

ROYAL BANK OF CANADA  
 Form 424B2  
 October 02, 2018

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Registration No. 333-227001

Pricing Supplement No. WFC124 (to Prospectus and Prospectus Supplement each dated September 7, 2018)

Royal Bank of Canada  
 \$918,000

Market Linked Securities – Auto-Callable with Fixed Percentage Buffered Downside

Principal at Risk Securities Linked to the EURO STOXX 50® Index, due October 4, 2021

The securities described in this pricing supplement are issued by Royal Bank of Canada (Royal Bank of Canada or the Issuer), as described in the prospectus supplement and prospectus each dated September 7, 2018.

Agent: Wells Fargo Securities, LLC. The agent may make sales through its affiliates or selling agents.

Principal Amount: Each security will have a principal amount of \$1,000.00. The securities are not principal protected. You may lose up to 90% of the principal amount of the securities.

Pricing Date: September 28, 2018

Original Issue Date: October 3, 2018

Valuation Date: September 27, 2021, subject to postponement as described below.

Maturity Date: October 4, 2021, subject to postponement as described below.

Interest: We will not pay you interest during the term of the securities.

Index: The return on the securities is linked to the performance of the EURO STOXX 50® Index (Bloomberg symbol: SX5E), which we refer to as the Index.

The securities will be automatically called if the closing level of the Index on any of the call dates below is greater than or equal to the Initial Index Level, as determined by the calculation agent in its sole discretion. If a call event occurs, you will receive a call price equal to the issue price of \$1,000.00 per security, plus the call premium corresponding to the applicable call date, as described in the table below.

|             | <u>Call Dates*</u>                                    | <u>Call Premium</u>       | <u>Call Price</u> |
|-------------|---|---------------------------|-------------------|
| Call Event: | October 3, 2019                                       | 9.00% of the issue price  | \$1,090.00        |
|             | October 5, 2020                                       | 18.00% of the issue price | \$1,180.00        |
|             | September 27, 2021 (which is also the valuation date) | 27.00% of the issue price | \$1,270.00        |

\* Subject to postponement for non-trading days or market disruption events as described in this pricing supplement.

Any positive return on the securities will be limited to the applicable call premium, even if the closing level of the Index on the applicable call date significantly exceeds the Initial Index Level. You will not participate in any appreciation of the Index beyond the applicable fixed call premium.

Call Settlement Date: Five business days after the applicable call date, subject to postponement as described in this pricing supplement. The last call date is the valuation date, and payment upon a call event on the valuation date, if applicable, will be made on the maturity date.

Payment at Maturity: If a call event does not occur, the amount you will receive at maturity, for each security you own, will depend upon the change in the level of the Index based on the Final Index Level relative to the Initial Index Level (calculated as described in this pricing supplement). If the Final Index Level is less than the Initial Index Level but greater than or equal to the Buffer Level, the maturity payment amount per security will equal the issue price of \$1,000.00.

If the Final Index Level is less than the Buffer Level, the maturity payment amount per security will equal:

$$\$1,000 - (\$1,000 \times \frac{\text{Buffer Level} - \text{Final Index Level}}{\text{Initial Index Level}})$$

If the Final Index Level is less than the Buffer Level, the amount you will receive at maturity will be less than the principal amount of the securities, and you will lose up to 90% of your principal. If the Final Index Level is zero, the maturity payment amount will be \$100.00 per security, and you will lose 90% of your principal. 3,399.20, which was the closing level of the Index on the pricing date.

Initial Index Level: The closing level of the Index on the valuation date (which is also the final call

date).  
 3,059.28,  
 which is  
 Buffer Level: 90% of the  
 Initial Index  
 Level.  
 The  
 securities  
 will not be  
 Listing: listed on  
 any  
 securities  
 exchange.  
 CUSIP Number: 78013XC71

Our initial estimated value of the securities as of the date of this document is \$956.22 per \$1,000 in principal amount, which is less than the public offering price. The market value of the securities at any time will reflect many factors, cannot be predicted with accuracy, and may be less than this amount. See “Risk Factors” and “Supplemental Plan of Distribution – Structuring the Securities” for further information.

The securities will be unsecured debt obligations of Royal Bank of Canada. Payments on the securities are subject to Royal Bank of Canada’s credit risk. If Royal Bank of Canada defaults on its obligations, you could lose your entire investment. No other company or entity will be responsible for payments under the securities or liable to holders of the securities in the event Royal Bank of Canada defaults under the securities. The securities will not be issued by or guaranteed by Wells Fargo Securities, LLC or any of its affiliates. The securities are not subject to conversion into our common shares under subsection 39.2(2.3) of the Canada Deposit Insurance Corporation Act.

The securities will not constitute deposits insured by the Canada Deposit Insurance Corporation, the U.S. Federal Deposit Insurance Corporation (the “FDIC”) or any other Canadian or U.S. government agency or instrumentality. For a detailed description of the terms of the securities, see “Summary Information” beginning on page PS-2 and “Specific Terms of the Securities” beginning on page PS-19. Defined terms used in this cover page are defined in “Summary Information” and “Specific Terms of the Securities.”

The securities have complex features and investing in the securities involves risks. See “Risk Factors” beginning on page PS-12 of this document and page S-1 of the accompanying prospectus supplement

|   | Per<br>Security | Total        |
|---|-----------------|--------------|
| Public Offering Price                               | \$1,000.00      | \$918,000.00 |
| Underwriting Discount and Commission <sup>(1)</sup> | \$28.25         | \$25,933.50  |
| Proceeds to Royal Bank of Canada                    | \$971.75        | \$892,066.50 |

(1) The agent will receive an underwriting discount and commission of \$28.25 per security. Of that underwriting discount and commission, each dealer that sells securities will receive a selling concession of \$17.50 for each security that such dealer sells. Such securities dealers may include Wells Fargo Advisors (“WFA”) (the trade name of the retail brokerage business of Wells Fargo Clearing Services, LLC and Wells Fargo Advisors Financial Network, LLC). In addition to the selling concession allowed to WFA, the agent will pay \$0.75 per security of the underwriting discount and commission to WFA as a distribution expense fee for each security sold by WFA. See “Use of Proceeds and Hedging” and “Supplemental Plan of Distribution” in this pricing supplement for information regarding how we may hedge our obligations under the securities.

None of the Securities and Exchange Commission, any state securities commission or any other regulatory body has approved or disapproved of the securities or passed upon the adequacy or accuracy of this pricing supplement. Any representation to the contrary is a criminal offense.

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Wells Fargo Securities

The date of this pricing supplement is September 28, 2018



## SUMMARY INFORMATION

This document is a pricing supplement. This pricing supplement provides specific pricing information in connection with this issuance of securities. This summary includes questions and answers that highlight selected information from this pricing supplement and the accompanying prospectus supplement and prospectus to help you understand the Market Linked Securities Auto Callable with Fixed Percentage Buffered Downside Principal at Risk Securities Linked to the EURO STOXX 50<sup>®</sup> Index, due October 4, 2021 (the securities). You should carefully read this pricing supplement and the accompanying prospectus supplement and prospectus to fully understand the terms of the securities and the tax and other considerations that are important to you in making a decision about whether to invest in the securities. You should carefully review the section “Risk Factors” in this pricing supplement and the accompanying prospectus supplement and prospectus, which highlight certain risks associated with an investment in the securities, to determine whether an investment in the securities is appropriate for you.

Unless otherwise mentioned or unless the context requires otherwise, all references in this pricing supplement to “Royal Bank of Canada”, “we”, “us” and “our” or similar references mean Royal Bank of Canada. Capitalized terms used in this pricing supplement without definition have the meanings given to them in the accompanying prospectus supplement and prospectus.

What are the securities?

The securities offered by this pricing supplement will be issued by Royal Bank of Canada and will mature on October 4, 2021 unless previously called. The securities will be automatically called, if the closing level of the EURO STOXX 50<sup>®</sup> Index, which we refer to as the Index, on any of the call dates is greater than or equal to the Initial Index Level, as determined by the calculation agent in its sole discretion, and you will receive a call price equal to the issue price of \$1,000 per security, plus the call premium corresponding to the applicable call date, as described in this pricing supplement.

If the securities are not automatically called on one of the call dates, the return on the securities will depend upon the closing level of the Index on the valuation date (which is also the final call date). The securities will not bear interest and no other payments will be made until maturity. You may lose up to 90% of your investment in the securities.

The securities are debt securities and are part of a series of medium-term notes that Royal Bank of Canada may issue from time to time. The securities will rank equally with all other unsecured and unsubordinated debt of Royal Bank of Canada. For more details, see “Specific Terms of the Securities” beginning on page PS-19.

Each security has a principal amount of \$1,000. Each security is offered at an initial public offering price of \$1,000. However, on the pricing date, our initial estimated value of the securities is less than \$1,000 per security as a result of certain costs that are included in the initial public offering price. See “Risk Factors—Our initial estimated value of the securities is less than the initial public offering price” and “Supplemental Plan of Distribution—Structuring the Securities.”

To the extent a market for the securities exists, you may transfer only whole securities. Royal Bank of Canada will issue the securities in the form of a master global certificate, which is held by The Depository Trust Company, also known as DTC, or its nominee. Direct and indirect participants in DTC will record your ownership of the securities.

Are the securities principal protected?

No. If a call event does not occur, as described below, and the Final Index Level is less than the Buffer Level, you will be exposed on a 1-to-1 basis to declines in the level of the Index beyond the Buffer Level. Accordingly, if the Final Index Level is below the Buffer Level, you will lose up to 90% of your principal.

What will I receive if the securities are automatically called?

A call event will occur if the closing level of the Index on any of the call dates is greater than or equal to the Initial Index Level, as determined by the calculation agent in its sole discretion.

If a call event occurs, the securities will be automatically called, in whole, but not in part, as follows:

If a call event occurs on the first call date: you will receive on the corresponding call settlement date the call price of \$1,090.00, which is the issue price of \$1,000 per security plus a call premium of 9.00% of the issue price.

If a call event occurs on the second call date: you will receive on the corresponding call settlement date the call price of \$1,180.00, which is the issue price of \$1,000 per security plus a call premium of 18.00% of the issue price.

If a call event occurs on the third call date: you will receive on the corresponding call settlement date the call price of \$1,270.00, which is the issue price of \$1,000 per security plus a call premium of 27.00% of the issue price.

The call dates are October 3, 2019, October 5, 2020, and September 27, 2021 (which is also the valuation date). The call dates are subject to postponement as described under “Specific Terms of the Securities — Postponement of a Call Date or the Valuation Date.”

The call premium is equal to:

- 9.00% of the issue price as to the first call date;
- 18.00% of the issue price as to the second call date; and
- 27.00% of the issue price as to the third call date.

The call settlement date will be the date that is five business days after the applicable call date, subject to postponement due to a non-business day or a market disruption event, as described under “Specific Terms of the Securities — Postponement of a Call Date or the Valuation Date.” The last call date is the valuation date, and payment upon a call event on the valuation date, if applicable, will be made on the maturity date.

What will I receive upon maturity of the securities?

If a call event does not occur, at maturity, for each security you own, you will receive a cash payment equal to the maturity payment amount. The maturity payment amount to which you will be entitled depends on the percentage change in the level of the Index calculated based on the Final Index Level (as defined below) relative to the Initial Index Level (as defined below), and whether or not the Final Index Level is less than the Buffer Level.

The maturity payment amount for each security will be determined by the calculation agent as described below:

If the Final Index Level is less than the Initial Index Level but greater than or equal to the Buffer Level, the maturity payment amount per security will equal \$1,000.

