

ROYAL BANK OF CANADA  
Form 424B2  
November 16, 2017

RBC Capital Markets® Filed Pursuant to Rule 424(b)(2)  
Registration Statement No. 333-208507

This pricing supplement amends and restates the pricing supplement filed on November 16, 2017.

Pricing Supplement

Dated November 15,  
2017

\$2,000,000

To the Product Issuer Callable Contingent Coupon Barrier Notes Linked to the

Prospectus Supplement Lesser Performing of Three Equity Indices,

No. TP-2, dated January Due November 18, 2021

11, 2016, and the Royal Bank of Canada

Prospectus Supplement

and Prospectus, Each

Dated January 8, 2016

Royal Bank of Canada is offering Issuer Callable Contingent Coupon Barrier Notes (the “Notes”) linked to the lesser performing of three equity indices (each, a “Reference Index,” and collectively, the “Reference Indices”). The Notes offered are senior unsecured obligations of Royal Bank of Canada, and will pay a quarterly Contingent Coupon at the rate and under the circumstances specified below, and will have the terms described in the documents described above, as supplemented or modified by this pricing supplement. The Notes will not be listed on any securities exchange.

| Reference Indices             | Initial Level | Trigger Level and Coupon Barrier              |
|-------------------------------|---------------|---|
| EURO STOXX 50® Index (“SX5E”) | 3,545.72      | 2,659.29, which is 75% of its Initial Level   |
| Russell 2000® Index (“RTY”)   | 1,464.095     | 1,098.071, which is 75% of its Initial Level* |
| Nikkei 225 Index (“NKY”)      | 22,028.32     | 16,521.24, which is 75% of its Initial Level  |

\* Rounded to three decimal places for the RTY.

The Notes do not guarantee any return of principal at maturity. Any payments on the Notes are subject to our credit risk.

Investing in the Notes involves a number of risks. See “Risk Factors” beginning on page PS-5 of the product prospectus supplement dated January 11, 2016, on page S-1 of the prospectus supplement dated January 8, 2016, and “Selected Risk Considerations” beginning on page P-7 of this pricing supplement.

The Notes will not constitute deposits insured by the Canada Deposit Insurance Corporation, the U.S. Federal Deposit Insurance Corporation or any other Canadian or U.S. government agency or instrumentality.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of the Notes or determined that this pricing supplement is truthful or complete. Any representation to the contrary is a criminal offense.

|                    |   |                         |                                |
|--------------------|---|-------------------------|--------------------------------|
| Issuer:            | Royal Bank of Canada  | Stock Exchange Listing: | None                           |
| Trade Date:        | November 15, 2017   | Principal Amount:       | \$1,000 per Note               |
| Issue Date:        | November 20, 2017   | Maturity Date:          | November 18, 2021              |
| Observation Dates: | Quarterly, as set forth below.  | Coupon Payment Dates:   | Quarterly, as set forth below. |
| Valuation Date:    | November 15, 2021   | Contingent Coupon Rate: | 8.30% per annum                |
| Initial Level:     | For each Reference Index, its respective Initial Level listed above, which was its closing level on the trade date. |                         |                                |
| Final Level:       | For each Reference Index, its closing level on the Valuation Date.  |                         |                                |
| Contingent Coupon: |   |                         |                                |

If the closing level of each Reference Index is greater than or equal to its Coupon Barrier on the applicable Observation Date, we will pay the Contingent Coupon on the applicable Coupon Payment Date. You may not receive any Contingent Coupons during the term of the Notes.

If the Notes are not previously called, we will pay you at maturity an amount based on the Final Level of the Lesser Performing Reference Index:

For each \$1,000 in principal amount, \$1,000 plus the Contingent Coupon at maturity, unless the Final Level of the Lesser Performing Reference Index is less than its Trigger Level.

Payment at Maturity (if held to maturity):

If the Final Level of the Lesser Performing Reference Index is less than its Trigger Level, then the investor will receive at maturity, for each \$1,000 in principal amount, a cash payment equal to:

$\$1,000 + (\$1,000 \times \text{Underlying Return of the Lesser Performing Reference Index})$

Investors could lose some or all of the value of their initial investment if there has been a decline in the level of the Lesser Performing Reference Index.

Lesser Performing Reference Index:

The Reference Index with the largest percentage decrease between its Initial Level and its Final Level.

Call Feature:

The Notes may be called at our discretion on any Coupon Payment Date beginning in November 2018, if we send prior written notice, as described below.

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|   | Per Note | Total          |
|---|----------|----------------|
| Price to public <sup>(1)</sup>                        | 100.00%  | \$2,000,000.00 |
| Underwriting discounts and commissions <sup>(1)</sup> | 3.25%    | \$65,000.00    |
| Proceeds to Royal Bank of Canada                      | 96.75%   | \$1,935,000.00 |

<sup>(1)</sup>Certain dealers who purchased the Notes for sale to certain fee-based advisory accounts may have foregone some or all of their underwriting discount or selling concessions. The public offering price for investors purchasing the Notes in these accounts was between \$967.50 and \$1,000 per \$1,000 in principal amount.

The initial estimated value of the Notes as of the date of this pricing supplement is \$915.33 per \$1,000 in principal amount, which is less than the price to public. The actual value of the Notes at any time will reflect many factors, cannot be predicted with accuracy, and may be less than this amount. We describe our determination of the initial estimated value in more detail below.

RBC Capital Markets, LLC, which we refer to as RBCCM, acting as agent for Royal Bank of Canada, received a commission of \$32.50 per \$1,000 in principal amount of the Notes and used a portion of that commission to allow selling concessions to other dealers of up to \$32.50 per \$1,000 in principal amount of the Notes. The other dealers may forgo, in their sole discretion, some or all of their selling concessions. See "Supplemental Plan of Distribution (Conflicts of Interest)" below.

RBC Capital Markets, LLC

Issuer Callable Contingent Coupon Barrier Notes  
 Linked to the Lesser Performing of Three Equity  
 Indices, Due November 18, 2021  
 Royal Bank of Canada

**SUMMARY**

The information in this “Summary” section is qualified by the more detailed information set forth in this pricing supplement, the product prospectus supplement, the prospectus supplement, and the prospectus.

