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Intercontinental Exchange, Inc.
Form 10-K
February 07, 2019

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

Form 10-K

(Mark One)

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d)
OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2018

Or

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d)
OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from _____ to _____

Commission File Number 001-36198

Intercontinental Exchange, Inc.
(Exact name of registrant as specified in its charter)

Delaware	46-2286804
(State or other jurisdiction of incorporation or organization)	(IRS Employer Identification Number)
5660 New Northside Drive,	30328
Atlanta, Georgia	(Zip Code)
(Address of principal executive offices)	
(770) 857-4700	
Registrant's telephone number, including area code	

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, \$0.01 par value per share	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act:

None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange Act. Yes ☐ 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 Exchange Act 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. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

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Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☒

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☐ Accelerated filer ☐

Non-accelerated filer ☐ Smaller reporting company ☐

Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act "

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes " No ☒

The aggregate market value of the registrant's voting and non-voting common equity held by non-affiliates computed by reference to the price at which the common equity was last sold as of the last business day of the registrant's most recently completed second fiscal quarter was \$42,085,643,250. As of February 4, 2019, the number of shares of the registrant's Common Stock outstanding was 568,498,076 shares.

DOCUMENTS INCORPORATED BY REFERENCE

Certain information contained in the registrant's Proxy Statement for the 2019 Annual Meeting of Stockholders is incorporated herein by reference in Part III of this Annual Report on Form 10-K. The Proxy Statement will be filed with the Securities and Exchange Commission within 120 days after the end of the registrant's fiscal year to which this report relates.

Intercontinental Exchange, Inc.
 ANNUAL REPORT ON FORM 10-K
 For the Fiscal Year Ended December 31, 2018
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PART I

In this Annual Report on Form 10-K, or Annual Report, and unless otherwise indicated, the terms “Intercontinental Exchange,” “ICE,” “we,” “us,” “our,” “our company,” and “our business” refer to Intercontinental Exchange, Inc. together with consolidated subsidiaries. References to “ICE products” mean products listed on one or more of our markets.

The following discussion should be read in conjunction with our consolidated financial statements and related notes included elsewhere in this Annual Report. Due to rounding, figures in tables may not sum exactly. All references to “options” or “options contracts” in the context of our futures products refer to options on futures contracts.

Forward-Looking Statements

This Annual Report, including the sections entitled “Business,” “Legal Proceedings,” “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” contains “forward-looking statements” as defined in the Private Securities Litigation Reform Act of 1995. Any statements contained herein that are not statements of historical fact may be forward-looking statements. Any forward looking statements are based on our present beliefs and assumptions as well as the information currently available to us. Forward-looking statements may be introduced by or contain terminology such as “may,” “will,” “should,” “could,” “would,” “targets,” “goal,” “expect,” “intend,” “anticipate,” “believe,” “estimate,” “predict,” “potential,” “continue,” or the antonyms of these terms or other comparable terminology.

Forward-looking statements relate to future events or our future financial performance and involve known and unknown risks, uncertainties and other factors that may cause our results, levels of activity, performance, cash flows, financial position or achievements to differ materially from those expressed or implied by these statements. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance, cash flows, financial position or achievements. Accordingly, we caution you not to place undue reliance on any forward-looking statements we may make.

Factors that may affect our performance and the accuracy of any forward-looking statements include, but are not limited to, those listed below:

- conditions in global financial markets and domestic and international economic, political and social conditions; the impact of the introduction of or any changes in laws, regulations, rules or government policies with respect to financial markets, increased regulatory scrutiny or enforcement actions and our ability to comply with these requirements;
- volatility in commodity prices, equity prices, and price volatility of financial benchmarks and instruments such as interest rates, credit spreads, equity indices and foreign exchange rates;
- the business environment in which we operate and trends in our industry, including trading volumes, clearing, data services, fees, changing regulations, competition and consolidation;
- our ability to minimize the risks associated with operating clearing houses in multiple jurisdictions;
- our equity and options exchanges and the exchanges’ compliance with their respective regulatory and oversight responsibilities;
- the resilience of our electronic platforms and soundness of our business continuity and disaster recovery plans;
- continued high renewal rates of subscription-based data revenues;
- our ability to identify and effectively pursue, implement and integrate acquisitions and strategic alliances; and to realize the synergies and benefits of such transactions within the expected time frame;
- the performance and reliability of our trading and clearing technologies and those of third-party service providers;
- our ability to keep pace with technological developments and to ensure that the technology we utilize is not vulnerable to cybersecurity risks or other disruptive events;
- our ability to identify trends and adjust our business to benefit from such trends;
- the accuracy of our cost and other financial estimates and our belief that cash flows from operations will be sufficient to service our debt and to fund our operational and capital expenditure needs;
- our ability to maintain existing market participants and data customers, and to attract new ones, and to offer additional products and services, leverage our risk management capabilities and enhance our technology in a timely and cost-effective fashion;
- our ability to attract and retain key talent;
-

our ability to protect our intellectual property rights and to operate our business without violating the intellectual property rights of others;

• potential adverse results of threatened or pending litigation and regulatory actions and proceedings; and

• our ability to realize the expected benefits of our majority investment in Bakkt which could result in additional unanticipated costs and risks.

These risks and other factors include, among others, those set forth in Item 1(A) under the caption “Risk Factors” and elsewhere in this Annual Report, as well as in other filings we make with the Securities and Exchange Commission, or SEC.

Due to the uncertain nature of these factors, management cannot assess the impact of each factor on the business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements.

Any forward-looking statement speaks only as of the date on which such statement is made, and we undertake no obligation to update any of these statements to reflect events or circumstances occurring after the date of this Annual Report. New factors may emerge and it is not possible to predict all factors that may affect our business and prospects.

ITEM 1. BUSINESS

Introduction

We are a leading global operator of regulated exchanges, clearing houses and listings venues, and a provider of data services for commodity, financial, fixed income and equity markets. We operate regulated marketplaces for listing, trading and clearing of a broad array of derivatives contracts and securities across major asset classes, including energy and agricultural commodities, metals, interest rates, equities, exchange traded funds, or ETFs, credit derivatives, bonds and currencies. We also offer comprehensive data services to support the trading, investment, risk management and connectivity needs of customers around the world and across major asset classes.

Our History

In 2000, ICE was founded with the idea of transforming the energy markets by creating a marketplace that removed barriers and drove greater transparency and access. By staying close to our customers, we have expanded into new asset classes and services, while retaining a core mission of reducing friction in markets and bringing efficiency to our customers' workflows.

Today, we are a Fortune 500 company, providing a global community of market participants an array of execution venues, risk management tools, capital-raising capabilities and mission-critical data and analytics. With a leading-edge approach to developing technology, we provide trading infrastructure in major market centers around the world, offering customers the ability to manage risk and make informed decisions in the jurisdictions and asset classes of their choice. By leveraging our core strengths, we will continue to identify new ways to serve our customers and transform global markets.

Our Business Segments

Our business is conducted through two reportable business segments:

- Trading and Clearing; and
- Data and Listings.

The majority of our identifiable assets are located in the United States, or U.S. and the United Kingdom, or U.K. For a summary of our revenues, net assets and net property and equipment by geographic region, see Note 18 to our consolidated financial statements included in this Annual Report.

Trading and Clearing Segment

We provide execution and risk management services to businesses, investors and traders across major asset classes, such as commodities, interest rates, credit, foreign exchange, equities and mortgage-related products. We operate multiple trading venues, including 12 regulated exchanges and six clearing houses, which are strategically positioned in major market centers around the world, including the U.S., U.K., European Union, or EU, Canada and Singapore. The Trading and Clearing segment accounted for 49% of our consolidated revenues, or \$2.4 billion in 2018. Our Trading and Clearing business can experience moderate seasonal fluctuations, although such seasonal impacts have been somewhat negated in periods of high volume trading. Key products offered include:

Energy Futures and Options: We are a leading marketplace for global crude and refined oil. We offer trading and clearing services across a range of global benchmark contracts, including: Brent, West Texas Intermediate, or WTI, Platts Dubai, Gasoil, Heating Oil, and hundreds of additional grades. The Brent complex, which includes the ICE Brent crude futures contract, our largest contract by volume traded, is a group of related benchmarks used to price a range of traded oil products, including approximately two-thirds of the world's internationally traded crude oil. The ICE Low Sulphur Gasoil futures contract is a European diesel oil contract that serves as a middle distillate pricing benchmark for refined oil products, particularly in Europe and Asia. We also operate the world's second largest market for trading in WTI crude oil futures, as measured by the volume of contracts traded. The WTI crude futures contract is the benchmark for pricing U.S. crude oil.

Our global natural gas complex spans important trading hubs from the U.S. and Canada to Europe and Asia, underpinned by a global offering of more than 600 financially and physically-delivered natural gas contracts. We support liquidity and risk management across markets, from key delivery points in the U.S. to the U.K. NBP and European TTF futures contracts. In Asia, our Japan Korea Marker (JKM) Liquefied Natural Gas, or LNG, futures contract has become the leading LNG benchmark.

In our power markets, we offer a global suite of electric power contracts and are the largest venue for electronic power trading in the world. In addition, we operate the world's leading market for emissions trading, an important component of risk management for global corporations and energy intensive industries.

Agricultural & Metals Futures and Options: We offer benchmark futures and options contracts on the most globally relevant commodities including: sugar, coffee, cocoa and cotton, as well as key metal contracts such as

gold, silver and iron ore. Our markets provide global businesses effective price risk management tools to hedge input costs critical to the global flow of goods and services around the world.

Financial Futures and Options: Our global interest rate complex spans geographies, currencies and tenors, providing market participants with effective tools to manage global interest rate risk. We offer the largest marketplace to transact in U.K. and European interest rates, including Short Sterling, Gilts, Sterling Overnight Index Average, or SONIA, and Euribor. In addition, we recently launched one- and three-month contracts on the Secured Overnight Financing Rates, or SOFR, adding to our interest rate complex. Other Financial Futures and Options include a range of contracts on key global equity and FX benchmarks such as the MSCI® World, MSCI® Emerging Markets, MSCI® EAFE, the FTSE® 100 and the U.S. Dollar Index, or USDX®.

Cash Equities and Equity Options: Through the New York Stock Exchange, or the NYSE, we serve a broad range of global capital markets participants, including investors, traders, market makers and global corporations. With a mission to provide the most transparent, efficient and highest quality trading experience to our customers, the NYSE operates five cash equity exchange venues and two options markets, providing customers with unique optionality and choice in how they transact and manage risk.

Fixed Income and Credit: We offer electronic trade execution for credit default swap, or CDS, instruments and are the industry leader in global CDS clearing, as measured by gross notional cleared. Our fixed income execution businesses offer deep liquidity pools across multiple trading protocols, such as click-to-trade, auctions and request for quote, or RFQ, providing our customers choice in how they manage fixed income risk. Through ICE Mortgage Services, we operate the Mortgage Electronic Registration Systems, or MERS, a national electronic database that tracks changes in mortgage servicing and beneficial ownership interests in U.S. residential loans.

OTC and Other Transactions: Our over-the-counter, or OTC, energy markets comprise bilaterally-traded energy contracts. We operate our financially-settled bilateral energy markets through ICE Swap Trade and we offer electronic trading of contracts based on physically-settled natural gas, power and refined oil contracts through ICE U.S. OTC Commodity Markets.

Other Revenue: Other revenues primarily include interest income on certain clearing margin deposits, regulatory penalties and fines, fees for use of our facilities, regulatory fees charged to member organizations of our U.S. securities exchanges, designated market maker service fees, exchange membership fees and agricultural grading and certification fees.

We operate six clearing houses, each of which acts as a central counterparty that, for its clearing members, becomes the buyer to every seller and the seller to every buyer. Through this central counterparty function, our clearing houses provide financial security for each transaction for the duration of the position by limiting counterparty credit risk. Our clearing houses are responsible for providing clearing services to each of our futures exchanges and certain of our clearing houses clear contracts traded outside of our execution venues.

Mechanisms have been created, called guaranty funds, to provide partial protection in the event of a clearing member default. With the exception of ICE NGX Canada Inc., or ICE NGX, each of the ICE Clearing Houses requires that each clearing member make deposits into a guaranty fund maintained by the relevant ICE Clearing House. In addition, we have contributed \$320 million of our own cash to the guaranty funds as set forth below, and such amounts are at risk and could be used in the event of a clearing member default. Our contributions to each clearing house as of December 31, 2018 are listed below and our clearing houses are referred to herein collectively as “the ICE Clearing Houses”:

Clearing House	Products Cleared	Exchange where Executed	Location	ICE's Contribution to the
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				Guaranty Fund
ICE Clear Europe	Energy, agricultural, interest rates and equity index futures and options contracts and OTC European CDS instruments	ICE Futures Europe, ICE Futures U.S. and ICE Endex	U.K.	\$206 million
ICE Clear U.S.	Agricultural, metals, FX and equity index futures and options contracts	ICE Futures U.S.	U.S.	\$61 million

ICE Clear Credit	North American, European, Asian-Pacific and Emerging Market CDS instruments	Creditex and third-party venues	U.S.	\$50 million
ICE Clear Netherlands	Approved to offer clearing for Dutch equity options through ICE Endex	ICE Endex	EU	\$2 million
ICE Clear Singapore	Energy, metals and financial futures products	ICE Futures Singapore	Singapore	\$1 million
ICE NGX	Physical North American natural gas, electricity and oil futures	ICE NGX	Canada	—

On January 31, 2019, we increased our contribution to ICE Clear Europe's guaranty fund by \$27 million due to changes in the size of its futures and options guaranty fund which included an increase to our exchange contribution to reflect an increase in the size of the average guaranty fund contributions.

ICE NGX maintains a guaranty fund utilizing a \$100 million letter of credit with a major Canadian bank and backed by a default insurance policy. In the event of a participant default where a participant's collateral becomes depleted, the remaining shortfall would be covered by a draw down on the letter of credit, following which ICE NGX would pay the first \$15 million in losses per its deductible and recover additional losses under the insurance policy up to \$100 million.

We previously operated ICE Clear Canada for the clearing and settlement of our canola contracts. On July 30, 2018, we transitioned the clearing of those contracts to ICE Clear U.S., after which ICE Clear Canada ceased operations.

Data and Listings Segment

We provide a range of data and listing services for global financial and commodity markets, including pricing and reference data, exchange data, analytics, feeds, index services, desktops and connectivity solutions as well as corporate and ETF listing services on our cash equity exchanges. Our Data and Listings segment generated revenues of \$2.6 billion in 2018 and accounted for 51% of our consolidated revenues. Revenues in our Data and Listings segment are largely subscription-based and recurring in nature and generally not impacted by seasonality.

Pricing and Analytics: We provide global securities evaluations, reference data, market indices, risk analytics, derivative pricing and other information designed to meet our customers' portfolio management, trading, risk management, reporting valuation and regulatory compliance needs.

We provide fixed income valuations, including independent evaluated pricing services, on nearly 2.7 million fixed income securities and other hard-to-value financial instruments each day. These instruments span approximately 145 countries and cover a wide range of financial instruments including sovereign, corporate and municipal bonds, mortgage and asset-backed securities and leveraged loans.

Our reference data complements our evaluated pricing services by offering our clients a broad range of descriptive information, covering nearly 13 million financial instruments across over 210 markets. This data is used by clients to inform risk management, support regulatory and compliance needs, create indices and improve operational efficiency. We also offer a range of multi-asset class analytics including valuation services for OTC derivatives and structured products, best execution services, ICE Liquidity Indicators™ and fixed income and equity portfolio analytics to help analyze risk and return exposures. These offerings, including our pricing and reference data, are delivered over our secure technology platforms and are used by investment professionals to simulate various market environments to help forecast performance, construct portfolios, validate investment strategies, conduct stress testing, generate dynamic risk measures, analyze asset cash flows and support regulatory compliance requirements.

We also design and distribute many of today's leading indices and benchmarks across fixed income, equity, commodity and currency markets. Our ICE Bank of America Merrill Lynch, or ICE BofAML, indices are the second largest fixed income index family in the market, serving as the performance benchmarks for nearly \$1 trillion of fund assets. Our index calculation agent services provide clients with independent and objective operational outsourcing, including design, support, maintenance, calculation and distribution of third-party indices. Our ETF valuations service provides clients with intraday calculations of indicative net asset values, or iNAVs.

ICE Benchmark Administration, or IBA, is the regulated administrator of a range of benchmarks including the London Interbank Offered Rate, or LIBOR, the ICE Swap Rate, the London Bullion Market, or LBMA Gold and Silver Price and the ISDA Standard Initial Margin Model, or SIMM, Crowdsourcing Utility. IBA has implemented processes, governance, systems and technology that enhance the transparency and security of these benchmarks and services, which are relied upon, globally.

Exchange Data and Feeds: We provide real-time, historical, and derived pricing data, order book and transaction information related to our trading venues, which span global commodity and financial markets. We publish a broad range of prices and other transaction data and related content from our electronic futures trading platform, as well as data from a broad array of third-party trading venues and news feeds through our ICE Consolidated Feed offering. In addition, we develop equity market data solutions, known as proprietary data. We package this exchange proprietary market data as real-time products and as historical products, which are used for analysis by market participants and observers. Finally, we receive a share of revenue from the National Market System Plan, or NMS Plan, consolidated data products. Under the NMS Plan, all SEC-registered securities exchanges send their trades and top-of-book quotes in exchange listed securities to a central consolidator, which then distributes the data pursuant to SEC requirements.

Desktops and Connectivity: Our Desktop and Connectivity services provide the connection to our exchanges, clearing houses and data centers. These services also facilitate the global distribution of our ICE Data Services data. We offer connectivity solutions to access markets and data through highly secure, resilient and low latency network options through our ICE Global Network, as well as global colocation services and Direct Market Access to over 150 venues. Our ICE Global Network wireless service offers one of the most extensive ultra-low latency network connectivity solutions among the New York, Chicago, Toronto and Tokyo metro areas. Our Desktop service offers a range of products and services to support commodity and energy traders, risk managers, financial advisors, wealth managers, retail traders, Investor Relations Officers and Chief Financial Officers. These applications deliver real-time financial market information and decision-support tools to help clients analyze financial markets and make investment decisions. Our robust instant messaging, or IM, system protects the privacy of clients' business information while allowing collaboration with other market participants in the industry through a secure, compliant channel.

Listings: Through our listings services, we offer corporate and ETF issuers access to the U.S. capital markets. Our listing venues allow companies to list domestic and international equity securities, corporate structured products, convertible bonds, trackers and debt securities. In 2018, the NYSE was the global leader in capital raised for the eighth consecutive year, with approximately \$125 billion raised in total initial public offering, or IPO, proceeds and follow-on offerings from over 350 transactions, almost 1.5x the capital raised by any other exchange in the world.

Product and Services Development

We leverage our customer relationships, global distribution, technology infrastructure and software development capabilities to diversify our products and services. We are continually developing, evaluating and testing new products for introduction into our markets to better serve our client base. The majority of our product development relates to evaluating new contracts or new markets based on customer demand. New contracts often must be reviewed and

approved by relevant regulators. Outside of third-party licensing costs, we typically do not incur separate, material costs for the development of new products - such costs are embedded in our normal costs of operations.

While we primarily develop our products and services internally, we also periodically evaluate and enter into strategic partnerships and licensing arrangements to develop new products and services. We intend to continue to invest to expand our trading, clearing, data and listings offerings to serve the evolving needs of our global customer base.