If the Final Index Level is less than the Buffer Level, the maturity payment amount per security will equal:

$$\$1,000 - \left( \$1,000 \times \frac{\text{Buffer Level} - \text{Final Index Level}}{\text{Initial Index Level}} \right)$$

If the Final Index Level is less than the Buffer Level, the amount you will receive at maturity will be less than the principal amount of the securities, and you will lose up to 90% of your principal. If the Final Index Level is zero, the maturity payment amount will be \$100.00 per security, and you will lose 90% of your principal.

The Initial Index Level is 3,399.20, which was the closing level of the Index on the pricing date.

The Buffer Level is 3,059.28, which is 90% of the Initial Index Level.

The Final Index Level will be determined by the calculation agent and will be the closing level of the Index on the valuation date (which is also the final call date).

The valuation date is September 27, 2021. The valuation date is subject to postponement as described under “Specific Terms of the Securities – Postponement of a Call Date or the Valuation Date.”

The closing level on any trading day will equal the official closing level of the Index or any successor Index (as defined under “Specific Terms of the Securities — Discontinuation of the Index; Adjustments to the Index” below) published

PS-3

by the Index Sponsor (as defined below) or any successor index sponsor at the regular weekday close of trading on that trading day. In certain circumstances, the closing level will be based on the alternate calculation of the Index described under “Specific Terms of the Securities — Discontinuation of the Index; Adjustments to the Index” below. You should understand that you will only receive a payment greater than the principal amount of your securities if the closing level of the Index on one of the call dates is equal to or greater than the Initial Index Level, as determined by the calculation agent in its sole discretion. If this occurs, you will receive your \$1,000 principal amount plus the call premium corresponding to the applicable call date. However, if the securities are not called, and if the Final Index Level is less than the Buffer Level, you will be exposed on a 1-to-1 basis to declines in the level of the Index beyond the Buffer Level. Accordingly, if the level of the Index decreases below the Buffer Level, you will lose up to 90% of your principal.

PS-4

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Hypothetical Examples

Set forth below are six hypothetical examples of the payment on your securities. The examples reflect scenarios in which the securities are automatically called upon a call event, and they reflect the calculation of the maturity payment amount if a call event does not occur. These examples are based on the following hypothetical values of the Index (the numbers appearing in the examples below have been rounded for ease of analysis):

Hypothetical Initial Index Level: 3,000.00

Hypothetical Buffer Level: 2,700.00

Call Prices:

| Call Dates       | Call Premium | Call Price |
|------------------|--------------|------------|
| First Call Date  | 9.00%        | \$1,090.00 |
| Second Call Date | 18.00%       | \$1,180.00 |
| Third Call Date  | 27.00%       | \$1,270.00 |

A call event occurs and the securities are automatically called on one of the call dates:

The first three hypothetical examples below illustrate scenarios in which the securities are automatically called for the call price upon a call event. In each of these examples, the level of the Index increases by 20.00% from the hypothetical Initial Index Level to the hypothetical closing level of the Index on the applicable call date. Accordingly, the hypothetical call price corresponding to each call date (based on the call premium of 9.00% if called on the first call date, 18.00% if called on the second call date and 27.00% if called on the third call date) offers a lower return than a direct investment in the Index.

Example 1—The hypothetical closing level of the Index on the first call date is 120.00% of the hypothetical Initial Index Level, meaning that the securities are called:

Hypothetical closing level of the Index: 3,600.00

Call Price (per security) = \$1,000 + (\$1,000 × 9.00%) = \$1,090.00

Since the hypothetical closing level of the Index on the first call date is greater than the hypothetical Initial Index Level, the securities are automatically called and you receive the corresponding call premium of 9.00% of the issue price. As a result, your total cash payment on the first call settlement date would be \$1,090.00.

Example 2—The securities have not been called on the first call date and the hypothetical closing level of the Index on the second call date is 120.00% of the hypothetical Initial Index Level, meaning that the securities are called:

Hypothetical closing level of the Index: 3,600.00

Call Price (per security) = \$1,000 + (\$1,000 × 18.00%) = \$1,180.00

Since the hypothetical closing level of the Index on the second call date is greater than the hypothetical Initial Index Level, the securities are automatically called and you receive the corresponding call premium of 18.00% of the issue price. As a result, your total cash payment on the second call settlement date would be \$1,180.00.



Example 3—The securities have not been called on either of the first two call dates and the hypothetical closing level of the Index on the last call date (the valuation date) is 120.00% of the hypothetical Initial Index Level, meaning that the securities are called:

Hypothetical closing level of the Index: 3,600.00

Call Price (per security) = \$1,000 + (\$1,000 × 27.00%) = \$1,270.00

Since the hypothetical closing level of the Index on the last call date is greater than the hypothetical Initial Index Level, the securities are automatically called and you receive the corresponding call premium of 27.00% of the issue price. As a result, your total cash payment on the last call settlement date would be \$1,270.00

In each of these first three examples, as shown in the table below, the Index level fluctuates over the term of the securities and the Index closes above the hypothetical Initial Index Level of 3,000.00 on one of the three call dates. Because the hypothetical closing level of the Index is greater than the hypothetical Initial Index Level on one of the three call dates, the securities are automatically called as of the applicable call date and you would receive the corresponding call price indicated in each example.

| Call Date                  | Example 1                |            | Example 2                |            | Example 3                |            |
|----------------------------|--------------------------|------------|--------------------------|------------|--------------------------|------------|
|                            | Hypothetical Index Level | Call Price | Hypothetical Index Level | Call Price | Hypothetical Index Level | Call Price |
| First Call Date            | 3,600.00                 | \$1,090.00 | 2,400.00                 | —          | 2,400.00                 | —          |
| Second Call Date           | —                        | —          | 3,600.00                 | \$1,180.00 | 2,850.00                 | —          |
| Third Call Date            | —                        | —          | —                        | —          | 3,600.00                 | \$1,270.00 |
| Hypothetical Total Payment | \$1,090.00               |            | \$1,180.00               |            | \$1,270.00               |            |

A call event does not occur and the securities are not automatically called on one of the call dates:

Example 4—The hypothetical Final Index Level is 95.00% of the hypothetical Initial Index Level and the securities have not been called:

Hypothetical Final Index Level: 2,850.00

Since the hypothetical Final Index Level is less than the hypothetical Initial Index Level but greater than the hypothetical Buffer Level and the securities were not called on any call date, you would receive the principal amount of \$1,000.

Example 5—The hypothetical Final Index Level is 80.00% of the hypothetical Initial Index Level and the securities have not been called:

Hypothetical Final Index Level: 2,400.00

Maturity payment amount (per security) = \$1,000 – [ $\$1,000 \times \frac{(\text{Buffer Level} - \text{Final Index Level})}{\text{Initial Index Level}}$ ]

$$\$1,000 - \left[ \$1,000 \times \frac{(2,700.00 - 2,400.00)}{3,000.00} \right] = \$900.00$$

Since the hypothetical Final Index Level is less than the hypothetical Buffer Level and the securities were not called on any call date, the amount you would receive at maturity will be equal to the issue price of \$1,000 per security minus an amount equal to the product of (i) the issue price of \$1,000 per security and (ii) the decline of the Index to the extent below the Buffer Level, and you would lose some of your principal. Although the Index declined by 20.00% from the hypothetical Initial Index Level to the hypothetical Final Index Level, your total cash payment at maturity would be \$900.00 per security, representing a 10.00% loss of the principal amount of your securities.

Example 6—The hypothetical Final Index Level is 50.00% of the hypothetical Initial Index Level and the securities have not been called:

Hypothetical Final Index Level: 1,500.00

Maturity payment amount (per security) = \$1,000 – [ $\$1,000 \times \frac{(\text{Buffer Level} - \text{Final Index Level})}{\text{Initial Index Level}}$ ]

$$\$1,000 - \left[ \$1,000 \times \frac{(2,700.00 - 1,500.00)}{3,000.00} \right] = \$600.00$$

Since the hypothetical Final Index Level is less than the hypothetical Buffer Level and the securities were not called on any call date, the amount you would receive at maturity will be equal to the issue price of \$1,000 per security minus an amount equal to the product of (i) the issue price of \$1,000 per security and (ii) the decline of the Index to the extent below the Buffer Level, and you would lose some of your principal. Although the Index declined by 50.00% from the hypothetical Initial Index Level to the hypothetical Final Index Level, your total cash payment at maturity would be \$600.00 per security, representing a 40.00% loss of the principal amount of your securities.

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The following graph sets forth the return upon a call event on any call date, including the valuation date, or at maturity for a range of hypothetical closing levels of the Index. For purposes of this graph we have reflected the following terms of the securities:

| Call Dates       | Call Premium | Call Price |
|------------------|--------------|------------|
| First Call Date  | 9.00%        | \$1,090.00 |
| Second Call Date | 18.00%       | \$1,180.00 |
| Third Call Date  | 27.00%       | \$1,270.00 |

Return Profile of the Securities vs. the Index

PS-8

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Who should or should not consider an investment in the securities?

We have designed the securities for investors who seek exposure to the Index, who believe that the Index level will be greater than or equal to the Initial Index Level on one of the call dates and who want to receive the call price corresponding to the applicable call date if a call event occurs; who understand that, if the securities are not called and the Final Index Level is less than the Buffer Level, they will lose money on their investment; and who are willing to hold their securities until maturity if they are not previously called. Investors in the securities should be willing to risk up to 90.00% of their investment.

The securities are not designed for, and may not be a suitable investment for, investors who are unable or unwilling to hold the securities to maturity, who seek principal protection for their investment, who are unwilling to make an investment exposed to downside performance risk of the Index, who wish to participate in the full upside performance of the Index or who are unwilling to purchase securities with an initial estimated value as of the pricing date that is lower than the initial public offering price. The securities may not be a suitable investment for investors who prefer the lower risk of fixed income investments with comparable maturities issued by companies with comparable credit ratings.

What will I receive if I sell the securities prior to maturity?

The market value of the securities may fluctuate during the term of the securities. Several factors and their interrelationship will influence the market value of the securities, including the level of the Index, dividend yields of the common stocks underlying the Index, the time remaining to maturity of the securities, interest rates and the volatility of the Index. Depending on the impact of these factors, you may receive less than \$1,000 per security from any sale of your securities before the maturity date of the securities and less than what you would have received had you held the securities until maturity or an automatic call. Assuming no change in market conditions or other relevant factors, the price, if any, at which you may be able to sell your securities prior to maturity will be less than the initial public offering price and, subject to the discussion regarding secondary market prices during the three months following the original issue date in “Supplemental Plan of Distribution” on page PS-34, will be less than the initial estimated value of the securities set forth on the cover page. For more details, see “Risk Factors — Many factors affect the market value of the securities” on page PS-13 and “—The price, if any, at which you may be able to sell your securities prior to maturity may be less than the initial public offering price and our initial estimated value” on page PS-15.

Who publishes the Index and what does the Index measure?

The EURO STOXX 50<sup>®</sup> Index (the Index) is an equity index that is composed of 50 component stocks of sector leaders in 11 Eurozone countries and is intended to provide an indication of common stock price movement in the Eurozone. The Index is published by STOXX Limited (the Index Sponsor).

The Index is determined, calculated and maintained by the Index Sponsor without regard to the securities.

You should be aware that an investment in the securities does not entitle you to any ownership interest in the common stocks of the companies included in the Index. For a discussion of the Index, see “EURO STOXX 50<sup>®</sup> Index” below.

How has the Index performed historically?