**General:** This pricing supplement relates to an offering of Issuer Callable Contingent Coupon Barrier Notes (the “Notes”) linked to the lesser performing of three equity indices (the “Reference Indices”).

**Issuer:** Royal Bank of Canada (“Royal Bank”)

**Issue:** Senior Global Medium-Term Notes, Series G

**Trade Date:** November 15, 2017

**Issue Date:** November 20, 2017

**Term:** Approximately four (4) years

**Denominations:** Minimum denomination of \$1,000, and integral multiples of \$1,000 thereafter.

**Designated  
 Currency:** U.S. Dollars

We will pay you a Contingent Coupon during the term of the Notes, periodically in arrears on each Coupon Payment Date, under the conditions described below:

**Contingent  
 Coupon:** · If the closing level of each Reference Index is greater than or equal to its Coupon Barrier on the applicable Observation Date, we will pay the Contingent Coupon applicable to that Observation Date.

· If the closing level of any of the Reference Indices is less than its Coupon Barrier on the applicable Observation Date, we will not pay you the Contingent Coupon applicable to that Observation Date.

You may not receive a Contingent Coupon for one or more quarterly periods during the term of the Notes.

**Contingent  
 Coupon Rate:** 8.30% per annum (2.075% per quarter).

**Observation  
 Dates:** Quarterly, on February 15, 2018, May 15, 2018, August 15, 2018, November 15, 2018, February 15, 2019, May 15, 2019, August 15, 2019, November 15, 2019, February 18, 2020, May 15, 2020, August 17, 2020, November 16, 2020, February 16, 2021, May 17, 2021, August 16, 2021 and the Valuation Date.

**Coupon Payment  
 Dates:** The Contingent Coupon, if applicable, will be paid on February 21, 2018, May 18, 2018, August 20, 2018, November 20, 2018, February 21, 2019, May 20, 2019, August 20, 2019, November 20, 2019, February 21, 2020, May 20, 2020, August 20, 2020, November 19, 2020, February 19, 2021, May 20, 2021, August 19, 2021 and the Maturity Date.

**Record Dates:** The record date for each Coupon Payment Date will be the date one business day prior to that scheduled Coupon Payment Date; provided, however, that any Contingent Coupon payable at maturity or upon a call will be payable to the person to whom the payment at maturity or upon the call, as the case may be, will be payable.

**Call Feature:** The Notes may be called at our discretion on any Coupon Payment Date beginning in November 2018, if we send written notice to the trustee at least three business days prior to that Call Payment Date.

**Payment if  
 Called:** If the Notes are called, then, on the applicable Call Settlement Date, for each \$1,000 principal amount, you will receive \$1,000 plus the Contingent Coupon otherwise due on that Call Settlement Date.

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Call Settlement Dates: Quarterly on November 20, 2018, February 21, 2019, May 20, 2019, August 20, 2019, November 20, 2019, February 21, 2020, May 20, 2020, August 20, 2020, November 19, 2020, February 19, 2021, May 20, 2021, August 19, 2021 and the Maturity Date.

Valuation Date: November 15, 2021

Maturity Date: November 18, 2021

Initial Level: For each Reference Index, its closing level on the trade date, each of which is specified on the cover page of this pricing supplement.

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Issuer Callable Contingent Coupon Barrier Notes  
 Linked to the Lesser Performing of Three Equity  
 Indices, Due November 18, 2021  
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|  |   |
|--|---|
| Final Level:   | For each Reference Index, its closing level on the Valuation Date.  |
| Trigger Level<br>and Coupon<br>Barrier:  | For each Reference Index, 75% of its Initial Level, as specified on the cover page of this pricing supplement.<br><br>If the Notes are not previously called, we will pay you at maturity an amount based on the Final Level of the Lesser Performing Reference Index:  |
| Payment at<br>Maturity (if<br>not<br>previously<br>called and<br>held to<br>maturity): | <ul style="list-style-type: none"> <li>· If the Final Level of the Lesser Performing Reference Index is greater than or equal to its Trigger Level, we will pay you a cash payment equal to the principal amount plus the Contingent Coupon otherwise due on the Maturity Date.</li> <li>· If the Final Level of the Lesser Performing Reference Index is less than its Trigger Level, you will receive at maturity, for each \$1,000 in principal amount, a cash payment equal to:<br/> <math>\\$1,000 + (\\$1,000 \times \text{Underlying Return of the Lesser Performing Reference Index})</math><br/>                     The amount of cash that you receive will be less than your principal amount, if anything, resulting in a loss that is proportionate to the decline of the Lesser Performing Reference Index from the trade date to the Valuation Date. Investors in the Notes could lose some or all of their investment if the Final Level of the Lesser Performing Reference Index is less than its Trigger Level.</li> </ul> |
| Lesser<br>Performing<br>Reference<br>Index:  | The Reference Index with the largest percentage decrease between its Initial Level and its Final Level.   |
| Underlying<br>Return:  | With respect to each Reference Index:<br>$\frac{\text{Final Level} - \text{Initial Level}}{\text{Initial Level}}$   |
| Market<br>Disruption<br>Events:<br>Calculation<br>Agent:                               | The occurrence of a market disruption event (or a non-trading day) as to any of the Reference Indices will result in the postponement of an Observation Date or the Valuation Date as to that Reference Index, as described in the product prospectus supplement, but not to any non-affected Reference Index.<br><br>RBC Capital Markets, LLC (“RBCCM”)  |
| U.S. Tax<br>Treatment:   | By purchasing a Note, each holder agrees (in the absence of a change in law, an administrative determination or a judicial ruling to the contrary) to treat the Note as a callable pre-paid cash-settled contingent income-bearing derivative contract linked to the Reference Indices for U.S. federal income tax purposes. However, the U.S. federal income tax consequences of your investment in the Notes are uncertain and the Internal Revenue Service could assert that the Notes should be taxed in a manner that is different from that described in the preceding sentence. Please see the section below, “Supplemental Discussion of U.S. Federal Income Tax Consequences,” and the discussion (including the opinion of our counsel Morrison & Foerster LLP) in the product prospectus supplement dated January 11, 2016 under “Supplemental Discussion of U.S. Federal Income Tax Consequences,” which apply to the Notes.  |
| Secondary<br>Market:   | RBCCM (or one of its affiliates), though not obligated to do so, may maintain a secondary market in the Notes after the Issue Date. The amount that you may receive upon sale of your Notes prior to maturity may be less than the principal amount.  |
| Listing:   | The Notes will not be listed on any securities exchange.  |
| Settlement:  | DTC global (including through its indirect participants Euroclear and Clearstream, Luxembourg as described under “Description of Debt Securities—Ownership and Book-Entry Issuance” in the prospectus   |

dated January 8, 2016).