Technology

Technology is a key component of our business strategy and competitive position and we regard effective execution of our technology initiatives as crucial to our sustainable business operations, market competitiveness, compliance and risk management and overall success. Our technology solutions support the entire risk management workflow: trading and clearing technology, multi-asset class analytics, risk assessment tools, robust data offerings, instant messaging capabilities and flexible connectivity and delivery solutions. Where feasible, we design and build our own systems and write our own software programs since we believe that having control over our technology allows us to be more responsive to our customers' needs, better support the dynamic nature of our business, provide the highest quality markets and deliver relevant, timely and actionable data to the markets and customers we serve.

ICE Trading Platform and Technology: The ICE trading platform supports trading in our cleared futures and options markets as well as our bilateral OTC markets. We also offer voice brokers a facility for submitting block trades for products that are eligible for clearing. Speed, reliability, resilience, capacity and security are critical performance criteria for electronic trading platforms. Connectivity to our trading platform for our markets is available through our web-based front-end, as well as multiple independent software vendors, or ISVs, and application programming interfaces, or APIs.

Clearing Technology: A broad range of trade management and clearing services are offered through the integrated technology infrastructure that serves our clearing houses. The ICE clearing systems encompass a number of integrated systems, including post-trade position management, risk management, settlement and treasury and reporting functions. A core component of our derivatives clearing houses is the risk management of clearing firm members. Our extensive technology and rules-based risk systems provide analytical tools that allow us to determine margin, evaluate credit risk and monitor trading activities as well as the overall risk of the clearing members.

NYSE Trading Platforms and Related Technology: The NYSE electronic trading platform features an open system architecture that allows users to access our system via one of the many front-end trading applications developed by ISVs. For equity options, we offer a hybrid model of electronic and open outcry trading through NYSE American Options and NYSE Arca Options. We have developed an integrated trading platform and matching engine known as NYSE Pillar and have migrated NYSE Arca Equities, NYSE American, NYSE National, and NYSE Tapes B and C to this platform. We also plan to complete the migration for our remaining U.S. cash equities and equity options markets in 2019, which currently operate on distinct platforms. This integrated platform with single specification will improve performance and reduce the complexity of operating multiple equity and options trading systems.

ICE Data Services Technology: ICE Data Services technology uses integrated platforms to capture, store and process information, perform analytics and maintain connectivity solutions using a single configurable data capture mechanism and a flexible delivery capability. Together, the platforms enable real-time processing and delivery of information, accelerate new product development and improve production reliability. Our data and analytics are delivered via real-time messaging, files, web services and other on-demand facilities and state-of-the-art front-ends. In addition, the technology underpinning our ICE Global Network supports scalable bandwidth and a wide variety of connectivity options including fiber, wireless, colocation and hosting.

- **Cybersecurity:** Cybersecurity is critical to our operations. We employ a layered defense strategy, with leading-edge security technology and processes including robust network segmentation and access control, multi-factor authentication, advanced anti-malware detection/response endpoint software, tightly-controlled Internet access, distributed denial-of-service, or DDoS, mitigation services and significant commercial and bespoke anti-phishing and behavioral detection controls. Where our services are accessible via the Internet, we have implemented additional restrictions to limit access to specific approved networks. We monitor physical threats in addition to cyber threats and continuously review and update physical security and environmental controls to secure our office and data center locations. We also

maintain cybersecurity incident response procedures that allow us to detect, alert, classify, escalate and report a cybersecurity security incident. We operate a strategy that focuses heavily on attack simulation and rapid control improvement. Further, we work closely with our peers, customers, and vendors to solve cybersecurity challenges in our industry.

Business Continuity Planning and Disaster Recovery: We maintain comprehensive business continuity and disaster recovery plans and facilities to provide nearly continuous availability of our markets and other services in the event of a business disruption or disaster. We maintain incident and crisis management plans that address responses to disruptive events at any of our locations worldwide.

Intellectual Property

We rely on a wide range of intellectual property, both owned and licensed, in connection with the operation of our various businesses. We own the rights to a large number of trademarks, service marks, domain names and trade names in the U.S., Europe and in other parts of the world. We have registered many of our trademarks in the U.S. and in certain other countries. We hold the rights to a number of patents and have made a number of patent applications in the U.S. and other countries. We also own the copyright to a variety of material. Those copyrights, some of which are registered, include software code, printed and online publications, websites, advertisements, educational material, graphic presentations and other literature, both textual and electronic. We attempt to protect our intellectual property rights by relying on trademarks, patents, copyrights, database rights, trade secrets, restrictions on disclosure and other methods.

This Annual Report also includes references to third-party trademarks, trade names and service marks. Except as otherwise expressly noted, our use or display of any such trademarks, trade names or service marks is not an endorsement or sponsorship and does not indicate any relationship between us and the parties who own such marks and names.

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Employees

As of December 31, 2018, we had a total of 5,161 employees with 1,587 employees in New York, 938 employees in Atlanta, 736 employees in the U.K. and a total of 1,900 employees across our other offices around the world. Of our total employee base, less than 1% is subject to collective bargaining agreements, and such relations are considered to be good.

Our Competitive Strengths

We believe we compete on the basis of a number of factors, including:

- depth and liquidity of markets;
- price transparency;
- reliability and speed of trade execution and processing;
- technological capabilities and innovation;
- breadth of products and services;
- rate and quality of new product developments;
- quality and stability of services;
- distribution and ease of connectivity;
- mid- and back-office service offerings, including differentiated and value-added services;
- transaction costs; and
- reputation.

We believe that we compete favorably with respect to these factors, and that our deep, liquid markets, breadth of product offerings, new product development, customer relationships and efficient, secure settlement, clearing and support services distinguish us from our competitors. We believe that to maintain our competitive position, we must continue to develop new and innovative products and services, enhance our technology infrastructure, maintain liquidity and offer competitive pricing.

We believe our key strengths include our:

Diverse and Liquid Product Offerings: Many of our futures contracts serve as global benchmarks for managing risk relating to exposure to price movements in the underlying products, including financial, energy and agricultural commodities. For example, we operate the leading market for ICE Brent crude oil futures, as measured by the volume of contracts traded in 2018. The ICE Brent Crude futures contract is the benchmark for pricing light, sweet crude oil produced and consumed outside of the U.S. It is part of the Brent complex, which forms the price reference for approximately two-thirds of the world's internationally-traded physical oil. In addition, we operate a leading market for short-term European interest rates contracts, with our principal contracts based on implied forward rates on European Money Markets Institute Euribor rates and a short-term Sterling contract based on the ICE LIBOR rate, as well as Gilts and the SONIA contract. We also offer markets in other key commodity and financial benchmarks such as: sugar, cocoa, cotton, coffee, MSCI® World, MSCI® Emerging Markets, MSCI® EAFE, the FTSE® 100 and the USDx®. In our cash equities markets, as evidenced by our leading market share, the NYSE's unique market model and technology delivers low levels of volatility and provides participants with deep liquidity.

Risk Management Expertise: We offer a range of central clearing and related risk management services to promote the liquidity and security of our markets in jurisdictions around the world to meet local regulatory and operational needs in key financial market centers. The credit and performance assurance provided by our clearing houses to clearing members is designed to substantially reduce counterparty risk and is a critical component of our exchanges' identities as reliable and secure marketplaces for global transactions. Our clearing houses are designed to protect the financial integrity of our markets by maintaining strong governance and rules, managing collateral, facilitating payments and collections, enhancing capital efficiency and limiting counterparty credit risk.

Unique Derived Data Services: Our global data services business consists of unique information derived from our various execution venues and clearing houses, as well as analytics, valuation services, reference data, desktops, indices and connectivity solutions. Our acquisitions, including of the BofAML Indices, SuperDerivatives, Interactive Data, Standard & Poor's Securities Evaluations, Inc., or SPSE, and Credit Market Analysis have served to expand our data services to better address the rising demand for independent, real-time information, which is being driven by regulation, market fragmentation, technology and data demands, passive investing and indexation. We believe our data services are relevant to our clients' business operations regardless of market volatility and price levels due to the need for continuous information and analysis.

Global Distribution: We operate multiple trading venues, including 12 regulated exchanges, as well as six clearing houses, which are strategically-positioned in major market centers around the world, including the U.S., U.K., EU, Canada and Singapore. Our ICE Global Network, which is our highly secure, resilient and low latency connectivity offering, provides connectivity to over 150 trading venues and data from over 600 third-party sources, including ICE-operated markets and data services.

Technology: Our proprietary systems are built using state-of-the-art technology and support the entire risk management workflow: trading and clearing technology, multi-asset class analytics, risk management tools, a robust data offering, instant messaging capabilities and flexible connectivity and delivery solutions. We employ a significant number of employees in technology-related activities, including product management, system architecture, software development, network engineering, server maintenance and continuity, information security, system and data performance, systems analysis, quality assurance, database administration and customer technical support. Speed, reliability, resilience, capacity and security are critical performance criteria for electronic trading platforms.

Connectivity to our trading platform for our markets is available through our web-based front-end, as well as multiple ISVs and APIs.

Competitors

The markets in which we operate are global and highly competitive. We face competition in all aspects of our business from a number of different enterprises, both domestic and international, including traditional exchanges, electronic trading platforms, data vendors and voice brokers.

Trading and Clearing Segment

In our derivatives markets, we face competition from multiple exchanges in the U.S. and globally. Some of these exchanges are consortiums formed by banks and exchanges.

We face competition from electronic trading systems, third-party clearing houses and technology firms. Additional ventures could form, or have been formed, to provide services that could potentially compete with certain services

that we provide.

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We compete with voice brokers active in the credit derivatives markets, other electronic trading platforms for derivatives, clearing houses and market data vendors. ICE Swap Trade and Creditex compete with other swap execution facilities, or SEFs, and large inter-dealer brokers in the credit derivatives market.

We face significant competition with respect to equities trading, and this competition is expected to remain intense. Our current and prospective competitors include regulated markets, dark pools and other alternative trading systems, or ATSSs, market makers and other execution venues. We also face competition from large brokers and customers that may assume the role of principal and act as counterparty to orders originating from retail customers, or by matching their respective order flows through bilateral trading arrangements, including through internalization of order flow. NYSE Arca and NYSE American Options face considerable competition in the equity options markets; their principal U.S. competitors are the Cboe and Nasdaq.

Our fixed income trading venues, which include ICE Credit Trade, BondPoint, TMC Bonds, LLC, or TMC Bonds, and NYSE Bonds, compete with other electronic trading venues. Our platforms also compete for volume traded bilaterally or trading activity that is not done through an electronic venue.

Data and Listings Segment

ICE Data Services faces intense competition in all aspects of its business. We broadly compete with purchased third-party information and services from large global suppliers of financial market data. Our Exchange Data products compete with similar offerings by other exchange groups, and that competition for order flow among the exchange groups and other alternative trading venues constrains the pricing for our proprietary data products. Our Pricing and Analytics services compete with information obtained from informal industry relationships and sources, such as broker quotes as well as other index and portfolio analytics providers. Our Connectivity business competes with other extranet providers.

Our principal competitor for corporate listings in the U.S. is Nasdaq. For ETF listings, we compete with Nasdaq and Cboe Global Markets. We also face competition for foreign issuer listings from a number of stock exchanges outside the U.S. As other liquidity venues and new entrants seek exchange status, we may face more competition for trading volume and listings.

Our Growth Strategy

We seek to advance our leadership position in our markets by focusing our efforts on the following key strategies for growth:

- expand our data offerings and the markets we serve to address the rising demand for information;
- enhance our extensive trading, clearing and risk management capabilities;
- maintain leadership in our listings businesses;
- further develop our technology infrastructure and increase distribution; and
- strengthen competitive position through select acquisitions and strategic relationships.

The record consolidated revenues and futures and options trading volume we achieved in 2018 reflect our focus on the implementation and execution of our long-term growth strategy.

Expand our Data Offerings and the Markets We Serve to Address the Rising Demand for Information

With the growth of our ICE derivatives markets and NYSE equity markets, we have strengthened and enhanced our data services to meet the demand for more data solutions. Our growth has been driven by many factors, such as increased automation, regulation and demand for independent, secure, real-time information. To build on our exchange data and connectivity businesses, we have acquired multiple assets in the past two years, including Interactive Data, SPSE, which we renamed Securities Evaluations, Credit Market Analysis, TMX Atrium and BofAML's Global Research division's index business.

These assets are now part of ICE Data Services, supporting our growth strategy by expanding the markets we serve and adding new data, connectivity and valuation services to our platform. This growth allows us to serve the full trade life cycle from pre-trade, through-trading to post-trade activities. By bringing together a wide range of data and analytics as well

as delivery mechanisms through our Desktops and Connectivity business, we offer customers a comprehensive and flexible solution to address the need for more transparency, efficiency and information across their respective workflows.

We will continue to look for strategic opportunities to grow our data offerings and will also continue to pursue opportunities in markets we do not currently serve. Our recent acquisitions and new product and service offerings have allowed us to grow using a balanced approach, which is supported by an increased demand for these types of services including: portfolio management and analytics, exchange data, real time and historical trading data, pricing, reference and valuation data.

Enhance our Extensive Trading, Clearing and Risk Management Capabilities

Our derivatives customer base has grown and diversified as a result of several drivers, including the addition of new markets and products, the move toward increased risk management and counterparty credit management, mark-to-market and margining services as well as regulatory requirements. We continue to add new participants to our markets, which bring additional demand for new products and services. Our markets support price transparency and risk management, particularly in times of volatility and for products where there is less liquidity. In addition, the use of hedging, trading and risk management programs by commercial enterprises continues to rise based on the availability of technology to deliver more products, as well as the security and the capital efficiencies offered by clearing. We develop new products, but have also increased our capabilities through licenses and acquisitions of companies and intellectual property. Further, by acquiring, building and maintaining our own geographically diverse clearing operations, we are able to respond to market demand for central clearing and related risk management services across diverse geographic and regulatory jurisdictions. As new markets evolve, we intend to leverage our domain knowledge to meet additional demand for cleared products and related risk management solutions.

As requirements for regulatory compliance and capital efficiencies grow, the use of clearing, data and related post-trade services, particularly from independent data and benchmark providers also continues to grow. We intend to continue to expand our customer base by leveraging our existing relationships and our global sales and marketing team to promote participation in our markets, and by expanding our range of products and services.

Maintain Leadership in our Listings Businesses

There are over 2,200 total companies listed on the NYSE and NYSE American. We will continue to focus on enhancing our product offerings and services to retain and attract companies of all sizes and industries to our listing venues. In 2018, demand for our listing services continued to be strong in terms of new listings and secondary offerings. A total of 503 new issuers listed on NYSE markets in 2018. NYSE was the global leader in capital raised in 2018 with approximately \$125 billion raised in over 350 transactions. The NYSE listed 73 IPOs in 2018, raising total IPO proceeds of approximately \$30 billion, including the two largest U.S. IPOs of 2018. The NYSE has listed all of the last 25 U.S. IPOs greater than \$1 billion in proceeds. Our listed companies benefit from:

- a high-tech/ high-touch platform that combines technology and human judgment;
- the NYSE's proprietary hybrid trading model including access to Designated Market Makers, or DMMs, Supplemental Liquidity Providers, or SLPs, and NYSE Floor Brokers;
- the deepest pools of liquidity; and
- lower volatility and tighter spreads, particularly during times of heightened volatility.

In ETFs, as of December 31, 2018, NYSE Arca's listed ETFs had approximately \$2.7 trillion in assets under management, or AUM, representing nearly 80% of all U.S. listed ETFs. We strive to maintain our leadership position by offering ETF issuers:

- guidance through the complete listings process, including expert consultations around regulatory and legal items;
- over a decade of experience in listing more than 2,900 ETFs across a wide range of asset classes and investment strategies;
- a focus on customer service from experienced ETF professionals;
- the highest liquidity in ETFs of any exchange and some of the most narrow quoted bid / ask spreads; and
- Lead Market Maker, or LMM, and incentive programs.

Further Develop Our Technology Infrastructure and Increase Distribution

We develop and maintain our own infrastructure, electronic trading platforms, clearing systems and data and analytics platforms to ensure scalability and the delivery of technology that meets our expanding customer base's demands for price transparency, reliability, risk management and transaction efficiency. We intend to continue to increase ease of access and connectivity with our existing and prospective market participants. We develop and maintain our trading and clearing systems, as well as our data solutions and post-trade systems. We have developed and have begun rolling out a new integrated trading platform and matching engine known as NYSE Pillar that will serve each of our U.S. cash equities and equity options markets to improve performance and reduce the complexity of operating multiple trading systems. We also own and operate two data centers and offer connectivity solutions to global exchanges and content service providers via dedicated data circuits.

Strengthen Competitive Position Through Select Acquisitions and Strategic Relationships

We were an early consolidator in global markets and we intend to continue to explore and pursue acquisitions and other strategic opportunities to strengthen our competitive position globally, broaden our product offerings and services and support the growth of our company while enhancing stockholder value as measured by return on invested capital, earnings and cash flow growth. We may enter into business combinations, make acquisitions or enter into strategic partnerships, joint ventures or other alliances, any of which may be material. In addition to growing our business, we may enter into these transactions for a variety of additional reasons, including leveraging our existing strengths to enter new markets in our industry or related industries, expanding our products and services, diversifying our business, addressing underserved markets, advancing our technology and anticipating or responding to regulatory change or potential changes in our industry or other industries.

Some of our recent key strategic transactions include:

MERS: On October 3, 2018, we completed the purchase of all remaining interests and accordingly, own 100% of MERS. On that date, we gained control of MERS and began to include MERS's results as part of our consolidated operations. MERS is now part of ICE Mortgage Services.

TMC Bonds: In July 2018, we acquired TMC Bonds. TMC Bonds is an electronic fixed income marketplace, supporting anonymous trading across multiple trading protocols in various asset classes, including municipals, corporates, treasuries, agencies and certificates of deposit.

Chicago Stock Exchange: In July 2018, we acquired CHX Holdings, Inc., the parent company of the Chicago Stock Exchange, or CHX, a full-service stock exchange, including trading, data and corporate listings services. CHX operates as a registered national securities exchange.

BondPoint: In January 2018, we acquired 100% of BondPoint from Virtu Financial, Inc. BondPoint is a leading provider of electronic fixed income trading solutions for the buy-side and sell-side offering access to centralized liquidity and automated trade execution services through its ATS.

Euroclear: In October 2017, we acquired a 4.7% stake in Euroclear. In February 2018, we acquired an additional 5.1% stake in Euroclear. Euroclear is a leading provider of post-trade services, including settlement, central securities depositories and related services for cross-border transactions across asset classes.

Our Customer Base

No single customer accounted for more than 10% of total consolidated revenues during 2018, 2017 or 2016.

Executive Officers of the Registrant

Information relating to our executive officers is included under “Executive Officers” in Part III, Item 10, “Directors, Executive Officers and Corporate Governance” of this Annual Report.

Regulation

Our markets are primarily subject to the jurisdiction of regulatory agencies in the U.S., U.K., EU, Canada and Singapore. Failure to satisfy regulatory requirements can or may give rise to sanctions by the applicable regulator. See the discussion below and Item 1(A) “Risk Factors” in this Annual Report for additional descriptions of regulatory and legislative risks and uncertainties.

Regulation of our Derivatives Business

Our regulated derivatives markets and clearing houses are based primarily in the U.S., U.K., EU, Canada and Singapore.

Our U.S. futures exchange, ICE Futures U.S., is subject to extensive regulation by the Commodity Futures Trading Commission, or CFTC, under the Commodity Exchange Act, or CEA. The CEA generally requires that futures trading in the U.S. be conducted on a commodity exchange registered as a Designated Contract Market, or DCM. As a registered DCM, ICE Futures U.S. is a self-regulatory organization, or SRO, that has implemented rules and procedures to comply with the core principles applicable to it under the CEA.