You can find a table with the high, low and period-end closing levels of the Index during each calendar quarter from the first quarter of 2008 to the present, in the section entitled “EURO STOXX 50<sup>®</sup> Index — Historical Closing Levels of the Index” in this pricing supplement. We obtained the historical information from Bloomberg Financial Markets without independent verification. You should not take the past performance of the Index as an indication of how the Index will perform in the future.

What are the United States federal income tax consequences of investing in the securities?

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 as pre-paid cash-settled derivative contracts in respect of the Index. If the securities are so treated, a U.S. holder should generally recognize capital gain or loss upon the call, sale,

exchange 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.

Please read carefully the section entitled "Supplemental Discussion of U.S. Federal Income Tax Consequences" in this pricing supplement, the section entitled "Tax Consequences" in the accompanying prospectus and the section "Certain Income Tax Consequences" in the accompanying prospectus supplement. You should consult your tax advisor about your own tax situation.

What are the Canadian federal income tax consequences of investing in the securities?

For a discussion of the Canadian federal income tax consequences of investing in the securities, please read carefully the section entitled "Tax Consequences" in the accompanying prospectus and the section "Certain Income Tax Consequences" in the accompanying prospectus supplement. You should consult your tax advisor about your own tax situation.

Will the securities be listed on a stock exchange?

The securities will not be listed on any securities exchange. There can be no assurance that a liquid trading market will develop for the securities. Accordingly, if you sell your securities prior to maturity, you may have to sell them at a substantial loss. You should review the section entitled "Risk Factors — There may not be an active trading market for the securities" in this pricing supplement.

Are there any risks associated with my investment?

Yes, an investment in the securities is subject to significant risks, including the risk of loss of up to 90% of your principal. We urge you to read the detailed explanation of risks in "Risk Factors" beginning on page PS-12 of this document and page S-1 of the accompanying prospectus supplement.

PS-10

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#### ADDITIONAL INFORMATION

You should read this pricing supplement together with the prospectus dated September 7, 2018, as supplemented by the prospectus supplement dated September 7, 2018. This pricing supplement, together with these documents, 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, brochures or other educational materials of ours.

You should rely only on the information provided or incorporated by reference in this pricing supplement, the prospectus and the prospectus supplement. We have not authorized anyone else to provide you with different information, and we take no responsibility for any other information that others may give you. We and Wells Fargo Securities, LLC are offering to sell the securities and seeking offers to buy the securities only in jurisdictions where it is lawful to do so. The information contained in this pricing supplement and the accompanying prospectus supplement and prospectus is current only as of their respective dates.

If the information in this pricing supplement differs from the information contained in the prospectus supplement or the prospectus, you should rely on the information in this pricing supplement.

You should carefully consider, among other things, the matters set forth in “Risk Factors” in this pricing supplement and the accompanying prospectus supplement, as the securities involve risks not associated with conventional debt securities. We urge you to consult your investment, legal, tax, accounting and other advisers before you invest in the securities.

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

Prospectus dated September 7, 2018:

<https://www.sec.gov/Archives/edgar/data/1000275/000121465918005973/196181424b3.htm>

Prospectus Supplement dated September 7, 2018:

<https://www.sec.gov/Archives/edgar/data/1000275/000121465918005975/f97180424b3.htm>

Our Central Index Key, or CIK, on the SEC website is 1000275.

Please see the section “Documents Incorporated by Reference” on page i of the above prospectus for a description of our filings with the SEC that are incorporated by reference therein.

PS-11

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## RISK FACTORS

An investment in the securities is subject to the risks described below, as well as the risks described under “Risk Factors” in the accompanying prospectus supplement and prospectus. The securities have complex features and are a riskier investment than ordinary debt securities. Also, your securities are not equivalent to investing directly in the Index or the common stocks included in the Index. Investors in the securities are also exposed to further risks related to the Issuer of the securities, Royal Bank of Canada, which are described in Royal Bank of Canada’s most recent annual report on Form 40-F filed with the SEC and incorporated by reference herein. See the categories of risks identified and disclosed in the management’s discussion and analysis of financial condition and results of operations included in the annual report on Form 40-F. This section (and the management’s discussion and analysis section of the annual report on Form 40-F) describes the most significant risks relating to the securities. You should carefully consider whether the securities are suited to your particular circumstances.

Your investment may result in a loss of up to 90% of your principal

We will not repay you a fixed amount of principal on the securities at maturity. If a call event does not occur, the payment at maturity on the securities will depend on the percentage change in the level of the Index based on the Final Index Level relative to the Initial Index Level, and whether or not the Final Index Level is below the Buffer Level. Because the level of the Index is subject to market fluctuations, the amount of cash you receive at maturity, if a call event has not occurred, may be less than the principal amount of the securities. If the Final Index Level is less than the Buffer Level, you will be exposed on a 1-to-1 basis to declines in the level of the Index beyond the Buffer Level. Accordingly, if the level of the Index decreases below the Buffer Level, you will lose up to 90% of your principal.

You will not receive interest payments on the securities

You will not receive any periodic interest payments on the securities or any interest payment at maturity. If a call event does not occur, your payment at maturity will depend on the percentage change in the level of the Index based on the Final Index Level relative to the Initial Index Level, and whether or not the Final Index Level falls below the Buffer Level.

Your yield may be lower than the yield on a standard debt security of comparable maturity

The yield that you will receive on your securities, which could be negative, may be less than the return you could earn on other investments. Even if your yield is positive, your yield may be less than the yield you would earn if you bought a standard senior non-callable debt security of Royal Bank of Canada with the same maturity date. Your investment may not reflect the full opportunity cost to you when you take into account factors that affect the time value of money. Unlike conventional senior non-callable debt securities, the securities do not guarantee the return of all of the principal amount at maturity. In addition, no interest will be paid during the term of your securities.

Your securities are subject to the automatic call associated with a call event

If the closing level of the Index on one of the call dates is greater than or equal to the Initial Index Level, as determined by the calculation agent in its sole discretion, your securities will be automatically called and you will receive the applicable call price on the corresponding call settlement date, as specified under “Specific Terms of the Securities—Call Event” in this pricing supplement. If your securities are automatically called on one of the first two call dates, the term of your securities will be limited (to as little as approximately one year in the case of the first call date) and you might not be able to reinvest your principal in an investment with a similar return profile.

Your return is limited and will not reflect the return of owning the common stocks underlying the Index

You should understand that the opportunity to participate in the possible appreciation in the level of the Index through an investment in the securities is limited. If the securities are automatically called, the amount you receive on the applicable call settlement date will never exceed the call price for the applicable call date. If the securities are not called, the maturity payment amount will never exceed the principal amount. You will receive a payment greater than the principal amount of your securities only if the closing level of the Index on one of the three designated call dates is equal to or greater than the Initial Index Level, as determined by the calculation agent in its sole discretion. If this occurs, any positive return on the securities is based on the call premium corresponding to the applicable call date. If the call premium to which you are entitled in this situation is less than the return on the Index, then the return on your securities will be less than the amount you could have received from a direct investment in the Index.

Owning the securities is not the same as owning the common stocks underlying the Index

The return on your securities will not reflect the return you would realize if you actually owned and held the common stocks underlying the Index for a similar period. If the securities are automatically called upon a call event, the amount you receive on the call settlement date will be the call price for the applicable call date, regardless of the amount by which the closing level of the Index on the applicable call date exceeds the Initial Index Level. However if the securities are not automatically called upon a call event, and the Final Index Level is less than the Buffer Level, you will lose one percent of your investment for every one percent the Final Index Level declines below the Buffer Level. In addition, because the payments on the securities will be determined based on the performance of the Index, which is a price-return index, the return on the securities will not take into account the value of any dividends that may be paid on the common stocks underlying the Index. Further, as a holder of the securities, you will not be entitled to receive any dividend payments or other distributions on the common stocks underlying the Index, nor will you have voting rights or any other rights that holders of those common stocks may have. Even if the level of the Index increases above the Initial Index Level during the term of the securities, the market value of the securities may not increase by the same amount. It is also possible for the level of the Index to increase while the market value of the securities declines.

There may not be an active trading market for the securities

The securities will not be listed on any securities exchange. There can be no assurance that a liquid trading market will develop for the securities. Even if a secondary market for the securities develops, it may not provide significant liquidity and transaction costs in any secondary market could be high. As a result, the difference between bid and asked prices for the securities in any secondary market could be substantial. If you sell your securities before maturity, you may have to do so at a discount from the initial public offering price, and, as a result, you may suffer substantial losses.

Wells Fargo Securities, LLC and its broker-dealer affiliates may make a market for the securities, although they are not required to do so. As market makers, trading of the securities may cause Wells Fargo Securities, LLC or its broker-dealer affiliates to have long or short positions in the securities. Because we do not expect that any other market makers will participate in a secondary market for the securities, the price at which you may be able to sell your securities is likely to depend on the price, if any, at which Wells Fargo Securities, LLC or its broker-dealer affiliates may be willing to buy your securities. See “Supplemental Plan of Distribution.”

The amount to be paid upon a call event or at maturity is not linked to the level of the Index at any time other than on each call date and on the valuation date

The payment on the securities, whether upon a call event or at maturity, will be based on the closing level of the Index on each call date, including the valuation date. Therefore, changes in the level of the Index during the periods between the pricing date and the first call date or between call dates (including the valuation date) will not be reflected in the determination as to whether the securities are subject to an automatic call or the calculation of the amount payable on the maturity date. The calculation agent will determine whether the securities are subject to an automatic call by observing only the closing level of the Index on each applicable call date. The calculation agent will calculate the maturity payment amount by comparing only the closing level of the Index on the valuation date relative to the Initial Index Level. No other levels will be taken into account. As a result, you may lose some or a significant portion of your principal amount even if the level of the Index has risen at certain times during the term of the securities (but not on a call date) before falling to a closing level below the Buffer Level on the valuation date.

Many factors affect the market value of the securities

The market value of the securities will be affected by factors that interrelate in complex ways. It is important for you to understand that the effect of one factor may offset any increase in the market value of the securities caused by another factor and that the effect of one factor may compound any decrease in the market value of the securities caused by another factor. For example, a change in the volatility of the Index may offset some or all of any increase in the market value of the securities attributable to another factor, such as an increase in the level of the Index. In addition, a change in interest rates may offset other factors that would otherwise change the level of the Index, and therefore, may change the market value of the securities. We expect that the market value of the securities will depend to a significant extent on the amount, if any, by which the Index level during the term of the securities exceeds or does not exceed the Initial Index Level. If you choose to sell your securities when the level of the Index exceeds the Initial Index Level, you may receive substantially less than the amount that would be payable on the securities if the level of



the Index continues to exceed the Initial Index Level at the next

PS-13

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call date because of the expectation that the Index will continue to fluctuate until the next call date. We believe that other factors that may also influence the value of the securities include:

- the volatility (frequency and magnitude of changes in the level) of the Index and, in particular, market expectations regarding the volatility of the Index;
  - market interest rates in the U.S.;
  - the dividend yields of the common stocks included in the Index;
  - our creditworthiness, as perceived in the market;
  - changes that affect the Index, such as additions, deletions or substitutions;
  - the time remaining to maturity; and
- geopolitical, economic, financial, political, regulatory or judicial events as well as other conditions may affect the common stocks included in the Index.

The securities will be debt obligations of Royal Bank of Canada. No other company or entity will be responsible for payments under the securities

The securities will be issued by Royal Bank of Canada. The securities will not be guaranteed by any other company or entity. No other entity or company will be responsible for payments under the securities or liable to holders of the securities in the event Royal Bank of Canada defaults under the securities. Royal Bank of Canada's credit ratings are an assessment of our ability to pay our obligations, including those on the securities. Consequently, if we default on our obligations, you could lose your entire investment, and actual or anticipated declines in our creditworthiness may affect the value of the securities. The securities will not be issued by or guaranteed by Wells Fargo Securities, LLC or any of its affiliates.