Terms Incorporated in the Master Note: All of the terms appearing above the item captioned “Secondary Market” on the cover page and pages P-2 and P-3 of this pricing supplement and the terms appearing under the caption “General Terms of the Notes” in the product prospectus supplement dated January 11, 2016, as modified by this pricing supplement.

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Issuer Callable Contingent Coupon Barrier Notes  
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Indices, Due November 18, 2021  
Royal Bank of Canada

#### ADDITIONAL TERMS OF YOUR NOTES

You should read this pricing supplement together with the prospectus dated January 8, 2016, as supplemented by the prospectus supplement dated January 8, 2016 and the product prospectus supplement dated January 11, 2016, relating to our Senior Global Medium-Term Notes, Series G, of which these Notes are a part. Capitalized terms used but not defined in this pricing supplement will have the meanings given to them in the product prospectus supplement. In the event of any conflict, this pricing supplement will control. The Notes vary from the terms described in the product prospectus supplement in several important ways. You should read this pricing supplement carefully.

This pricing supplement, together with the documents listed below, contains the terms of the Notes and supersedes all 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 carefully consider, among other things, the matters set forth in “Risk Factors” in the prospectus supplement dated January 8, 2016 and in the product prospectus supplement dated January 11, 2016, as the Notes involve risks not associated with conventional debt securities. We urge you to consult your investment, legal, tax, accounting and other advisors before you invest in the Notes. You may access these documents on the Securities and Exchange Commission (the “SEC”) website at [www.sec.gov](http://www.sec.gov) as follows (or if that address has changed, by reviewing our filings for the relevant date on the SEC website):

Prospectus dated January 8, 2016:

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

Prospectus Supplement dated January 8, 2016:

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

Product Prospectus Supplement dated January 11, 2016:

<https://www.sec.gov/Archives/edgar/data/1000275/000114036116047489/form424b5.htm>

Our Central Index Key, or CIK, on the SEC website is 1000275. As used in this pricing supplement, “we,” “us,” or “our” refers to Royal Bank of Canada.

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#### HYPOTHETICAL EXAMPLES

The table set out below is included for illustration purposes only. The table illustrates the Payment at Maturity of the Notes (including the final Contingent Coupon, if payable) for a hypothetical range of performance for the Lesser Performing Reference Index, assuming the following terms and that the Notes are not called prior to maturity:

|   |   |
|---|---|
| Hypothetical Initial Level (for each Reference Index):  | 1,000.00*   |
| Hypothetical Trigger Level (for each Reference Index):  | 750.00, which is 75.00% of the hypothetical Initial Level |
| Hypothetical Coupon Barrier (for each Reference Index): | 750.00, which is 75.00% of the hypothetical Initial Level |
| Contingent Coupon Rate:                                 | 8.30% per annum (or 2.075% per quarter)                   |
| Contingent Coupon Amount:                               | \$20.75 per quarter                                       |
| Principal Amount:                                       | \$1,000 per Note  |

\* The hypothetical Initial Level of 1,000.00 used in the examples below has been chosen for illustrative purposes only and does not represent the actual Initial Level of any Reference Index. The actual Initial Levels for each Reference Index are set forth on the cover page of this pricing supplement. We make no representation or warranty as to which of the Reference Indices will be the Lesser Performing Reference Index. It is possible that the Final Level of each Reference Index will be less than its Initial Level.

Hypothetical Final Levels are shown in the first column on the left. The second column shows the Payment at Maturity for a range of Final Levels on the Valuation Date. The third column shows the amount of cash to be paid on the Notes per \$1,000 in principal amount. If the Notes are called prior to maturity, the hypothetical examples below will not be relevant, and you will receive on the applicable Coupon Payment Date, for each \$1,000 principal amount, \$1,000 plus the Contingent Coupon otherwise due on the Notes (if payable).

| Hypothetical Final Level of the Lesser Performing Reference Index | Payment at Maturity as Percentage of Principal Amount | Cash Payment Amount per \$1,000 in Principal Amount |
|---|---|---|
| 1,300.00  | 102.075%  | \$1,020.75*   |
| 1,200.00  | 102.075%  | \$1,020.75*   |
| 1,100.00  | 102.075%  | \$1,020.75*   |
| 1,000.00  | 102.075%  | \$1,020.75*   |
| 900.00  | 102.075%  | \$1,020.75*   |
| 800.00  | 102.075%  | \$1,020.75*   |
| 750.00  | 102.075%  | \$1,020.75*   |
| 749.90  | 74.99%  | \$749.90  |
| 600.00  | 60.00%  | \$600.00  |
| 500.00  | 50.00%  | \$500.00  |
| 400.00  | 40.00%  | \$400.00  |
| 250.00  | 25.00%  | \$250.00  |
| 0.00  | 0.00%   | \$0.00  |

\*Including the final Contingent Coupon, if payable.

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#### Hypothetical Examples of Amounts Payable at Maturity

The following hypothetical examples illustrate how the payments at maturity set forth in the table above are calculated, assuming the Notes have not been called.

