

ROYAL BANK OF CANADA  
Form 424B2  
September 29, 2017

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PRICING SUPPLEMENT

Filed Pursuant to Rule 424(b)(2)

Registration Statement No. 333-208507

Dated September 27, 2017

Royal Bank of Canada Trigger Step Securities

\$6,004,100 Securities Linked to the EURO STOXX 50<sup>®</sup> Index due on September 30, 2021

Investment Description

Trigger Step Securities are unconditional, unsecured and unsubordinated debt securities issued by Royal Bank of Canada with returns linked to the performance of the EURO STOXX 50<sup>®</sup> Index (the “Underlying”) (each, a “Security” and collectively, the “Securities”). If the Underlying Return is zero or positive, we will repay the principal amount at maturity plus pay a return equal to the product of (i) your principal amount multiplied by (ii) the greater of (a) the Step Return and (b) the Underlying Return. If the Underlying Return is negative, and the Final Underlying Level is greater than or equal to the Downside Threshold, we will repay the full principal amount at maturity. If the Underlying Return is negative and the Final Underlying Level is less than the Downside Threshold, we will pay you less than the full principal amount at maturity if anything, resulting in a loss on your initial investment that is proportionate to the negative performance of the Underlying over the term of the Securities, and you may lose up to 100% of your initial investment. Investing in the Securities involves significant risks. The Securities do not pay dividends or interest. You may lose some or all of your principal amount. The Step Return and the contingent repayment of principal only apply if you hold the Securities to maturity. Any payment on the Securities, including any repayment of principal, is subject to our creditworthiness. If we were to default on our payment obligations, you may not receive any amounts owed to you under the Securities and you could lose your entire investment. The Securities will not be listed on any securities exchange.

Features Key Dates

Enhanced Growth Potential with Step Return Feature — If the Final Underlying Level is greater than or equal to the Initial Underlying Level (which is equal to the Step Barrier), we will repay the principal amount of the Securities at maturity and pay a return equal to the greater of the Underlying Return and the Step Return of 47.25%.

Contingent Repayment of Principal at Maturity — If the Underlying Return is negative, but the Final Underlying Level is greater than or equal to the Downside Threshold, we will repay your principal amount at maturity. However, if the Final Underlying Level is less than the Downside Threshold, investors will be exposed to the full downside performance of the Underlying and we will pay less than the principal amount at maturity, resulting in a loss of principal amount that is proportionate to the percentage decline in the Underlying. Accordingly, you may lose some or all of your principal amount of the Securities. The contingent repayment of principal applies only at maturity.

Any payment on the Securities, including any repayment of principal, is subject to our creditworthiness.

Trade Date September 27, 2017

Settlement Date September 29, 2017

Final Valuation Date<sup>1</sup> September 23, 2021

Maturity Date<sup>1</sup> September 30, 2021

<sup>1</sup> Subject to postponement in the event of a market disruption event and as described under “General Terms of the Securities—Payment at Maturity” in the accompanying product prospectus supplement no. UBS-EI-STEPS.

**NOTICE TO INVESTORS: THE SECURITIES ARE SIGNIFICANTLY RISKIER THAN CONVENTIONAL DEBT INSTRUMENTS. THE ISSUER IS NOT NECESSARILY OBLIGATED TO REPAY THE FULL PRINCIPAL AMOUNT OF THE SECURITIES AT MATURITY, AND THE SECURITIES CAN HAVE THE FULL DOWNSIDE MARKET RISK OF THE UNDERLYING. THIS MARKET RISK IS IN ADDITION TO THE CREDIT RISK INHERENT IN PURCHASING OUR DEBT OBLIGATION. YOU SHOULD NOT PURCHASE THE SECURITIES IF YOU DO NOT UNDERSTAND OR ARE NOT COMFORTABLE WITH THE SIGNIFICANT RISKS INVOLVED IN INVESTING IN THE SECURITIES.**

YOU SHOULD CAREFULLY CONSIDER THE RISKS DESCRIBED UNDER “KEY RISKS” BEGINNING ON PAGE 5 OF THIS PRICING SUPPLEMENT AND UNDER “RISK FACTORS” BEGINNING ON PAGE PS-6 OF THE ACCOMPANYING PRODUCT PROSPECTUS SUPPLEMENT NO. UBS-EI-STEPS BEFORE PURCHASING ANY SECURITIES. EVENTS RELATING TO ANY OF THOSE RISKS, OR OTHER RISKS AND UNCERTAINTIES, COULD ADVERSELY AFFECT THE MARKET VALUE OF, AND THE RETURN ON, YOUR SECURITIES. YOU COULD LOSE SOME OR ALL OF THE PRINCIPAL AMOUNT OF THE SECURITIES.

Security Offering

We are offering Trigger Step Securities Linked to the EURO STOXX 50® Index. The Securities are offered at a minimum investment of 100 Securities at the Price to Public described below.

| Underlying                  | Step Return | Initial Underlying Level | Step Barrier  | Downside Threshold   | CUSIP       | ISIN       |
|-----------------------------|-------------|--------------------------|---|--|-------------|------------|
| EURO STOXX 50® Index (SX5E) | 47.25%      | 3,555.17                 | 3,555.17, which is 100% of the Initial Underlying Level | 2,666.38, which is 75% of the Initial Underlying Level (rounded to two decimal places) | 78013F313US | 78013F3139 |

See “Additional Information About Royal Bank of Canada and the Securities” in this pricing supplement. The Securities will have the terms specified in the prospectus dated January 8, 2016, the prospectus supplement dated January 8, 2016, the product prospectus supplement no. UBS-EI-STEPS dated January 27, 2016 and this pricing supplement. Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of the Securities or passed upon the accuracy or the adequacy of this pricing supplement or the accompanying prospectus, prospectus supplement and product prospectus supplement no. UBS-EI-STEPS. Any representation to the contrary is a criminal offense.

| Offering of Securities                                     | Price to Public |              | Fees and Commissions <sup>(1)</sup> |              | Proceeds to Us |              |
|--|-----------------|--------------|-------------------------------------|--------------|----------------|--------------|
|  | Total           | Per Security | Total                               | Per Security | Total          | Per Security |
| Securities Linked to the EURO STOXX 50® Index (the “SX5E”) | \$6,004,100.00  | \$10.00      | \$180.123.00                        | \$0.30       | \$5,823,977.00 | \$9.70       |

(1) UBS Financial Services Inc., which we refer to as UBS, will receive a commission of \$0.30 per \$10 principal amount of the Securities. See “Supplemental Plan of Distribution (Conflicts of Interest)” on page 13 of this pricing supplement.