The securities will be subject to risks, including non-payment in full, under Canadian bank resolution powers. Under Canadian bank resolution powers, the Canada Deposit Insurance Corporation ("CDIC") may, in circumstances where we have ceased, or are about to cease, to be viable, assume temporary control or ownership of us and may be granted broad powers by one or more orders of the Governor in Council (Canada), each of which we refer to as an "order," including the power to sell or dispose of all or a part of our assets, and the power to carry out or cause us to carry out a transaction or a series of transactions the purpose of which is to restructure our business. As part of the Canadian bank resolution powers, certain provisions of and regulations under the Bank Act (Canada) (the "Bank Act"), the Canada Deposit Insurance Corporation Act (the "CDIC Act") and certain other Canadian federal statutes pertaining to banks, which we refer to collectively as the "bail-in regime," provide for a bank recapitalization regime for banks designated by the Superintendent of Financial Institutions (Canada) (the "Superintendent") as domestic systemically important banks, which include us.

If the CDIC were to take action under the Canadian bank resolution powers with respect to us, this could result in a write-off or write-down on the securities. As a result, you should consider the risk that you may lose all of your investment, including the principal amount of the securities, if the CDIC were to take action under the Canadian bank resolution powers, and that any remaining outstanding securities, may be of little value upon exercise of any of these powers.

The Indenture will provide only limited acceleration and enforcement rights for the securities

Our Indenture under which the securities were issued will provide that acceleration will only be permitted (a) if we default in the payment of the principal on the securities, and the default continues for a period of 30 business days, or (b) certain bankruptcy, insolvency or reorganization events occur.

The circumstances surrounding the exercise of the Canadian bank resolution powers are unpredictable and can be expected to have an adverse effect on the securities

The decision as to whether we have ceased, or are about to cease, to be viable is a subjective determination by the Superintendent that is outside our control. There is no limitation on the type of order that may be made where it has been determined that we have ceased, or are about to cease, to be viable. As a result, you may be exposed to losses through the use of Canadian bank resolution powers other in liquidation.

Changes that affect the Index will affect the market value of the securities and the payment on the securities. The policies of the Index Sponsor concerning the calculation of the Index, additions, deletions or substitutions of the common stocks underlying the Index and the manner in which changes affecting the issuers of those stocks, such as stock dividends, reorganizations or mergers, are reflected in the Index could affect the level of the Index, whether the securities are subject to an automatic call, the maturity payment amount, and the market value of the securities prior to maturity. The amount payable on the securities and their market value could also be affected if the Index Sponsor changes these policies, for example, by changing the manner in which it calculates the Index, or if the Index Sponsor discontinues or suspends calculation or publication of the Index, in which case it may become difficult to determine the market value of the securities. If events such as these occur, or if the level of the Index is not available on any call date or the valuation date because of a market disruption event or for any other reason and no successor index is selected, the calculation agent may determine the level of the Index — and thus whether the securities are subject to an automatic call or the maturity payment amount, as applicable — in its sole discretion.

We have no affiliation with the Index Sponsor and will not be responsible for any actions taken by the Index Sponsor. We have no affiliation with the Index Sponsor and the Index Sponsor will not be involved in the offering of the securities. Consequently, we have no control of the actions of the Index Sponsor, including any actions of the type that would affect the composition of the Index, and therefore, the level of the Index. The Index Sponsor has no obligation of any sort with respect to the securities. Thus, the Index Sponsor has no obligation to take your interests into consideration for any reason, including in taking any actions that might affect the value of the securities.

Historical levels of the Index should not be taken as an indication of the future levels of the Index during the term of the securities.

The trading prices of the common stocks underlying the Index will determine the Index level at any given time. As a result, it is impossible to predict whether the level of the Index will rise or fall. Trading prices of the common stocks underlying the Index will be influenced by complex and interrelated political, economic, financial and other factors that can affect the issuers of those stocks.

Hedging transactions may affect the return on the securities.

As described below under “Use of Proceeds and Hedging” on page PS-33, we, through one or more hedging counterparties, may hedge our obligations under the securities by purchasing common stocks underlying the Index, futures or options on the Index or common stocks underlying the Index, or exchange-traded funds or other derivative instruments with returns linked or related to changes in the level of the Index or trading prices of common stocks underlying the Index, and may adjust these hedges by, among other things, purchasing or selling any of these assets at any time. Although they are not expected to, any of these hedging activities may adversely affect the trading prices of common stocks underlying the Index and/or the level of the Index and, therefore, the market value of the securities. It is possible that we or one or more of our hedging counterparties could receive substantial returns from these hedging activities while the market value of the securities declines.

Our initial estimated value of the securities is less than the initial public offering price.

Our initial estimated value of the securities is less than the initial public offering price of the securities. This is due to, among other things, the fact that the initial public offering price of the securities reflects the borrowing rate we pay to issue securities of this kind (an internal funding rate that is lower than the rate at which we borrow funds by issuing conventional fixed rate debt), and the inclusion in the initial public offering price of the underwriting discount and commission and hedging and other costs associated with the securities.

The price, if any, at which you may be able to sell your securities prior to maturity may be less than the initial public offering price and our initial estimated value.

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 will be less than the initial public offering price and, subject to the discussion in the next paragraph, will be less than our initial estimated value. This is because any such sale price would not be expected to include the underwriting discount and commission or hedging or other costs associated with the securities, including the estimated profit our hedging counterparty(ies) expect to realize in consideration for assuming the risks inherent in hedging our obligations under the securities. In addition, any price at which you may sell the securities is likely to reflect customary bid-



ask spreads for similar trades, and the cost of unwinding any related hedge transactions. In addition, the value of the securities determined for any secondary market price is expected to be based in part on the yield that is reflected in the interest rate on our conventional debt securities of similar maturity that are traded in the secondary market, rather than the internal funding rate that we used to price the securities and determine the initial estimated value. As a result, the secondary market price of the securities will be less than if the internal funding rate was used. These factors, together with various credit, market and economic factors over the term of the securities, and, potentially, changes in the level of the Index, 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. Moreover, we expect that any secondary market price will be based on Wells Fargo Securities, LLC's valuation of the securities, which may differ from (and may be lower than) the valuation that we would determine for the securities at that time based on the methodology by which we determined the initial estimated value set forth on the cover page of this document.

As set forth below in the section "Supplemental Plan of Distribution," for a limited period of time after the original issue date, Wells Fargo Securities, LLC may purchase the securities at a price that is greater than the price that would otherwise be determined at that time as described in the preceding paragraph. However, over the course of that period, assuming no changes in any other relevant factors, the price you may receive if you sell your securities is expected to decline.

The securities are not designed to be short-term trading instruments. Accordingly, you should be able and willing to hold your securities to maturity.

The initial estimated value of the securities is an estimate only, calculated as of the time the terms of the securities were set

Our 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 "Supplemental Plan of Distribution—Structuring the Securities" below. Our estimate is based on a variety of assumptions, including our internal funding rate (which represents a discount from our credit spreads), expectations as to dividends on the securities included in the Index, 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, including Wells Fargo Securities, LLC in connection with determining any secondary market price for the securities, 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 pricing 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 our initial estimated value of your securities.

Potential conflicts of interest could arise

We, Wells Fargo Securities, LLC and our respective affiliates may engage in trading activities related to the Index or the common stocks underlying the Index that are not for the account of holders of the securities or on their behalf. These trading activities may present a conflict between the holders' interest in the securities and the interests we, Wells Fargo Securities, LLC and our respective affiliates will have in the proprietary accounts, in facilitating transactions, including options and other derivatives transactions, for our customers and in accounts under our management. These trading activities could be adverse to the interests of the holders of the securities.

We, Wells Fargo Securities, LLC and our respective affiliates may presently or from time to time engage in business with one or more of the issuers of the common stocks underlying the Index. This business may include extending loans to, or making equity investments in, such companies or providing advisory services to such companies, including merger and acquisition advisory services. In the course of business, we, Wells Fargo Securities, LLC and our respective affiliates may acquire non-public information relating to these companies and, in addition, one or more of our affiliates or the affiliates of the agent may publish research reports about these companies. Neither we nor the agent make any representation to any purchasers of the securities regarding any matters whatsoever relating to the issuers of the common stocks underlying the Index. Any prospective purchaser of the securities should undertake an independent investigation of these companies as in its judgment is appropriate to make an informed decision regarding an investment in the securities. The offering of the securities does not reflect any investment or sell recommendations as to the Index or the securities underlying the Index by us, Wells Fargo Securities, LLC or our respective affiliates.



The calculation agent may postpone the valuation date or any call date and, therefore, determination of the closing level of the Index on that date, and the maturity date or any call settlement date, as applicable, if a market disruption event occurs

The valuation date and any call date and, therefore, determination of the closing level of the Index on that date may be postponed if the calculation agent determines that a market disruption event has occurred or is continuing with respect to the Index on that date. As a result, the maturity date or the call settlement date, as applicable, for the securities would be postponed. You will not be entitled to compensation from us or the calculation agent for any loss suffered as a result of the occurrence of a market disruption event, any resulting delay in payment or any change in the level of the Index after the original valuation date or call date, as applicable. See “Specific Terms of the Securities — Postponement of a Call Date or the Valuation Date” and “— Market Disruption Events” below.

There are potential conflicts of interest between you and the calculation agent

The calculation agent will, among other things, determine whether the securities are subject to an automatic call and, if not, the amount of your payment at maturity on the securities. Our wholly-owned subsidiary, RBC Capital Markets, LLC, will serve as the calculation agent. We may change the calculation agent after the original issue date without notice to you. The calculation agent will exercise its judgment when performing its functions. For example, the calculation agent may have to determine whether a market disruption event affects the Index. Since this determination by the calculation agent will affect whether the securities are subject to an automatic call or the payment at maturity on the securities, the calculation agent may have a conflict of interest if it needs to make a determination of this kind. In addition, the calculation agent determined the initial estimated value of the securities set forth on the cover page of this pricing supplement.

Risks associated with non-U.S. companies

The level of the Index depends upon the stocks of companies located within the Eurozone, and thus involve risks associated with the home countries of those non-U.S. companies, some of which are and have been experiencing economic stress. The prices of these non-U.S. stocks may be affected by political, economic, financial and social factors in the home country of each applicable company, including changes in that country’s government, economic and fiscal policies, currency exchange laws or other laws or restrictions, which could affect the value of the securities. These foreign securities may have less liquidity and could be more volatile than many of the securities traded in U.S. or other securities markets. Direct or indirect government intervention to stabilize the relevant foreign securities markets, as well as cross shareholdings in foreign companies, may affect trading levels or prices and volumes in those markets. The other special risks associated with foreign securities may include, but are not limited to: less liquidity and smaller market capitalizations; less rigorous regulation of securities markets; different accounting and disclosure standards; governmental interference; currency fluctuations; higher inflation; and social, economic and political uncertainties. These factors may adversely affect the performance of the Index and, as a result, the value of the securities.

The securities will not be adjusted for changes in exchange rates

Although the equity securities that comprise the Index are traded in euro, and your securities are denominated in U.S. dollars, the amount payable on your securities at maturity, if any, will not be adjusted for changes in the exchange rates between the U.S. dollar and the euro. Changes in exchange rates, however, may also reflect changes in the applicable non-U.S. economies that in turn may affect the level of the Index, and therefore your securities. The amount we pay in respect of your securities will be determined solely in accordance with the procedures described in this pricing supplement.