In the U.K., ICE Futures Europe is a Recognized Investment Exchange, or RIE, in accordance with the Financial Services and Markets Act 2000, or FSMA. Like U.S. regulated derivatives markets, RIEs are SROs with surveillance and compliance responsibilities.

In the EU, ICE Endex is a regulated market in the Netherlands and its derivative markets are licensed under the Dutch Financial Services Act and supervised by the Dutch National Bank, or DNB, and the Netherlands Authority for the Financial Markets, or AFM.

In Singapore, ICE Futures Singapore is an approved exchange and is supervised by the Monetary Authority of Singapore, or MAS.

ICE Clear Credit, ICE Clear U.S. and ICE NGX are regulated by the CFTC as Derivatives Clearing Organizations, or DCOs. DCOs are subject to extensive regulation by the CFTC under the CEA. The Financial Stability Oversight Council, or FSOC, has designated ICE Clear Credit as a systemically important financial market utility under Title VIII of the Dodd-Frank Wall Street Reform and Consumer Protection Act, or the Dodd-Frank Act. As such, ICE Clear Credit has access to the Federal Reserve System and holds deposits of \$19.5 billion of its U.S. dollar cash in its cash accounts at the Federal Reserve as of December 31, 2018.

ICE Clear Europe, which is primarily regulated in the U.K. by the Bank of England, or BOE, as a Recognized Clearing House, or RCH, is also subject to regulation by the CFTC as a DCO. Both ICE Clear Credit and ICE Clear Europe are also regulated by the SEC as clearing agencies because they clear security-based swaps.

In the EU, ICE Clear Netherlands is an authorized central counterparty and is regulated by the DNB and AFM.

In Singapore, ICE Clear Singapore is an approved clearing house supervised by the MAS.

Regulation of our Securities Business

In our cash equities and options markets, NYSE, NYSE Arca, NYSE American, NYSE National and CHX are national securities exchanges and, as such, are SROs and subject to oversight by the SEC. Accordingly, our U.S. securities exchanges are regulated by the SEC and, in turn, are the regulators of their members. As national securities exchanges, NYSE, NYSE Arca, NYSE American, NYSE National and CHX must comply with, and enforce compliance by their members with, the Securities Exchange Act of 1934, or the Exchange Act.

Our U.S.-based execution oriented fixed income markets are operated by our two SEC-registered broker-dealers, Creditex Securities Corporation, which operates two SEC registered alternative trading systems, ICE BondPoint and ICE Credit Trade, and TMC Bonds, which operates the TMC Bonds alternative trading system. Both Creditex Securities Corporation and TMC Bonds are subject to oversight by the SEC and are members of the Financial Industry Regulatory Authority, or FINRA, and are registered with the Municipal Securities Rulemaking Board, self-regulatory organizations that regulate broker-dealers in the U.S.

Our U.K.-based execution-oriented fixed income market is operated by Creditex Brokerage, L.L.P., which is an operator of a multilateral trading facility, or MTF, and ICE Markets Limited, which acts as the matched principal counterparty to transactions arranged on the MTF operated by Creditex Brokerage. Both Creditex Brokerage and ICE Markets Limited are regulated by the U.K.'s Financial Conduct Authority, or FCA.

Regulation of our Data Business

We have U.S. subsidiaries that are registered with the SEC under the Investment Advisers Act of 1940, or the Investment Advisers Act, for their evaluated pricing services. The Investment Advisers Act imposes numerous regulatory obligations on registered investment advisers, including those relating to the management and distribution of products and services, record-keeping, compliance oversight, operational and marketing requirements, disclosure obligations and prohibitions on fraudulent activities. Investment advisers also are subject to certain state securities laws and regulations. ICE Data Services (Australia) Pty. Ltd. provides financial services in Australia and is licensed by the Australian Securities and Investment Commission, or ASIC. ICE Data Desktop Solutions (Europe) Limited provides certain financial services throughout Europe and is regulated by the FCA. ICE Data Indices, LLC applies the IOSCO Principles for Financial Benchmarks to its indices, and as a third country Benchmark Administrator in Europe, it is subject to the requirements of the European Benchmarks Regulation that regulates the provision of benchmarks, contribution of input data to benchmarks, and the use of benchmarks within the Union. See "Regulatory Changes" below for more information.

Regulatory Changes

Domestic and foreign policy makers continue to review their legal frameworks governing financial markets, and periodically change the laws and regulations that apply to our business and to our customers' businesses. Our key areas of focus on these evolving efforts are:

The harmonization of regulations globally. Global regulations are not fully harmonized and several of the regulations under the Markets in Financial Instruments Directive II, or MiFID II, are inconsistent with U.S. rules. In addition, in 2017, the CFTC announced its new agenda calling for regulatory simplification and the reduction of regulatory burdens. The CFTC is looking to restructure its rules by moving back to a more principles-based approach. As a result, there is potential for further divergence between MiFID II and U.S. rules if the U.S. makes changes to financial regulations while the EU finalizes its implementation of MiFID II.

The proposed revisions to the regulatory structure of non-EU clearing houses. In June 2017, the European Commission published a proposal to revise the current regulatory structure for non-EU clearing houses. The nature and extent of the regulation would depend on the "impact" of a non-EU clearing house's business in the EU. Details on the classification of non-EU clearing will be established by the European Commission, or EC, in cooperation with the European Securities and Markets Authority, or ESMA, and the European System of Central Banks. The proposal is in the process of legislative review by the European Parliament and the EU Member States, and is subject to change. The proposal could have an impact on our non-EU clearing houses and lead to increased regulation to the extent they are doing business in Europe.

Requirement that European exchanges and CCPs offer non-discriminatory access. The non-discriminatory access provisions of MiFID II would require our European exchanges and central counterparty, or CCP, clearing houses to offer access to third parties on commercially reasonable terms. In addition, MiFID II could require our European exchanges and CCPs to allow participants to trade and/or clear at other venues, which may encourage competing venues to offer lookalikes of our products. In June 2016, the EU approved a 12-month postponement of implementation and compliance with this provision of MiFID II to January 3, 2018. On January 3, 2018, ICE Futures Europe and ICE Clear Europe received a deferral from the FCA and the BOE, respectively, which delays the non-discriminatory access provision of MiFID II until July 3, 2020. In addition, on February 28, 2018, the AFM granted ICE Endex and ICE Clear Netherlands a deferral which delays the non-discriminatory access provisions for those entities until July 3, 2020.

Basel III capital charges. The implementation of capital charges in Basel III, particularly, the Supplemental Leverage Ratio with respect to certain clearing members of central counterparties. These new standards may impose burdensome capital requirements on our clearing members and customers that may disincentivize clearing. The Federal Reserve Board and Office of the Comptroller of the Currency have proposed rule changes to the leverage ratio requirements, but these regulations still may have an impact on our clearing members.

The review of prudential requirements for European investment firms. In December 2018 the EC published a proposal on the review of the prudential framework for investment firms, which aims to introduce more proportionate and risk-sensitive rules for investment firms. The proposal is currently in the process of legislative review by the European Parliament and the EU Member States, and is subject to change. In its current form, the proposal imposes disproportionate capital requirements on proprietary trading firms which could encourage them to withdraw from the role of providing liquidity to our markets. The proposal also includes changes to the Markets in Financial Instruments Regulation, or MiFIR, third country framework, which could have a negative impact on the ability of third country firms to access our markets in Europe.

Position limits. The adoption and implementation of position limit rules in the U.S. and the EU could have an impact on our commodities business if comparable trading venues in foreign jurisdictions are not subject to equivalent rules. Position limits became effective in the EU beginning January 2018 under MiFID II. The FCA has published certain position limits for commodity contracts. In certain cases, the position limits are lower than on U.S. trading venues and in certain cases position limits are higher than U.S. equivalent contracts. The FCA is reviewing the issued position limits. Conversely, in December 2016, the CFTC re-proposed the position limit rules. There is potential for further divergence between MiFID II and U.S. position limit rules if the U.S. makes changes to the financial regulations while the EU does not review MiFID II.

A proposed European financial transaction tax. Although a number of Member States can envisage such a tax, many details remain to be discussed and agreed, including how to assess the tax at a Member State level. Implementation of a financial transaction tax could result in a reduction in volumes and liquidity which would have a negative impact on our European operations, if adopted.

The EU Benchmark Regulation, or BMR. The regulation was adopted in June 2016 and applies from January 2018. Under the BMR, benchmarks provided by a third country benchmark administrator may be used by EU-supervised entities provided that the EC has adopted an equivalence decision or the administrator has been recognized or endorsed and the benchmarks are listed on the register established by ESMA. The BMR provides for a transition period which applies

from January 1, 2018, when the BMR enters into force, until January 1, 2020. During this period, ICE Data Indices has applied to the U.K.'s FCA for recognition, and benchmarks provided by ICE Data Indices may continue to be used by supervised entities. EU institutions are currently considering whether it would be appropriate to extend the transitional period for critical benchmarks by potentially one or two years. We are monitoring the impact to our business as a result of these discussions.

Brexit timing and implications. In March 2017, the U.K. officially triggered Article 50 and notified the EU of its intention of leaving the EU following the U.K.'s June 2016 referendum vote to leave the EU (commonly known as Brexit). The triggering of Article 50 begins the process of withdrawal from the EU, which will last two years unless extended by the unanimous decision of Member States or withdrawn by the U.K. prior to the end of the two-year withdrawal period. In November 2018, the U.K. and the 27 other countries involved in Brexit negotiations, commonly referred to as the EU27, agreed upon the terms of a withdrawal agreement which sets out the terms of the U.K.'s withdrawal from the EU and includes a transitional period until December 31, 2020, during which EU law will continue to apply in and to the U.K. The withdrawal agreement will need to be ratified by the EU and the U.K. before it can enter into force and ratification is uncertain.

Continued access by EU market participants to U.K. CCPs and exchanges. In anticipation of Brexit, in December 2018, the EC adopted an equivalence decision regarding the U.K.'s legal and supervisory arrangements for CCPs. In addition, ESMA indicated its intention to complete the recognition of U.K. CCPs pursuant to the EC equivalence decision in a timely manner. Together, the equivalence decision of the EC and the final recognition decisions of ESMA will permit EU market participants to continue clearing through U.K. CCPs, such as ICE Clear Europe, for 12 months as of March 30, 2019 in the case of a U.K. exit from the EU without a transition period. Separately, following Brexit, ICE Futures Europe will continue to be able to permit access by persons in the EU to trading on its platform, even in the absence of a transition agreement. However, the lack of an equivalence decision and corresponding transition period may result in increased costs for certain EU market participants which could impact trading on ICE Futures Europe. Additionally, ICE Futures Europe will require local permissions or exemptions in certain EU jurisdictions to permit access to persons from the relevant EU jurisdictions in the case of a U.K. exit without a transition period. The impact to our business and corresponding regulatory changes remain uncertain at this time. We are monitoring the impact to our business as a result of these discussions and are pursuing avenues to facilitate continued access for EU customers to our services in the event the U.K. exits the EU without a transition period.

The SEC Transaction Fee Pilot. In December 2018, the SEC adopted a Transaction Fee Pilot. The adoption establishes a pilot program, for at least one-year and up to two-years, that will limit the fees charged and rebates paid by our five securities exchanges in certain securities to be designated by the SEC. The SEC has not yet announced the date that this Transaction Fee Pilot will commence.

See the discussion below and Item 1(A) “- Risk Factors” in this Annual Report for additional description of regulatory and legislative risks and uncertainties.

Corporate Citizenship

We strive to create long-term value for our stockholders and meet sustainability goals for all of our stakeholders. That includes maintaining high ethical and business standards, giving back in the communities where we live and work and using our unique resources to bring together a network of the world's leading companies to learn from each other and exchange ideas on a broad range of issues, including those related to environmental, social and governance matters. Much of our approach is driven by the core values that make up our culture. During 2018, we surveyed our employees to further assess how we, as a company, are living up to our core values.

For additional information, please refer to the Corporate Citizenship section of our website at www.theice.com/esg.

Available Information

Our principal executive offices are located at 5660 New Northside Drive, 3rd Floor, Atlanta, Georgia 30328. Our main telephone number is 1-770-857-4700, and our website is www.theice.com.

We are required to file reports and other information with the SEC. A copy of this Annual Report on Form 10-K, as well as any future Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and any amendments to such reports are available free of charge, on our website as soon as reasonably practicable after we file such reports with, or furnish such reports to, the SEC. A copy of these filings is also available at the SEC's website (www.sec.gov). The reference to our website address and to the SEC's website address do not constitute incorporation by reference of the

information contained on the website and should not be considered part of this report. From time to time, we may use our website and/or social media, including

Twitter, as distribution channels of material information. The website to access our Twitter account is https://twitter.com/ICE_Markets.

In addition, we have posted on our website the charters for our (i) Audit Committee, (ii) Compensation Committee, (iii) Nominating and Corporate Governance Committee and (iv) Risk Committee, as well as our Global Code of Business Conduct, which includes information regarding our whistleblower hotline information, Board of Directors Governance Principles and Board Communication Policy. We will provide a copy of these documents without charge to stockholders upon request.

ITEM 1(A). RISK FACTORS

The risks and uncertainties described below are those that we currently believe could materially adversely affect us. Other risks and uncertainties that we do not presently consider to be material or of which we are not presently aware may become important factors that affect us in the future. If any of the risks discussed below actually occur, our business, financial condition, operating results or cash flows could be materially adversely affected. Accordingly, you should carefully consider the following risk factors, as well as other information contained in or incorporated by reference in this Annual Report.

Global economic, political and financial market events or conditions may negatively impact our business.

Global economic, political and market conditions may impact our business. Adverse macroeconomic conditions, including recessions, inflation, high unemployment, government shutdowns, currency fluctuations, actual or anticipated large-scale defaults or failures or slowdown of global trade could decrease consumer and corporate confidence and reduce consumer, government and corporate spending. If our customers reduce spending, workforce, trading activity or demand for financial data as a result of challenges in the prevailing economic markets, our revenues could decline.

A significant portion of our revenues are derived from fees for transactions executed and cleared in our markets. We derived 44%, 42% and 43% of our consolidated revenues, less transaction-based expenses, from our net transaction-based revenues in 2018, 2017 and 2016, respectively. In particular, we derive a significant percentage of our net transaction-based revenues from trading in ICE Brent Crude futures and options contracts, North American natural gas futures and options contracts, sugar futures and options contracts, equity transactions and short-term interest rates contracts, including the Euribor and Short Sterling futures and options contracts. The trading volumes in our markets could decline substantially if our market participants reduce their level of trading activity for any reason, including:

- a reduction in the number of market participants that use our platform;
- a reduction in trading demand by customers or a decision to curtail or cease hedging or speculative trading;
- regulatory or legislative changes impacting our customers and financial markets;
- a prolonged decrease in volatility in the financial markets;
- heightened capital requirements or mandated reductions in leverage resulting from new regulation;
- transactions effected on any of our markets or cleared through our clearing houses being reclassified as a result of regulatory or legal requirements;
- defaults by clearing or exchange members or the inability of participants to pay out contractual obligations;
- changes to our contract specifications that are not viewed favorably by our market participants; or
- reduced access to or availability of capital required to fund trading activities.

A reduction in our overall trading volume could render our markets less attractive to market participants as a source of liquidity, which could result in further loss of trading volume and associated transaction-based revenues. A reduction in trading volumes could also result in a corresponding decrease in the demand for our market data, which would further reduce our overall revenue.

Further, NYSE's revenue increases when more companies are seeking access to public markets and stagnation or a decline in the IPO market could have an adverse effect on our revenues. The number of public companies in the U.S. has decreased significantly over the last 20 years.

A prolonged government shutdown could negatively impact our business. Our regulated exchanges and clearinghouses are required to obtain regulatory approvals from the CFTC and/or SEC in the ordinary course of

business and failure or delay to provide these approvals could adversely affect our business and our ability to introduce new products and services.

In addition, during a government shutdown, the SEC may not be able to review the registration statements that are seeking to do an initial public offering, which could have a negative impact on our listings business.

As of December 31, 2018, we own 100% of MERS, which operates a national electronic database that tracks changes in mortgage servicing and beneficial ownership interests in U.S. residential loans. If there is a continued rise in interest rates or introduction of restrictions or limits on mortgage lending that leads to a reduction in mortgage activity in the U.S., our results could be negatively impacted.

The uncertainty surrounding the terms of the U.K.'s exit from the EU, commonly referred to as Brexit, could adversely impact our business, results of operations and financial condition.

On June 23, 2016, the U.K. held a referendum in which a majority of voters approved an exit from the EU, commonly referred to as Brexit. The uncertainty surrounding the terms of Brexit, could negatively impact markets and cause weaker macroeconomic conditions that could continue for the foreseeable future. Since U.K. voters approved Brexit in June 2016, Brexit has created political and economic uncertainty and instability in the global markets (including currency and credit markets), particularly in the U.K. and EU. Political and economic uncertainty has, in the past led to, and the outcome of Brexit could lead to, certain macroeconomic conditions that adversely affect our business.

Adverse macroeconomic consequences such as deterioration in economic conditions, volatility in currency exchange rates, legal uncertainty, potentially divergent national laws and regulations as the U.K. determines which EU laws to replace or replicate and/or prohibitive laws and regulations may adversely affect both demand for our products and services and our ability to deliver our products and services into the EU. The long term effects of Brexit will depend, in part, on any agreements the U.K. makes or does not make to retain access to EU markets either during a transitional period or more permanently.

In November 2018, the EU and the U.K. agreed upon the terms of an agreement which sets out the terms of the U.K.'s withdrawal from the EU and includes a transitional period until December 31, 2020. If the agreement is not ratified by the EU and U.K. before the end of March 2019, then, absent the U.K. withdrawing its notice under Article 50 or members of the EU agreeing to extend the two-year notice period, the U.K. will leave the EU with no agreements in place beyond those temporary arrangements which have or may be put in place by the EU or individual EU Member States, and the U.K. as part of no-deal contingency efforts and those conferred by mutual membership of the World Trade Organization. Given the lack of comparable precedent, it is unclear what financial, trade and legal implications the U.K. leaving the EU with no agreements in place would have and how such withdrawal would affect us. Impacts could include access to our services by persons located in the EU being prohibited or becoming more expensive, which could negatively impact our profitability.

Our businesses and those of many of our clients have been and continue to be subject to increased legislation and regulatory scrutiny, and we face the risk of changes to this regulatory environment and business in the future. We are and will continue to be subject to extensive regulation in many jurisdictions around the world, and in particular in the U.S. and the U.K. where the largest portions of our operations are conducted. We face the risk of significant actions by regulatory and taxing authorities in all jurisdictions in which we conduct our businesses and hold investments that may affect our business, the activity of our market participants, and as a consequence, our results. Among other things, as a result of regulators and tax authorities enforcing existing laws and regulations, we could be censured, fined, prohibited from pursuing certain acquisitions or engaging in some of our business activities, subjected to limitations or conditions on our business activities, including fair, reasonable and nondiscriminatory pricing restrictions, also known as FRAND, or subjected to new or substantially higher taxes or other governmental charges in connection with the conduct of our business or with respect to our employees, including settlement payments, interest payments and penalty payments. In many cases, our activities may be subject to overlapping and divergent regulation in different jurisdictions.