Example 1: The level of the Lesser Performing Reference Index increases by 25% from the Initial Level of 1,000.00 to its Final Level of 1,250.00. Because the Final Level of the Lesser Performing Reference Index is greater than its Trigger Level and Coupon Barrier of 750.00, the investor receives at maturity, in addition to the final Contingent Coupon of \$20.75 otherwise due on the Notes, a cash payment of \$1,000 per Note, despite the 25% appreciation in the level of the Lesser Performing Reference Index.

Example 2: The level of the Lesser Performing Reference Index decreases by 15% from the Initial Level of 1,000.00 to its Final Level of 900.00. Because the Final Level of the Lesser Performing Reference Index is greater than its Trigger Level and Coupon Barrier of 750.00, the investor receives at maturity, in addition to the final Contingent Coupon of \$20.75 otherwise due on the Notes, a cash payment of \$1,000 per Note, despite the 15% decline in the level of the Lesser Performing Reference Index.

Example 3: The level of the Lesser Performing Reference Index is 500.00 on the Valuation Date, which is less than its Trigger Level and Coupon Barrier of 750.00. Because the Final Level of the Lesser Performing Reference Index is less than its Trigger Level, the final Contingent Coupon will not be payable on the Maturity Date, and we will pay only \$500.00 for each \$1,000 in the principal amount of the Notes, calculated as follows:

Principal Amount + (Principal Amount x Underlying Return of the Lesser Performing Reference Index)  
= \$1,000 + (\$1,000 x -50.00%) = \$1,000 - \$500.00 = \$500.00

\* \* \*

The Payments at Maturity shown above are entirely hypothetical; they are based on levels of the Reference Indices that may not be achieved on the Valuation Date and on assumptions that may prove to be erroneous. The actual market value of your Notes on the Maturity Date or at any other time, including any time you may wish to sell your Notes, may bear little relation to the hypothetical Payments at Maturity shown above, and those amounts should not be viewed as an indication of the financial return on an investment in the Notes or on an investment in the securities included in any Reference Index.

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#### SELECTED RISK CONSIDERATIONS

An investment in the Notes involves significant risks. Investing in the Notes is not equivalent to investing directly in the Reference Indices. These risks are explained in more detail in the section “Risk Factors” in the product prospectus supplement. In addition to the risks described in the prospectus supplement and the product prospectus supplement, you should consider the following:

**Principal at Risk** — Investors in the Notes could lose all or a substantial portion of their principal amount if there is a decline in the level of the Lesser Performing Reference Index between the trade date and the Valuation Date. If the Notes are not called and the Final Level of the Lesser Performing Reference Index on the Valuation Date is less than its Trigger Level, the amount of cash that you receive at maturity will represent a loss of your principal that is proportionate to the decline in the closing level of the Lesser Performing Reference Index from the trade date to the Valuation Date. Any Contingent Coupons received on the Notes prior to the Maturity Date may not be sufficient to compensate for any such loss.

**The Notes Are Subject to an Issuer Call** — We may call the Notes at our discretion on any Coupon Payment Date beginning in November 2018. If the Notes are called, then, on the applicable Coupon Payment Date, for each \$1,000 in principal amount, you will receive \$1,000 plus the Contingent Coupon otherwise due on the applicable Coupon Payment Date. You will not receive any Contingent Coupons after that payment. You may be unable to reinvest your proceeds from the call in an investment with a return that is as high as the return on the Notes would have been if they had not been called. We are more likely to call the Notes if we anticipate that the yield on the Notes will exceed that payable on our conventional debt securities.

**You May Not Receive Any Contingent Coupons** — We will not necessarily make any coupon payments on the Notes. If the closing level of any of the Reference Indices on an Observation Date is less than its Coupon Barrier, we will not pay you the Contingent Coupon applicable to that Observation Date. If the closing level of any of the Reference Indices is less than its Coupon Barrier on each of the Observation Dates and on the Valuation Date, we will not pay you any Contingent Coupons during the term of, and you will not receive a positive return on, your Notes. Generally, this non-payment of the Contingent Coupon coincides with a period of greater risk of principal loss on your Notes. Accordingly, if we do not pay the Contingent Coupon on the Maturity Date, you will also incur a loss of principal, because the Final Level of the Lesser Performing Reference Index will be less than its Trigger Level.

**The Notes Are Linked to the Lesser Performing Reference Index, Even if the Other Reference Indices Perform Better**— If any of the Reference Indices has a Final Level that is less than its Trigger Level, your return will be linked to the lesser performing of the three Reference Indices. Even if the Final Levels of the other Reference Indices have increased compared to their respective Initial Levels, or have experienced a decrease that is less than that of the Lesser Performing Reference Index, your return will only be determined by reference to the performance of the Lesser Performing Reference Index, regardless of the performance of the other Reference Indices.

**Your Payment on the Notes Will Be Determined by Reference to Each Reference Index Individually, Not to a Basket, and the Payment at Maturity Will Be Based on the Performance of the Lesser Performing Reference Index** — The Payment at Maturity will be determined only by reference to the performance of the Lesser Performing Reference Index, regardless of the performance of the other Reference Indices. The Notes are not linked to a weighted basket, in which the risk may be mitigated and diversified among each of the basket components. For example, in the case of notes linked to a weighted basket, the return would depend on the weighted aggregate performance of the basket components reflected as the basket return. As a result, the depreciation of one basket component could be mitigated by the appreciation of the other basket components, as scaled by the weighting of that basket component. However, in the case of the Notes, the individual performance of each of the Reference Indices would not be combined, and the depreciation of one Reference Index would not be mitigated by any appreciation of

the other Reference Indices. Instead, your return will depend solely on the Final Level of the Lesser Performing Reference Index.

**The Call Feature and the Contingent Coupon Feature Limit Your Potential Return** — The return potential of the Notes is limited to the pre-specified Contingent Coupon Rate, regardless of the appreciation of the Reference Indices. In addition, the total return on the Notes will vary based on the number of Observation Dates on which the Contingent Coupon becomes payable prior to maturity or an issuer call. Further, if the Notes are called due to the Call Feature, you will not receive any Contingent Coupons or any other payment in respect of any Observation Dates after the applicable call. Since the Notes could be called as early as November 2018, the total return on the Notes could be limited to one year of potential Contingent Coupons. If the Notes are not called, you may be subject to the full downside performance of the Lesser Performing Reference Index even though your potential return is limited to the Contingent Coupon Rate. As a result, the return on an investment in the Notes could be less than the return on a direct investment in securities included in the Reference Indices.