Significant aspects of the tax treatment of the securities are uncertain

The tax treatment of the securities is uncertain. We do not plan to request a ruling from the Internal Revenue Service or from the Canada Revenue Agency regarding the tax treatment of the securities, and the Internal Revenue Service, the Canada Revenue Agency or a court may not agree with the tax treatment described in this pricing supplement.

The Internal Revenue Service has issued a notice indicating that it and the U.S. Treasury Department are actively considering whether, among other issues, a holder should be required to accrue interest over the term of an instrument such as the securities even though that holder will not receive any payments with respect to the securities until maturity or earlier call, sale or exchange and whether all or part of the gain a holder may recognize upon call, sale, exchange or maturity of an instrument such as the securities should be treated as ordinary income. The outcome of this process is uncertain and could apply on a retroactive basis.

Please read carefully the section entitled "Supplemental Discussion of U.S. Federal Income Tax Consequences" in this pricing supplement, the section entitled "Tax Consequences" in the accompanying prospectus and the section entitled "Certain Income Tax Consequences" in the accompanying prospectus supplement. You should consult your tax advisor about your own tax situation.

For a discussion of the Canadian federal income tax consequences of investing in the securities, please read the section entitled "Tax Consequences" in the accompanying prospectus and the section entitled "Certain Income Tax Consequences" in the accompanying prospectus supplement. You should consult your tax advisor about your own tax situation.

PS-18

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**SPECIFIC TERMS OF THE SECURITIES**

The securities are to be issued pursuant to the terms of the Indenture dated as of October 23, 2003, between Royal Bank of Canada and The Bank of New York Mellon (as supplemented, the “Indenture”).

The information contained in this section and in the prospectus supplement and the prospectus summarizes some of the terms of the securities and the Indenture. This summary does not contain all of the information that may be important to you as a potential investor in the securities. You should read the Indenture before making your investment decision. We have filed copies of the Indenture with the SEC.

Issuer: Royal Bank of Canada  
 Specified Currency: U.S. dollars  
 Principal Amount: \$1,000 per security  
 Aggregate Principal Amount: \$918,000  
 Agent: Wells Fargo Securities, LLC. The agent may make sales through its affiliates or selling agents.  
 Agent Acting in the Capacity of: Principal  
 Pricing Date: September 28, 2018  
 Original Issue Date: October 3, 2018

Maturity Date: October 4, 2021, subject to postponement as described below. The maturity date will be a business day. In the event the maturity date would otherwise be a date that is not a business day, the maturity date will be postponed to the next succeeding date that is a business day and no interest shall accrue or be payable as a result of that postponement.

The Index: The return on the securities is linked to the performance of the EURO STOXX 50® Index (the Index).

The securities will be automatically called if the closing level of the Index on any of the call dates below is greater than or equal to the Initial Index Level, as determined by the calculation agent in its sole discretion. If a call event occurs, you will receive a call price equal to the issue price of \$1,000.00 per security, plus the call premium corresponding to the applicable call date, as described in the table below.

|             | <u>Call Dates*</u>                                 | <u>Call Premium</u>       | <u>Call Price</u> |
|-------------|--|---------------------------|-------------------|
| Call Event: | First Call Date                                    | 9.00% of the issue price  | \$1,090.00        |
|             | Second Call Date                                   | 18.00% of the issue price | \$1,180.00        |
|             | Third Call Date (which is also the Valuation Date) | 27.00% of the issue price | \$1,270.00        |

\* Subject to postponement for non-trading days or market disruption events as described below under “Postponement of a Call Date or the Valuation Date.”

Call Settlement Date: Any positive return on the securities will be limited to the applicable call premium, even if the closing level of the Index on the applicable call date significantly exceeds the Initial Index Level. You will not participate on any appreciation of the Index beyond the applicable fixed call premium. Five business days after the applicable call date. The last call date is the valuation date, and payment upon a call event on the valuation date, if applicable, will be made on the maturity date.

Valuation Date: September 27, 2021, subject to postponement for non-trading days or market disruption events as described below under “Postponement of a Call Date or the Valuation Date.”



If a call event does not occur, at maturity, for each security you own, you will receive a cash payment equal to the maturity payment amount. The maturity payment amount to which you will be entitled depends on the change in the level of the Index based on the Final Index Level relative to the Initial Index Level.

The maturity payment amount for each security will be determined by the calculation agent as described below:

- If the Final Index Level is less than the Initial Index Level but greater than or equal to the Buffer Level, the maturity payment amount per security will equal the issue price of \$1,000.
- If the Final Index Level is less than the Buffer Level, the maturity payment amount per security will equal

Payment at  
Maturity:

If the Final Index Level is less than the Buffer Level, you will lose up to 90% of your principal. If the Final Index Level is zero, the maturity payment amount will be \$100.00.

You should understand that you will receive a payment greater than the principal amount of your securities only if the closing level of the Index on one of the three call dates is equal to or greater than the Initial Index Level, as determined by the calculation agent in its sole discretion. If this occurs, you will receive your \$1,000 principal amount plus the call premium corresponding to the applicable call date.

If any call settlement date or the maturity date is not a business day, then payment on the securities may be made on the next day that is a business day, in the same amount and with the same effect as if paid on the original due date. No interest shall be payable as a result of such postponement.

Initial Index  
Level:

3,399.20, which was the closing level of the Index on the pricing date.

Final Index  
Level:

The closing level of the Index on the valuation date, as determined by the calculation agent.

Buffer Level:

3,059.28, which is 90% of the Initial Index Level.

Closing Level  
of the Index:

The official closing level of the Index or any successor index (as defined under “—Discontinuation of the Index; Adjustments to the Index” below) published by the Index Sponsor or any successor index sponsor at the regular weekday close of trading on the applicable trading day. In certain circumstances, the closing level will be based on the alternate calculation of the Index described under “—Discontinuation of the Index; Adjustments to the Index” below.

Postponement  
of a Call Date  
or the  
Valuation  
Date:

If the valuation date or any of the call dates occurs on a day that is not a trading day or on a day on which the calculation agent has determined that a market disruption event (as defined below) has occurred or is continuing, then the valuation date or the call date, as applicable, will be postponed until the next succeeding trading day on which the calculation agent determines that a market disruption event does not occur or is not continuing; provided that in no event will the valuation date or the call date be postponed by more than five trading days. If the valuation date or the call date is postponed by five trading days, and a market disruption event occurs or is continuing on that fifth trading day, then the closing level of the Index will nevertheless be determined as set forth above under “—Closing Level of the Index.” If the valuation date or any of the call dates are postponed, then the maturity date or the call settlement date, as applicable, will be postponed by an equal number of business days. No interest shall accrue or be payable as

a result of such postponement.

As determined by the calculation agent in its sole discretion, a “market disruption event” means any of (A), (B), (C) or (D) below:

A. Any of the following events occurs or exists with respect to any security included in the Index or any successor index, and the aggregate of all securities included in the Index or such successor index with respect to which any such event occurs comprise 20% or more of the level of the Index or such successor index:

- a material suspension of or limitation imposed on trading by the relevant stock exchange for such security or otherwise at any time during the one-hour period that ends at the scheduled closing time for the relevant stock exchange for such security on that day, whether by reason of movements in price exceeding limits permitted by the relevant stock exchange or otherwise;
- any event, other than an early closure, that materially disrupts or impairs the ability of market participants in general to effect transactions in, or obtain market values for, such security on its relevant stock exchange at any time during the one-hour period that ends at the scheduled closing time for the relevant stock exchange for such security on that day; or
- the closure on any exchange business day of the relevant stock exchange for such security prior to its scheduled closing time unless the earlier closing is announced by such relevant stock exchange at least one hour prior to the earlier of (i) the actual closing time for the regular trading session on such relevant stock exchange and (ii) the submission deadline for orders to be entered into the relevant stock exchange system for execution at the scheduled closing time for such relevant stock exchange on that day.

Market  
Disruption  
Events:

B. Any of the following events occurs or exists with respect to futures or options contracts relating to the equity index or any successor index:

- a material suspension of or limitation imposed on trading by any related futures or options exchange or otherwise at any time during the one-hour period that ends at the close of trading on such related futures or options exchange on that day, whether by reason of movements in price exceeding limits permitted by the related futures or options exchange or otherwise;
- Any event, other than an early closure, that materially disrupts or impairs the ability of market participants in general to effect transactions in, or obtain market values for, futures or options contracts relating to the Index or such successor index on any related futures or options exchange at any time during the one-hour period that ends at the close of trading on such related futures or options exchange on that day; or
- the closure on any exchange business day of any related futures or options exchange prior to its scheduled closing time unless the earlier closing time is announced by such related futures or options exchange at least one hour prior to the earlier of (i) the actual closing time for the regular trading session on such related futures or options exchange and (ii) the submission deadline for orders to be entered into the related futures or options exchange system for execution at the close of trading for such related futures or options exchange on that day.

C. The Index Sponsor fails to publish the level of the Index or any successor index (other than as a result of the Index Sponsor having discontinued publication of the Index or successor index and no successor index being available).

D. Any related futures or options exchange fails to open for trading during its regular trading session.

For the purposes of determining whether a market disruption event has occurred:

- the relevant percentage contribution of a security included in the Index or any successor index to the level of such index will be based on a comparison of (x) the portion of the level of such index attributable to that security to (y) the overall level of such index, in each case using the official opening weightings as published by the relevant index sponsor as part of the market opening data;
- the “scheduled closing time” of any relevant stock exchange or related futures or options exchange on any trading day means the scheduled weekday closing time of such relevant stock exchange or related futures or options exchange on such trading day, without regard to after hours or any other trading outside the regular trading session hours; and an “exchange business day” means any trading day on which (i) the relevant index sponsor publishes the level of the Index or any successor equity index and (ii) each related futures or options exchange is open for trading during its regular trading session, notwithstanding any related futures or options exchange closing prior to its scheduled closing time.

Related Futures  
or Options  
Exchange:

An exchange or quotation system where trading has a material effect (as determined by the calculation agent) on the overall market for futures or options contracts relating to the Index.

Relevant Stock  
Exchange:

For any security underlying the Index, the primary exchange or quotation system on which such security is traded, as determined by the calculation agent.

If the Index Sponsor discontinues publication of the Index and the Index Sponsor or another entity publishes a successor or substitute index that the calculation agent determines, in its sole discretion, to be comparable to the Index (a successor index), then the calculation agent will substitute the successor index as calculated by the Index Sponsor or any other entity for the Index and calculate the Final Index Level as described above under “—Closing Level of the Index.”

If the Index Sponsor discontinues publication of the Index and:

- the calculation agent does not select a successor index, or
  - the successor index is no longer published on any of the relevant trading days,
- the calculation agent will compute a substitute level for the Index in accordance with the procedures last used to calculate the level of the Index before any discontinuation but using only those securities that were included in the Index prior to that discontinuation. If a successor index is selected or the calculation agent calculates a level as a substitute for the Index as described below, the successor index or level will be used as a substitute for the Index for all purposes going forward, including for purposes of determining whether a market disruption event exists, even if the Index Sponsor elects to begin republishing the Index, unless the calculation agent in its sole discretion decides to use the republished Index.