There is also the risk that new laws or regulations or changes in enforcement practices applicable to our businesses or those of our clients could be imposed. This could adversely affect our ability to compete effectively with other institutions that are not affected in the same way or impact our clients' overall trading volume through our exchanges and demand for our market data and other services. The U.S. government, in particular, has indicated a goal of reforming many aspects of existing financial services regulations. Some areas identified as subject to potential change, amendment or repeal include the Dodd-Frank Act and the authorities of the Federal Reserve and FSOC, however, it is

unknown at this time to what extent new legislation will be passed into law or pending or new regulatory proposals will be adopted or modified, or the effect that such passage, adoption or modification will have, positively or negatively, on our industry or on us. There is also increasing public concern regarding data privacy and data protection and many jurisdictions have passed laws in

this area, such as the European Union General Data Protection Regulation, and other jurisdictions are considering imposing additional restrictions. These laws and regulations are increasing in complexity and number, change frequently and increasingly conflict among the various countries in which we operate, which has resulted in greater compliance risk and cost for us.

These developments could impact our profitability in the affected jurisdictions, or even make it uneconomical for us to continue to conduct all or certain of our businesses in such jurisdictions, or could cause us to incur significant costs associated with changing our business practices, restructuring our businesses or moving all or certain of our businesses and our employees to other jurisdictions, including liquidating assets or raising capital in a manner that adversely increases our funding costs or otherwise adversely affects our stockholders and creditors. For example, the adoption and implementation of position limit rules in the U.S. and the EU could have an impact on our commodities business if comparable trading venues in foreign jurisdictions are not subject to equivalent rules. Position limits became effective in the EU beginning January 2018 and in certain cases the position limits are lower than U.S. equivalent contracts and in other cases position limits are higher than U.S. equivalent contracts. These divergent regulations may cause us to move products from one jurisdiction to another as a result of business risks and competitive challenges and could significantly increase the regulatory compliance costs for our customers, which could have a negative impact on our business.

U.S. and EU legal and regulatory developments in response to the global financial crisis, in particular the Dodd-Frank Act, EMIR, MiFID II and the BMR, have significantly altered and propose to further alter the regulatory framework within which we operate and may adversely affect our competitive position and profitability. The enacted and proposed legal and regulatory changes most likely to affect our businesses are: position limit rules in the U.S. and the EU, non-discriminatory access provisions of MiFID II, interoperability and margin rules in EMIR, enhanced regulatory capital liquidity and leverage rules in Basel III and Capital Requirements Directive IV, access rules under the BMR, the non-harmonization of margin requirements, implementation of a financial transaction tax, access to our benchmarks and maintaining our exchanges' abilities to operate as SROs with related immunity for the discharge of their regulatory functions. As the operator of global businesses, the lack of harmonization in international financial reform efforts could impact our business as our clearing houses and exchanges are subject to regulation in multiple jurisdictions.

The Dodd-Frank Act established enhanced regulatory requirements for non-bank financial institutions designated as "systemically important" by the FSOC. ICE Clear Credit has been designated as a systemically important financial market utility by the FSOC and, as a result, is subject to additional oversight by the CFTC.

In 2016, the SEC approved a plan to establish a market-wide consolidated audit trail, or CAT, to improve regulators' ability to monitor trading activity. In 2018, the first phase of implementation went live and required participants to begin reporting to the CAT, with a phased implementation of the provisions of the CAT through 2019. Due to delays in implementation and failure to implement required functionality, there is an increased risk to execution venues (which includes us) of regulatory action by the SEC. In addition to increased risk in connection with our regulatory obligations, implementation of the CAT could result in significant additional expenditures, which may not be reimbursed. Funding of the implementation and operation of the CAT is ultimately expected to be provided by both the execution venues and industry members. To date, however, funding has been provided solely by the execution venues in exchange for promissory notes expected to be repaid if industry member fees are approved by the SEC and are collected to fund the CAT. Until the SEC approves a funding model that shares the cost of the CAT between the execution venues and industry members, the execution venues may continue to incur additional significant costs, and there is a risk such funding model may result in the uncollectibility of the issued promissory notes. As of December 31, 2018, we have accrued approximately \$16 million as a receivable in connection with our portion of expenses related to the CAT implementation.

We are subject to tax laws, regulations, rulings and audits in multiple U.S. and non-U.S. jurisdictions that could have a significant impact on our business and lead to additional expenditures for us or our customers. For example, there have been discussions in various jurisdictions around financial transaction or digital service tax frameworks.

Implementation of any new or amended taxes or regulations could impact our global operations or trading volumes, if adopted.

Other enacted and proposed legal and regulatory changes not discussed above may also adversely affect our competitive position and profitability. See Item 1 “- Business - Regulation” above for additional information regarding the current and proposed laws and regulations that impact our business, including risks to our business associated with these laws and regulations.

Our business is subject to the impact of financial markets volatility, including the prices and interest rates underlying our derivative products, due to conditions that are beyond our control.

Trading volume in our markets and products is largely driven by the degree of volatility - the magnitude and frequency of fluctuations - in prices and levels of the underlying commodities, securities, indices, financial benchmarks or other instruments. Volatility increases the need to hedge price risk and creates opportunities for investment and speculative or arbitrage trading. Were there to be a sustained period of stability in the prices or levels of the underlying commodities, securities, indices, benchmarks or other instruments of our products, we could experience lower trading volumes, slower growth or declines in revenues.

Factors that are particularly likely to affect price and interest rate levels and volatility, and thus trading volumes, include:

- global and domestic economic, political and market conditions;
- concerns over inflation, deflation, legislative and regulatory changes, government fiscal and monetary policy - including actions by the Federal Reserve and other foreign monetary units governing bodies, and investor and consumer confidence levels;
- weather conditions including hurricanes and other significant events, natural and unnatural disasters like large oil spills that impact the production of commodities and, in the case of energy commodities, production, refining and distribution facilities for oil and natural gas;
- war, acts of terrorism and any unforeseen market closures or disruptions in trading;
- political developments impacting international trade, including continued uncertainty surrounding Brexit, trade disputes and increased tariffs, particularly between the U.S. and China;
- real and perceived changes in the supply and demand of commodities underlying our products, particularly energy and agricultural products, including changes as a result of technological improvements or the development of alternative energy sources; and
- credit quality of market participants, the availability of capital and the levels of assets under management.

Any one or more of these factors, which are beyond our control, may reduce trading activity, which could make our markets less attractive as a source of liquidity, and in turn could further discourage existing and potential market participants and thus accelerate a decline in the level of trading activity and potentially related services such as data or clearing. Further, lower market volatility could also result in more exchanges competing for trading volumes to maintain their growth. If any of these unfavorable conditions were to persist over a lengthy period of time and trading volumes were to decline substantially and for a long enough period, the critical mass of transaction volume necessary to support viable markets could be jeopardized. Because our cost structure is largely fixed, if demand for our current products and services decline for any reason, we may not be able to adjust our cost structure to counteract the associated decline in revenues, which would cause our net income to decline.

Systems failures in the derivatives and securities trading industry could negatively impact us.

High-profile system failures in the derivatives and securities trading industry could negatively impact our business and result in a loss of confidence in our technology and our markets, regulatory investigations, fines and penalties and business activity slowdown or interruptions. Further, regulators have imposed requirements for trading platforms that have been costly for us to implement and could result in a decrease in demand for some of our services. In particular, the SEC's Regulation Systems Compliance and Integrity, or Regulation SCI, and the CFTC's system safeguards regulations subject portions of our securities and derivatives trading platforms and other technological systems related to our clearing houses, trade repositories and the U.S. SEF to more extensive regulation and oversight. Ensuring our compliance with the requirements of Regulation SCI and the CFTC's system safeguards regulations requires significant implementation costs as well as increased ongoing administrative expenses and burdens. In addition, any expansion of the ICE systems that are determined to be in scope for Regulation SCI could result in significant additional expenditures.

Our systems and those of our third-party service providers may be vulnerable to cyber-attacks, hacking and other cyber security risks, especially in light of our role in the global financial marketplace, which could result in wrongful manipulation, disclosure or use of our information or that of a third party, or which could make our participants unable or reluctant to use our electronic platform.

The secure transmission of confidential information and the ability to reliably transact on our electronic platforms and provide financial data services are critical elements of our operations. Some of our products and services involve the

storage and transmission of proprietary information and sensitive or confidential client data, including client portfolio information. If anyone gains improper access to our electronic platforms, networks or databases, they may be able to steal, publish, delete or modify our confidential information or that of a third party. Breaches of our cybersecurity measures or the accidental loss, inadvertent disclosure or unapproved dissemination of proprietary information or sensitive or confidential data about us, our clients or our customers, including the potential loss or disclosure of such information or data could expose us, our customers or the individuals affected to a risk of loss or misuse of this information, result in litigation, regulatory action and potential liability for us, damage our brand and reputation or otherwise harm our business. Our networks and those of our participants, third-party service providers and external market infrastructures may be vulnerable to compromise, unauthorized access, security technology failure, computer viruses, social engineering, denial of service attacks, terrorism, “ransom” attacks, firewall or encryption failures or other security problems resulting in loss of data integrity, information disclosure, unavailability or fraud. The financial services industry has been targeted for purposes of political protest, activism and financial gain and our role in the global marketplace places us at greater risk than other public companies for cyber-attack and other information security threats. Further, former employees of certain companies in the financial sector have misappropriated trade secrets or stolen source code in the past, and we could be a target for such illegal acts in the future. There also may be system or network disruptions if new or upgraded systems are defective or not tested and installed properly.

Although we have not been the victim of cyber-attacks or other cyber incidents that have had a material impact on our operations or financial condition, we have from time to time experienced cybersecurity events including distributed denial of service attacks, malware infections, phishing, web attacks and other information technology incidents that are typical for a financial services company of our size. For example, we detected and responded to the exploitation of a legacy web server in September 2018. While our controls prevented the attack from establishing persistent network access or expanding laterally into additional systems, we did invoke our incident response procedures to eliminate the vector of attack and forensically confirm the limited extent of any data that was exposed. Further, we exercised our third-party incident response arrangements to independently validate our findings. While we operate an Information Security program that is designed to prevent, detect, track and mitigate cyber incidents and that has detected and mitigated such incidents in the past, we cannot assure you that these measures will be sufficient to protect our business against attacks, losses or reduced trading volume in our markets as a result of any security breach, hacking or cyber-attack. Any such attacks could result in reputational damage, cause system failures or delays that could cause us to lose customers, cause us to experience lower current and future trading volumes or incur significant liabilities or have a negative impact on our competitive position. In addition, given the increasing complexity and sophistication of the techniques used to obtain unauthorized access or disable or degrade systems, a cyber-attack could occur and persist for an extended period of time before being detected, and we may not anticipate these acts or respond adequately or timely. The extent of a particular cyber incident and the steps that we may need to take to investigate the incident may not be immediately clear, and it may take a significant amount of time before such investigation can be completed and full and reliable information about the incident is known. While such an investigation is ongoing, we may not necessarily know the extent of the harm or how best to remediate it, which may compound damages before the incident is discovered or remediated. Additionally, as threats continue to evolve and increase, and as the regulatory environment related to information security, data collection and use, and privacy becomes increasingly rigorous, we may be required to devote significant additional resources to modify and enhance our security controls and to identify and remediate any security vulnerabilities, which could adversely impact our net income.

Owning clearing houses exposes us to risks, including risks related to defaults by clearing members, risks related to investing margin and guaranty funds and the cost of operating the clearing houses.

There are risks inherent in operating clearing houses, including exposure to the market and counterparty risk of clearing members, market liquidity risks, defaults by clearing members and risks associated with custody and investing margin or guaranty fund assets provided by clearing members to our clearing houses, which could subject our business to substantial losses. For example, clearing members have transferred an aggregate amount of cash in ICE Clear Europe relating to margin and guaranty funds of \$30.9 billion as of December 31, 2018 and a total of \$64.0 billion for all of our clearing houses as of December 31, 2018. ICE Clear Europe and ICE Clear U.S. use third-party investment managers for investment of cash assets and may add or change the investment managers from time to time. To the extent available, ICE Clear Credit holds the U.S. dollar cash and U.S. Treasuries that clearing members transfer

to satisfy their original margin and guaranty fund requirements at its account at the Federal Reserve. With respect to other clearing member cash posted, ICE Clear Credit currently self-manages and uses external investment managers to invest such cash margin and guaranty fund deposits.

We have an obligation to return margin payments and guaranty fund contributions to clearing members to the extent that the relevant member's risk based on its open contracts to the clearing house is reduced. If a number of clearing members

substantially reduce their open interest or default, the concentration of risks within our clearing houses will be spread among a smaller pool of clearing members, which would make it more difficult to absorb and manage risk in the event of a further clearing member's default.

Although our clearing houses have policies and procedures to help ensure that clearing members can satisfy their obligations, such policies and procedures may not succeed in preventing losses after a member's or counterparty's default. In addition, although we believe that we have carefully analyzed the process for setting margins and our financial safeguards, it is a complex process and there is no guarantee that our procedures will adequately protect us from the risks of clearing these products. We cannot assure you that these measures and safeguards will be sufficient to protect us from a default or that we will not be materially and adversely affected in the event of a significant default. We have contributed our own capital to the front of the guaranty fund of the clearing houses that could be used in the event of a default. Furthermore, the default of any one of the clearing members could subject our business to substantial losses and cause our customers to lose confidence in the guaranty of our clearing houses.

A decline in the value of securities held as margin or guaranty fund contributions by our clearing houses or default by a sovereign government issuer could pose additional risks of default by clearing members.

Our clearing houses hold a substantial amount of assets as margin or guaranty fund contributions, which comprise U.S. and other sovereign treasury securities. As of December 31, 2018, our clearing houses held \$54.3 billion of non-cash margin or guaranty fund contributions in U.S. and other sovereign treasury securities: \$41.5 billion of this amount was comprised of U.S. Treasury securities, \$1.8 billion of French Treasury securities, \$1.7 billion of German Treasury securities, \$1.2 billion of Italian Treasury securities, \$1.4 billion of U.K. Treasury securities, and \$6.6 billion of other European, Japanese and Tri-Party Treasury securities. Sovereign treasury securities have historically been viewed as one of the safest and most liquid securities for clearing houses to hold due to the perceived credit worthiness of major governments. However, the markets for such securities have experienced significant volatility during the past decade and as of late due to on-going financial challenges in some of the major European countries and the U.S. government's negotiations regarding taxation, spending cuts and raising the debt ceiling, which is the maximum amount of debt that the U.S. government can legally incur. In addition, if there is a collapse of the euro, our clearing houses would face significant expenses in changing their systems and such an event could cause a credit contraction and major swings in asset prices and exchange rates. To mitigate this risk, our clearing houses currently apply a discount or "haircut" to the market values for all sovereign securities held as margin or guaranty fund contributions; however, market conditions could change more quickly than we adjust the amount of the haircuts and the haircuts could be insufficient in the event of a sudden market event.

Notwithstanding the current intraday margin and valuation checks conducted by our clearing houses and our policies and practices to limit exposures, our clearing houses will need to continue to monitor the volatility and value of sovereign treasury securities. If the value of these securities declines significantly, our clearing houses will need to collect additional margin or guaranty fund contributions from their clearing members, which may be difficult for the members to supply in a time of financial stress affected by an actual or threatened default by a sovereign government. In addition, our clearing houses may be required to impose a more significant discount on the value of sovereign treasury securities posted as margin or guaranty fund contributions if there is uncertainty regarding the future value of these securities, which would trigger the need for additional margin or guaranty fund contributions by the clearing members. If a clearing member cannot supply the additional margin or guaranty fund contributions, which may include cash in a currency acceptable to the clearing house, the clearing house would deem the clearing member in default. If any clearing members default as a result of the reduction in the value of margin or guaranty fund contributions, our clearing houses and trading business could suffer substantial losses as a result of the loss of any capital that has been contributed to the clearing house's guaranty funds and a loss of confidence by clearing members in the clearing house, resulting in a reduction in volumes of future cleared transactions.

Further, our clearing houses invest large sums through reverse repo transactions in connection with their clearing operations and hold sovereign securities as security in connection with such investment transactions. In the event that a reverse repo counterparty defaults, the value of the sovereign securities we hold as collateral might not be sufficient to cover our losses. Our clearing houses may also make demand deposits with banks that are secured only to the value of Federal Deposit Insurance Corporation, or FDIC, insurance or other national deposit guarantee schemes, which is small, and therefore, the deposits may in significant part be lost in the event one of these banks becomes insolvent.

Owning and operating equity and options exchanges exposes us to additional risks, including the regulatory responsibilities to which these businesses are subject.

Owning and operating equity and options exchanges for which the revenues are primarily derived from trading activity, market data and listing fees, exposes us to additional risks. Adverse economic conditions and regulatory changes similar to those discussed above, including changes to the number of exchanges that are permitted to conduct closing auctions, could result in decreased trading volume on our exchanges, discourage market participants from listing on our equity and options exchanges or cause them to forgo new offerings. Any of these could reduce our revenues, including market data revenue.

Our exchanges are operated as for-profit businesses but have certain regulatory responsibilities that must be fulfilled. Specifically, our exchanges are responsible for enforcing listed company compliance with applicable listing standards, overseeing regulatory policy determinations, rule interpretation and regulation-related rule development and conducting trading reviews. Any failure by one of our exchanges with self-regulatory responsibility to comply with, and enforce compliance by their members, with exchange rules and securities laws could significantly harm our reputation, prompt regulatory scrutiny, result in the payment of fines or penalties and adversely affect our business, financial condition and operating results.

We must allocate significant resources to fulfill our self-regulatory responsibilities. The for-profit exchanges' goal of maximizing stockholder value might contradict the exchanges' self-regulatory responsibilities. The listing of our common stock on the NYSE could potentially create a conflict between the exchange's regulatory responsibilities to vigorously oversee the listing and trading of securities, on the one hand, and our commercial and economic interest, on the other hand. While we have structural protections to minimize these potential conflicts, we cannot be sure that such measures will be successful.

Further, changes in the rules and operations of our securities markets must be reviewed and approved by the SEC. Approval of such changes by the SEC cannot be guaranteed and the SEC could delay either the approval process or the initiation of the public comment process. Any denial or delay in approving changes could have an adverse effect on our business, financial condition and operating results.

Our compliance and risk management methods, as well as our fulfillment of our regulatory obligations, might not be effective, which could lead to enforcement actions by our regulators.

Our ability to comply with complex and changing laws and rules is largely dependent on our establishment and maintenance of compliance, audit and reporting systems that can quickly adapt and respond, as well as our ability to attract and retain qualified compliance and other risk management personnel. Regulators periodically review our exchanges' ability to self-regulate and our compliance with a variety of laws and regulations including self-regulatory standards. In particular, certain of our businesses associated with the NYSE Group are subject to public notice procedures prior to making changes in operations, policies and procedures. If we fail to comply with any of these obligations, regulators could take a variety of actions that could impair our ability to conduct our business.

Our acquisitions expose us to new regulatory requirements. For example, as a result of our acquisitions of Interactive Data and Securities Evaluations, we operate two SEC-registered investment advisers. Investment advisers are subject to significant regulatory obligations under the Investment Advisers Act. Prior to these acquisitions, none of our businesses were registered under the Investment Advisers Act. Compliance with the Investment Advisers Act and other regulatory requirements gives rise to costs and expenses that may be material. In addition, our acquisition of the BondPoint ATS in January 2018 exposes us to increased exposure to regulatory scrutiny from the SEC and FINRA and our acquisition of TMC Bonds in July 2018 exposes us to regulatory scrutiny from FINRA.

Our regulators have broad enforcement powers to censure, fine, issue cease-and-desist orders or prohibit us from engaging in some of our businesses. We will continue to face the risk of significant intervention by regulatory authorities, including extensive examination and surveillance activity. Any such matters may result in material adverse consequences to our financial condition, operating results or ability to conduct our business, including adverse judgments, settlements, fines, penalties, injunctions, restrictions on our business activities or other relief. Our involvement in any such matters, even if the matters are ultimately determined in our favor, could also cause significant harm to our reputation and divert management attention from the operation of our business. Further, any settlement, consent order or adverse judgment in connection with any formal or informal proceeding or investigation by government or regulatory agencies may result in additional litigation, investigations or proceedings as other litigants and government or regulatory agencies begin independent reviews of the same businesses or activities. Finally, the implementation of new legislation or regulations, or changes in or unfavorable interpretations of existing

regulations by courts or regulatory bodies, could require us to incur significant compliance costs and impede our ability to remain competitive and grow our business.