**Your Return May Be Lower than the Return on a Conventional Debt Security of Comparable Maturity** — The return that you will receive on the Notes, which could be negative, may be less than the return you could earn on other investments. Even if your

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return is positive, your return may be less than the return you would earn if you bought a conventional senior interest bearing debt security of Royal Bank.

**Payments on the Notes Are Subject to Our Credit Risk, and Changes in Our Credit Ratings Are Expected to Affect the Market Value of the Notes** — The Notes are Royal Bank's senior unsecured debt securities. As a result, your receipt of any Contingent Coupons, if payable, and the amount due on any relevant payment date is dependent upon Royal Bank's ability to repay its obligations on the applicable payment dates. This will be the case even if the levels of the Reference Indices increase after the trade date. No assurance can be given as to what our financial condition will be at any time during the term of the Notes.

**There May Not Be an Active Trading Market for the Notes-Sales in the Secondary Market May Result in Significant Losses** — There may be little or no secondary market for the Notes. The Notes will not be listed on any securities exchange. RBCCM and other affiliates of Royal Bank may make a market for the Notes; however, they are not required to do so. RBCCM or any other affiliate of Royal Bank may stop any market-making activities at any time. Even if a secondary market for the Notes develops, it may not provide significant liquidity or trade at prices advantageous to you. We expect that transaction costs in any secondary market would be high. As a result, the difference between bid and asked prices for your Notes in any secondary market could be substantial.

**Owning the Notes Is Not the Same as Owning the Securities Represented by the Reference Indices** — The return on your Notes is unlikely to reflect the return you would realize if you actually owned the securities represented by the Reference Indices. For instance, you will not receive or be entitled to receive any dividend payments or other distributions on those securities during the term of your Notes. As an owner of the Notes, you will not have voting rights or any other rights that holders of the Reference Indices may have. Furthermore, the Reference Indices may appreciate substantially during the term of the Notes, while your potential return will be limited to the applicable Contingent Coupon payments.

**The Initial Estimated Value of the Notes Is Less than the Price to the Public** — The initial estimated value set forth on the cover page of this pricing supplement does not represent a minimum price at which we, RBCCM or any of our affiliates would be willing to purchase the Notes in any secondary market (if any exists) at any time. If you attempt to sell the Notes prior to maturity, their market value may be lower than the price you paid for them and the initial estimated value. This is due to, among other things, changes in the levels of the Reference Indices, the borrowing rate we pay to issue securities of this kind, and the inclusion in the price to the public of the underwriting discount and the estimated costs relating to our hedging of the Notes. These factors, together with various credit, market and economic factors over the term of the Notes, are expected to reduce the price at which you may be able to sell the Notes in any secondary market and will affect the value of the Notes in complex and unpredictable ways. Assuming no change in market conditions or any other relevant factors, the price, if any, at which you may be able to sell your Notes prior to maturity may be less than your original purchase price, as any such sale price would not be expected to include the underwriting discount and the hedging costs relating to the Notes. In addition to bid-ask spreads, the value of the Notes determined by RBCCM for any secondary market price is expected to be based on the secondary rate rather than the internal funding rate used to price the Notes and determine the initial estimated value. As a result, the secondary price will be less than if the internal funding rate was used. The Notes are not designed to be short-term trading instruments. Accordingly, you should be able and willing to hold your Notes to maturity.

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

term of the Notes. These assumptions are based on certain forecasts about future events, which may prove to be incorrect. Other entities may value the Notes or similar securities at a price that is significantly different than we do. The value of the Notes at any time after the trade date will vary based on many factors, including changes in market conditions, and cannot be predicted with accuracy. As a result, the actual value you would receive if you sold the Notes in any secondary market, if any, should be expected to differ materially from the initial estimated value of your Notes.

**Inconsistent Research** — Royal Bank or its affiliates may issue research reports on securities that are, or may become, components of the Reference Indices. We may also publish research from time to time on financial markets and other matters that may influence the levels of the Reference Indices or the value of the Notes, or express opinions or provide recommendations that may be inconsistent with purchasing or holding the Notes or with the investment view implicit in the Notes or the Reference Indices. You should make your own independent investigation of the merits of investing in the Notes and the Reference Indices.

**An Investment in the Notes is Subject to Risks Associated in Investing in Stocks With a Small Market Capitalization** — The Russell 2000<sup>®</sup> Index consists of stocks issued by companies with relatively small market capitalizations. These companies often

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have greater stock price volatility, lower trading volume and less liquidity than large-capitalization companies. As a result, the level of the Russell 2000<sup>®</sup> Index may be more volatile than that of a market measure that does not track solely small-capitalization stocks. Stock prices of small-capitalization companies are also generally more vulnerable than those of large-capitalization companies to adverse business and economic developments, and the stocks of small-capitalization companies may be thinly traded, and be less attractive to many investors if they do not pay dividends. In addition, small capitalization companies are typically less well-established and less stable financially than large-capitalization companies and may depend on a small number of key personnel, making them more vulnerable to loss of those individuals. Small capitalization companies tend to have lower revenues, less diverse product lines, smaller shares of their target markets, fewer financial resources and fewer competitive strengths than large-capitalization companies. These companies may also be more susceptible to adverse developments related to their products or services.

An Investment in the Notes Is Subject to Risks Relating to Non-U.S. Securities Markets - Because foreign companies or foreign equity securities included in the SX5E and the NKY are publicly traded in the applicable foreign countries and are denominated in currencies other than U.S. dollars, an investment in the securities involves particular risks. For example, the non-U.S. securities markets may be more volatile than the U.S. securities markets, and market developments may affect these markets differently from the U.S. or other securities markets. Direct or indirect government intervention to stabilize the securities markets outside the U.S., as well as cross-shareholdings in certain companies, may affect trading prices and trading volumes in those markets. Also, the public availability of information concerning the foreign issuers may vary depending on their home jurisdiction and the reporting requirements imposed by their respective regulators. In addition, the foreign issuers may be subject to accounting, auditing and financial reporting standards and requirements that differ from those applicable to U.S. reporting companies.