Discontinuation  
of/Adjustments  
to the Index:

If the Index Sponsor discontinues publication of the Index before the valuation date and the calculation agent determines that no successor index is available at that time, then on each trading day until the earlier to occur of:

- the determination of the Final Index Level, or
  - a determination by the calculation agent that a successor index is available,
- the calculation agent will determine the level of the Index on each call date as described in the preceding paragraph as if that day were a trading day. The calculation agent will cause notice of each level to be published not less often than once each month in The Wall Street

Journal, another newspaper of general circulation or a website or webpage available to holders of the securities, and arrange for information with respect to these levels to be made available by telephone. Notwithstanding these alternative arrangements, discontinuation of the publication of the Index would be expected to adversely affect the value of, liquidity of and trading in the securities.

If at any time the method of calculating the level of the Index or the successor index changes in any material respect, or if the Index or successor index is in any other way modified so that the level of the Index or successor index does not, in the opinion of the calculation agent, fairly represent the level of the Index had those changes or modifications not been made, then, from and after that time, the calculation agent will, at the close of business in The City of New York, on each date that the closing level of the Index is to be calculated, make any adjustments as, in the good faith judgment of the calculation agent, may be necessary in order to arrive at a calculation of a level of a stock index comparable to the Index or the successor index, as the case may be, as if those changes or modifications had not been made, and calculate the closing level with reference to the Index or the successor index, as so adjusted. Accordingly, if the method of calculating the Index or a successor index is modified and has a dilutive or concentrative effect on the level of that index e.g., due to a split, then the calculation agent will adjust that index in order to arrive at a level of that index as if it had not been modified, e.g., as if a split had not occurred.

Neither the calculation agent nor Royal Bank of Canada will have any responsibility for good faith errors or omissions in calculating or disseminating information regarding the Index or any successor index or as to modifications, adjustments or calculations by the Index Sponsor or any successor index sponsor in order to arrive at the level of the Index or any successor index.

Calculation Agent: RBC Capital Markets, LLC will serve as the calculation agent. All determinations made by the calculation agent will be at the sole discretion of the calculation agent and, absent a determination of a manifest error, will be conclusive for all purposes and binding on the holders and beneficial owners of the securities.

Trustee: The Bank of New York Mellon

Business Day: For purposes of the securities, a business day means a Monday, Tuesday, Wednesday, Thursday or Friday that is not a day on which banking institutions in The City of New York generally are authorized or obligated by law, regulation or executive order to close.

Trading Day: A day, as determined by the calculation agent, on which (i) the Index Sponsor is scheduled to publish the level of the Index and (ii) each related futures or option exchange is scheduled to be open for trading for its regular trading session.

Additional Amounts: We will pay any amounts to be paid by us on the securities without deduction or withholding for, or on account of, any and all present or future income, stamp and other taxes, levies, imposts, duties, charges, fees, deductions or withholdings (taxes) now or hereafter imposed, levied, collected, withheld or assessed by or on behalf of Canada or any Canadian political subdivision or authority that has the power to tax, unless the deduction or withholding is required by law or by the interpretation or administration thereof by the relevant governmental authority. At any time a Canadian taxing jurisdiction requires us to deduct or withhold for or on account of taxes from any payment made under or in respect of the securities, we will pay such additional amounts (Additional Amounts) as may be necessary so that the net amounts received by each holder (including Additional Amounts), after such deduction or withholding, shall not be less than the amount the holder would have received had no such deduction or withholding been required. However, no Additional Amounts will be payable with respect to a payment made to a holder of a security or of a right to receive payments in respect thereto (a Payment

Recipient), which we refer to as an Excluded Holder, in respect of any taxes imposed because the beneficial owner or Payment Recipient:

- (i) is someone with whom we do not deal at arm's length (within the meaning of the Income Tax Act (Canada)) at the time of making such payment;
- (ii) is subject to such taxes by reason of its being connected presently or formerly with Canada or any province or territory thereof otherwise than by reason of the holder's activity in connection with purchasing the securities, the holding of securities or the receipt of payments thereunder;
- (iii) is, or does not deal at arm's length with a person who is, a specified shareholder (within the meaning of subsection 18(5) of the Income Tax Act (Canada)) of Royal Bank of Canada (generally a person will be a specified shareholder for this purpose if that person, either alone or together with persons with whom the person does not deal at arm's length, owns 25% or more of (a) our voting shares, or (b) the fair market value of all of our issued and outstanding shares);
- (iv) presents such security for payment (where presentation is required) more than 30 days after the relevant date (except to the extent that the holder thereof would have been entitled to such Additional Amounts on presenting a security for payment on the last day of such 30 day period); for this purpose, the "relevant date" in relation to any payments on any security means:
  - (a) the due date for payment thereof, or
  - (b) if the full amount of the monies payable on such date has not been received by the Trustee on or prior to such due date, the date on which the full amount of such monies has been received and notice to that effect is given to holders of the securities in accordance with the Indenture;
  - (v) could lawfully avoid (but has not so avoided) such withholding or deduction by complying, or requiring that any agent comply with, any statutory requirements necessary to establish qualification for an exemption from withholding or by making, or requiring that any agent make, a declaration of non-residence or other similar claim for exemption to any relevant tax authority; or
  - (vi) is subject to deduction or withholding on account of any tax, assessment, or other governmental charge that is imposed or withheld by reason of the application of Section 1471 through 1474 of the United States Internal Revenue Code of 1986, as amended (Code) (or any successor provisions), any regulation, pronouncement, or agreement thereunder, official interpretations thereof, or any law implementing an intergovernmental approach thereto, whether currently in effect or as published and amended from time to time.
- (vii) For the avoidance of doubt, we will not have any obligation to pay any holders Additional Amounts on any tax which is payable otherwise than by deduction or withholding from payments made under or in respect of the securities at maturity or earlier call.
- (viii) We will also make such withholding or deduction and remit the full amount deducted or withheld to the relevant authority in accordance with applicable law. We will furnish to the Trustee, within 30 days after the date the payment of any taxes is due pursuant to applicable law, certified copies of tax receipts evidencing that such payment has been made or other evidence of such payment satisfactory to the Trustee. We will indemnify and hold harmless each holder of the securities (other than an Excluded Holder) and upon written request reimburse each such holder for the amount of (x) any taxes so levied or imposed and paid by such holder as a result of payments made under or with respect to the securities, and (y) any taxes levied or imposed and paid by such holder with respect to any reimbursement under (x) above, but excluding any such taxes on such

holder's net income or capital.

(ix) For additional information, see the section entitled "Tax Consequences—Canadian Taxation" in the accompanying prospectus.

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| Authorized Denominations:                        | \$1,000 and integral multiples of \$1,000 in excess thereof.   |
| Form of Securities:                              | Book-entry   |
| Listing:   | The securities will not be listed on any securities exchange.  |
| Failure to Pay Maturity Payment Amount When Due: | In the event we fail to pay the maturity payment amount on the maturity date, any overdue payment in respect of the maturity payment amount of the securities on the maturity date will bear interest until the date upon which all sums due in respect of such securities are received by or on behalf of the relevant holder, at a rate per annum which is the rate for deposits in U.S. dollars for a period of six months which appears on the Reuters Page LIBOR01 (or any replacement page or pages for the purpose of displaying prime rates or base lending rates of major U.S. banks) as of 11:00 a.m. (London time) on the first business day following that failure to pay. That rate will be determined by the calculation agent. If interest is required to be calculated for a period of less than one year, it will be calculated on the basis of a 360-day year consisting of the actual number of days in the period. |
| Events of Default and Acceleration:              | If the maturity of the securities is accelerated upon an event of default under the Indenture, the amount payable upon acceleration will be determined by the calculation agent. The amount will be the call price or the maturity payment amount, as applicable, calculated as if the date of declaration of acceleration were the final call date or the valuation date, as applicable.  |
| Terms Incorporated in the Master Note:           | All of the terms in "Specific Terms of the Securities."  |

PS-25

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## EURO STOXX 50® INDEX

All disclosures contained in this document regarding the Index, including, without limitation, its make-up, method of calculation, and changes in its components, have been derived from publicly available sources. The information reflects the policies of, and is subject to change by, STOXX Limited, as the sponsor of the Index (“STOXX”). STOXX, which owns the copyright and all other rights to the Index, has no obligation to continue to publish, and may discontinue publication of, the Index. None of us, Wells Fargo Securities, LLC or RBCCM accepts any responsibility for the calculation, maintenance or publication of the Index or any successor index.

The Index was created by STOXX and is currently wholly owned by Deutsche Börse AG. Publication of the Index began in February 1998, based on an initial index level of 1,000 at December 31, 1991. 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 Index are made to ensure that the Index includes the 50 market sector leaders from within the EURO STOXX Total Market Index. Additional information about the Index is available on the STOXX Limited website: <http://www.stoxx.com>. However, information included in that website is not included or incorporated by reference in this document.

For each of the 19 EURO STOXX regional supersector indices, the stocks are ranked in terms of free-float market capitalization. The largest stocks are added to the selection list until the coverage is close to, but still less than, 60% of the free-float market capitalization of the corresponding supersector index. If the next highest-ranked stock brings the coverage closer to 60% in absolute terms, then it is also added to the selection list. All current stocks in the Index are then added to the selection list. All of the stocks on the selection list are then ranked in terms of free-float market capitalization to produce the final index selection list. The largest 40 stocks on the selection list are selected; the remaining 10 stocks are selected from the largest remaining current stocks ranked between 41 and 60; if the number of stocks selected is still below 50, then the largest remaining stocks are selected until there are 50 stocks. In exceptional cases, STOXX’s management board can add stocks to and remove them from the selection list.

The index components are subject to a capped maximum index weight of 10%, which is applied on a quarterly basis. The Index is composed of 50 component stocks of market sector leaders from within the EURO STOXX® supersector indices, which includes stocks selected from the Eurozone portion of the STOXX Europe 600® supersector indices. The component stocks have a high degree of liquidity and represent the largest companies across a wide range of market sectors.

### Computation of the Index

The Index 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 index level can be expressed as follows:

$$\text{Index} = \frac{\text{free float market capitalization of the index at the time}}{\text{divisor of the index at the time}}$$

The “free float market capitalization of the index” is equal to the sum of the products of the closing price, number of shares, free float factor, weighting cap factor, and the exchange rate from local currency into the index currency for the component company as of the time that the Index is being calculated.

The divisor of the Index is adjusted to maintain the continuity of the Index’s values across changes due to corporate actions, such as cash dividends, rights offerings, stock dividends from treasury shares, repurchases of shares and self tender, and spin-offs.

### Index Maintenance

The composition of the Index is reviewed annually, based on the closing stock data on the last trading day in August. Changes in the composition of the Index are made to ensure that the Index includes the 50 market sector leaders from within the Index. The component stocks are announced on the first trading day in September.

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

The Index is subject to a “fast exit rule.” The index components are monitored for any changes based on the monthly selection list ranking. A stock is deleted from the Index if: (a) it ranks 75 or below on the monthly selection list and (b) it has

been ranked 75 or below for a consecutive period of two months in the monthly selection list. The highest-ranked stock that is not an index component will replace it. Changes will be implemented on the close of the fifth trading day of the month, and are effective the next trading day.

The Index is also subject to a “fast entry rule.” All stocks on the latest selection lists and initial public offering (IPO) stocks are reviewed for a fast-track addition on a quarterly basis. A stock is added, if (a) it qualifies for the latest STOXX blue-chip selection list generated end of February, May, August or November and (b) it ranks within the “lower buffer” on this selection list.

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

#### License Agreement

Royal Bank of Canada has entered into a non-exclusive license agreement with STOXX, which grants us a license in exchange for a fee to use the Index in connection with the issuance of certain securities, including the securities. STOXX has no relationship to Royal Bank of Canada, other than the licensing of the Index and its service marks 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 or any other financial products.