We face intense competition.

We face intense competition in all aspects of our business and our competitors, both domestic and international, are numerous. We currently compete with:

regulated, diversified futures exchanges globally that offer trading in a variety of asset classes similar to those offered by us, such as energy, agriculture, equity and equity index, credit, and interest rate derivatives markets and foreign exchange;

exchanges offering listing and trading of cash equities, ETFs, closed-end funds and other structured products similar to those offered by us;

market data and information vendors;

interdealer brokers active in the global credit derivatives markets;

existing and newly formed electronic trading platforms, service providers and other exchanges;

other clearing houses; and

consortiums of our customers, members or market participants that may pool their trading activity to establish new exchanges, trading platforms or clearing facilities.

Trends towards the globalization of capital markets have resulted in greater mobility of capital, greater international participation in markets and increased competition among markets in different geographical areas. Competition in the market for derivatives trading and clearing and in the market for cash equity listings, trading and execution have intensified as a result of consolidation, as the markets become more global in connection with the increase in electronic trading platforms and the desire by existing exchanges to diversify their product offerings. Finally, many of our competitors are our largest customers or are owned by our customers and may prioritize their internalization and ATS businesses ahead of their exchange-based market making business.

We also face pricing competition in many areas of our business. A decline in our fees due to competitive pressure, the inability to successfully launch new products or the loss of customers due to competition could lower our revenues, which would adversely affect our profitability. For example, ICE Data Services' business has benefited from a high renewal rate in its subscription-based business, but we cannot assure you that this will continue. We also cannot assure you that we will be able to continue to expand our product offerings, modify the pricing for our products or retain our current customers or attract new customers. If we are not able to compete successfully, our business could be materially impacted, including our ability to remain as an operating entity.

We may have difficulty executing our growth strategy and maintaining our growth effectively.

We have achieved a tremendous amount of growth since becoming a public company in 2005. Our growth is highly dependent on customer demand for our core products and services, favorable economic conditions and our ability to invest in our personnel, facilities, infrastructure and financial and management systems and controls. Adverse economic conditions could reduce customer demand for our products and services, which may place a significant strain on our management and resources and could force us to defer existing or future planned opportunities. We regularly evaluate our existing operations, service capacity and business efficiencies and, as a result of such evaluations, we may undertake strategic initiatives outside of and within our businesses. In addition, we may not be successful in executing on our strategies to support our growth organically or through acquisitions, other investments or strategic alliances.

Failure to evolve our benchmarks and indices in a manner that maintains the relevance of the benchmark or index, damage to our reputation resulting from our administration of LIBOR or other benchmarks and indices and the potential replacement of LIBOR could adversely affect our business.

We operate multiple global benchmark products and indices across our asset classes and a significant portion of our volume is based on these products. To ensure continued trading in our benchmark products and indices, we must be able to demonstrate that our products are not readily subject to manipulation and we must continue to evolve our products to maintain their relevance. Our subsidiary, IBA, is the administrator for various benchmarks, including LIBOR. IBA's administration of LIBOR is the result of the LIBOR scandal, which was a series of fraudulent actions taken by banks that were submitting false LIBOR rates to profit from trades, or to give the impression that the banks were more creditworthy than they were. Any failures, negative publicity or lawsuits resulting from our administration of LIBOR or other benchmarks could result in a loss of confidence in the administration of these benchmarks and could harm our business and our reputation.

In January 2019, we were named as a defendant in two virtually identical proposed class action lawsuits regarding the administration of LIBOR that allege that we and 18 multinational banks engaged in a conspiracy to set the LIBOR benchmark at artificially low levels. Also, in July 2017, the FCA announced the desire to phase out the use of LIBOR by the end of 2021. There is currently no definitive information regarding the future utilization of LIBOR or of any particular replacement rate. The Federal Reserve, in conjunction with the Alternative Reference Rates Committee, a steering committee comprised of large U.S. financial institutions, announced replacement of U.S. dollar LIBOR with a new index calculated by short-term repurchase agreements, backed by U.S. Treasury securities called the SOFR. The first publication of SOFR was released in April 2018. Whether or not SOFR attains market traction as a LIBOR replacement tool remains in question and the future of LIBOR at this time is uncertain. As a result, it is not possible to predict the effect of any changes, establishment of alternative references rates or other reforms to LIBOR that may be enacted in the U.K. or elsewhere. The elimination of LIBOR or any other changes or reforms to the determination or supervision of LIBOR could have an adverse impact on our business, financial condition and operating results.

We may not be successful in offering new products or technologies or in identifying opportunities.

We intend to launch new products and services and continue to explore and pursue other opportunities to strengthen our business and grow our company. We may spend substantial time and money developing new product offerings or improving current product offerings. If these offerings are not successful, we may miss a potential market opportunity and not be able to recover the costs of such initiatives. Obtaining any required regulatory approval associated with these offerings may also result in delays or restrictions on our ability to benefit fully from these offerings. Further, we may seek to enter into or increase our presence in markets that already possess established competitors who may enjoy the protection of high barriers to entry. Introducing or maintaining our offerings in certain countries may also be subject to a number of other risks, including currency exchange rate risk, difficulties enforcing agreements or collecting receivables, longer payment cycles, compliance with the laws or regulations of these countries, and political and regulatory uncertainties.

In addition, in light of consolidation in the exchange, data services and clearing sectors and competition for opportunities, we may be unable to identify strategic opportunities or we may be unable to negotiate or finance any future acquisition successfully. Our competitors could merge, making it more difficult for us to find appropriate entities to acquire or merge with and making it more difficult to compete in our industry due to the increased resources of our merged competitors. Also, offering new products and pursuing acquisitions requires substantial time and attention of our management team, which could prevent them from successfully overseeing other initiatives that are necessary for our success.

We have made substantial progress toward developing and deploying new technology platforms to improve our equity exchange business and data services business. We may experience disruptions or encounter unexpected challenges in deploying these new systems. Further, the costs to complete the remaining work may exceed our current expectations. Any significant cost increases or disruptions to product quality, sales effectiveness or client service or to our other business operations could have an adverse effect on our business, financial condition and operating results.

If we are unable to keep up with rapid changes in technology and client preferences, we may not be able to compete effectively.

To remain competitive, we must continue to enhance and improve the responsiveness, functionality, accessibility and reliability of our electronic platforms and our proprietary and acquired technology. The financial services industry is characterized by rapid technological change, change in use patterns, change in client preferences, frequent product and service introductions and the emergence of new industry standards and practices. These changes could render our existing proprietary technology uncompetitive or obsolete. We are in the process of implementing a new trading technology system at NYSE and if there are trading disruptions or if the new system has inadequate performance, we could suffer material losses, incur reputational damage or be subject to heightened regulatory scrutiny.

Further, we use some open-source software in our technology, most often as small components within a larger product or service, to augment algorithms, functionalities or libraries we create, and we may use more open-source software in the future. Open-source code is also contained in some third-party software we rely on. We could be subject to suits by parties claiming breach of the terms of the license for such open-source software. The terms of many open-source licenses are ambiguous and have not been interpreted by U.S. or other courts, and these licenses could be construed in a manner that imposes unanticipated conditions or restrictions on our ability to commercialize our products and

services.

We cannot assure you that we will successfully implement new technologies or adapt our proprietary technology to our clients' requirements or emerging industry standards in a timely and cost-effective manner. Any failure to remain abreast

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of industry standards in technology and to be responsive to client preferences could cause our market share to decline and negatively impact our results.

Our business may be harmed by computer and communication systems failures and delays.

Our business depends on the integrity, reliability and security of our infrastructure which is highly dependent on our computer and communication systems. We support and maintain many of the systems that comprise our electronic platforms and our failure to monitor or maintain these systems, or to find replacements for defective components within a system in a timely and cost-effective manner when necessary, could have a material adverse effect on our ability to conduct our business. Our customers rely on us for the delivery of time-sensitive, up-to-date and high-quality financial market data, analytics and related solutions. Our timely, reliable delivery of high-quality products and services is subject to an array of technical production processes that enable our delivery platforms to leverage an extensive range of content databases. Our redundant systems or disaster recovery plans may prove to be inadequate in the event of a systems failure or cybersecurity breach. Our systems, or those of our third-party providers, may fail or be shut down or, due to capacity constraints, may operate slowly, causing one or more of the following:

- unanticipated disruption in service to our participants;
- slower response time and delays in our participants' trade execution and processing;
- failed settlement by participants to whom we provide trade confirmation or clearing services;
- incomplete or inaccurate accounting, recording or processing of trades;
- failure to complete the clearing house margin settlement process resulting in significant financial risk;
- distribution of inaccurate or untimely market data to participants who rely on this data in their trading activity; and
- financial loss to us or those who depend on our systems and data.

We could experience system failures due to power or telecommunications failures, human error on our part or on the part of our vendors or participants, natural disasters, fire, sabotage, hardware or software malfunctions or defects, computer viruses, cyber-attacks, intentional acts of vandalism or terrorism and similar events. If any one or more of these situations were to arise, they could result in damage to our business reputation and participant dissatisfaction with our electronic platform, which could prompt participants to trade elsewhere or expose us to litigation or regulatory sanctions. As a consequence, our business, financial condition and operating results could suffer materially. Our regulated business operations generally require that our trade execution and communications systems be able to handle anticipated present and future peak trading volume. Heavy use of computer systems during peak trading times or at times of unusual market volatility could cause those systems to operate slowly or even to fail for periods of time. However, we cannot assure you that our estimates of future trading volume will be accurate or that our systems will always be able to accommodate actual trading volume without failure or degradation of performance.

Although many of our systems are designed to accommodate additional volume and products and services without redesign or replacement, we will need to continue to make significant investments in additional hardware and software and telecommunications infrastructure to accommodate the increases in volume of order and trading transaction traffic and to provide processing and clearing services to third parties. If we cannot increase the capacity and capabilities of our systems to accommodate an increasing volume of transactions and to execute our business strategy, our ability to maintain or expand our businesses could be adversely affected.

We currently have a substantial amount of outstanding indebtedness which could adversely affect our financial condition and operations and restrict our ability to engage in additional transactions or satisfy our debt service obligations.

As of December 31, 2018, we had \$7.4 billion of outstanding debt. This level of indebtedness could have important consequences to our business, including making it more difficult to satisfy our debt service obligations, increasing our vulnerability to general adverse economic and industry conditions, limiting our flexibility in planning for, or reacting to, changes in our business and the industry in which we operate and restricting us from pursuing certain business opportunities. As we use our available resources to reduce and refinance our consolidated debt, our flexibility in planning for, or reacting to, changes in our business and the industry in which we operate and our ability to pursue future business opportunities may be further restrained. In addition, the terms of our debt facilities contain affirmative and negative covenants, including a leverage ratio test and certain limitations on the incurrence of additional debt or

the creation of

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liens and other matters. Further, a portion of our outstanding debt has been in commercial paper, which is subject to interest rate changes. Rising interest rates will result in an increase in our interest expense.

Our long-term and short-term debt is currently rated by Moody's Investor Services and Standard & Poor's. These ratings agencies regularly evaluate us and our credit ratings based on a number of quantitative and qualitative factors, including our financial strength and conditions affecting the financial services industry generally. Our credit ratings remain subject to change at any time, and it is possible that a ratings agency may take action to downgrade our credit ratings in the future. In particular, our inability to sustain reduced debt on a consolidated basis may result in a downgrade of our credit ratings. A significant downgrade of our credit ratings could impact customers' willingness to use our clearing houses, make parties less willing to do business with us, and could negatively impact our ability to access the capital markets and increase the cost of our commercial paper and any future debt funding we may obtain. We may fail to complete or realize the anticipated cost savings, growth opportunities and synergies and other benefits anticipated from our recent acquisitions and future acquisitions, which could adversely affect the value of our common stock.

We have completed many acquisitions and plan to continue to pursue acquisitions and joint ventures. The success of our acquisitions will depend, in part, on our ability to integrate these businesses into our existing operations and realize anticipated cost savings, revenue synergies and growth opportunities. We generally set aggressive timelines for realizing savings, which assumes we successfully undertake a variety of actions (including, but not limited to, integrating technology, eliminating redundancies and effecting organizational restructurings) that are themselves subject to a variety of risks and may be subject to regulatory approvals that we do not control. The process of integrating acquired companies is time consuming and could disrupt each company's ongoing businesses, produce unforeseen regulatory and operating difficulties (including inconsistencies in standards, controls, procedures and policies that adversely affect relationships with market participants, regulators and others), require substantial resources and expenditures and divert the attention of management from the ongoing operation of the business. There is a risk, however, that we may not integrate these acquired companies in a manner that permits our expected cost savings and revenue synergies to be fully realized in the time periods expected, or at all. In addition, a variety of factors, including but not limited to regulatory conditions, governmental competition approvals, currency fluctuations and difficulty integrating technology platforms, may adversely affect our ability to complete our acquisitions or realize our anticipated cost savings and synergies.

We may also not realize anticipated growth opportunities and other benefits from strategic investments or strategic joint ventures or alliances that we have entered into or may enter into for a number of reasons, including regulatory or government approvals or changes, global market changes, contractual obligations, competing products and, in some instances, our lack of or limited control over the management of the business. Further, strategic initiatives that have historically been successful may not continue to be successful due to competitive threats, changing market conditions or the inability for the parties to extend the relationship into the future.

As a result of any future acquisition, we may issue additional shares of our common stock that dilute our stockholders' ownership interest, expend cash, incur debt, assume actual and contingent liabilities, inherit existing or pending litigation or create additional expenses related to amortizing intangible assets. Further, we cannot assure you that any such financing or equity investments will be available with terms that will be favorable to us, or available at all. Fluctuations in foreign currency exchange rates may adversely affect our financial results.

Since we conduct operations in several different countries, including the U.S., U.K., EU and Canada, substantial portions of our revenues, expenses, assets and liabilities are denominated in U.S. dollars, pounds sterling, euros and Canadian dollars. Because our consolidated financial statements are presented in U.S. dollars, we must translate non-U.S. dollar denominated revenues, income and expenses, as well as assets and liabilities, into U.S. dollars at exchange rates in effect during or at the end of each reporting period. Therefore, increases or decreases in the value of the U.S. dollar against the other currencies may affect our net operating revenues, operating income and the value of balance sheet items denominated in foreign currencies.

External events such as Brexit and the negotiations regarding the terms thereof, the passage of U.S. taxation reform legislation and recent actions of the U.S. administration under President Donald Trump each have caused, and may continue to cause, significant volatility in currency exchange rates, especially among the U.S. dollar, the British pound sterling and the euro. If global economic and market conditions, or economic conditions in the U.K., EU, the U.S. or

other

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key markets remain uncertain or deteriorate further, the value of the pound sterling and euro and the global credit markets may further weaken. General financial instability in countries in the EU could have a contagion effect on the region and contribute to the general instability and uncertainty in the EU. Events that adversely affect our U.K. and EU clients and suppliers could in turn have a materially adverse effect on our international business results and our operating results.

For additional information on our foreign currency exchange rate risk, refer to “- Foreign Currency Exchange Rate Risk” in Item 7A “- Quantitative and Qualitative Disclosures About Market Risk, which is included in this Annual Report.”

We may be required to recognize impairments of our goodwill, other intangible assets or investments.

The determination of the value of goodwill and other intangible assets requires the use of estimates and assumptions that affect our consolidated financial statements. As of December 31, 2018, we had goodwill of \$13.1 billion and net other intangible assets of \$10.5 billion relating to our acquisitions and our purchase of trademarks and Internet domain names from various third parties.

Our equity investments, including our investments in Euroclear and Coinbase Global, Inc., among others, are now subject to valuation under ASU 2016-01. In accordance with ASU 2016-01, we will only adjust the fair value of these investments if and when there is an observable price change in an orderly transaction of a similar or identical investment or indication of impairment, and any change in the fair value will be recognized in net income.

We cannot assure you that we will not experience future events that may result in asset impairments. An impairment of the value of our existing goodwill, other intangible assets and other investments and assets could have a significant negative impact on our future operating results.

For additional information on our goodwill, other intangible assets and investments, refer to Notes 3, 4 and 8 to our consolidated financial statements and “- Critical Accounting Policies - Goodwill and Other Identifiable Intangible Assets” in Item 7 “- Management’s Discussion and Analysis of Financial Condition and Results of Operations,” which are included in this Annual Report.

We may face liability for content contained in our data products and services.

We may be subject to claims for breach of contract, defamation, libel, copyright or trademark infringement, fraud or negligence or based on other theories of liability, in each case relating to the data, articles, commentary, ratings, information or other content we distribute in our financial data services. If such data or other content or information that we distribute has errors, is delayed or has design defects, we could be subject to liability or our reputation could suffer. We could also be subject to claims based upon the content that is accessible from our corporate website or those websites that we own and operate through links to other websites. Use of our products and services as part of the investment process creates the risk that clients, or the parties whose assets are managed by our clients, may pursue claims against us for significant amounts. Any such claim, even if the outcome were ultimately favorable to us, could involve a significant commitment of our management, personnel, financial and other resources. Such claims and lawsuits could have a material adverse effect on our business, financial condition and operating results and a negative impact on our reputation.

In addition, we license and redistribute data and content from various third parties and the terms of these licenses change frequently. Our third-party data and content suppliers may audit our use of and our clients’ use of and payment for data and content from time to time in the ordinary course of business, including audits currently underway. Such third-party data and content suppliers may assert that we or our clients owe additional amounts under the terms of the applicable license agreements, that we inappropriately distributed the third-party data or that we or our clients used the data or content in a manner that exceeded the scope of the applicable license agreement or without a license agreement. We have and expect to continue to spend and allocate resources to develop and acquire the use of technology and other intellectual property rights to manage these risks and track third-party data usage, but we cannot be assured that we will not incur liability. We may incur costs to investigate any allegations and may be required to pay damages to or make unexpected settlement payments to these data and content suppliers and these costs and payments could be material.

A failure to protect our intellectual property rights, or allegations that we have infringed the intellectual property rights of others, could adversely affect our business.

Our business is dependent on proprietary technology and other intellectual property that we own or license from third parties, including trademarks, service marks, trade names, trade secrets, copyrights and patents. We cannot assure you

that the steps that we have taken or will take in the future will prevent misappropriation of our proprietary technology or intellectual property. Additionally, we may be unable to detect the misappropriation or unauthorized use of our proprietary technology and intellectual property. Our failure to adequately protect our proprietary technology and intellectual property could harm our reputation and affect our ability to compete effectively. Further, we may need to resort to litigation to enforce our intellectual property rights, which may require significant financial and managerial resources. As a result, we may choose not to enforce our infringed intellectual property rights, depending on our strategic evaluation and judgment regarding the best use of our resources, the relative strength of our intellectual property portfolio and the recourse available to us.