Market Disruption Events and Adjustments — The payment at maturity, each Observation Date and the Valuation Date are subject to adjustment as described in the product prospectus supplement. For a description of what constitutes a market disruption event as well as the consequences of that market disruption event, see “General Terms of the Notes—Market Disruption Events” in the product prospectus supplement.

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#### INFORMATION REGARDING THE REFERENCE INDICES

All disclosures contained in this pricing supplement regarding the Reference Indices, including, without limitation, their make-up, method of calculation, and changes in their components, have been derived from publicly available sources. The information reflects the policies of, and is subject to change by, the applicable index sponsor. Each of these sponsors has no obligation to continue to publish, and may discontinue publication of, the applicable Reference Index. The consequences of an index sponsor discontinuing publication of a Reference Index are discussed in the section of the product prospectus supplement entitled “General Terms of the Notes—Unavailability of the Level of a Reference Index.” Neither we nor RBCCM accepts any responsibility for the calculation, maintenance or publication of any Reference Index or any successor index.

We obtained the information regarding the historical performance of each Reference Index set forth below from Bloomberg Financial Markets.

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#### EURO STOXX 50<sup>®</sup> Index (“SX5E”)

##### The SX5E

The SX5E was created by STOXX Limited, a subsidiary of Deutsche Börse AG. Publication of the SX5E began in February 1998, based on an initial index level of 1,000 at December 31, 1991.

##### Composition and Maintenance

The SX5E is composed of 50 component stocks of market sector leaders from within the 19 EURO STOXX<sup>®</sup> Supersector indices, which represent the Eurozone portion of the STOXX Europe 600<sup>®</sup> Supersector indices. The composition of the SX5E is reviewed annually, based on the closing stock data on the last trading day in August. The component stocks are announced on the first trading day in September. Changes to the component stocks are implemented on the third Friday in September and are effective the following trading day. Changes in the composition of the SX5E are made to ensure that the SX5E includes the 50 market sector leaders from within the SX5E. The free float factors for each component stock used to calculate the SX5E, as described below, are reviewed, calculated, and implemented on a quarterly basis and are fixed until the next quarterly review. The SX5E is also reviewed on an ongoing monthly basis. Corporate actions (including initial public offerings, mergers and takeovers, spin-offs, delistings, and bankruptcy) that affect the SX5E composition are announced immediately, implemented two trading days later and become effective on the next trading day after implementation.

##### Calculation of the SX5E

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

$$\text{SX5E} = \frac{\text{Free float market capitalization of the SX5E}}{\text{Divisor}}$$

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

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

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#### License Agreement

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

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

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

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

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

- STOXX does not make any warranty, express or implied, and disclaims any and all warranty concerning:
    - the results to be obtained by the Notes, the holders of the Notes or any other person in connection with the use of the SX5E and the data included in the SX5E;
    - the accuracy or completeness of the SX5E and its data;
    - the merchantability and the fitness for a particular purpose or use of the SX5E and its data;
  - STOXX will have no liability for any errors, omissions, or interruptions in the SX5E or its data; and
- Under no circumstances will STOXX be liable for any lost profits or indirect, punitive, special, or consequential damages or losses, even if STOXX knows that they might occur.

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

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Historical Information

Below is a table setting forth the intra-day high, intra-day low and period-end closing levels of this Reference Index. The information provided in the table is for the period from January 1, 2013 through November 15, 2017.

| Period-Start Date | Period-End Date | High Intra-Day Level of the Reference Index | Low Intra-Day Level of the Reference Index | Period-End Closing Level of the Reference Index |
|-------------------|-----------------|---|--|---|
| 1/1/2013          | 3/31/2013       | 2,754.80                                    | 2,563.64                                   | 2,624.02  |
| 4/1/2013          | 6/30/2013       | 2,851.48                                    | 2,494.54                                   | 2,602.59  |
| 7/1/2013          | 9/30/2013       | 2,955.47                                    | 2,539.15                                   | 2,893.15  |
| 10/1/2013         | 12/31/2013      | 3,116.23                                    | 2,891.39                                   | 3,109.00  |
| 1/1/2014          | 3/31/2014       | 3,185.68                                    | 2,944.13                                   | 3,161.60  |
| 4/1/2014          | 6/30/2014       | 3,325.50                                    | 3,083.43                                   | 3,228.24  |
| 7/1/2014          | 9/30/2014       | 3,301.15                                    | 2,977.52                                   | 3,225.93  |
| 10/1/2014         | 12/31/2014      | 3,278.97                                    | 2,789.63                                   | 3,146.43  |
| 1/1/2015          | 3/31/2015       | 3,742.42                                    | 2,998.53                                   | 3,697.38  |
| 4/1/2015          | 6/30/2015       | 3,836.28                                    | 3,374.18                                   | 3,424.30  |
| 7/1/2015          | 9/30/2015       | 3,714.26                                    | 2,973.16                                   | 3,100.67  |
| 10/1/2015         | 12/31/2015      | 3,524.04                                    | 3,036.17                                   | 3,267.52  |
| 1/1/2016          | 3/31/2016       | 3,266.01                                    | 2,672.73                                   | 3,004.93  |
| 4/1/2016          | 6/30/2016       | 3,156.86                                    | 2,678.27                                   | 2,864.74  |
| 7/1/2016          | 9/30/2016       | 3,101.75                                    | 2,742.66                                   | 3,002.24  |
| 10/1/2016         | 12/31/2016      | 3,290.52                                    | 2,937.98                                   | 3,290.52  |
| 1/1/2017          | 3/31/2017       | 3,500.93                                    | 3,214.31                                   | 3,500.93  |
| 4/1/2017          | 6/30/2017       | 3,666.80                                    | 3,407.33                                   | 3,441.88  |
| 7/1/2017          | 9/30/2017       | 3,594.85                                    | 3,363.68                                   | 3,594.85  |
| 10/1/2017         | 11/15/2017      | 3,708.82                                    | 3,546.20                                   | 3,545.72  |

PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE RESULTS.