§ 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.

§ consider the needs of the securities or the owners of the securities in determining, composing or calculating the Index 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 STOXX disclaims any warranty about:

- the results to be obtained by the securities, the owner of the securities or any other person in connection with the use of the Index and the data included in the Index;
- the accuracy or completeness of the Index or its data;
- the merchantability and the fitness for a particular purpose or use of the Index or its data;
- any errors, omissions or interruptions in the Index or its data; and
- any lost profits or indirect, punitive, special or consequential damages or losses, even if STOXX knows that they might occur.

The licensing relating to the use of the Index and trademark referred to above by Royal Bank of Canada is solely for the benefit of Royal Bank of Canada, and not for any other third parties.

PS-27

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#### Historical Closing Levels of the Index

Since its inception, the level of the Index has experienced significant fluctuations. Any historical upward or downward trend in the closing level of the Index during any period shown below is not an indication that the closing level of the Index is more or less likely to increase or decrease at any time during the term of the securities. The historical levels of the Index do not give an indication of future performance of the Index. We cannot make any assurance that the future performance of the Index or the trading prices of the common stocks underlying the Index will result in holders of the securities receiving a positive total return on their investment.

We obtained the closing levels of the Index listed below from Bloomberg Financial Markets without independent verification. The actual levels of the Index on the call dates, including the valuation date, may bear little relation to the historical levels shown below.

The following graph sets forth the daily closing levels of the Index for the period from January 1, 2008 to September 28, 2018, and the table below the graph sets forth the published quarterly high, low and quarter end closing level of the Index for the same period. This historical data on the Index is not indicative of the future level of the Index or what the market value of the securities may be. Any historical upward or downward trend in the level of the Index during any period set forth below is not any indication that the level of the Index is more or less likely to increase or decrease at any time during the term of the securities.

PS-28

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High, Low and Period-End Closing Levels of the Index

| Quarter/Period –<br>Start Date | Quarter/Period –<br>End Date | High Closing Level<br>of the Index | Low Closing Level<br>of the Index | Quarter/Period –<br>End Closing Level<br>of the Index |
|--------------------------------|------------------------------|------------------------------------|-----------------------------------|---|
| 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                       | 3/30/2012                    | 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  |
| 1/1/2015                       | 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  |

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|           |            |          |          |          |
|-----------|------------|----------|----------|----------|
| 4/1/2017  | 6/30/2017  | 3,658.79 | 3,409.78 | 3,441.88 |
| 7/1/2017  | 9/30/2017  | 3,594.85 | 3,388.22 | 3,594.85 |
| 10/1/2017 | 12/31/2017 | 3,697.40 | 3,503.96 | 3,503.96 |
| 1/1/2018  | 3/31/2018  | 3,672.29 | 3,278.72 | 3,361.50 |
| 4/1/2018  | 6/30/2018  | 3,592.18 | 3,340.35 | 3,395.60 |
| 7/1/2018  | 9/28/2018  | 3,527.18 | 3,293.36 | 3,399.20 |

PS-29

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#### SUPPLEMENTAL DISCUSSION OF CANADIAN FEDERAL INCOME TAX CONSEQUENCES

An investor should read carefully the description of material Canadian federal income tax considerations relevant to a Non-resident Holder owning debt securities under “Tax Consequences—Canadian Taxation” in the accompanying prospectus.

#### SUPPLEMENTAL DISCUSSION OF U.S. FEDERAL INCOME TAX CONSEQUENCES

The following, together with the discussion of U.S. federal income taxation in the accompanying prospectus and prospectus supplement, is a general description of the material U.S. tax considerations relating to the securities. It does not purport to be a complete analysis of all tax considerations relating to the securities. Prospective purchasers of the securities should consult their tax advisors as to the consequences under the tax laws of the country of which they are resident for tax purposes and the tax laws of the U.S. of acquiring, holding and disposing of the securities and receiving payments under the securities. This summary is based upon the law as in effect on the date of this pricing supplement and is subject to any change in law that may take effect after such date.

##### Supplemental U.S. Tax Considerations

The following section supplements the discussion of U.S. federal income taxation in the accompanying prospectus under “Tax Consequences – United States Taxation” and prospectus supplement under “Certain Income Tax Consequences – United States Taxation” with respect to U.S. holders (as defined in the accompanying prospectus). It applies only to those initial holders who are not excluded from the discussion of U.S. federal income taxation in the accompanying prospectus. You should consult with your own tax advisor concerning the consequences of investing in and holding the securities.

**NO STATUTORY, JUDICIAL OR ADMINISTRATIVE AUTHORITY DIRECTLY DISCUSSES HOW THE SECURITIES SHOULD BE TREATED FOR U.S. FEDERAL INCOME TAX PURPOSES. AS A RESULT, THE U.S. FEDERAL INCOME TAX CONSEQUENCES OF AN INVESTMENT IN THE SECURITIES ARE UNCERTAIN. BECAUSE OF THE UNCERTAINTY, YOU SHOULD CONSULT YOUR TAX ADVISOR IN DETERMINING THE U.S. FEDERAL INCOME TAX AND OTHER TAX CONSEQUENCES OF YOUR INVESTMENT IN THE SECURITIES, INCLUDING THE APPLICATION OF STATE, LOCAL OR OTHER TAX LAWS AND THE POSSIBLE EFFECTS OF CHANGES IN FEDERAL OR OTHER TAX LAWS.**

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 Index 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 call, sale, exchange 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. In general, a U.S. holder’s tax basis in the securities will be equal to the price the holder paid for 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.

We will not attempt to ascertain whether the issuer of any of the component stocks included in the Index would be treated as a “passive foreign investment company” within the meaning of Section 1297 of the Code, or a “United States real property holding corporation” within the meaning of Section 897 of the Code. If the issuer of one or more of such stocks were so treated, certain adverse U.S. federal income tax consequences could possibly apply. You should refer to any available information filed with the SEC by the issuers of the component stocks included in the Index and consult your tax advisor regarding the possible consequences to you in this regard.

**Alternative Treatments.** Alternative tax treatments of the securities are also possible and the Internal Revenue Service might assert that a treatment other than that described above is more appropriate. For example, it would also be possible to treat a security, and the Internal Revenue Service might assert that a security should be treated, as a single debt instrument. Pursuant to such characterization, since the securities have a term that exceeds one year, such a debt instrument would be subject to the special tax rules governing contingent payment debt instruments. If the securities are so treated, a holder would generally be required to accrue interest currently over the term of the securities even though that holder will not receive any payments from us prior to maturity. In addition, any gain a holder might recognize upon the call, sale, exchange or maturity of the securities would be ordinary income and any loss recognized by a holder at such time would be ordinary

PS-30

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loss to the extent of interest included in income in the current or previous taxable years in respect of the securities, and thereafter, would be capital loss.

Because of the absence of authority regarding the appropriate tax characterization of the securities, it is also possible that the Internal Revenue Service could seek to characterize the securities in a manner that results in tax consequences that are different from those described above. For example, the Internal Revenue Service could possibly assert that any gain or loss that a holder may recognize upon the call, sale, exchange or maturity of the securities should be treated as ordinary gain or loss.

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 U.S. 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 U.S. 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 Code, which very generally can operate to recharacterize certain long-term capital gains as ordinary income and impose an interest charge, 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. We intend to treat the securities for U.S. federal income tax purposes in accordance with the treatment described in this document unless and until such time as the U.S. Treasury Department and Internal Revenue Service determine that some other treatment is more appropriate.

**Backup Withholding and Information Reporting.** Please see the discussion under “Tax Consequences — United States Taxation — Information Reporting and Backup Withholding” in the accompanying prospectus for a description of the applicability of the backup withholding and information reporting rules to payments made on the securities.

**Non-U.S. Holders.** The following discussion applies to non-U.S. holders of the securities. A non-U.S. holder is a beneficial owner of a security that, for U.S. federal income tax purposes, is a non-resident alien individual, a foreign corporation, or a foreign estate or trust.

Except as described below, a non-U.S. holder will generally not be subject to U.S. federal income or withholding tax for amounts paid in respect of the securities, provided that (i) the holder complies with any applicable certification requirements, (ii) the payment is not effectively connected with the conduct by the holder of a U.S. trade or business, and (iii) if the holder is a non-resident alien individual, such holder is not present in the U.S. for 183 days or more during the taxable year of the call, sale, exchange or maturity of the securities. In the case of (ii) above, the holder generally would be subject to U.S. federal income tax with respect to any income or gain in the same manner as if the holder were a U.S. holder and, in the case of a holder that is a corporation, the holder may also be subject to a branch profits tax equal to 30% (or such lower rate provided by an applicable U.S. income tax treaty) of a portion of its earnings and profits for the taxable year that are effectively connected with its conduct of a trade or business in the U.S., subject to certain adjustments. Payments made to a non-U.S. holder may be subject to information reporting and to backup withholding unless the holder complies with applicable certification and identification requirements as to its foreign status.

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, 2021. 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 Index or the securities (for example, upon an Index 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 Index or the securities should consult their tax advisors as to the application of the dividend equivalent

PS-31

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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.

As discussed above, alternative characterizations of the securities for U.S. federal income tax purposes are possible. Should an alternative characterization, by reason of change or clarification of the law, by regulation or otherwise, cause payments on the securities to become subject to withholding tax, we will withhold tax at the applicable statutory rate. The Internal Revenue Service has also indicated that it is considering whether income in respect of instruments such as the securities should be subject to withholding tax. We will not be required to pay any additional amounts in respect of such withholding. Prospective investors should consult their own tax advisors in this regard.

Foreign Account Tax Compliance Act. The Foreign Account Tax Compliance Act (“FATCA”) will impose a 30% U.S. withholding tax on certain U.S. source payments, including interest (and OID), dividends, other fixed or determinable annual or periodical gain, profits, and income, and on the gross proceeds from a disposition of property of a type which can produce U.S. source interest or dividends (“Withholdable Payments”), if paid to a foreign financial institution (including amounts paid to a foreign financial institution on behalf of a holder), unless such institution enters into an agreement with the U.S. Treasury Department to collect and provide to the U.S. Treasury Department certain information regarding U.S. financial account holders, including certain account holders that are foreign entities with U.S. owners, with such institution or otherwise complies with FATCA. In addition, the securities may constitute a “financial account” for these purposes and thus, be subject to information reporting requirements pursuant to FATCA. FATCA also generally imposes a withholding tax of 30% on Withholdable Payments made to a non-financial foreign entity unless such entity provides the withholding agent with a certification that it does not have any substantial U.S. owners or a certification identifying the direct and indirect substantial U.S. owners of the entity. Under certain circumstances, a holder may be eligible for refunds or credits of such taxes.

The U.S. Treasury Department and the Internal Revenue Service have announced that withholding on payments of gross proceeds from a sale or redemption of the securities will only apply to payments made after December 31, 2018. We will not pay any additional amounts in respect of any FATCA withholding. Therefore, if such withholding applies, any payments on the securities will be significantly less than what you would have otherwise received. Foreign financial institutions and non-financial foreign entities located in jurisdictions that have an intergovernmental agreement with the United States governing FATCA may be subject to different rules. Prospective investors are urged to consult with their own tax advisors regarding the possible implications of FATCA on their investment in the securities.

#### USE OF PROCEEDS AND HEDGING

The net proceeds from the sale of the securities will be used as described under “Use of Proceeds” in the accompanying prospectus supplement and prospectus and to hedge market risks of Royal Bank of Canada associated with its obligation to pay the call price upon a call event or the maturity payment amount at maturity of the securities.