The initial estimated value of the Securities as of the date of this document is \$9.4524 per \$10 in principal amount, which is less than the price to public. The actual value of the Securities at any time will reflect many factors, cannot be predicted with accuracy, and may be less than this amount. We describe our determination of the initial estimated value under “Key Risks” beginning on page 5, “Supplemental Plan of Distribution (Conflicts of Interest)” on page 13 and “Structuring the Securities” on page 13 of this pricing supplement.

The Securities will not constitute deposits insured under the Canada Deposit Insurance Corporation Act or by the United States Federal Deposit Insurance Corporation or any other Canadian or United States government agency or instrumentality.

UBS Financial Services Inc. RBC Capital Markets, LLC

Additional Information About Royal Bank of Canada and the Securities

You should read this pricing supplement together with the prospectus dated January 8, 2016, as supplemented by the prospectus supplement dated January 8, 2016, relating to our senior global medium-term notes, Series G, of which these Securities are a part, and the more detailed information contained in product prospectus supplement no. UBS-EI-STEPS dated January 27, 2016. This pricing supplement, together with the documents listed below, contains the terms of the Securities and supersedes all other prior or contemporaneous oral statements as well as any other written materials including preliminary or indicative pricing terms, correspondence, trade ideas, structures for implementation, sample structures, fact sheets, brochures or other educational materials of ours. You should carefully consider, among other things, the matters set forth in “Risk Factors” in the accompanying product prospectus supplement no. UBS-EI-STEPS, as the Securities involve risks not associated with conventional debt securities.

If the terms discussed in this pricing supplement differ from those discussed in the product prospectus supplement, the prospectus supplement or the prospectus, the terms discussed herein will control. Please note in particular that, several defined terms in the product prospectus supplement are replaced in this document with different terms:

- Instead of “Index” in the product prospectus supplement, the term “Underlying” is used in this document;
- instead of “Index Starting Level” in the product prospectus supplement, the term “Initial Underlying Level” is used in this document;
- instead of “Final Index Level” in the product prospectus supplement, the term “Final Underlying Level” is used in this document;
- instead of “Index Return” in the product prospectus supplement, the term “Underlying Return” is used in this document;
- and
- instead of “Trigger Level” in the product prospectus supplement, the term “Downside Threshold” is used in this document.

You may access these on the SEC website at [www.sec.gov](http://www.sec.gov) as follows (or if such address has changed, by reviewing our filing for the relevant date on the SEC website):

..Product prospectus supplement no. UBS-EI-STEPS dated January 27, 2016:

<https://www.sec.gov/Archives/edgar/data/1000275/000114036116048774/form424b5.htm>

..Prospectus supplement dated January 8, 2016:

<http://www.sec.gov/Archives/edgar/data/1000275/000121465916008811/p14150424b3.htm>

..Prospectus dated January 8, 2016:

<http://www.sec.gov/Archives/edgar/data/1000275/000121465916008810/j18160424b3.htm>

As used in this pricing supplement, “we,” “us” or “our” refers to Royal Bank of Canada.

### Investor Suitability

The Securities may be suitable for you if, among other considerations:

- .. You fully understand the risks inherent in an investment in the Securities, including the risk of loss of your entire initial investment.
- .. You can tolerate the loss of all or a substantial portion of the principal amount of the Securities and are willing to make an investment that may have the full downside market risk as a hypothetical investment in the Underlying.
- “You believe the level of the Underlying will appreciate over the term of the Securities.
- .. You are willing to invest in the Securities based on the Step Return indicated on the cover page of this pricing supplement.
- .. You can tolerate fluctuations in the price of the Securities prior to maturity that may be similar to or exceed the downside fluctuations in the level of the Underlying.
- .. You do not seek current income from your investment and are willing to forgo dividends paid on the securities represented by the Underlying.
- .. You are willing to hold the Securities to maturity, and accept that there may be little or no secondary market for the Securities.
- .. You are willing to assume our credit risk for all payments under the Securities, and understand that if we default on our obligations, you may not receive any amounts due to you, including any repayment of principal.
- “You fully understand and accept the risks associated with the Underlying.

The Securities may not be suitable for you if, among other considerations:

- .. You do not fully understand the risks inherent in an investment in the Securities, including the risk of loss of your entire initial investment.
- “You require an investment designed to provide a full return of principal at maturity.  
You cannot tolerate the loss of all or a substantial portion of the principal amount of the Securities, and you are not
- “willing to make an investment that may have the full downside market risk as a hypothetical investment in the Underlying.
- “You believe that the level of the Underlying will decline over the term of the Securities.
- .. You are unwilling to invest in the Securities based on the Step Return indicated on the cover page of this pricing supplement.
- .. You cannot tolerate fluctuations in the price of the Securities prior to maturity that may be similar to or exceed the downside fluctuations in the level of the Underlying.
- .. You seek current income from this investment or prefer to receive the dividends paid on the securities represented by the Underlying.
- .. You are unable or unwilling to hold the Securities to maturity, or you seek an investment for which there will be an active secondary market.
- .. You are not willing to assume our credit risk for all payments under the Securities, including any repayment of principal.
- “You do not fully understand and accept the risks associated with the Underlying.

The suitability considerations identified above are not exhaustive. Whether or not the Securities are a suitable investment for you will depend on your individual circumstances, and you should reach an investment decision only after you and your investment, legal, tax, accounting, and other advisers have carefully considered the suitability of an investment in the Securities in light of your particular circumstances. You should also review carefully the “Key Risks” beginning on page 5 of this pricing supplement and “Risk Factors” in the accompanying product prospectus supplement no. UBS-EI-STEPS for risks related to an investment in the Securities. In addition, you should review carefully the section below, “Information About the Underlying” for more information about the Underlying.



Final Terms of the Securities<sup>1</sup> Investment Timeline

Issuer: Royal Bank of Canada  
 Issue Price: \$10 per Security (subject to a minimum purchase of 100 Securities).  
 Principal Amount: \$10 per Security.  
 Term: Approximately four years  
 Index: EURO STOXX 50<sup>®</sup> Index  
 Step Barrier: 100% of the Initial Underlying Level  
 Step Return: 47.25%

If the Final Underlying Level is greater than or equal to the Step Barrier, we will pay you:  
 \$10 + (\$10 x the greater of (i) Underlying Return and (ii) Step Return)  
 If the Underlying Return is negative and the Final Underlying Level is greater than or equal to the Downside Threshold, we will pay you:  
 \$10  
 If the Final Underlying Level is less than the Downside Threshold, we will pay you:  
 \$10 + (\$10 x Underlying Return)  
 In this scenario, you will lose some or all of the principal amount of the Securities in an amount proportionate to the negative Underlying Return.