The graph below illustrates the performance of this Reference Index from January 1, 2013 to November 15, 2017, reflecting its Initial Level of 3,545.72. The red line represents its Coupon Barrier and Trigger Level of 2,659.29, which is equal to 75.00% of its Initial Level.

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#### Russell 2000<sup>®</sup> Index (“RTY”)

##### The RTY

The RTY was developed by Russell Investments (“Russell”) before FTSE International Limited and Russell combined in 2015 to create FTSE Russell, which is wholly owned by London Stock Exchange Group. Russell began dissemination of the RTY (Bloomberg L.P. index symbol “RTY”) on January 1, 1984. FTSE Russell calculates and publishes the RTY. The RTY was set to 135 as of the close of business on December 31, 1986. The RTY is designed to track the performance of the small capitalization segment of the U.S. equity market. As a subset of the Russell 3000<sup>®</sup> Index, the RTY consists of the smallest 2,000 companies included in the Russell 3000<sup>®</sup> Index. The Russell 3000<sup>®</sup> Index measures the performance of the largest 3,000 U.S. companies, representing approximately 98% of the investable U.S. equity market. The RTY is determined, comprised, and calculated by FTSE Russell without regard to the Notes.

##### Selection of Stocks Underlying the RTY

All companies eligible for inclusion in the RTY must be classified as a U.S. company under FTSE Russell’s country-assignment methodology. If a company is incorporated, has a stated headquarters location, and trades in the same country (American Depositary Receipts and American Depositary Shares are not eligible), then the company is assigned to its country of incorporation. If any of the three factors are not the same, FTSE Russell defines three Home Country Indicators (“HCIs”): country of incorporation, country of headquarters, and country of the most liquid exchange (as defined by a two-year average daily dollar trading volume) (“ADDTV”) from all exchanges within a country. Using the HCIs, FTSE Russell compares the primary location of the company’s assets with the three HCIs. If the primary location of its assets matches any of the HCIs, then the company is assigned to the primary location of its assets. If there is insufficient information to determine the country in which the company’s assets are primarily located, FTSE Russell will use the primary country from which the company’s revenues are primarily derived for the comparison with the three HCIs in a similar manner. FTSE Russell uses the average of two years of assets or revenues data to reduce potential turnover. If conclusive country details cannot be derived from assets or revenues data, FTSE Russell will assign the company to the country of its headquarters, which is defined as the address of the company’s principal executive offices, unless that country is a Benefit Driven Incorporation “BDI” country, in which case the company will be assigned to the country of its most liquid stock exchange. BDI countries include: Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Bonaire, British Virgin Islands, Cayman Islands, Channel Islands, Cook Islands, Curacao, Faroe Islands, Gibraltar, Guernsey, Isle of Man, Jersey, Liberia, Marshall Islands, Panama, Saba, Sint Eustatius, Sint Maarten, and Turks and Caicos Islands. For any companies incorporated or headquartered in a U.S. territory, including countries such as Puerto Rico, Guam, and U.S. Virgin Islands, a U.S. HCI is assigned.

All securities eligible for inclusion in the RTY must trade on a major U.S. exchange. Stocks must have a closing price at or above \$1.00 on their primary exchange on the last trading day in May to be eligible for inclusion during annual reconstitution. However, in order to reduce unnecessary turnover, if an existing member’s closing price is less than \$1.00 on the last day of May, it will be considered eligible if the average of the daily closing prices (from its primary exchange) during the month of May is equal to or greater than \$1.00. Initial public offerings are added each quarter and must have a closing price at or above \$1.00 on the last day of their eligibility period in order to qualify for index inclusion. If an existing stock does not trade on the “rank day” (typically the last trading day in May, but a confirmed timetable is announced each spring), but does have a closing price at or above \$1.00 on another eligible U.S. exchange, that stock will be eligible for inclusion.

An important criterion used to determine the list of securities eligible for the RTY is total market capitalization, which is defined as the market price as of the rank day in May for those securities being considered at annual reconstitution times the total number of shares outstanding. Where applicable, common stock, non-restricted exchangeable shares

and partnership units/membership interests are used to determine market capitalization. Any other form of shares such as preferred stock, convertible preferred stock, redeemable shares, participating preferred stock, warrants, rights, installment receipts or trust receipts, are excluded from the calculation. If multiple share classes of common stock exist, they are combined to determine total shares outstanding. In cases where the common stock share classes act independently of each other (e.g., tracking stocks), each class is considered for inclusion separately. If multiple share classes exist, the pricing vehicle will be designated as the share class with the highest two-year trading volume as of the rank day in May.

Companies with a total market capitalization of less than \$30 million are not eligible for the RTY. Similarly, companies with only 5% or less of their shares available in the marketplace are not eligible for the RTY. Royalty trusts, limited liability companies, closed-end investment companies (companies that are required to report Acquired Fund Fees and Expenses, as defined by the SEC, including

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business development companies), blank check companies, special purpose acquisition companies, and limited partnerships are also ineligible for inclusion. Exchange traded funds and mutual funds are also excluded. Bulletin board, pink sheets, and over-the-counter (“OTC”) traded securities are not eligible for inclusion.

Annual reconstitution is a process by which the RTY is completely rebuilt. Based on closing levels of the company’s common stock on its primary exchange on the rank day of May of each year, FTSE Russell reconstitutes the composition of the RTY using the then existing market capitalizations of eligible companies. Reconstitution of the RTY occurs on the last Friday in June or, when the last Friday in June is the 29th or 30th, reconstitution occurs on the prior Friday. In addition, FTSE Russell adds initial public offerings to the RTY on a quarterly basis based on total market capitalization ranking within the market-adjusted capitalization breaks established during the most recent reconstitution.

After membership is determined, a security’s shares are adjusted to include only those shares available to the public. This is often referred to as “free float.” The purpose of the adjustment is to exclude from market calculations the capitalization that is not available for purchase and is not part of the investable opportunity set.