In addition, our competitors, as well as other companies and individuals, may have obtained, and may be expected to obtain in the future, patent and intellectual property rights related to the types of products and services we offer or plan to offer. We cannot assure you that we are or will be aware of all patents and intellectual property rights that may pose a risk of infringement by our products and services. As a result, we may face allegations that we have infringed the intellectual property rights of third parties which may be costly for us to defend against. If one or more of our products or services is found to infringe patents and intellectual property rights held by others, we may be subject to lawsuits or required to stop developing or marketing the products or services, obtain licenses to develop and market the products or services from the holders of the patents and intellectual property or redesign the products or services in such a way as to avoid infringing the patents. We also could be required to pay damages if we were found to infringe patents held by others, which could materially adversely affect our business, financial condition and operating results. We cannot assess the extent to which we may be required in the future to obtain licenses with respect to patents held by others, whether such licenses would be available or, if available, whether we would be able to obtain such licenses on commercially reasonable terms. If we were unable to obtain such licenses, we may not be able to redesign our products or services at a reasonable cost to avoid infringement, which could materially adversely affect our business, financial condition and operating results.

Regulatory changes or court rulings may have an adverse impact on our ability to derive revenue from market data and connectivity fees.

Regulatory developments or court rulings in the U.S. could reduce the amount of revenue that we obtain from market data and connectivity fees. With respect to our U.S. equities and equity options exchanges, our ability to assess fees for market data products and certain connectivity fees are subject to review by the SEC. There continues to be opposing industry viewpoints and litigation as to the extent that our U.S. equities and equity options exchanges should be able to charge for market data and market access, and the manner in which we set such exchange fees could be reassessed. In October 2018, the SEC unanimously issued an opinion setting aside certain market data fees imposed by NYSE Arca, Inc. and Nasdaq Stock Market LLC which were challenged by the Securities Industry and Financial Markets Association, or SIFMA, finding that the exchanges had not met their statutory obligation to demonstrate that the fees were consistent with the Exchange Act (i.e., that these fees are fair and reasonable and not unreasonably discriminatory). Simultaneously the SEC remanded over 400 market data fee and other filings back to the exchanges and the national market system plans for consideration under the standards set out in the SIFMA order and an earlier order issued by the SEC relating to a separate litigation matter.

If new constraints are placed on our ability to charge for market data, it could have a negative impact on our revenues. We cannot predict whether, or in what form, any regulatory or other changes will take effect or their impact on our business. A determination by the SEC or a court, for example, that the SEC must link market data fees to marginal costs, take a more active role in the market data rate-setting process, or reduce the current levels of market data fees, could have an adverse effect on our market data revenues.

Separately, our European exchanges are currently authorized to sell trade information on a non-discriminatory basis at a reasonable cost. This regulatory position could be modified or interpreted by the European Commission or future European court decisions in a manner that could have an adverse effect on our European market data revenues.

We rely on third-party providers and other suppliers for a number of services that are important to our business. An interruption or cessation of an important service, data or content supplied by any third party, or the loss of an exclusive license, could have a material adverse effect on our business.

We depend on a number of suppliers, such as online service providers, hosting service and software providers, data processors, software and hardware vendors, banks, local and regional utility providers, and telecommunications

companies for elements of our trading, clearing, data services and other systems. We rely on access to certain data used in our business through licenses with third parties, and we rely on a large international telecommunications company for

the provision of hosting services. We also depend on third-party suppliers for data and content, including data received from certain competitors, clients, various government and public record services and financial institutions, used in our products and services. Some of this data is exclusive to particular suppliers and may not be obtained from other suppliers. In addition, our data suppliers could enter into exclusive contracts with our competitors without our knowledge. The general trend toward industry consolidation may increase the risk that these services may not be available to us in the future. If these companies were to discontinue providing services to us for any reason or fail to provide the type of service agreed to, we would likely experience significant disruption to our business and may be subject to litigation by our clients or increased regulatory scrutiny or regulatory fines. Our third-party data suppliers perform audits on us from time to time in the ordinary course of business to determine if data we license for redistribution has been properly accounted for in accordance with the terms of the applicable license agreement. As a result of these audits, we may incur additional expenses.

Many of our clients also rely on third parties to provide them with systems necessary to access our trading platform. If these companies were to discontinue providing services to our clients for any reason, we may experience a loss of revenue associated with our clients' inability to transact with our businesses. We hold exclusive licenses to list various index futures and contracts. In the future, litigation or regulatory action may limit the right of owners to grant exclusive licenses for index futures and contracts trading to a single exchange, and our competitors may succeed in providing economically similar products in a manner or jurisdiction not otherwise covered by our exclusive license. MiFID II introduced a harmonized approach to the licensing of services relating to commodity derivatives across Europe and the legislation requires open access to any benchmarks (a benchmark is an index or other measure used to determine the value of a financial instrument, for example, LIBOR or the S&P 500) used in Europe. If unlicensed trading of any index product where we hold an exclusive license were permitted, we could lose trading volume for these products which would adversely affect our revenues associated with the license and the related index products. We are subject to significant litigation and liability risks.

Many aspects of our business, and the businesses of our participants, involve substantial risks of liability. These risks include, among others, potential liability from disputes over terms of a trade and the claim that a system failure or delay caused monetary loss to a participant or that an unauthorized trade occurred. For example, dissatisfied market participants that have traded on our electronic platform or those on whose behalf such participants have traded, may make claims regarding the quality of trade execution, or allege improperly confirmed or settled trades, abusive trading practices, security and confidentiality breaches, mismanagement or even fraud against us or our participants. In addition, because of the ease and speed with which sizable trades can be executed on our electronic platform, participants can lose substantial amounts by inadvertently entering trade orders or by entering them inaccurately. A large number of significant error trades could result in participant dissatisfaction and a decline in participant willingness to trade in our electronic markets.

In addition, we are subject to on-going legal disputes that could result in the payment of fines, penalties or damages and could expose us to additional liability in the future. For example, on December 19, 2017, the U.S. Court of Appeals for the Second Circuit, or the Second Circuit, issued its decision in *City of Providence v. BATS Global Markets et al.* Two of our subsidiaries, New York Stock Exchange LLC and NYSE Arca, Inc., are defendants in this case. In vacating the district court's dismissal of this lawsuit and remanding for further proceedings, the Second Circuit concluded in part that the defendant securities exchanges are not immune from the claims in this case because absolute immunity is available to an SRO, like the New York Stock Exchange LLC and NYSE Arca, Inc., only when they carry out regulatory functions. Although our exchanges will continue to have other defenses available to them in securities litigation cases (including in this matter), limitations on the doctrine of absolute immunity could result in an increased exposure to litigation, and to increased liability and/or other legal expenses. Additionally, in January 2019, two virtually identical proposed class action lawsuits were filed in the U.S. District Court for the Southern District of New York, asserting that various ICE entities, including ICE Benchmark Administration, engaged in an alleged conspiracy with the LIBOR panel banks to set the LIBOR benchmark at artificially low levels, for the alleged purpose and effect of depressing payments by those banks to persons who engaged in interest rate transactions with the banks from February 2014 to the present. While ICE intends to vigorously defend these matters, their outcome cannot be determined and adverse rulings could impact our financial condition and continued administration of the LIBOR benchmark.

Further, we could incur significant expenses defending claims, even those without merit, which could adversely affect our business, financial condition and operating results. An adverse resolution of any lawsuit or claim against us, including those we are involved with due to acquisition activity, may require us to pay substantial damages or impose restrictions on how we conduct business, either of which could adversely affect our business, financial condition and operating results. In addition, we may have to establish accruals for those matters in circumstances when a loss contingency is considered

probable and the related amount is reasonably estimable. Any such accruals may be adjusted as circumstances change. See Note 15 to our consolidated financial statements and related notes, which are included elsewhere in this Annual Report, for a summary of our legal proceedings and claims.

We may be at greater risk from terrorism than other companies.

Given our prominence in the global securities industry and the location of many of our properties and personnel in U.S. and European financial centers, including lower Manhattan, we may be more likely than other companies to be a direct target of, or an indirect casualty of, attacks by terrorists or terrorist organizations, or other extremist organizations that employ threatening or harassing means to achieve their social or political objectives.

It is impossible to predict the likelihood or impact of any terrorist attack on the securities industry generally or on our business. In the event of an attack or a threat of an attack, our security measures and contingency plans may be inadequate to prevent significant disruptions in our business, technology or access to the infrastructure necessary to maintain our business. Damage to our facilities due to terrorist attacks may be significantly in excess of insurance coverage, and we may not be able to insure against some damage at a reasonable price or at all. The threat of terrorist attacks may also negatively affect our ability to attract and retain employees. In addition, terrorist attacks may cause instability or decreased trading in the securities markets, including trading on exchanges. Any of these events could adversely affect our business, financial condition and operating results.

Damage to our reputation could damage our business.

Our business is highly competitive and our customers typically have options on where to conduct their business. Our management team and business operations benefit from being highly regarded in our industry. Maintaining our reputation is critical to attracting and retaining customers and investors and for maintaining our relationships with our regulators. Negative publicity regarding our company or actual, alleged or perceived issues regarding our products or services, operations, risk management, compliance with regulations or management team could give rise to reputational risk which could significantly harm our existing business and business prospects.

Owning and operating voice broker and electronic fixed income brokerage businesses exposes us to additional risk, and these businesses are largely dependent on general market conditions.

Our voice broker business provides brokerage services to clients in the form of agency transactions in commodity products. In agency transactions, customers pay transaction fees for trade execution services in which we connect buyers and sellers who settle their transactions directly. In connection with our fixed income business, our broker-dealers operate in both an agency and in a matched principal capacity (also known as “risk-less principal”). When trading as matched principal, we agree to buy instruments from one customer and sell them to another customer. The amount of the fee generally depends on the spread between the buy and sell price of the security that is brokered on our platforms. With respect to matched principal transactions, a counterparty to a matched principal transaction may fail to fulfill its obligations, or we may face liability for an unmatched trade. We also face the risk of not being able to collect transaction or subscription- based fees for brokerage and related services that we provide to our customers.

Our success largely depends on key personnel, including our senior management. Because competition for our key employees is intense, we may not be able to attract, retain and develop the highly skilled employees we need to support our business. The loss of senior management or other key personnel could harm our business.

Our future performance depends, in large part, on the continued services of our senior management and other key personnel, including our ability to attract, retain and motivate key personnel. Competition for key personnel in the various localities and business segments in which we operate is intense. Our ability to attract and retain key personnel, in particular senior management, will be dependent on a number of factors, including prevailing market conditions and compensation packages offered by companies competing for the same talent. There is no guarantee that we will have the continued service of key employees who we rely upon to execute our business strategy and identify and pursue strategic opportunities and initiatives. The loss of the services of any of our senior management or other key personnel, or our inability to attract highly qualified senior management and other key personnel, could harm our business. In particular, we may have to incur costs to replace senior officers or other key employees who leave, and our ability to execute our business strategy could be impaired if we are unable to replace such persons in a timely manner.

We are a holding company and depend on our subsidiaries for dividends, distributions and other payments. We are a legal entity separate and distinct from our operating subsidiaries. Our principal source of cash flow, including cash flow to pay dividends to our stockholders, principal and interest on our outstanding debt or repurchase shares of our common stock, is dividends from our subsidiaries. There are statutory and regulatory limitations on the payment of dividends by certain of our subsidiaries to us. If our subsidiaries are unable to make dividend payments to us and sufficient cash or liquidity is not otherwise available, we may not be able to make dividend payments to our stockholders, principal and interest payments on our outstanding debt or repurchase shares of our common stock, which could have a material adverse effect on our business, financial condition and operating results. Provisions of our organizational documents and Delaware law may delay or deter a change of control of ICE. Our organizational documents contain provisions that may have the effect of discouraging, delaying or preventing a change of control of, or unsolicited acquisition proposals for, ICE. These provisions make a change of control less likely, which may be contrary to the desires of certain of our stockholders. Many of these provisions are required by relevant regulators in connection with our ownership and operation of U.S. and European equity exchanges. For example, our organizational documents include provisions that generally restrict any person (either alone or together with its related persons) from (i) voting or causing the voting of shares of stock representing more than 10% of our outstanding voting capital stock (including as a result of any agreement by any other persons not to vote shares of stock) or (ii) beneficially owning shares of stock representing more than 20% of the outstanding shares of any class or series of our capital stock. Further, our organizational documents generally limit the ability of stockholders to call special stockholders' meetings or act by written consent, and generally authorize our Board of Directors, without stockholder approval, to issue and fix the rights and preferences of one or more series of preferred stock. In addition, provisions of Delaware law may have a similar effect, such as provisions limiting the ability of certain interested stockholders, as defined under Delaware law, from causing the merger or acquisition of a corporation against the wishes of the Board of Directors.

RISKS TO OUR BUSINESS RELATED TO OUR INVESTMENT IN AND OPERATION OF BAKKT

We may not realize the expected benefits of our majority investment in Bakkt and the investment may introduce additional risks to our business due to its newly developed and evolving business model.

On August 3, 2018, we formed a new company, Bakkt, LLC, along with a group of organizations. We have a majority ownership interest in Bakkt. Bakkt intends to create an integrated platform that enables consumers and institutions to transact in digital assets and plans to include regulated trading, clearing and custodial solutions for digital assets. Due to our majority ownership interest in Bakkt, we have increased financial and reputational risks if there is a failure to launch or if the launch of this new business is unsuccessful. Also, there can be no assurance that we will receive the necessary regulatory approvals and support from customers to launch Bakkt as planned or that Bakkt will operate as anticipated or that we will realize the expected return on our investment. We regularly evaluate our existing operations, service capacity and business efficiencies and, as a result of such evaluations, we may undertake strategic initiatives outside of and within our businesses. As a result, it may take longer than expected for us to realize the expected returns from this investment or such returns may ultimately be less than anticipated. Furthermore, our investment in Bakkt entails numerous risks, including risks relating to Bakkt's ability to:

- manage the complexity of its business model to stay current with the industry;
- successfully enter categories and markets in which it may have limited or no prior experience;
- apply distributed ledger technology to a global ecosystem for digital assets;
- successfully develop and integrate Bakkt products, systems or personnel into its business operations; and
- establish the trading volume in Bakkt's Bitcoin futures contract, or any subsequent products released by Bakkt.

As digital assets and blockchain technologies become more widely available, Bakkt expects the services and products associated with them to continue to develop and evolve. As a result, from time to time, Bakkt may add, modify or discontinue certain aspects of its business model relating to the product mix and service offerings. Future additions and modifications to Bakkt's business will increase the complexity of its business and place significant strain on our and Bakkt's management, personnel, operations, systems, technical performance, financial resources and internal financial control and reporting functions. We cannot offer any assurance that these or any other additions or modifications will be successful or will not result in harm to Bakkt's or our business.

Distributed ledger technology is relatively new and we believe that the application of distributed ledger technology to a global ecosystem for digital assets is novel to the proposed Bakkt systems and, accordingly, we have limited experience applying distributed ledger technology to a global ecosystem for digital assets. The creation and operation of an exchange for the transfer of digital assets utilizing a distributed ledger to enable consumers and institutions to confirm that the blockchain underlying these digital assets has not been altered is subject to potential technical, legal and regulatory constraints. Any problems that Bakkt encounters with the operation of the Bakkt systems, including technical, legal and regulatory problems, could have a material adverse effect on its business and plan of operations. Hiring qualified and experienced personnel in this specialized technology space is difficult due to the high level of competition and scarcity of experience. Bakkt may have difficulty finding, hiring and integrating qualified employees. This could put a strain on existing ICE employees and delay the work that these employees are performing for ICE and ICE's subsidiaries. In addition, any potential issues or major decisions involving Bakkt may divert the attention of management and resources from matters that are core or critical to ICE's business.

We anticipate that, at the time of its launch, Bakkt will be dependent solely on trading volume from one product offering, Bakkt's Bitcoin futures contract, for its clearing and transaction fee revenues and profits. Failure to establish the trading volume in Bakkt's Bitcoin futures contract, or any subsequent products released by Bakkt, would negatively impact Bakkt's business, financial condition and operating results and, consequently, our majority ownership interest in Bakkt.

Digital currency custodial solutions and related technology, including Bakkt's systems and custodial arrangements, are subject to risks related to a loss of funds due to theft of cryptocurrencies, employee or vendor sabotage, security and cybersecurity risks, system failures and other operational issues and a lack of sufficient insurance, which could cause damage to our reputation and brand and Bakkt's reputation and brand.

Bakkt's systems and custodial solutions involve the processing, storage and transmission of cryptocurrencies and data. While Bakkt will contractually limit the amount of exposure it will have in the event that the cryptocurrencies are stolen or misappropriated, we cannot guarantee that these limits will protect us from additional liability and other damage. The theft or misappropriation of cryptocurrencies held in custody by Bakkt would likely result in financial loss, reputational damage, potential lack of trust from our customers in other business lines, negative press coverage and diversion of management's time and focus. The secure storage and transmission of cryptocurrencies and data over networks will be a critical element of Bakkt's operations. Despite the defensive measures Bakkt may take, these threats may come from external factors such as governments, organized crime, hackers and other third parties such as outsourced or infrastructure-support providers and application developers, or may originate internally from an employee or service provider to whom Bakkt has granted access to its systems.

Cryptocurrency transactions are irrevocable and stolen or incorrectly transferred cryptocurrencies may be irretrievable. Once a transaction has been verified and recorded in a block that is added to the blockchain, an incorrect transfer of a cryptocurrency generally will not be reversible and Bakkt may not be capable of seeking compensation for any such transfer or theft. It is possible that, through computer or human error, or through theft or criminal action, the cryptocurrency could be transferred in incorrect amounts or to unauthorized third parties, or to uncontrolled accounts. Such events would have a material adverse effect on the ability of Bakkt to continue as a going concern, which would have a material adverse effect on our majority ownership interest in Bakkt.

Although the cryptocurrencies held by Bakkt are insured, Bakkt may lose cryptocurrencies valued in excess of the insurance policy without any recourse. Unlike bank accounts or accounts at some other financial institutions, in the event of loss or loss of utility value, there is no public insurer, such as the Securities Investor Protection Corporation or the FDIC, to offer recourse to Bakkt or to any investor and the misappropriated cryptocurrencies cannot easily be traced to the bad actor.

Further, when cryptocurrency custodial solutions or transfer venues (whether involving Bakkt systems or others) experience system failures or other operational issues, such events could result in a reduction in cryptocurrency prices or confidence and impact the success of Bakkt and have a material adverse effect on the ability of Bakkt to continue as a going concern.

Regulatory changes or actions may alter the nature of our majority ownership interest in Bakkt or restrict the use of cryptocurrencies in a manner that adversely affects Bakkt's business, prospects or operations and, consequently, our majority ownership interest in Bakkt.

As cryptocurrencies have grown in both popularity and market size, governments around the world have reacted differently to cryptocurrencies, with certain governments deeming them illegal and others allowing their use and trade. Ongoing and future regulatory actions may impact the ability of Bakkt to continue to operate and such actions could affect the ability

of Bakkt to continue as a going concern, which would have a material adverse effect on the business, prospects or operations of Bakkt and, consequently, our majority ownership interest in Bakkt.

The CFTC designated bitcoin as a commodity, and as such, exchange-traded derivatives involving bitcoin are subject to the CFTC's jurisdiction and enforcement powers. Although the CFTC has suggested it is not particularly focused on pursuing such enforcement at this time, and in fact there may be some limits on its ability to do so without a specific connection to commodities derivatives markets, in the event that the CFTC does pursue such enforcement and ultimately shuts down an exchange on which Bakkt's Bitcoin futures contract is traded, it may have a significant adverse impact on Bakkt's business and plan of operations and, consequently, our majority ownership interest in Bakkt.

Governments may in the future curtail or outlaw the acquisition, use or redemption of cryptocurrencies. Ownership of, holding or trading in cryptocurrencies may then be considered illegal and subject to sanction. Governments may also take regulatory action that may increase the cost and/or subject cryptocurrency companies to additional regulation.