Payment at Maturity (per \$10 Security):

Underlying Return:  $\frac{\text{Final Underlying Level} - \text{Initial Underlying Level}}{\text{Initial Underlying Level}}$   
 Initial Underlying Level: 3,555.17, which was the closing level of the Underlying on the Trade Date.  
 Final Underlying Level: The closing level of the Underlying on the Final Valuation Date.  
 Downside Threshold: 2,666.38, which is 75% of the Initial Underlying Level (rounded to two decimal places)

Trade Date: The Step Return was set. The Step Barrier and Downside Threshold were determined.

Maturity: The Final Underlying Level and Underlying Return are determined.

Date: If the Final Underlying Level is greater than or equal to the Step Barrier, we will pay you a cash payment per \$10.00 Security that provides you with your principal amount plus a return equal to the greater of the Underlying Return and the Step Return, calculated as follows:  
 $\$10.00 + (\$10.00 \times \text{the greater of (i) Underlying Return and (ii) Step Return})$   
 If the Underlying Return is negative and the Final Underlying Level is greater than or equal to the Downside Threshold, we will pay you a cash payment of \$10.00 per \$10.00 Security.  
 If the Final Underlying Level is below the Downside Threshold, we will pay you a cash payment that is less than the principal amount of \$10.00 per Security, resulting in a loss of principal that is proportionate to the percentage decline in the Underlying, and equal to:  
 $\$10.00 + (\$10.00 \times \text{Underlying Return})$   
 In this scenario, you will lose some or all of the principal amount of the Securities, in an amount proportionate to the negative Underlying Return.

**INVESTING IN THE SECURITIES INVOLVES SIGNIFICANT RISKS. YOU MAY LOSE SOME OR ALL OF YOUR PRINCIPAL AMOUNT. ANY PAYMENT ON THE SECURITIES, INCLUDING ANY REPAYMENT OF PRINCIPAL, IS SUBJECT TO OUR CREDITWORTHINESS. IF WE WERE TO DEFAULT ON OUR PAYMENT OBLIGATIONS, YOU MAY NOT RECEIVE ANY AMOUNTS OWED TO YOU UNDER THE SECURITIES AND YOU COULD LOSE YOUR ENTIRE INVESTMENT.**

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<sup>1</sup> Terms used in this pricing supplement, but not defined herein, shall have the meanings ascribed to them in the product prospectus supplement.

## Key Risks

An investment in the Securities involves significant risks. Investing in the Securities is not equivalent to investing directly in any of the component securities of the Underlying. These risks are explained in more detail in the “Risk Factors” section of the accompanying product prospectus supplement no. UBS EI STEPS. We also urge you to consult your investment, legal, tax, accounting and other advisors before investing in the Securities.

### Risks Relating to the Securities Generally

**Your Investment in the Securities May Result in a Loss of Principal** — The Securities differ from ordinary debt securities in that we are not necessarily obligated to repay the full principal amount of the Securities at maturity. The return on the Securities at maturity is linked to the performance of the Underlying and will depend on whether, and the extent to which, the Underlying Return is positive or negative. If the Final Underlying Level is less than the Downside Threshold, you will be fully exposed to any negative Underlying Return and we will pay you less than your principal amount at maturity, resulting in a loss of principal of your Securities that is proportionate to the percentage decline in the Underlying. Accordingly, you could lose the entire principal amount of the Securities.

**The Contingent Repayment of Principal Applies Only if You Hold the Securities to Maturity** — You should be willing to hold your Securities to maturity. If you are able to sell your Securities prior to maturity in the secondary market, you may have to sell them at a loss, even if the level of the Underlying is above the Downside Threshold at the time of sale.

**The Step Return Applies Only if You Hold the Securities to Maturity** — The application of the Step Return only applies at maturity. If you are able to sell your Securities prior to maturity in the secondary market, the price you receive will likely not reflect the full effect of the Step Return and the return you realize may be less than the Step Return or the Underlying Return, even if the level of the Underlying has increased. You can receive the full benefit of the Step Return only if you hold your Securities to maturity.

**No Interest Payments** — We will not pay any interest with respect to the Securities.

**An Investment in the Securities Is Subject to Our Credit Risk** — The Securities are unsubordinated, unsecured debt obligations of the issuer, Royal Bank of Canada, and are not, either directly or indirectly, an obligation of any third party. Any payment to be made on the Securities, including any repayment of principal at maturity, depends on our ability to satisfy our obligations as they come due. As a result, our actual and perceived creditworthiness may affect the market value of the Securities and, in the event we were to default on our obligations, you may not receive any amounts owed to you under the terms of the Securities and you could lose your entire initial investment.

**Your Return on the Securities May Be Lower than the Return on a Conventional Debt Security of Comparable Maturity** — The return that you will receive on the Securities, which could be negative, may be less than the return you could earn on other investments. Even if your return is positive, your return may be less than the return you could earn if you bought a conventional senior interest bearing debt security of ours with the same maturity date or if you invested directly in the securities included in the Underlying. Your investment may not reflect the full opportunity cost to you when you take into account factors that affect the time value of money.

**No Dividend Payments or Voting Rights** — Investing in the Securities is not equivalent to investing directly in any of the component securities of the Underlying. As a holder of the Securities, you will not have voting rights or rights to receive cash dividends or other distributions or other rights that holders of the equity securities represented by the Underlying would have. The Underlying is a price return index, and the Underlying Return excludes any cash dividend payments paid on its component stocks. Accordingly, an investment in the Securities may underperform a direct investment in the component securities of the Underlying.

**The Initial Estimated Value of the Securities Is Less than the Price to the Public** — The initial estimated value that is set forth on the cover page of this document, which is less than the public offering price you pay for the Securities, does not represent a minimum price at which we, RBCCM or any of our other affiliates would be willing to purchase the Securities in any secondary market (if any exists) at any time. If you attempt to sell the Securities prior to maturity, their market value may be lower than the price you paid for them and the initial estimated value. This is due to, among other things, changes in the level of the Underlying, the borrowing rate we pay to issue securities of this kind, and the inclusion in the price to the public of the underwriting discount, and our estimated profit and the costs relating to our hedging of the Securities. These factors, together with various credit, market and economic factors over the term of the Securities, are expected to reduce the price at which you may be able to sell the Securities in any secondary market and will affect the value of the Securities in complex and unpredictable ways. Assuming no

change in market conditions or any other relevant factors, the price, if any, at which you may be able to sell your Securities prior to maturity may be less than the price to public, as any such sale price would not be expected to include the underwriting discount and our estimated profit and the costs relating to our hedging of the Securities. In addition, any price at which you may sell the Securities is likely to reflect customary bid-ask spreads for similar trades. In addition to bid-ask spreads, the value of the Securities determined for any secondary market price is expected to be based on a secondary market rate rather than the internal borrowing rate used to price the Securities and determine the initial estimated value. As a result, the secondary price will be less than if the internal borrowing rate was used. The Securities are not designed to be short-term trading instruments. Accordingly, you should be able and willing to hold your Securities to maturity.

