changes in the credit spread of liabilities issued by HSBC reverse over the contractual life of the debt, provided that the debt is not repaid at a premium or a discount.

Fair value hierarchy

Fair values of financial assets and liabilities are determined according to the following hierarchy:

- Level 1 – valuation technique using quoted market price: financial instruments with quoted prices for identical instruments in active markets that HSBC can access at the measurement date.
- Level 2 – valuation technique using observable inputs: financial instruments with quoted prices for similar instruments in active markets or quoted prices for identical or similar instruments in inactive markets and financial instruments valued using models where all significant inputs are observable.
- Level 3 – valuation technique with significant unobservable inputs: financial instruments valued using valuation techniques where one or more significant inputs are unobservable.

Financial instruments carried at fair value and bases of valuation

	2016				2015			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
	$m	$m	$m	$m	$m	$m	$m	$m

Recurring fair value measurements at 31 Dec								
Assets								
Trading assets	133,744	94,892	6,489	235,125	133,095	84,886	6,856	224,837
Financial assets designated at fair value	19,882	4,144	730	24,756	18,947	4,431	474	23,852
Derivatives	1,076	287,044	2,752	290,872	1,922	284,292	2,262	288,476
Financial investments: available for sale	274,655	111,743	3,476	389,874	262,929	117,197	4,727	384,853
Liabilities								
Trading liabilities	45,171	104,938	3,582	153,691	41,462	95,867	4,285	141,614
Financial liabilities designated at fair value	4,248	82,547	37	86,832	5,260	61,145	3	66,408
Derivatives	1,554	275,965	2,300	279,819	2,243	277,618	1,210	281,071

Notes on the Financial Statements

Transfers between Level 1 and Level 2 fair values

	Assets				Liabilities		
	Available for sale	Held for trading	Designated at fair value	Derivatives	Held for trading	Designated at fair value	Derivatives
	$m	$m	$m	$m	$m	$m	$m
At 31 Dec 2016							
Transfers from Level 1 to Level 2	162	1,614	122	465	2,699	—	209
Transfers from Level 2 to Level 1	1,314	—	—	—	341	—	—
At 31 Dec 2015							
Transfers from Level 1 to Level 2	—	67	—	56	1,563	857	100
Transfers from Level 2 to Level 1	—	487	—	2	515	2	—

Transfers between levels of the fair value hierarchy are deemed to occur at the end of each semi-annual reporting period.

Fair value adjustments

Fair value adjustments are adopted when HSBC determines there are additional factors considered by market participants that are not incorporated within the valuation model. Movements in the level of fair value adjustments do not necessarily result in the recognition of profits or losses within the income statement, such as when models are enhanced and fair value adjustments may no longer be required.

Global Banking and Markets fair value adjustments

	2016	2015
	$m	$m
Type of adjustment		
Risk-related	1,131	1,402
– bid-offer	416	477
– uncertainty	87	95
– credit valuation adjustment (‘CVA’)	633	853
– debit valuation adjustment (‘DVA’)	(437)	(465)
– funding fair value adjustment (‘FFVA’)	429	442
– other	3	—
Model-related	14	97
– model limitation	14	92
– other	—	5
Inception profit (Day 1 P&L reserves) (Note 14)	99	97
At 31 Dec	1,244	1,596

Fair value adjustments declined by $352m during the year. The most significant movement was a decline of $220m in respect of the credit valuation adjustment, driven by the disposal of Brazilian operations, refinements to modelling methodology and as a result of tightening credit spreads.

Bid-offer

IFRS 13 ‘Fair value measurement’ requires use of the price within the bid-offer spread that is most representative of fair value. Valuation models will typically generate mid-market values. The bid-offer adjustment reflects the extent to which bid-offer costs would be incurred if substantially all residual net portfolio market risks were closed using available hedging instruments or by disposing of or unwinding the position.

Uncertainty

Certain model inputs may be less readily determinable from market data, and/or the choice of model itself may be more subjective. In these circumstances an adjustment may be necessary to reflect the likelihood that market participants would adopt more conservative values for uncertain parameters and/or model assumptions than those used in HSBC's valuation model.