ITEM 1 (B). UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

The net book value of our property was \$1.2 billion as of December 31, 2018. Our intellectual property is described under the heading in Item 1 “- Business -Technology” and “-Business-Intellectual Property.” In addition to our intellectual property, our other primary assets include buildings, computer equipment, corporate aircraft, software, and internally developed software. We own an array of computers and related equipment.

Our headquarters and principal executive offices are located in Atlanta, Georgia and New York, New York. We currently occupy 273,000 square feet of office space in Atlanta in a building that we own that serves as our Atlanta headquarters. Our New York headquarters are located at 11 Wall Street, where we occupy 370,000 square feet of office space in a building we own. In total, we maintain approximately 2.7 million square feet in offices primarily throughout the U.S., U.K., EU, Asia, Israel and Canada. Generally, our properties are not earmarked for use by a particular business segment. Our principal offices consist of the properties described below.

Location Leased Lease Expiration Approximate Size

5660

New

Northside
Owned
Drive

N/A

273,000 sq. ft.

Atlanta,
Georgia

11

Wall
Street

New
Owned
York,

N/A

370,000 sq. ft.

New
York

Basildon,
Owned
U.K.

N/A

539,000 sq. ft.

Mahwah,
Leased
New

2028

396,000 sq. ft.

Jersey
60

Codman

Hill
Leased
Road

2019

100,000 sq. ft.

Boxborough,
Massachusetts

In addition to the above, we currently lease an aggregate of 520,000 square feet of administrative, sales and disaster preparedness facilities in various cities around the world. We believe that our facilities are adequate for our current operations and that we will be able to obtain additional space as and when it is needed.

ITEM 3. LEGAL PROCEEDINGS

We are subject to legal proceedings, claims and investigations that arise in the ordinary course of our business. We establish accruals for those matters in circumstances when a loss contingency is considered probable and the related amount is reasonably estimable. Any such accruals may be adjusted as circumstances change. Assessments of losses are inherently subjective and involve unpredictable factors. We do not believe that the resolution of these legal matters, including the matters described in this Annual Report, will have a material adverse effect on our consolidated financial condition, results of operations, or liquidity. It is possible, however, that future results of operations for any particular quarterly or annual period could be materially and adversely affected by any developments relating to the legal proceedings, claims and investigations. See Note 15 to the consolidated financial statements in Part II, Item 8 of this Annual Report for a summary of our legal proceedings and claims.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Approximate Number of Holders of Common Stock

As of February 4, 2019, there were approximately 512 holders of record of our common stock. Our common stock trades on the New York Stock Exchange under the ticker symbol "ICE."

Dividends

Our Board of Directors has adopted a quarterly dividend declaration policy providing that the declaration of any dividends will be determined quarterly by the Board or audit committee of the Board of Directors taking into account such factors as our evolving business model, prevailing business conditions and our financial results and capital requirements, without a predetermined annual net income payout ratio. The declaration of dividends is subject to the discretion of our Board of Directors, and may be affected by various factors, including our future earnings, financial condition, capital requirements, share repurchase activity, levels of indebtedness, credit ratings and other considerations our Board of Directors deem relevant.

Equity Compensation Plan Information

The following provides information about our common stock that has been or may be issued under our equity compensation plans as of December 31, 2018:

- Intercontinental Exchange, Inc. 2018 Employee Stock Purchase Plan
- Intercontinental Exchange, Inc. 2017 Omnibus Employee Incentive Plan
- Intercontinental Exchange, Inc. 2013 Omnibus Employee Incentive Plan
- Intercontinental Exchange, Inc. 2013 Omnibus Non-Employee Director Incentive Plan
- Intercontinental Exchange, Inc. 2009 Omnibus Incentive Plan
- Intercontinental Exchange, Inc. 2003 Restricted Stock Deferral Plan for Outside Directors
- Intercontinental Exchange, Inc. 2000 Stock Option Plan
- NYSE Omnibus Incentive Plan As Amended and Restated

The 2000 Stock Option Plan was retired in May 2009, upon adoption of the 2009 Omnibus Incentive Plan, which was retired in May 2013 upon adoption of the 2013 Omnibus Employee Incentive Plan. The 2013 Omnibus Employee Incentive Plan was retired in May 2017 upon adoption of the 2017 Omnibus Employee Incentive Plan. No future grants will be made from the retired plans. No future grants will be made to legacy NYSE employees under the NYSE Omnibus Incentive Plan. All future grants to employees will be made under the Intercontinental Exchange, Inc. 2017 Omnibus Employee Incentive Plan

and to directors under the Intercontinental Exchange, Inc. 2013 Omnibus Non-Employee Director Incentive Plan. All purchases made pursuant to the Employee Stock Purchase Plan are made from the 2018 Employee Stock Purchase Plan.

Plan Category	Number of securities to be issued upon exercise of outstanding options and rights (in thousands) (a)	Weighted average exercise price of outstanding options (b)	Number of securities available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (c)
Equity compensation plans approved by security holders ⁽¹⁾	8,867	(1)\$ 46.44	(1)36,619
Equity compensation plans not approved by security holders ⁽²⁾	89	(2)—	(2)—
TOTAL	8,956	\$ 46.44	36,619

The 2000 Stock Option Plan was approved by our stockholders in June 2000. The 2009 Omnibus Incentive Plan was approved by our stockholders in May 2009. The 2013 Omnibus Employee Incentive Plan and the 2013 Omnibus Non-Employee Director Incentive Plan were approved by our stockholders in May 2013. The stockholders of NYSE approved the NYSE Amended and Restated Omnibus Incentive Plan in April 2013. The (1) 2017 Omnibus Employee Incentive Plan was approved by our stockholders in May 2017. Of the 8.9 million securities to be issued upon exercise, 3.6 million are options with a weighted average exercise price of \$46.44 and the remaining 5.3 million securities are restricted stock shares that do not have an exercise price. The 2018 Employee Stock Purchase Plan was approved by stockholders in May 2018.

This category includes the 2003 Restricted Stock Deferral Plan for Outside Directors. All of the 89,000 securities (2) to be issued are restricted stock shares that do not have an exercise price. For more information concerning these plans, see Note 11 to our consolidated financial statements, which are included in this Annual Report.

Stock Repurchases

The table below sets forth the information with respect to purchases made by or on behalf of ICE or any “affiliated purchaser” (as defined in Rule 10b-18(a)(3) under the Exchange Act) of our common stock during the three months ended December 31, 2018.

Period (2018)	Total number of shares purchased (in thousands)	Average price paid per share	Total number of shares purchased as part of publicly announced plans or programs (in thousands)	Approximate dollar value of shares that may yet be purchased under the plans or programs (in millions)
October 1 - October 31	1,522	\$74.37	15,916	\$28
November 1 - November 30	341	\$77.77	16,257	\$2
December 1 - December 31	—	N/A	16,257	\$2
Total	1,863	\$74.99	16,257	\$2

In September 2018, our Board of Directors approved an aggregate of \$2.0 billion for future repurchases of our common stock with no fixed expiration date that became effective on January 1, 2019. Refer to Note 12 to our consolidated financial statements, included in this Annual Report, for additional details on our stock repurchase plans.

ITEM 6. SELECTED FINANCIAL DATA

The following tables present our selected consolidated financial data as of and for the dates and periods indicated. We derived the financial data set forth below for the years ended December 31, 2018, 2017 and 2016 and as of December 31, 2018 and 2017 from our audited consolidated financial statements, which are included in this Annual Report. We derived the financial data for 2015 and 2014 and as of December 31, 2016, 2015 and 2014 from our audited consolidated financial statements, which are not included in this Annual Report. The selected consolidated financial data presented below is not indicative of our future results for any period. It should be read in conjunction with our consolidated financial statements and related notes and Item 7, “- Management’s Discussion and Analysis of Financial Condition and Results of Operations” included in this Annual Report.

	Year Ended December 31,				
	2018	2017	2016	2015	2014
	(In millions, except for per share data)				
Consolidated Statement of Income Data ⁽¹⁾					
Revenues:					
Transaction and clearing, net ⁽²⁾	\$3,483	\$3,131	\$3,384	\$3,228	\$3,144
Data services	2,115	2,084	1,978	871	691
Listings	444	426	432	405	367
Other revenues	234	202	177	178	150
Total revenues	6,276	5,843	5,971	4,682	4,352
Transaction-based expenses ⁽²⁾	1,297	1,205	1,459	1,344	1,260
Total revenues, less transaction-based expenses	4,979	4,638	4,512	3,338	3,092
Operating expenses:					
Compensation and benefits	994	946	953	611	592
Professional services	131	121	137	139	181
Acquisition-related transaction and integration costs ⁽³⁾	34	36	80	88	129
Technology and communication	432	397	374	203	188
Rent and occupancy	68	69	70	57	78
Selling, general and administrative	151	155	116	116	143
Depreciation and amortization	586	535	610	374	333
Total operating expenses	2,396	2,259	2,340	1,588	1,644
Operating income	2,583	2,379	2,172	1,750	1,448
Other income (expense), net ⁽⁴⁾	(63)	147	(129)	(97)	(41)
Income from continuing operations before income tax expense (benefit)	2,520	2,526	2,043	1,653	1,407
Income tax expense (benefit) ⁽⁵⁾	500	(28)	586	358	402
Income from continuing operations	2,020	2,554	1,457	1,295	1,005
Income (loss) from discontinued operations, net of tax ⁽⁶⁾	—	—	—	—	11
Net income	\$2,020	\$2,554	\$1,457	\$1,295	\$1,016
Net income attributable to non-controlling interest	(32)	(28)	(27)	(21)	(35)
Net income attributable to ICE ⁽⁷⁾	\$1,988	\$2,526	\$1,430	\$1,274	\$981
Basic earnings (loss) per share attributable to ICE common stockholders:					
Continuing operations	\$3.46	\$4.29	\$2.40	\$2.29	\$1.70
Discontinued operations ⁽⁶⁾	—	—	—	—	0.02
Basic earnings per share	\$3.46	\$4.29	\$2.40	\$2.29	\$1.72
Basic weighted average common shares outstanding ⁽⁷⁾	575	589	595	556	570
Diluted earnings (loss) per share attributable to ICE common stockholders:					
Continuing operations	\$3.43	\$4.25	\$2.39	\$2.28	\$1.69
Discontinued operations ⁽⁶⁾	—	—	—	—	0.02
Diluted earnings per share	\$3.43	\$4.25	\$2.39	\$2.28	\$1.71
Diluted weighted average common shares outstanding ⁽⁷⁾	579	594	599	559	573
Dividend per share	\$0.96	\$0.80	\$0.68	\$0.58	\$0.52

We acquired several companies during the periods presented and have included the financial results of these (1) companies effective from the respective acquisition dates. Refer to Note 3 to our consolidated financial statements, included in this Annual Report, for more information on these acquisitions.

Our transaction and clearing fees are presented net of rebates paid to our customers. We also report transaction-based expenses relating to Section 31 fees and payments made for routing services and to certain U.S. (2) equities liquidity providers. For a discussion of these rebates, see Item 7 “- Management’s Discussion and Analysis of

Financial Condition and Results of Operations - Segment Reporting - Trading and Clearing Segment” included in this Annual Report.

Acquisition-related transaction and integration costs include fees for investment banking advisors, lawyers, accountants, tax advisors and public relations firms, deal-related bonuses to certain of our employees, as well as costs associated with credit facilities and other external costs directly related to acquisitions and other strategic opportunities. We incurred integration costs during 2018, 2017, 2016 and 2015 relating to our Interactive Data acquisition and during 2016, 2015 and 2014 relating to our NYSE acquisition, primarily related to employee termination costs, lease terminations costs, costs incurred relating to the IPO of Euronext, transaction-related bonuses and professional services costs incurred relating to the integrations.

Other income (expense), net during 2018 includes a \$110 million gain on our initial investment value in MERS recorded on October 3, 2018, the date we completed our acquisition, interest expense of \$244 million and interest income of \$22 million. Other income (expense), net during 2017 includes a \$167 million realized net investment gain in connection with our sale of Cetip and a \$110 million net gain on our divestiture of Trayport, interest expense of \$187 million and interest income of \$8 million. Refer to Notes 3 and 4 to our consolidated financial statements and related notes, which are included in this Annual Report, for more information.

The income tax benefit in 2017 and lower income tax expense in 2015 are primarily due to the deferred tax benefit associated with future U.S. income tax rate reductions of \$764 million in 2017 and the deferred tax benefit associated with future U.K. income tax rate reductions along with certain favorable settlements with various taxing authorities of \$75 million in 2015. See Item 7 “- Management’s Discussion and Analysis of Financial Condition and Results of Operations - Consolidated Income Tax Provision” included in this Annual Report for more information on these items.

During 2014, we sold 100% of our wholly-owned subsidiary, Euronext, in connection with Euronext’s IPO, and we sold our entire interest in three companies that comprised the former NYSE Technologies (NYFIX, Metabit and Wombat). We treated the sale of these entities as discontinued operations for all periods presented from their acquisition on November 13, 2013 to their dispositions.

The weighted average common shares outstanding increased in 2016 primarily due to the stock issued for the Interactive Data and Trayport acquisitions and increased in 2014 primarily due to stock issued for the NYSE acquisition. We issued 211.9 million shares of our common stock to NYSE stockholders, 32.3 million shares of our common stock to Interactive Data stockholders and 12.6 million shares of our common stock to Trayport stockholders, weighted to show these additional shares outstanding for all periods after the respective acquisition dates.

	As of December 31,				
	2018	2017	2016	2015	2014
	(In millions)				
Consolidated Balance Sheet Data					
Cash and cash equivalents	\$ 724	\$ 535	\$ 407	\$ 627	\$ 652
Margin deposits, guaranty funds and delivery contracts receivable ⁽¹⁾	63,955	51,222	55,150	51,169	47,458
Total current assets	66,692	53,562	57,133	53,313	50,232
Goodwill and other intangible assets, net ⁽²⁾	23,547	22,485	22,711	22,837	16,315
Total assets	92,791	78,264	82,003	77,987	68,254
Margin deposits, guaranty funds and delivery contracts payable ⁽¹⁾	63,955	51,222	55,150	51,169	47,458
Total current liabilities	66,108	54,175	58,617	54,743	50,436
Short-term and long-term debt ⁽²⁾	7,441	6,100	6,364	7,308	4,277
Equity ⁽²⁾	17,231	16,985	15,775	14,840	12,392

(1) Clearing members of our clearing houses are required to deposit original margin and variation margin and for our clearing houses other than ICE NGX, to make deposits to a guaranty fund. The cash deposits made to these margin accounts and to the guaranty fund are recorded in the consolidated balance sheet as current assets with corresponding current liabilities to the clearing members that deposited them. We also account for the physical

delivery of our energy contracts for ICE NGX following its acquisition in December 2017. Refer to Note 14 to our consolidated financial statements, included in this Annual Report, for more information on these items.

The increases in our equity, goodwill and other intangible assets, and debt as of December 31, 2015 primarily (2)relates to our acquisition of Interactive Data. Refer to Notes 3, 8 and 10 to our consolidated financial statements, included in this Annual Report, for more information on these items.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in these forward-looking statements for many reasons. See the factors set forth under the heading "Forward Looking Statements" at the beginning of Part 1 of this Annual Report and in Item 1(A) under the heading "Risk Factors." The following discussion is qualified in its entirety by, and should be read in conjunction with, the more detailed information contained in Item 6 "Selected Financial Data" and our consolidated financial statements included in this Annual Report.

Overview

We are a leading global operator of regulated exchanges, clearing houses and listings venues, and a provider of data services for commodity, financial, fixed income and equity markets. We operate regulated marketplaces for listing, trading and clearing of a broad array of derivatives contracts and securities across major asset classes, including energy and agricultural commodities, metals, interest rates, equities, ETFs, credit derivatives, bonds and currencies. We also offer comprehensive data services to support the trading, investment, risk management and connectivity needs of customers around the world and across asset classes.

Our exchanges include derivative exchanges in the U.S., U.K., EU, Canada and Singapore, and cash equities, equity options and bond exchanges in the U.S. We also operate OTC markets for physical energy, fixed income and CDS trade execution. To serve global derivatives markets, we operate central counterparty, or CCP, clearing houses in the U.S., U.K., EU, Canada and Singapore. We offer a range of data services for global financial and commodity markets, including pricing and reference data, exchange data, analytics, feeds, index services, desktops and connectivity solutions. Through our markets, clearing houses, listings and data services, we provide comprehensive solutions for our customers through liquid markets, benchmark products, access to capital markets and related services to support their ability to manage risk and raise capital. Our business is currently conducted as two reportable business segments, our Trading and Clearing segment and our Data and Listings segment, and the majority of our identifiable assets are located in the U.S., U.K. and Canada.

Recent Developments

U.S. Tax Cuts and Jobs Act of 2017, or TCJA

In December 2017, the TCJA was signed into law. It reduced the U.S. federal corporate income tax rate from 35% to 21%. Many of the tax provisions under the TCJA became effective January 1, 2018, including the new rate and complex international tax provisions. Given the complexity of these international provisions and certain potential unintended consequences that are under debate at both the federal and state level, certain federal and state guidance has been issued and further guidance is anticipated, but the likelihood and timing of such guidance remains uncertain. See "- Consolidated Income Tax Provision" below.

Acquisitions

On January 2, 2018, we acquired BondPoint from Virtu Financial, Inc. for \$400 million in cash. BondPoint is a provider of electronic fixed income trading solutions for the buy-side and sell-side, offering access to centralized liquidity and automated trade execution services through its ATS and provides trading services to more than 500 financial services firms.

On July 18, 2018, we acquired CHX Holdings, Inc., the parent company of CHX, a full-service stock exchange, including trading, data and corporate listings services. CHX operates as a registered national securities exchange. On July 23, 2018, we acquired TMC Bonds for \$700 million in cash. The cash consideration is gross of \$15 million cash held by TMC Bonds on the date of acquisition. TMC Bonds is an electronic fixed income marketplace, supporting anonymous trading across multiple protocols in various asset classes, including municipals, corporates, treasuries, agencies and certificates of deposit.

On October 3, 2018, we completed the purchase of the remaining equity interests in MERS and accordingly now have 100% ownership. On that date, we gained control of MERS, now part of ICE Mortgage Services, began to include its results as

part of our consolidated operations, and recorded a \$110 million gain on our initial investment value as other non-operating income.

Launch of Bakkt

On December 19, 2018, we and non-ICE limited partners funded the newly-formed entity, Bakkt, LLC, or Bakkt. Bakkt was formed to create an integrated platform that enables consumers and institutions to transact in digital assets. The Bakkt ecosystem is designed to include regulated trading, clearing and custodial solutions for digital assets, which will be supported by ICE Futures U.S. and ICE Clear U.S. The first traded contract targeted for launch will be a Bakkt Bitcoin physically delivered daily futures contract to provide price discovery. The custodial solution will establish new protocols for managing the specific security and settlement requirements of digital currencies. In addition, there will be a separate guaranty fund. It is also expected that Bakkt will offer additional solutions to expand the range of uses for digital assets.

Investment in Euroclear

During 2017, we purchased a 4.7% stake in Euroclear valued at €276 million in cash (\$327 million). Upon purchasing this stake, we agreed to participate on the Euroclear Board of Directors. During the same period, we negotiated an additional purchase which closed on February 21, 2018, following regulatory approval. This provided us with an additional 5.1% stake in Euroclear for a purchase price of €246 million in cash (\$304 million). As of December 31, 2018, we own a 9.8% stake in Euroclear for a total investment of \$631 million. Euroclear is a provider of post-trade services, including settlement, central securities depositories and related services for cross-border transactions across asset classes. Refer to Note 4 to our consolidated financial statements, included elsewhere in this Annual Report, for more information.