**Our Initial Estimated Value of the Securities Is an Estimate Only, Calculated as of the Time the Terms of the Securities Were Set** — The initial estimated value of the Securities is based on the value of our obligation to make the payments on the Securities, together with the mid-market value of the derivative embedded in the terms of the Securities. See “Structuring the Securities” below. Our estimate is based on a variety of assumptions, including our credit spreads, expectations as to dividends, interest rates and volatility, and the expected term of the Securities.

These assumptions are based on certain forecasts about future events, which may prove to be incorrect. Other entities may value the Securities or similar securities at a price that is significantly different than we do.

The value of the Securities at any time after the Trade Date will vary based on many factors, including changes in market conditions, and cannot be predicted with accuracy. As a result, the actual value you would receive if you sold the Securities in any secondary market, if any, should be expected to differ materially from the initial estimated value of your Securities and the amount that may be paid at maturity.



**Changes Affecting the Underlying** — The policies of the index sponsor concerning additions, deletions and substitutions of the stocks included in the Underlying and the manner in which the index sponsor takes account of certain changes affecting those stocks included in the Underlying may adversely affect its level. The policies of the index sponsor with respect to the calculation of the Underlying could also adversely affect its level. The index sponsor may discontinue or suspend calculation or dissemination of the Underlying and has no obligation to consider your interests in the Securities when taking any action regarding the Underlying. Any such actions could have an adverse effect on the value of the Securities and the amount that may be paid at maturity.

**Lack of Liquidity** — The Securities will not be listed on any securities exchange. RBC Capital Markets, LLC (“RBCCM”) intends to offer to purchase the Securities in the secondary market, but is not required to do so. Even if there is a secondary market, it may not provide enough liquidity to allow you to trade or sell the Securities easily.

Because other dealers are not likely to make a secondary market for the Securities, the price at which you may be able to trade your Securities is likely to depend on the price, if any, at which RBCCM is willing to buy the Securities.

**Potential Conflicts** — We and our affiliates play a variety of roles in connection with the issuance of the Securities, including hedging our obligations under the Securities. In performing these duties, the economic interests of the calculation agent and other affiliates of ours are potentially adverse to your interests as an investor in the Securities.

**Potentially Inconsistent Research, Opinions or Recommendations by RBCCM, UBS or Their Affiliates** — RBCCM, UBS or their respective affiliates may publish research, express opinions or provide recommendations that are

inconsistent with investing in or holding the Securities, and which may be revised at any time. Any such research, opinions or recommendations could affect the level of the Underlying or the equity securities included in the Underlying, and therefore, the market value of the Securities.

**An Investment in the Securities Is Subject to Risks Associated with Non-U.S. Securities Markets** — The securities included in the Underlying have been issued by non-U.S. companies. An investment in securities linked to the value of non-U.S. equity securities involves particular risks. Non-U.S. securities markets may be more volatile than U.S. securities markets, and market developments may affect non-U.S. securities markets differently from the U.S.

securities markets. Direct or indirect government intervention to stabilize these non-U.S. securities markets, as well as cross shareholdings among non-U.S. companies, may affect trading prices and volumes in those markets. Also, there is generally less publicly available information in the U.S. about non-U.S. companies than about those U.S. companies that are subject to the reporting requirements of the SEC, and non-U.S. companies are subject to accounting, disclosure, auditing and financial reporting standards and requirements that differ from those applicable to U.S. reporting companies.

Prices of securities in non-U.S. countries are subject to political, economic, financial and social factors that may be unique to the particular countries. These factors, which could negatively affect the non-U.S. securities markets, include the possibility of recent or future changes in the economic and fiscal policies of non-U.S. governments, the possible imposition of, or changes in, currency exchange laws or other non-U.S. laws or restrictions applicable to non-U.S. companies or investments in non-U.S. equity securities, the possibility of fluctuations in the rate of exchange between currencies, the possibility of outbreaks of hostility and political instability and the possibility of natural disaster or adverse public health developments in the relevant region. Moreover, the economies of certain foreign countries may differ favorably or unfavorably from the U.S. economy in important respects, such as growth of gross national product, rate of inflation, trade surpluses or deficits, capital reinvestment, resources and self-sufficiency.

**As a Holder of the Securities, You Will Not Have Direct Exposure to Fluctuations in the U.S. Dollar/Euro Exchange Rate Related to the Underlying** — The value of the Securities will not be adjusted for exchange rate fluctuations between the U.S. dollar and the euro, even though any currency fluctuations could affect the performance of the Underlying. Therefore, if the euro appreciates or depreciates relative to the U.S. dollar over the term of the Securities, you will not receive any additional payment or incur any reduction in any payment on the Securities.

**Uncertain Tax Treatment** — Significant aspects of the tax treatment of an investment in the Securities are uncertain. You should consult your tax adviser about your tax situation.

**Potential Royal Bank of Canada and UBS Impact on Price** — Trading or other transactions by Royal Bank of Canada, UBS and our respective affiliates in the equity securities included in the Underlying or in futures, options,

exchange-traded funds or other derivative products on the equity securities included in the Underlying may adversely affect the market value of those equity securities, the level of the Underlying and therefore, the market value of the Securities.

The Probability That the Underlying Will Fall Below the Downside Threshold on the Final Valuation Date Will Depend on the Volatility of the Underlying — “Volatility” refers to the frequency and magnitude of changes in the level of the Underlying. Greater expected volatility with respect to the Underlying reflects a higher expectation as of the Trade Date that the Underlying could close below its Downside Threshold on the Final Valuation Date, resulting in the loss of some or all of your investment. However, an Underlying’s volatility can change significantly over the term of the Securities. The level of the Underlying could fall sharply, which could result in a significant loss of principal. The Terms of the Securities at Issuance and Their Market Value Prior to Maturity Will Be Influenced by Many Unpredictable Factors — Many economic and market factors influenced the terms of the Securities at issuance and will influence their value prior to maturity. These factors are similar in some ways to those that could affect the value of a combination of instruments that might be used to replicate the payments on the Securities, including a combination of a bond with one or more options or other derivative instruments. For the market value of the Securities, we expect that, generally, the level of the Underlying on any day will affect the value of the Securities more than any other single factor. However, you should not expect the value of the Securities in the secondary market to vary in proportion to changes in the level of the Underlying. The value of the Securities will be affected by a number of other factors that may either offset or magnify each other, including:

- .. the actual or expected volatility of the Underlying;
- .. the time remaining to maturity of the Securities;

- the dividend rates on the equity securities included in the Underlying;
- interest and yield rates in the market generally, as well as in each of the markets of the equity securities included in the Underlying;
- a variety of economic, financial, political, regulatory or judicial events; and
- our creditworthiness, including actual or anticipated downgrades in our credit ratings.