The initial public offering price of the securities includes the underwriting discount and commission, as well as hedging and other costs associated with the securities. Our hedging costs include the projected profit that our hedge counterparty expects to realize in consideration for assuming the risks inherent in hedging our obligations under the securities.

We have hedged our obligations under the securities through an affiliate of Wells Fargo Securities, LLC and/or one or more of our affiliates, and we may in the future adjust our hedge. Because hedging our obligations entails risk and may be influenced by market forces beyond our or our counterparties’ control, this hedging may result in a profit that is more or less than expected, or could result in a loss.

We have no obligation to engage in any manner of hedging activity and will do so solely at our discretion and for our own account. No holder of the securities will have any rights or interest in our hedging activity or any positions we or any counterparty may take in connection with our hedging activity.

The hedging activity discussed above and other trading activities that we, Wells Fargo Securities, LLC and our respective affiliates may engage in may adversely affect the level of the Index, the market value of the securities from time to time, whether a call event occurs and, if a call event does not occur, the maturity payment amount you will receive on the securities at maturity. See “Risk Factors — Hedging transactions may affect the return on the securities” and “— Potential conflicts of interest could arise” for a discussion of these adverse effects.

PS-33

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#### SUPPLEMENTAL PLAN OF DISTRIBUTION

The securities are being purchased by Wells Fargo Securities, LLC (the agent) as principal, pursuant to a distribution agreement between the agent and us. The agent has agreed to pay certain of our out-of-pocket expenses of the issue of the securities.

From time to time, the agent and its affiliates have engaged, and in the future may engage, in transactions with and performance of services for us for which they have been, and may be, paid customary fees. In particular, an affiliate of the agent will be our swap counterparty for a hedge relating to our obligations under the securities.

In the future, the agent and its affiliates may purchase and resell the offered securities in market-making transactions, with resales being made at prices related to prevailing market prices at the time of resale or otherwise. Wells Fargo Securities, LLC may act as principal or agent in such transactions.

The agent has committed to purchase all of these securities in the initial public offering of the securities if any are purchased.

The agent proposes to offer the securities in part directly to the public at the public offering price set forth on the cover page of this pricing supplement and in part to WFA and Wells Fargo Advisors Financial Network, LLC or certain securities dealers at such price less a selling concession of \$17.50 per security. In addition to the selling concession allowed to WFA, the agent will pay \$0.75 per security of the underwriting discount and commission to WFA as a distribution expense fee for each security sold by WFA.

After the initial public offering of the securities is completed, the public offering price and concessions may be changed by the agent.

Proceeds to be received by Royal Bank of Canada in this offering will be net of the underwriting discount, commission and expenses payable by Royal Bank of Canada.

The securities are new issues of securities with no established trading markets. We have been advised by the agent that the agent intends to make a market in the securities. However the agent is not obligated to do so and may discontinue market making at any time without notice. No assurance can be given as to the liquidity of the trading market for the securities.

Any price that the agent makes available from time to time after the original issue date at which it would be willing to purchase the securities will generally reflect the agent's estimate of their value, less a customary bid-ask spread for similar trades and the cost of unwinding any related hedge transactions. That estimated value will be based upon a variety of factors, including then prevailing market conditions and our creditworthiness. However, for a period of three months after the original issue date, the price at which the agent may purchase the securities is expected to be higher than the price that would be determined based on the agent's valuation at that time less the bid-ask spread and hedging unwind costs referenced above. This is because, at the beginning of this period, that price will not include certain costs that were included in the initial public offering price, particularly a portion of the underwriting discount and commission (not including the selling concession) and the expected profits of our hedging counterparty(ies). As the period continues, these costs are expected to be gradually included in the price that the agent would be willing to pay, and the difference between that price and the price that would be determined based on the agent's valuation of the securities less a bid-ask spread and hedging unwind costs will decrease over time until the end of this period. After this period, if the agent continues to make a market in the securities, the prices that it would pay for them are expected to reflect the agent's estimated value, less the bid-ask spread and hedging unwind costs referenced above. In addition, the value of the securities shown on your account statement will generally reflect the price that the agent would be willing to pay to purchase the securities at that time.

Our broker-dealer subsidiary, RBC Capital Markets, LLC (RBCCM), does not expect to make a market in the securities. If RBCCM determines that the agent is unable or unwilling to make a market in the securities at any time, RBCCM may, but is not obligated to, make a market in the securities at that time. If RBCCM makes a market in the securities at any time, its valuation of the securities may differ from the agent's valuation, and consequently the price at which it may be willing to purchase the securities may differ from (and be lower than) the price at which the agent would have purchased the securities at that time.

Royal Bank of Canada has agreed to indemnify the agent against certain liabilities, including liabilities under the Securities Act of 1933.



No action has been or will be taken by Royal Bank of Canada, the agent or any broker-dealer affiliates of either Royal Bank of Canada or the agent that would permit a public offering of the securities or possession or distribution of this pricing supplement or the accompanying prospectus and prospectus supplement in any jurisdiction, other than the United States, where action for that purpose is required. No offers, sales or deliveries of the securities, or distribution of this pricing supplement or the accompanying prospectus supplement and prospectus, may be made in or from any jurisdiction except in circumstances which will result in compliance with any applicable laws and regulations and will not impose any obligations on Royal Bank of Canada, the agent or any broker-dealer affiliates of either Royal Bank of Canada or the agent.

#### Selling Restrictions

##### Argentina

Royal Bank of Canada U.S. Medium-Term Notes program and the related offer of securities and the sale of securities under the terms and conditions provided herein does not constitute a public offering in Argentina. Consequently, no public offering approval has been requested or granted by the Comisión Nacional de Valores, nor has any listing authorization of the securities been requested on any stock market in Argentina.

##### Brazil

The securities may not be offered or sold to the public in Brazil. Accordingly, this pricing supplement and the accompanying prospectus supplement and prospectus have not been submitted to the Comissão de Valores Mobiliários for approval. Documents relating to this offering may not be supplied to the public as a public offering in Brazil or be used in connection with any offer for subscription or sale to the public in Brazil.

##### Chile

The securities have not been registered with the Superintendencia de Valores y Seguros in Chile and may not be offered or sold publicly in Chile. No offer, sales or deliveries of the securities, or distribution of this pricing supplement or the accompanying prospectus supplement and prospectus, may be made in or from Chile except in circumstances that will result in compliance with any applicable Chilean laws and regulations.

##### China

This pricing supplement and the accompanying prospectus supplement and prospectus have not been filed with or approved by the People's Republic of China (for such purposes, not including Hong Kong and Macau Special Administrative Regions or Taiwan) authorities, and is not an offer of securities (whether public offering or private placement) within the meaning of the Securities Law or other pertinent laws and regulations of the People's Republic of China. These documents shall not be delivered to any party who is not an intended recipient or offered to the general public if used within the People's Republic of China, and the securities so offered cannot be sold to anyone that is not a qualified purchaser of the People's Republic of China. Each dealer has represented, warranted and agreed that the notes are not being offered or sold and may not be offered or sold, directly or indirectly, in the People's Republic of China, except under circumstances that will result in compliance with applicable laws and regulations.

##### European Union

No Prospectus (as defined in Directive 2003/71/EC (as amended, the "Prospectus Directive")) will be prepared in connection with these securities. Accordingly, these securities may not be offered to the public in any member state of the European Economic Area (the "EEA"), and any purchaser of these securities who subsequently sells any of these securities in any EEA member state must do so only in accordance with the requirements of the Prospectus Directive, as implemented in that member state.

The securities are not intended to be offered, sold or otherwise made available to, and should not be offered, sold or otherwise made available to, any retail investor in the EEA. For these purposes, the expression "offer" includes the communication in any form and by any means of sufficient information on the terms of the offer and the securities to be offered so as to enable an investor to decide to purchase or subscribe the securities, and a "retail investor" means a person who is one (or more) of: (a) a retail client, as defined in point (11) of Article 4(1) of Directive 2014/65/EU (as amended, "MiFID II"); or (b) a customer, within the meaning of Insurance Distribution Directive 2016/97/EU, as amended, where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II; or (c) not a qualified investor as defined in the Prospectus Directive. Consequently, no key information document required by Regulation (EU) No 1286/2014 (as amended, the "PRIIPs Regulation") for offering or selling the securities or otherwise making them available to



retail investors in the EEA has been prepared, and therefore, offering or selling the securities or otherwise making them available to any retail investor in the EEA may be unlawful under the PRIIPs Regulation.

#### Mexico

The securities have not been registered with the National Registry of Securities maintained by the Mexican National Banking and Securities Commission and may not be offered or sold publicly in Mexico. This pricing supplement and the accompanying prospectus supplement and prospectus may not be publicly distributed in Mexico.

#### Paraguay

This is a private and personal offering. The securities offered have not been approved by or registered with the National Securities Commission (Comisión Nacional de Valores) and are not part of a public offering as defined by the Paraguayan Securities Law. The information contained herein is for informational and marketing purposes only and should not be taken as an investment advice.

#### Peru

The securities have not been and will not be registered with the Capital Markets Public Registry of the Capital Markets Superintendence (SMV) nor the Lima Stock Exchange Registry (RBVL) for their public offering in Peru under the Peruvian Capital Markets Law (Law N°861/ Supreme Decree N°093-2002) and the decrees and regulations thereunder.

Consequently, the securities may not be offered or sold, directly or indirectly, nor may this pricing supplement, the accompanying supplements or any other offering material relating to the securities be distributed or caused to be distributed in Peru to the general public. The securities may only be offered in a private offering without using mass marketing, which is defined as a marketing strategy utilising mass distribution and mass media to offer, negotiate or distribute securities to the whole market. Mass media includes newspapers, magazines, radio, television, mail, meetings, social networks, Internet servers located in Peru, and other media or technology platforms.

#### Uruguay

The sale of the securities qualifies as a private placement pursuant to section 2 of Uruguayan law 18,627. The securities must not be offered or sold to the public in Uruguay, except in circumstances which do not constitute a public offering or distribution under Uruguayan laws and regulations. The securities are not and will not be registered with the Financial Services Superintendency of the Central Bank of Uruguay.

#### Taiwan

The securities may be made available outside Taiwan for purchase by Taiwan residents outside Taiwan but may not be offered or sold in Taiwan.

#### Structuring the Securities

The securities are our debt securities. 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. 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. This relatively lower implied borrowing rate, which is reflected in the economic terms of the securities, along with the underwriting discount and commission and hedging and other costs associated with the securities, typically reduced the initial estimated value of the securities at the time their terms are set.

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) with an affiliate of the agent and/or one of our subsidiaries. The terms of these hedging arrangements take into account a number of factors, including our creditworthiness, interest rate movements, 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. Our cost of hedging will include the projected profit that such counterparties expect to realize in consideration for assuming the risks inherent in hedging our obligations under the securities. Because hedging our obligations entails risks and may be influenced by market forces beyond the counterparties' control, such hedging may result in a profit that is more or less than expected, or could result in a loss. See "Use of Proceeds and Hedging" on page PS-33.



The lower implied borrowing rate, the underwriting discount and commission and hedging and other costs associated with the securities reduced the economic terms of the securities to you and result in the initial estimated value for the securities on the pricing date being less than their initial public offering price. See “Risk Factors—Our initial estimated value of the securities is less than the initial public offering price” above.

#### 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 September 7, 2018, which has been filed as Exhibit 5.1 to Royal Bank’s Form 6-K filed with the SEC dated September 7, 2018.

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 September 7, 2018, which has been filed as Exhibit 5.2 to the Bank’s Form 6-K dated September 7, 2018.