Credit and debit valuation adjustments

The CVA is an adjustment to the valuation of over-the-counter ('OTC') derivative contracts to reflect the possibility that the counterparty may default and that HSBC may not receive the full market value of the transactions.

The DVA is an adjustment to the valuation of OTC derivative contracts to reflect the possibility that HSBC may default, and that it may not pay the full market value of the transactions.

HSBC calculates a separate CVA and DVA for each legal entity, and for each counterparty to which the entity has exposure. With the exception of central clearing parties, all third-party counterparties are included in the CVA and DVA calculations, and these adjustments are not netted across Group entities.

HSBC calculates the CVA by applying the probability of default ('PD') of the counterparty, conditional on the non-default of HSBC, to HSBC's expected positive exposure to the counterparty and multiplying the result by the loss expected in the event of default. Conversely, HSBC calculates the DVA by applying the PD of HSBC, conditional on the non-default of the counterparty, to the expected positive exposure of the counterparty to HSBC and multiplying the result by the loss expected in the event of default. Both calculations are performed over the life of the potential exposure.

For most products HSBC uses a simulation methodology, which incorporates a range of potential exposures over the life of the portfolio, to calculate the expected positive exposure to a counterparty. The simulation methodology includes credit mitigants, such as counterparty netting agreements and collateral agreements with the counterparty.

The methodologies do not, in general, account for 'wrong-way risk' which arises when the underlying value of the derivative prior to any CVA is positively correlated to the PD of the counterparty. When there is significant wrong-way risk, a trade-specific approach is applied to reflect this risk in the valuation.

Funding fair value adjustment

The FFVA is calculated by applying future market funding spreads to the expected future funding exposure of any uncollateralised component of the OTC derivative portfolio. The expected future funding exposure is calculated by a simulation methodology, where available, and is adjusted for events that may terminate the exposure, such as the default of HSBC or the counterparty. The FFVA and DVA are calculated independently.

Model limitation

Models used for portfolio valuation purposes may be based upon a simplified set of assumptions that do not capture all current and future material market characteristics. In these circumstances, model limitation adjustments are adopted.

Inception profit (Day 1 P&L reserves)

Inception profit adjustments are adopted when the fair value estimated by a valuation model is based on one or more significant unobservable inputs. The accounting for inception profit adjustments is discussed in Note 1.

Fair value valuation bases

Financial instruments measured at fair value using a valuation technique with significant unobservable inputs – Level 3

	Assets					Liabilities			
	Available for sale	Held for trading	Designated at fair value	Derivatives	Total	Held for trading	Designated at fair value	Derivatives	Total
	$m	$m	$m	$m	$m	$m	$m	$m	$m
Private equity including strategic investments	2,435	49	712	—	3,196	25	—	—	25
Asset-backed securities	761	789	—	—	1,550	—	—	—	—
Loans held for securitisation	—	28	—	—	28	—	—	—	—
Structured notes	—	2	—	—	2	3,557	—	—	3,557
Derivatives with monolines	—	—	—	175	175	—	—	—	—
Other derivatives	—	—	—	2,577	2,577	—	—	2,300	2,300
Other portfolios	280	5,621	18	—	5,919	—	37	—	37
At 31 Dec 2016	3,476	6,489	730	2,752	13,447	3,582	37	2,300	5,919
Private equity including strategic investments	3,443	55	453	—	3,951	35	—	—	35
Asset-backed securities	1,053	531	—	—	1,584	—	—	—	—
Loans held for securitisation	—	30	—	—	30	—	—	—	—
Structured notes	—	4	—	—	4	4,250	—	—	4,250
Derivatives with monolines	—	—	—	196	196	—	—	—	—
Other derivatives	—	—	—	2,066	2,066	—	—	1,210	1,210
Other portfolios	231	6,236	21	—	6,488	—	3	—	3
At 31 Dec 2015	4,727	6,856	474	2,262	14,319	4,285	3	1,210	5,498

Level 3 instruments are present in both ongoing and legacy businesses. Loans held for securitisation, derivatives with monolines, certain 'other derivatives' and predominantly all Level 3 ABSs are legacy positions. HSBC has the capability to hold these positions.