Some or all of these factors influenced the terms of the Securities at issuance and will influence the price you will receive if you choose to sell the Securities prior to maturity. The impact of any of the factors set forth above may enhance or offset some or all of any change resulting from another factor or factors. You may have to sell the Securities at a substantial discount from the principal amount if, for example, the level of the Underlying is at, below or not sufficiently above, the Initial Underlying Level.

Hypothetical Examples and Return Table at Maturity

Hypothetical terms only. Actual terms may vary. See the cover page for the actual offering terms.

The following table and hypothetical examples below illustrate the payment at maturity per \$10.00 Security for a hypothetical range of Underlying Returns from -100.00% to +100.00% and assume a hypothetical Initial Underlying Level of 1,000, a hypothetical Step Barrier of 1,000, a hypothetical Downside Threshold of 750, and reflect the Step Return of 47.25%. The actual Initial Underlying Level, Downside Threshold and Step Return are set forth on the cover page of this pricing supplement. The hypothetical Payment at Maturity examples set forth below are for illustrative purposes only and may not be the actual returns applicable to a purchaser of the Securities. The actual payment at maturity will be determined based on the Final Underlying Level on the Final Valuation Date. You should consider carefully whether the Securities are suitable to your investment goals.

Example 1 – On the Final Valuation Date, the Underlying closes 50% above the Initial Underlying Level. Because the Underlying Return is positive and the Underlying Return of 50% is greater than the Step Return of 47.25%, we will pay you a payment of \$15.00 at maturity, calculated as follows:

$$\$10 + (\$10 \times \text{the greater of (i) } 50.00\% \text{ and (ii) } 47.25\%) = \$10 + \$5.00 = \$15.00$$

Example 2 – On the Final Valuation Date, the Underlying closes 20% above the Initial Underlying Level. Because the Underlying Return is positive and the Underlying Return of 20% is less than the Step Return of 47.25%, we will pay you a payment of \$14.725 at maturity, calculated as follows:

$$\$10 + (\$10 \times \text{the greater of (i) } 20.00\% \text{ and (ii) } 47.25\%) = \$10 + \$4.725 = \$14.725$$

Example 3 – On the Final Valuation Date, the Underlying closes 10% below the Initial Underlying Level. Because the Underlying Return is negative, but the Final Underlying Level is greater than the Downside Threshold, we will pay you at maturity the principal amount of \$10 per \$10 principal amount Security.

Example 4 – On the Final Valuation Date, the Underlying closes 40% below the Initial Underlying Level. Because the Underlying Return is negative and the Final Underlying Level is less than the Downside Threshold, we will pay you at maturity a cash payment of \$6 per \$10 principal amount Security (a 40% loss on the principal amount), calculated as follows:

$$\$10 + (\$10 \times -40\%) = \$10 - \$4.00 = \$6.00$$

| Hypothetical Final Underlying Level | Hypothetical Underlying Return <sup>1</sup> | Hypothetical Payment at Maturity (\$) | Hypothetical Total Return on Securities <sup>2</sup> (%) |
|-------------------------------------|---|---------------------------------------|--|
| 2,000.00                            | 100.00%                                     | \$20.00                               | 100.00%  |
| 1,750.00                            | 75.00%                                      | \$17.50                               | 75.00%   |
| 1,500.00                            | 50.00%                                      | \$15.00                               | 50.00%   |
| 1,421.50                            | 42.15%                                      | \$14.725                              | 47.25%   |
| 1,400.00                            | 40.00%                                      | \$14.725                              | 47.25%   |
| 1,300.00                            | 30.00%                                      | \$14.725                              | 47.25%   |
| 1,200.00                            | 20.00%                                      | \$14.725                              | 47.25%   |
| 1,100.00                            | 10.00%                                      | \$14.725                              | 47.25%   |
| 1,050.00                            | 5.00%                                       | \$14.725                              | 47.25%   |
| 1,020.00                            | 2.00%                                       | \$14.725                              | 47.25%   |
| 1,000.00                            | 0.00%                                       | \$14.725                              | 47.25%   |
| 950.00                              | -5.00%                                      | \$10.00                               | 0.00%  |
| 900.00                              | -10.00%                                     | \$10.00                               | 0.00%  |
| 850.00                              | -15.00%                                     | \$10.00                               | 0.00%  |
| 750.00                              | -25.00%                                     | \$10.00                               | 0.00%  |
| 749.90                              | -25.01%                                     | \$7.50                                | -25.01%  |
| 700.00                              | -30.00%                                     | \$7.00                                | -30.00%  |
| 600.00                              | -40.00%                                     | \$6.00                                | -40.00%  |
| 500.00                              | -50.00%                                     | \$5.00                                | -50.00%  |
| 400.00                              | -60.00%                                     | \$4.00                                | -60.00%  |
| 250.00                              | -75.00%                                     | \$2.50                                | -75.00%  |

0.00

-100.00%

\$0.00

-100.00%

1 The Underlying Return excludes any cash dividend payments.

2 The “total return” is the number, expressed as a percentage, that results from comparing the payment at maturity per \$10 principal amount Security to the purchase price of \$10 per Security.

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## What Are the Tax Consequences of the Securities?

### U.S. Federal Income Tax Consequences

Set forth below, together with the discussion of U.S. federal income tax in the accompanying product prospectus supplement, prospectus supplement, and prospectus, is a summary of the material U.S. federal income tax consequences relating to an investment in the Securities. The following summary supplements and, to the extent inconsistent with, supersedes the discussion under the section entitled “Supplemental Discussion of U.S. Federal Income Tax Consequences” in the accompanying product prospectus supplement, the section entitled “Certain Income Tax Consequences” in the accompanying prospectus supplement, and the section entitled “Tax Consequences” in the accompanying prospectus, which you should carefully review prior to investing in the Securities.