Purchase of Non-Controlling Interests

For consolidated subsidiaries in which our ownership is less than 100% and for which we have control over the assets, liabilities and management of the entity, the outside stockholders' interests are shown as non-controlling interest in our consolidated financial statements. As of December 31, 2017, non-controlling interest consisted of the operating results of our CDS clearing subsidiaries in which non-ICE limited partners held a 29.9% ownership interest. During September 2018, we purchased a 3.2% ownership interest from a non-ICE limited partner and the remaining other limited partners hold a 26.7% ownership interest as of December 31, 2018.

Consolidated Financial Highlights

The following summarizes our results and significant changes in our consolidated financial performance for the periods presented (dollars in millions, except per share amounts):

	Year Ended December 31,				Year Ended December 31,			
	2018	2017	Change		2017	2016	Change	
Revenues, less transaction-based expenses	\$4,979	\$4,638	7	%	\$4,638	\$4,512	3	%
Operating expenses	\$2,396	\$2,259	6	%	\$2,259	\$2,340	(3))%
Adjusted operating expenses ⁽¹⁾	\$2,071	\$1,947	6	%	\$1,947	\$1,955	—	%
Operating income	\$2,583	\$2,379	9	%	\$2,379	\$2,172	10	%
Adjusted operating income ⁽¹⁾	\$2,908	\$2,691	8	%	\$2,691	\$2,557	5	%
Operating margin	52	% 51	%	1 pt	51	% 48	%	3 pts
Adjusted operating margin ⁽¹⁾	58	% 58	%	—	58	% 57	%	1 pt
Other income (expense), net	\$(63)	147	n/a		147	(129)	n/a	
Income tax expense (benefit)	\$500	\$(28)	n/a		\$(28)	\$586	n/a	
Effective tax rate	20	% (1)%	21		(1)%	29	%	(30
			pts					pts)
Net income attributable to ICE	\$1,988	\$2,526	(21)%		\$2,526	\$1,430	77	%
Adjusted net income attributable to ICE ⁽¹⁾	\$2,077	\$1,764	18	%	\$1,764	1,673	5	%
Diluted earnings per share attributable to ICE common stockholders	\$3.43	\$4.25	(19)%		\$4.25	\$2.39	78	%
Adjusted diluted earnings per share attributable to ICE common stockholders ⁽¹⁾	\$3.59	\$2.97	21	%	\$2.97	\$2.79	6	%
Cash flows from operating activities	\$2,533	\$2,085	21	%	\$2,085	\$2,149	(3))%

⁽¹⁾ The adjusted figures exclude items that are not reflective of our ongoing core operations and business performance. Adjusted net income attributable to ICE and adjusted diluted earnings per share attributable to ICE common stockholders, are presented net of taxes. These adjusted numbers are not calculated in accordance with GAAP. See “- Non-GAAP Financial Measures” below.

Revenues, less transaction-based expenses, increased \$341 million in 2018 from 2017. The increase in revenues includes \$26 million in favorable foreign exchange effects arising from the weaker U.S. dollar in 2018 from 2017. Revenues, less transaction-based expenses, increased \$126 million in 2017 from 2016. The increase in revenues includes \$22 million in unfavorable foreign exchange effects arising from the strengthening U.S. dollar in 2017 from 2016.

Operating expenses increased \$137 million in 2018 from 2017. The increase in operating expenses includes \$11 million in unfavorable foreign exchange effects arising from the weaker U.S. dollar in 2018 from 2017.

Operating expenses decreased \$81 million in 2017 from 2016. The decrease in operating expenses includes \$13 million in favorable foreign exchange effects arising from the strengthening U.S. dollar in 2017 from 2016.

In connection with our acquisition of MERS, we recorded a \$110 million gain in other income during 2018. In connection with Cetip's merger with BM&FBOVESPA S.A., now B3, we recognized a \$167 million net realized investment gain in other income, net in 2017. We also recognized a net gain of \$110 million in connection with our divestiture of Trayport in other income (expense), net in 2017.

Excluding the 2017 deferred tax benefit from the U.S. tax law changes, the 2018 effective tax rate is lower than the 2017 effective tax rate due to the TCJA, which reduced the U.S. federal corporate income tax rate from 35% to 21% effective January 1, 2018, tax benefits from our acquisition of MERS, deferred tax benefits from the U.S. tax rate reduction resulting from changes in estimates and additional tax benefits associated with our sale of Trayport.

The 2017 effective tax rate is lower than the 2016 effective tax rate due to a \$764 million deferred tax benefit associated with the enactment of the TCJA in 2017.

Business Environment and Market Trends

Our business environment has been characterized by:

- globalization of exchanges, customers and competitors;
- lower interest rates and financial markets uncertainty;
- rising demand for speed, data, data capacity and connectivity by market participants, necessitating increased investment in technology;
- evolving and disparate regulation across multiple jurisdictions;
- increasing focus on capital and cost efficiencies; and
- consolidation and increasing competition among global markets for trading, clearing and listings.

Price volatility increases the need to hedge risk and creates demand among market participants for the exchange of risk through trading and clearing. Market liquidity is one of the primary market attributes for attracting and maintaining customers and is an important indicator of a market's strength. In addition, the ability to evolve existing products to serve emerging needs, develop new products and respond to competitive dynamics in pricing, exclusivity and consolidation is important to our business.

Recent changes with regard to global financial reform have emphasized the importance of transparent markets, centralized clearing and access to data, all of which are important aspects of our product offering. However, some of the proposed rules have yet to be implemented and some rules that have already been partially implemented are being reconsidered. In addition, some of the global regulations have not been fully harmonized and several of the MiFID II regulations are inconsistent with U.S. rules. As the evolution continues, legislative and regulatory actions may change the way we conduct our business and may create uncertainty for market participants, which could affect trading volumes or demand for market data. As a result, it is difficult to predict all of the effects that the legislation and its implementing regulations will have on us. As discussed more fully in Item 1 "- Business - Regulation" included in this Annual Report, Brexit, the implementation of MiFID II and other regulations may result in operational, regulatory and/or business risk.

In recent years, low interest rates and uncertainty in the financial markets continued to reflect the impact of a relatively slow economic recovery. Lower growth in Asia and the EU may also continue to affect global financial markets. In addition, economic and regulatory uncertainty, coupled with periods of high market volatility around geopolitical events, low interest rates and low natural gas prices, has affected our clients' activities in recent years. The duration of these trends will determine the continued impact on our business.

We have diversified our business so that we are not dependent on volatility or trading activity in any one asset class. In addition, we have increased our portion of non-transaction and clearing revenues from 39% in 2014 to 56% in 2018. This non-transaction revenue includes data services and listings.

Many of the data products we sell and services we provide are required for our clients' business operations regardless of market volatility or shifts in business profitability levels. We anticipate that there will continue to be growth in the financial information services sector driven by a number of global trends, including the following:

- increasing global regulatory demands;
- greater use of fair value accounting standards and reliance on independent valuations;
- greater emphasis on risk management;
- market fragmentation driven by regulatory changes;
- the move to passive investing and indexation;
- ongoing growth in the size and diversity of financial markets;
- increased automation of fixed income and other less automated markets;
- the development of new data products;
- the demand for greater data capacity and connectivity;
- new entrants; and
- increasing demand for outsourced services by financial institutions.

We continue to focus on our strategy to grow each of our revenue streams, as well as on our company-wide expense reduction initiatives and our synergies in connection with our acquisitions in order to mitigate these uncertainties and to build on our growth opportunities by leveraging our proprietary data, clearing and markets.

Segment Results

Our business is conducted through two reportable business segments:

- Trading and Clearing, which comprises our transaction-based execution and clearing businesses; and
- Data and Listings, which comprises our subscription-based data services and securities listings businesses.

While revenues are recorded specifically in the segment in which they are earned or to which they relate, a significant portion of our operating expenses are not solely related to a specific segment because the expenses serve functions that are necessary for the operation of both segments. We use a pro-rata revenue approach as the allocation method for the expenses that do not relate solely to one segment. Further, we did not allocate expenses to specific revenue streams within these segments since such an allocation is not reasonably possible. Our two segments do not engage in intersegment transactions.

Trading and Clearing Segment

The following presents selected statements of income data for our Trading and Clearing segment (dollars in millions):

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(1) The adjusted numbers in the charts above are calculated by excluding items that are not reflective of our cash operations and core business performance. As a result, these adjusted numbers are not calculated in accordance with U.S. GAAP. See “- Non-GAAP Financial Measures” below.

	Year Ended December 31, 2018			Year Ended December 31, 2017			Year Ended December 31, 2016		
			Change			Change			Change
Revenues:									
Energy futures and options contracts	\$965	\$909	6 %	\$909	\$865	5 %			
Agricultural and metals futures and options contracts	251	216	16	216	228	(5)			
Financial futures and options contracts	354	326	9	326	318	2			
Cash equities and equity options	1,624	1,491	9	1,491	1,780	(16)			
Fixed income and credit	240	139	72	139	143	(2)			
OTC and other transactions	49	50	(2)	50	50	1			
Transaction and clearing, net	3,483	3,131	11	3,131	3,384	(7)			
Other revenues	234	202	16	202	177	14			
Revenues	3,717	3,333	12	3,333	3,561	(6)			
Transaction-based expenses	1,297	1,205	8	1,205	1,459	(17)			
Revenues, less transaction-based expenses	2,420	2,128	14	2,128	2,102	1			
Other operating expenses	686	592	16	592	573	3			
Depreciation and amortization	215	187	16	187	243	(23)			
Acquisition-related transaction and integration costs	10	2	n/a	2	10	(83)			
Operating expenses	911	781	17	781	826	(6)			
Operating income	\$1,509	\$1,347	12 %	\$1,347	\$1,276	6 %			

Transaction and Clearing Revenues

Our transaction and clearing revenues are reported on a net basis, except for the NYSE transaction-based expenses discussed below, and consist of fees collected from our derivatives, fixed income, cash equities and equity options trading and derivatives clearing. In our derivatives markets, we earn transaction and clearing revenues from both counterparties to each contract that is traded and/or cleared, and in our equity and equity options markets, we receive trade execution fees as well as routing fees related to orders in our markets which are routed to other markets for execution.

Rates per-contract, or RPC, are driven by the number of contracts or securities traded and the fees charged per contract, net of certain rebates. Our per-contract transaction and clearing revenues will depend upon many factors, including, but not limited to, market conditions, transaction and clearing volume, product mix, pricing, applicable revenue sharing and market making agreements, and new product introductions. Because transaction and clearing revenues are generally assessed on a per-contract basis, revenues and profitability fluctuate with changes in contract volume and due to product mix.

In 2018, 2017 and 2016, 20%, 20% and 19%, respectively, of our Trading and Clearing segment revenues, less transaction-based expenses, were billed in pounds sterling or euros. Due to the fluctuations of the pound sterling and euro over the last two years compared to the U.S. dollar, our Trading and Clearing segment revenues, less transaction-based expenses, were higher by \$18 million in 2018 from 2017, and were lower by \$14 million in 2017 from 2016.

Our transaction and clearing revenues are presented net of rebates. We recorded rebates of \$844 million, \$749 million and \$674 million in 2018, 2017 and 2016, respectively. We offer rebates in certain of our markets primarily to support market liquidity and trading volume by providing qualified participants in those markets a discount to the applicable commission rate. Such rebates are calculated based on volumes traded. The increase in the rebates is due primarily to an increase in the number of participants in the rebate programs offered on various contracts, an increase in our traded volume and an increase in the number of rebate programs.

Energy Futures and Options Contracts: Total energy volume and revenues increased 1% and 6%, respectively, in 2018 from 2017, and increased 8% and 5%, respectively, in 2017 from 2016. Revenues increased in 2018 from 2017 due to a higher mix of gasoil, emissions and TTF gas volumes, which have a higher average RPC than other energy products. Total oil volume increased 3% in 2018 from 2017, and increased 14% in 2017 from 2016. ICE Brent crude futures and options volume was flat in 2018 from 2017, and increased 15% in 2017 from 2016. ICE WTI crude futures and options volume increased 5% in 2018 from 2017, and increased 14% in 2017 from 2016. The volume increases were primarily due to increased oil price volatility related to shifting supply and demand dynamics globally; broader market volatility in oil products, equities and foreign exchange rates; acts of central governments; outcomes of elections; and uncertainty around the Organization of Petroleum Exporting Countries, or OPEC, policy. Our record gasoil futures and options volume in 2018 increased 11% from 2017, and increased 13% in 2017 from 2016. Gasoil futures and options increased during 2018 and 2017 primarily due to increased demand for distillates, strong economic activity in Europe and Asia and regulatory uncertainty.

Our global natural gas futures and options volume decreased 4% in 2018 from 2017, and decreased 1% in 2017 from 2016. The volume decrease in 2018 from 2017 was primarily due to lower U.S. price volatility reducing our commercial customers' need to hedge the Henry Hub contract, and depressed gas prices driven by a continued surplus of natural gas during 2018 as compared to 2017. Our 2018 Henry Hub natural gas volume decrease was partially offset by increased volumes in our North American basis market and TTF gas in Europe. Our record TTF gas volumes in 2018 were driven by changing natural gas dynamics due to the continued globalization of natural gas. Emission futures and options volumes increased 73% in 2018 from 2017, and increased 1% in 2017 from 2016. Our record emissions volumes in 2018 were driven by higher carbon prices and supply-demand dynamics impacted by regulatory uncertainty.

Agricultural and Metals Futures and Options Contracts: Total volume and revenues in our agricultural and metals futures and options markets increased 15% and 16%, respectively, in 2018 from 2017, and decreased 7% and 5%, respectively, in 2017 from 2016. Volume in our largest agricultural contract, sugar futures and options, increased 20% in 2018 from 2017, and decreased 10% in 2017 from 2016. Other agricultural and metal futures and options volume increased 11% in 2018 from 2017, and decreased 4% in 2017 from 2016. The increases in agricultural volumes to record levels in 2018 were primarily driven by price volatility resulting from shifting supply and demand dynamics. The decreases in agricultural volume in 2017 were primarily driven by the reduced price volatility in 2017 compared to the higher price volatility in 2016.

Financial Futures and Options Contracts: Interest rates futures and options volume and revenue increased 14% and 19%, respectively, in 2018 from 2017, and increased 27% and 9%, respectively, in 2017 from 2016. Our record level interest rate futures and options volume in 2018 was driven by expectations for heightened central bank activity during 2018, coupled with geopolitical uncertainty in the U.K. and Europe. Interest rates futures and options revenues were \$230 million, \$193 million and \$177 million in 2018, 2017 and 2016, respectively.

Other financial futures and options volume decreased 9% in 2018 from 2017, and decreased 19% in 2017 from 2016. The decrease was primarily due to the termination of our exclusive license to list futures and options contracts on the Russell® indices. Excluding the futures and options contracts on the Russell® indices, other financial futures and options volume increased 18% in 2018 from 2017. Other financial futures and options revenues were \$124 million, \$133 million and \$141 million in 2018, 2017 and 2016, respectively.

Cash Equities and Equity Options: Cash equities handled volume increased 14% in 2018 from 2017, primarily due to higher total U.S. equity volumes driven by heightened volatility in the U.S. equity markets coupled with the May

2018 commencement of trading of NYSE National and the July 2018 acquisition of CHX. Cash equities handled volume decreased 17% in 2017 from 2016, primarily due to reduced U.S. equities market volatility during 2017 as compared to 2016. Cash equities revenues, net of transaction-based expenses, were \$220 million, \$196 million, and \$223 million in 2018, 2017 and 2016, respectively.

Equity options volume increased 43% in 2018 from 2017 primarily due to heightened volatility in the U.S. equity markets, as well as increased market share in 2018 due to greater volatility. Equity options volume decreased 13% in 2017 from 2016 primarily due to lower U.S. equity market volatility and the restructuring of the NYSE American Options business. Equity options revenues, net of transaction-based expenses, were \$107 million, \$90 million and \$98 million in 2018, 2017 and 2016, respectively.

Fixed Income and Credit: CDS clearing revenues were \$139 million, \$113 million and \$107 million in 2018, 2017 and 2016, respectively. The notional value of CDS cleared was \$16.4 trillion, \$11.5 trillion and \$11.5 trillion, in 2018, 2017 and 2016, respectively. Buy-side participation at our U.S. CDS clearing house, ICE Clear Credit, reached record levels in terms of number of participants and notional cleared due to increased participation from both U.S. and European buy-side customers due to greater regulatory certainty, depth of liquidity, the breadth of products offered, and cost efficient margining in the U.S. relative to Europe. Fixed income and credit also includes revenues from ICE Bonds, which includes ICE BondPoint, TMC Bonds, ICE Credit Trade and ICE Mortgage Services.

OTC and Other Transactions: OTC and other transactions include revenues from our OTC energy business and other trade confirmation services.

Other Revenues: Other revenues primarily include interest income on certain clearing margin deposits, regulatory penalties and fines, fees for use of our facilities, regulatory fees charged to member organizations of our U.S. securities exchanges, designated market maker service fees, exchange membership fees and agricultural grading and certification fees. The increase in other revenues in 2018 from 2017 is primarily due to increased interest income earned on certain clearing margin deposits, as well as a \$5 million settlement received by NYSE Regulation from ING Financial Markets, LLC, or ING, following an investigation into improper conduct by ING's lending desk from 2007 to 2015. The 2018 increase was partially offset by a \$6 million breakup fee received in August 2017 related to the termination of the derivatives clearing agreement with Euronext Group N.V.'s, or Euronext, under which ICE Clear Netherlands was to provide clearing of Euronext's financial and commodity derivatives.

Selected Operating Data

The following charts and table present trading activity in our futures and options markets by commodity type based on the total number of contracts traded, as well as futures and options rate per contract (in millions, except for percentages and rate per contract amounts):

Volume
and Rate
per
Contract

	Year Ended			Year Ended		
	December			December		
	31,			31,		
	2018	2017	Change	2017	2016	Change
Number of contracts traded (in millions):						
Energy futures and options	692	685	1 %	685	635	8 %
Agricultural and metals futures and options	107	94	15	94	101	(7)
Financial futures and options	710	647	10	647	564	15
Total	1,509	1,426	6 %	1,426	1,300	10 %

	Year Ended			Year Ended		
	December			December		
	31,			31,		
	2018	2017	Change	2017	2016	Change
Average Daily Volume of contracts traded (in millions):						
Energy futures and options	2,747	2,731	1 %	2,731	2,521	8 %
Agricultural and metals futures and options	427	374	14	374	399	(6)
Financial futures and options	2,770	2,536	9	2,536	2,205	15
Total	5,944	5,641	5 %	5,641	5,125	10 %

	Year Ended			Year Ended		
	December			December		
	31,			31,		
	2018	2017	Change	2017	2016	Change
Rate per contract:						
Energy futures and options	\$1.39	\$1.33	5 %	\$1.33	\$1.36	(2)%
Agricultural and metals futures and options	\$2.34	\$2.30	2 %	\$2.30	\$2.27	1 %
Financial futures and options	\$0.49	\$0.49	— %	\$0.49	\$0.54	(10)%

Open interest is the aggregate number of contracts (long or short) that clearing members hold either for their own account or on behalf of their clients. Open interest refers to the total number of contracts that are currently “open,” – in other words, contracts that have been traded but not yet liquidated by either an offsetting trade, exercise, expiration, or assignment. Open interest is also a measure of the future activity remaining to be closed out in terms of the number of contracts that members and their clients continue to hold in the particular contract and by the number of contracts held for each contract month listed by the exchange. The following charts and table present our year-end open interest for our futures and options contracts (in thousands, except for percentages):

Open
Interest

As of December 31, 2018	As of December 31,
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