Private equity including strategic investments

The investment's fair value is estimated: on the basis of an analysis of the investee's financial position and results, risk profile, prospects and other factors; by reference to market valuations for similar entities quoted in an active market; or the price at which similar companies have changed ownership.

Asset-backed securities

While quoted market prices are generally used to determine the fair value of these securities, valuation models are used to substantiate the reliability of the limited market data available and to identify whether any adjustments to quoted market prices are required. For certain ABSs such as residential mortgage-backed securities, the valuation uses an industry standard model with assumptions relating to prepayment speeds, default rates and loss severity based on collateral type, and performance, as appropriate. The valuations output is benchmarked for consistency against observable data for securities of a similar nature.

Structured notes

The fair value of Level 3 structured notes is derived from the fair value of the underlying debt security, and the fair value of the embedded derivative is determined as described in the paragraph below on derivatives. These structured notes comprise principally equity-linked notes issued by HSBC which provide the counterparty with a return linked to the performance of equity securities and other portfolios. Examples of the unobservable parameters include long-dated equity volatilities and correlations between equity prices, and interest and foreign exchange rates.

Derivatives

OTC derivative valuation models calculate the present value of expected future cash flows, based upon 'no-arbitrage' principles. For many vanilla derivative products, the modelling approaches used are standard across the industry. For more complex derivative products, there may be some differences in market practice. Inputs to valuation models are determined from observable market data wherever possible, including prices available from exchanges, dealers, brokers or providers of consensus pricing. Certain inputs may not be observable in the market directly, but can be determined from observable prices via model calibration procedures or estimated from historical data or other sources.

Notes on the Financial Statements

Reconciliation of fair value measurements in Level 3 of the fair value hierarchy
Movement in Level 3 financial instruments

		Assets				Liabilities		
		Available for sale	Held for trading	Designated at fair value	Derivatives	Held for trading	Designated at fair value	Derivatives
	Footnote	$m	$m	$m	$m	$m	$m	$m
At 1 Jan 2016		4,727	6,856	474	2,262	4,285	3	1,210
Total gains/(losses) recognised in profit or loss		178	31	25	1,107	337	(1)	1,428
– trading income/(expense) excluding net interest income		—	31	—	1,107	337	—	1,428
– net income/(expense) from other financial instruments designated at fair value		—	—	25	—	—	(1)	—
– gains less losses from financial investments		91	—	—	—	—	—	—
– loan impairment charges and other credit risk provisions (‘LICs’)		87	—	—	—	—	—	—
Total gains/(losses) recognised in other comprehensive income (‘OCI’)	1	(162)	(610)	(8)	(335)	(130)	(1)	(240)
– available-for-sale investments: fair value gains/(losses)		123	—	—	—	—	—	—
– cash flow hedges: fair value gains/(losses)		—	—	—	—	—	—	12
– exchange differences		(285)	(610)	(8)	(335)	(130)	(1)	(252)
Purchases		350	823	359	—	20	6	—
New issuances		—	—	—	—	1,882	—	—
Sales		(1,212)	(1,760)	(7)	—	(40)	(2)	—
Settlements		(177)	(311)	(113)	(107)	(1,907)	—	(239)
Transfers out		(947)	(199)	(2)	(187)	(920)	—	(229)
Transfers in		719	1,659	2	12	55	32	370
At 31 Dec 2016		3,476	6,489	730	2,752	3,582	37	2,300
Unrealised gains/(losses) recognised in profit or loss relating to assets and liabilities held at 31 Dec 2016		87	(170)	21	364	(143)	1	(335)
– trading income/(expense) excluding net interest income		—	(170)	—	364	(143)	—	(335)
– net income/(expense) from other financial instruments		—	—	21	—	—	1	—