In the opinion of our counsel, Morrison & Foerster LLP, it would generally be reasonable to treat the Securities as pre-paid cash-settled derivative contracts in respect of the Underlying for U.S. federal income tax purposes, and the terms of the Securities require a holder and us (in the absence of a change in law or an administrative or judicial ruling to the contrary) to treat the Securities for all tax purposes in accordance with such characterization. If the Securities are so treated, a U.S. holder should generally recognize capital gain or loss upon the sale or maturity of the Securities in an amount equal to the difference between the amount a holder receives at such time and the holder’s tax basis in the Securities. Capital gain recognized by an individual U.S. holder is generally taxed at preferential rates where the property is held for more than one year and is generally taxed at ordinary income rates where the property is held for one year or less. The deductibility of capital losses is subject to limitations.

Alternative tax treatments are also possible and the Internal Revenue Service might assert that a treatment other than that described above is more appropriate. In addition, the Internal Revenue Service has released a notice that may affect the taxation of holders of the Securities. According to the notice, the Internal Revenue Service and the Treasury Department are actively considering whether the holder of an instrument such as the Securities should be required to accrue ordinary income on a current basis. It is not possible to determine what guidance they will ultimately issue, if any. It is possible, however, that under such guidance, holders of the Securities will ultimately be required to accrue income currently and this could be applied on a retroactive basis. The Internal Revenue Service and the Treasury Department are also considering other relevant issues, including whether additional gain or loss from such instruments should be treated as ordinary or capital and whether the special “constructive ownership rules” of Section 1260 of the Internal Revenue Code of 1986, as amended (the “Code”) might be applied to such instruments. Holders are urged to consult their tax advisors concerning the significance, and the potential impact, of the above considerations.

Individual holders that own “specified foreign financial assets” may be required to include certain information with respect to such assets with their U.S. federal income tax return. You are urged to consult your own tax advisor regarding such requirements with respect to the Securities.

Under Section 871(m) of the Code, a “dividend equivalent” payment is treated as a dividend from sources within the United States. Such payments generally would be subject to a 30% U.S. withholding tax if paid to a non-U.S. holder. Under U.S. Treasury Department regulations, payments (including deemed payments) with respect to equity-linked instruments (“ELIs”) that are “specified ELIs” may be treated as dividend equivalents if such specified ELIs reference an interest in an “underlying security,” which is generally any interest in an entity taxable as a corporation for U.S. federal income tax purposes if a payment with respect to such interest could give rise to a U.S. source dividend. However, the Internal Revenue Service has issued guidance that states that the U.S. Treasury Department and the Internal Revenue Service intend to amend the effective dates of the U.S. Treasury Department regulations to provide that withholding on dividend equivalent payments will not apply to specified ELIs that are not delta-one instruments and that are issued before January 1, 2019. Based on our determination that the Securities are not delta-one instruments, non-U.S. holders should not be subject to withholding on dividend equivalent payments, if any, under the Securities. However, it is possible that the Securities could be treated as deemed reissued for U.S. federal income tax purposes upon the occurrence of certain events affecting the Underlying or the Securities (for example, upon an Underlying rebalancing), and following such occurrence the Securities could be treated as subject to withholding on dividend equivalent payments. Non-U.S. holders that enter, or have entered, into other transactions in respect of the Underlying or the Securities should consult their tax advisors as to the application of the dividend equivalent withholding tax in the context of the Securities and their other transactions. If any payments are treated as dividend equivalents subject to withholding, we (or the applicable withholding agent) would be entitled to withhold taxes without being required to pay any additional amounts with respect to amounts so withheld.

Please see the discussion under the section entitled “Supplemental Discussion of U.S. Federal Income Tax Consequences” in the accompanying product prospectus supplement for a further discussion of the U.S. federal income tax consequences of an investment in the Securities.

Canadian Federal Income Tax Consequences

For a discussion of the material Canadian federal income tax consequences relating to an investment in the Securities, please see the section entitled “Tax Consequences—Canadian Taxation” in the accompanying prospectus, which you should carefully review prior to investing in the Securities.

### Information About the Underlying

We have derived all information contained in this document regarding the SX5E, including, without limitation, its make-up, method of calculation, and changes in its components, from publicly available sources. The information reflects the policies of, and is subject to change by, the index sponsor. The index sponsor, which owns the copyright and all other rights to the SX5E, has no obligation to continue to publish, and may discontinue publication of, the SX5E. None of us, UBS or RBCCM accepts any responsibility for the calculation, maintenance or publication of the SX5E or any successor index.

The SX5E was created by STOXX, a joint venture between Deutsche Börse AG and SIX Group AG. Publication of the SX5E began in February 1998, based on an initial SX5E level of 1,000 at December 31, 1991.

### Composition and Maintenance

The SX5E is composed of 50 component stocks of market sector leaders from within the 19 EURO STOXX® Supersector indices, which represent the Eurozone portion of the STOXX Europe 600® Supersector indices. The composition of the SX5E is reviewed annually, based on the closing stock data on the last trading day in August. The component stocks are announced on the first trading day in September. Changes to the component stocks are implemented on the third Friday in September and are effective the following trading day. Changes in the composition of the SX5E are made to ensure that the SX5E includes the 50 market sector leaders from within the SX5E.

The free float factors for each component stock used to calculate the SX5E, as described below, are reviewed, calculated, and implemented on a quarterly basis and are fixed until the next quarterly review.

The SX5E is also reviewed on an ongoing basis. Corporate actions (including initial public offerings, mergers and takeovers, spin-offs, delistings, and bankruptcy) that affect the SX5E composition are immediately reviewed. Any changes are announced, implemented, and effective in line with the type of corporate action and the magnitude of the effect.

### Calculation of the SX5E

The SX5E is calculated with the “Laspeyres formula,” which measures the aggregate price changes in the component stocks against a fixed base quantity weight. The formula for calculating the SX5E value can be expressed as follows:

$$\text{Index} = \frac{\text{Free float market capitalization of the index}}{\text{Adjusted base date market capitalization of the index}} \times 1,000$$

The “free float market capitalization of the SX5E” is equal to the sum of the products of the closing price, market capitalization, and free float factor for each component stock as of the time the SX5E is being calculated.

The SX5E is also subject to a divisor, which is adjusted to maintain the continuity of the SX5E values across changes due to corporate actions, such as the deletion and addition of stocks, the substitution of stocks, stock dividends, and stock splits.

### License Agreement

We have entered into a non-exclusive license agreement with STOXX providing for the license to us and certain of our affiliated or subsidiary companies, in exchange for a fee, of the right to use indices owned and published by STOXX (including the SX5E) in connection with certain securities, including the Securities offered hereby.

The license agreement between us and STOXX requires that the following language be stated in this document:

STOXX has no relationship to us, other than the licensing of the SX5E and the related trademarks for use in connection with the Securities. STOXX does not:

- sponsor, endorse, sell, or promote the Securities;
- recommend that any person invest in the Securities offered hereby or any other securities;
- have any responsibility or liability for or make any decisions about the timing, amount, or pricing of the Securities;
- have any responsibility or liability for the administration, management, or marketing of the Securities; or
- consider the needs of the Securities or the holders of the Securities in determining, composing, or calculating the SX5E, or have any obligation to do so.

STOXX will not have any liability in connection with the Securities. Specifically:

- STOXX does not make any warranty, express or implied, and disclaims any and all warranty concerning:
  - the results to be obtained by the Securities, the holders of the Securities or any other person in connection with the use of the SX5E and the data included in the SX5E;
  - the accuracy or completeness of the SX5E and its data;



- the merchantability and the fitness for a particular purpose or use of the SX5E and its data;
- STOXX will have no liability for any errors, omissions, or interruptions in the SX5E or its data; and
- Under no circumstances will STOXX be liable for any lost profits or indirect, punitive, special, or consequential damages or losses, even if STOXX knows that they might occur.

The licensing agreement between us and STOXX is solely for their benefit and our benefit, and not for the benefit of the holders of the Securities or any other third parties.

Historical Information

The following table sets forth the quarterly high, low and period-end closing levels of the Underlying, as reported by Bloomberg Financial Markets. The historical performance of the Underlying should not be taken as an indication of its future performance. We cannot give you assurance that the performance of the Underlying will result in the return of any of your initial investment.

| Quarter Begin | Quarter End | Quarterly Closing High | Quarterly Closing Low | Quarterly Period-End Close |
|---------------|-------------|------------------------|-----------------------|----------------------------|
| 1/1/2008      | 3/31/2008   | 4,339.23               | 3,431.82              | 3,628.06                   |
| 4/1/2008      | 6/30/2008   | 3,882.28               | 3,340.27              | 3,352.81                   |
| 7/1/2008      | 9/30/2008   | 3,445.66               | 3,000.83              | 3,038.20                   |
| 10/1/2008     | 12/31/2008  | 3,113.82               | 2,165.91              | 2,447.62                   |
| 1/1/2009      | 3/31/2009   | 2,578.43               | 1,809.98              | 2,071.13                   |
| 4/1/2009      | 6/30/2009   | 2,537.35               | 2,097.57              | 2,401.69                   |
| 7/1/2009      | 9/30/2009   | 2,899.12               | 2,281.47              | 2,872.63                   |
| 10/1/2009     | 12/31/2009  | 2,992.08               | 2,712.30              | 2,964.96                   |
| 1/1/2010      | 3/31/2010   | 3,017.85               | 2,631.64              | 2,931.16                   |
| 4/1/2010      | 6/30/2010   | 3,012.65               | 2,488.50              | 2,573.32                   |
| 7/1/2010      | 9/30/2010   | 2,827.27               | 2,507.83              | 2,747.90                   |
| 10/1/2010     | 12/31/2010  | 2,890.64               | 2,650.99              | 2,792.82                   |
| 1/1/2011      | 3/31/2011   | 3,068.00               | 2,721.24              | 2,910.91                   |
| 4/1/2011      | 6/30/2011   | 3,011.25               | 2,715.88              | 2,848.53                   |
| 7/1/2011      | 9/30/2011   | 2,875.67               | 1,995.01              | 2,179.66                   |
| 10/1/2011     | 12/31/2011  | 2,476.92               | 2,090.25              | 2,316.55                   |
| 1/1/2012      | 3/31/2012   | 2,608.42               | 2,286.45              | 2,477.28                   |
| 4/1/2012      | 6/30/2012   | 2,501.18               | 2,068.66              | 2,264.72                   |
| 7/1/2012      | 9/30/2012   | 2,594.56               | 2,151.54              | 2,454.26                   |
| 10/1/2012     | 12/31/2012  | 2,659.95               | 2,427.32              | 2,635.93                   |
| 1/1/2013      | 3/31/2013   | 2,749.27               | 2,570.52              | 2,624.02                   |
| 4/1/2013      | 6/30/2013   | 2,835.87               | 2,511.83              | 2,602.59                   |
| 7/1/2013      | 9/30/2013   | 2,936.20               | 2,570.76              | 2,893.15                   |
| 10/1/2013     | 12/31/2013  | 3,111.37               | 2,902.12              | 3,109.00                   |
| 1/1/2014      | 3/31/2014   | 3,172.43               | 2,962.49              | 3,161.60                   |
| 4/1/2014      | 6/30/2014   | 3,314.80               | 3,091.52              | 3,228.24                   |
| 7/1/2014      | 9/30/2014   | 3,289.75               | 3,006.83              | 3,225.93                   |
| 10/1/2014     | 12/31/2014  | 3,277.38               | 2,874.65              | 3,146.43                   |
| 1/2/2015      | 3/31/2015   | 3,731.35               | 3,007.91              | 3,697.38                   |
| 4/1/2015      | 6/30/2015   | 3,828.78               | 3,424.30              | 3,424.30                   |
| 7/1/2015      | 9/30/2015   | 3,686.58               | 3,019.34              | 3,100.67                   |
| 10/1/2015     | 12/31/2015  | 3,506.45               | 3,069.05              | 3,267.52                   |
| 1/1/2016      | 3/31/2016   | 3,178.01               | 2,680.35              | 3,004.93                   |
| 4/1/2016      | 6/30/2016   | 3,151.69               | 2,697.44              | 2,864.74                   |
| 7/1/2016      | 9/30/2016   | 3,091.66               | 2,761.37              | 3,002.24                   |
| 10/1/2016     | 12/31/2016  | 3,290.52               | 2,954.53              | 3,290.52                   |
| 1/1/2017      | 3/31/2017   | 3,500.93               | 3,230.68              | 3,500.93                   |
| 4/1/2017      | 6/30/2017   | 3,658.79               | 3,409.78              | 3,441.88                   |
| 7/1/2017      | 9/27/2017*  | 3,555.17               | 3,388.22              | 3,555.17                   |

\* This document includes information for the third calendar quarter of 2017 for the period from July 1, 2017 through September 27, 2017. Accordingly, the “Quarterly Closing High,” “Quarterly Closing Low” and “Quarterly Period-End Close” data indicated are for this shortened period only and do not reflect complete data for the third calendar quarter of 2017.



The graph below illustrates the performance of the Underlying from January 1, 2008 to September 27, 2017, based on the Initial Underlying Level of 3,555.17, which was its closing level on Trade Date. The green line represents the Downside Threshold of 2,666.38, which is equal to 75% of the Initial Underlying Level.

n Downside Threshold = 75% of the Initial Underlying Level

**HISTORIC PERFORMANCE IS NOT AN INDICATION OF FUTURE PERFORMANCE**

Source: Bloomberg L.P. We have not independently verified the accuracy or completeness of the information obtained from Bloomberg Financial Markets.