designated at fair value								
– loan impairment charges and other credit risk provisions		87	—	—	—	—	—	—
At 1 Jan 2015		4,988	6,468	726	2,924	6,139	—	1,907
Total gains/(losses) recognised in profit or loss		(34)	109	30	95	(573)	(1)	(209)
– trading income/(expense) excluding net interest income		—	109	—	95	(573)	—	(209)
– net income from other financial instruments designated at fair value		—	—	30	—	—	(1)	—
– gains less losses from financial investments		(269)	—	—	—	—	—	—
– loan impairment charges and other credit risk provisions (‘LICs’)		235	—	—	—	—	—	—
Total gains/(losses) recognised in other comprehensive income (‘OCI’)	1	226	(192)	(11)	(126)	(118)	(1)	(64)
– available-for-sale investments: fair value gains/(losses)		393	—	—	—	—	—	—
– cash flow hedges: fair value gains/(losses)		—	—	—	(4)	—	—	—
– exchange differences		(167)	(192)	(11)	(122)	(118)	(1)	(64)
Purchases		594	1,745	250	—	2	9	—
New issuances		—	—	—	—	1,471	—	—
Sales		(757)	(1,206)	(50)	—	(66)	(4)	—
Settlements		(32)	(146)	(135)	(38)	(1,260)	—	(241)
Transfers out		(1,471)	(206)	(336)	(1,015)	(1,743)	—	(283)
Transfers in		1,231	284	—	422	433	—	100
At 31 Dec 2015		4,727	6,856	474	2,262	4,285	3	1,210
Unrealised gains/(losses) recognised in profit or loss relating to assets and liabilities held at 31 Dec 2015		235	(9)	12	89	384	(1)	267
– trading income/(expense) excluding net interest income		—	(9)	—	89	384	—	267
– net income from other financial instruments designated at fair value		—	—	12	—	—	(1)	—
– loan impairment charges and other credit risk provisions		235	—	—	—	—	—	—

1

Included in ‘Available-for-sale investments: fair value gains/(losses)’ and ‘Exchange differences’ in the consolidated statement of comprehensive income.

Effect of changes in significant unobservable assumptions to reasonably possible alternatives

Sensitivity of Level 3 fair values to reasonably possible alternative assumptions

		2016				2015			
		Reflected in profit or loss		Reflected in OCI		Reflected in profit or loss		Reflected in OCI	
		Favourable changes	Un-favourable changes	Favourable changes	Un-favourable changes	Favourable changes	Un-favourable changes	Favourable changes	Un-favourable changes
	Footnote	$m	$m	$m	$m	$m	$m	$m	$m
Derivatives, trading assets and trading liabilities	1	238	(177)	—	—	335	(215)	—	—
Financial assets and liabilities designated at fair value		48	(38)	—	—	24	(24)	—	—
Financial investments: available for sale		72	(36)	170	(149)	35	(30)	230	(243)
At 31 Dec		358	(251)	170	(149)	394	(269)	230	(243)

1 Derivatives, trading assets and trading liabilities are presented as one category to reflect the manner in which these instruments are risk managed.

Sensitivity of Level 3 fair values to reasonably possible alternative assumptions by instrument type

	2016				2015			
	Reflected in profit or loss		Reflected in OCI		Reflected in profit or loss		Reflected in OCI	
	Favourable changes	Un-favourable changes	Favourable changes	Un-favourable changes	Favourable changes	Un-favourable changes	Favourable changes	Un-favourable changes
	$m	$m	$m	$m	$m	$m	$m	$m
Private equity including strategic investments	112	(73)	121	(106)	54	(53)	152	(171)
Asset-backed securities	43	(15)	33	(27)	18	(12)	57	(51)
Loans held for securitisation	1	(1)	—	—	1	(1)	—	—
Structured notes	10	(7)	—	—	15	(11)	—	—
Derivatives with monolines	3	(3)	—	—	11	(11)	—	—
Other derivatives	141	(94)	—	—	179			