#### Supplemental Plan of Distribution (Conflicts of Interest)

We have agreed to indemnify UBS and RBCCM against liabilities under the Securities Act of 1933, as amended, or to contribute payments that UBS and RBCCM may be required to make relating to these liabilities as described in the prospectus supplement and the prospectus. We have agreed that UBS may sell all or a part of the Securities that it will purchase from us to investors at the price to public listed on the cover hereof, or its affiliates at the price indicated on the cover of this pricing supplement.

UBS may allow a concession not in excess of the underwriting discount set forth on the cover of this pricing supplement to its affiliates for distribution of the Securities.

Subject to regulatory constraints and market conditions, RBCCM intends to offer to purchase the Securities in the secondary market, but it is not required to do so.

We or our affiliates may enter into swap agreements or related hedge transactions with one of our other affiliates or unaffiliated counterparties in connection with the sale of the Securities and RBCCM and/or an affiliate may earn additional income as a result of payments pursuant to the swap or related hedge transactions. See “Use of Proceeds and Hedging” on page PS-14 of the accompanying product prospectus supplement no. UBS EI STEPS.

The value of the Securities shown on your account statement may be based on RBCCM’s estimate of the value of the Securities if RBCCM or another of our affiliates were to make a market in the Securities (which it is not obligated to do). That estimate will be based upon the price that RBCCM may pay for the Securities in light of then prevailing market conditions, our creditworthiness and transaction costs. For a period of approximately 10 months after the issue date of the Securities, the value of the Securities that may be shown on your account statement may be higher than RBCCM’s estimated value of the Securities at that time. This is because the estimated value of the Securities will not include the underwriting discount and our hedging costs and profits; however, the value of the Securities shown on your account statement during that period may be a higher amount, potentially reflecting the addition of the underwriting discount and our estimated costs and profits from hedging the Securities. Any such excess is expected to decrease over time until the end of this period. After this period, if RBCCM repurchases your Securities, it expects to do so at prices that reflect their estimated value. This period may be reduced at RBCCM’s discretion based on a variety of factors, including but not limited to, the amount of the Securities that we repurchase and our negotiated arrangements from time to time with UBS.

For additional information as to the relationship between us and RBCCM, please see the section entitled “Plan of Distribution—Conflicts of Interest” in the prospectus dated January 8, 2016.

#### Structuring the Securities

The Securities are our debt securities, the return on which is linked to the performance of the Underlying. As is the case for all of our debt securities, including our structured notes, the economic terms of the Securities reflect our actual or perceived creditworthiness at the time of pricing. In addition, because structured notes result in increased operational, funding and liability management costs to us, we typically borrow the funds under these Securities at a rate that is more favorable to us than the rate that we might pay for a conventional fixed or floating rate debt security of comparable maturity. Using this relatively lower implied borrowing rate rather than the secondary market rate is a factor that resulted in a higher initial estimated value of the Securities at the time their terms are set than if the secondary market rate was used. Unlike the estimated value included on the cover of this document, any value of the Securities determined for purposes of a secondary market transaction may be based on a different borrowing rate, which may result in a lower value for the Securities than if our initial internal borrowing rate were used.

In order to satisfy our payment obligations under the Securities, we may choose to enter into certain hedging arrangements (which may include call options, put options or other derivatives) on the issue date with RBCCM or one of our other subsidiaries. The terms of these hedging arrangements take into account a number of factors, including our creditworthiness, interest rate movements, the volatility of the Underlying, and the tenor of the Securities. The economic terms of the Securities and their initial estimated value depend in part on the terms of these hedging arrangements.

The lower implied borrowing rate is a factor that reduces the economic terms of the Securities to you. The initial offering price of the Securities also reflects the underwriting discount and our estimated hedging costs. These factors resulted in the initial estimated value for the Securities on the Trade Date being less than their public offering price. See “Key Risks—The Initial Estimated Value of the Securities Is Less than the Price to the Public” above.



Terms Incorporated in Master Note

The terms appearing above under the caption “Final Terms of the Securities” and the provisions in the accompanying product prospectus supplement no. UBS-EI-STEPS dated January 27, 2016 under the caption “General Terms of the Securities” are incorporated into the master note issued to DTC, the registered holder of the Securities.

Validity of the Securities

In the opinion of Norton Rose Fulbright Canada LLP, the issue and sale of the Securities has been duly authorized by all necessary corporate action of the Bank in conformity with the Indenture, and when the Securities have been duly executed, authenticated and issued in accordance with the Indenture and delivered against payment therefor, the Securities will be validly issued and, to the extent validity of the Securities is a matter governed by the laws of the Province of Ontario or Québec, or the laws of Canada applicable therein, and will be valid obligations of the Bank, subject to equitable remedies which may only be granted at the discretion of a court of competent authority, subject to applicable bankruptcy, to rights to indemnity and contribution under the Securities or the Indenture which may be limited by applicable law; to insolvency and other laws of general application affecting creditors’ rights, to limitations under applicable limitations statutes, and to limitations as to the currency in which judgments in Canada may be rendered, as prescribed by the Currency Act (Canada). This opinion is given as of the date hereof and is limited to the laws of the Provinces of Ontario and Québec and the federal laws of Canada applicable thereto. In addition, this opinion is subject to customary assumptions about the Trustee’s authorization, execution and delivery of the Indenture and the genuineness of signatures and certain factual matters, all as stated in the letter of such counsel dated January 8, 2016, which has been filed as Exhibit 5.1 to Royal Bank’s Form 6-K filed with the SEC dated January 8, 2016.

In the opinion of Morrison & Foerster LLP, when the Securities have been duly completed in accordance with the Indenture and issued and sold as contemplated by the prospectus supplement and the prospectus, the Securities will be valid, binding and enforceable obligations of Royal Bank, entitled to the benefits of the Indenture, subject to applicable bankruptcy, insolvency and similar laws affecting creditors’ rights generally, concepts of reasonableness and equitable principles of general applicability (including, without limitation, concepts of good faith, fair dealing and the lack of bad faith). This opinion is given as of the date hereof and is limited to the laws of the State of New York. This opinion is subject to customary assumptions about the Trustee’s authorization, execution and delivery of the Indenture and the genuineness of signatures and to such counsel’s reliance on the Bank and other sources as to certain factual matters, all as stated in the legal opinion dated January 8, 2016, which has been filed as Exhibit 5.2 to the Bank’s Form 6-K dated January 8, 2016.