#### License Agreement

FTSE Russell and Royal Bank have entered into a non-exclusive license agreement providing for the license to Royal Bank, and certain of its affiliates, in exchange for a fee, of the right to use indices owned and published by FTSE Russell in connection with some securities, including the Notes.

FTSE Russell does not guarantee the accuracy and/or the completeness of the RTY or any data included in the RTY and has no liability for any errors, omissions, or interruptions in the RTY. FTSE Russell makes no warranty, express or implied, as to results to be obtained by the calculation agent, holders of the Notes, or any other person or entity from the use of the RTY or any data included in the RTY in connection with the rights licensed under the license agreement described in this pricing supplement or for any other use. FTSE Russell makes no express or implied warranties, and hereby expressly disclaims all warranties of merchantability or fitness for a particular purpose with respect to the RTY or any data included in the RTY. Without limiting any of the above information, in no event will FTSE Russell have any liability for any special, punitive, indirect or consequential damages, including lost profits, even if notified of the possibility of these damages.

The Notes are not sponsored, endorsed, sold or promoted by FTSE Russell. FTSE Russell makes no representation or warranty, express or implied, to the owners of the Notes or any member of the public regarding the advisability of investing in securities generally or in the Notes particularly or the ability of the RTY to track general stock market performance or a segment of the same. FTSE Russell’s publication of the RTY in no way suggests or implies an opinion by FTSE Russell as to the advisability of investment in any or all of the stocks upon which the RTY is based. FTSE Russell’s only relationship to Royal Bank is the licensing of certain trademarks and trade names of FTSE Russell and of the RTY, which is determined, composed and calculated by FTSE Russell without regard to Royal Bank or the Notes. FTSE Russell is not responsible for and has not reviewed the Notes nor any associated literature or publications and FTSE Russell makes no representation or warranty express or implied as to their accuracy or completeness, or otherwise. FTSE Russell reserves the right, at any time and without notice, to alter, amend, terminate or in any way change the RTY. FTSE Russell has no obligation or liability in connection with the administration, marketing or trading of the Notes.

“Russell 200®” and “Russell 3000®” are registered trademarks of FTSE Russell in the U.S. and other countries.

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#### Historical Information

Below is a table setting forth the intra-day high, intra-day low and period-end closing levels of this Reference Index. The information provided in the table is for the period from January 1, 2013 through November 15, 2017.

| Period-Start Date | Period-End Date | High Intra-Day Level of the Reference Index | Low Intra-Day Level of the Reference Index | Period-End Closing Level of the Reference Index |
|-------------------|-----------------|---|--|---|
| 1/1/2013          | 3/31/2013       | 954.000                                     | 849.330                                    | 951.542   |
| 4/1/2013          | 6/30/2013       | 1,008.230                                   | 898.400                                    | 977.475   |
| 7/1/2013          | 9/30/2013       | 1,082.000                                   | 981.300                                    | 1,073.786                                       |
| 10/1/2013         | 12/31/2013      | 1,167.960                                   | 1,037.860                                  | 1,163.637                                       |
| 1/1/2014          | 3/31/2014       | 1,212.823                                   | 1,082.717                                  | 1,173.038                                       |
| 4/1/2014          | 6/30/2014       | 1,193.964                                   | 1,082.531                                  | 1,192.964                                       |
| 7/1/2014          | 9/30/2014       | 1,213.550                                   | 1,101.675                                  | 1,101.676                                       |
| 10/1/2014         | 12/31/2014      | 1,221.442                                   | 1,040.472                                  | 1,204.696                                       |
| 1/1/2015          | 3/31/2015       | 1,268.162                                   | 1,151.295                                  | 1,252.772                                       |
| 4/1/2015          | 6/30/2015       | 1,295.996                                   | 1,211.126                                  | 1,253.947                                       |
| 7/1/2015          | 9/30/2015       | 1,275.899                                   | 1,078.633                                  | 1,100.688                                       |
| 10/1/2015         | 12/31/2015      | 1,205.079                                   | 1,080.606                                  | 1,135.889                                       |
| 1/1/2016          | 3/31/2016       | 1,134.078                                   | 943.097                                    | 1,114.028                                       |
| 4/1/2016          | 6/30/2016       | 1,190.172                                   | 1,085.883                                  | 1,151.923                                       |
| 7/1/2016          | 9/30/2016       | 1,263.460                                   | 1,131.713                                  | 1,251.646                                       |
| 10/1/2016         | 12/31/2016      | 1,392.714                                   | 1,156.085                                  | 1,357.130                                       |
| 1/1/2017          | 3/31/2017       | 1,414.824                                   | 1,335.038                                  | 1,385.920                                       |
| 4/1/2017          | 6/30/2017       | 1,433.790                                   | 1,345.244                                  | 1,415.359                                       |
| 7/1/2017          | 9/30/2017       | 1,493.555                                   | 1,349.354                                  | 1,490.861                                       |
| 10/1/2017         | 11/15/2017      | 1,514.943                                   | 1,454.165                                  | 1,464.095                                       |

PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE RESULTS.

The graph below illustrates the performance of this Reference Index from January 1, 2013 to November 15, 2017, reflecting its Initial Level of 1,464.095. The red line represents its Coupon Barrier and Trigger Level of 1,098.071, which is equal to 75.00% of its Initial Level, rounded to three decimal places.

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#### Nikkei 225 Index (“NKY”)

##### The NKY

The NKY was developed by Nikkei Inc. and is calculated, maintained and published by Nikkei Digital Media, Inc. a wholly owned subsidiary of Nikkei Inc. The Nikkei 225 is reported by Bloomberg L.P. under the symbol “NKY.” The NKY is a stock index that measures the composite price performance of selected Japanese stocks. The formal name of the NKY is the Nikkei Stock Average. The NKY is based on 225 underlying stocks (the “Nikkei Underlying Stocks”) trading on the Tokyo Stock Exchange (“TSE”) representing a broad cross-section of Japanese industries. All 225 Nikkei Underlying Stocks are stocks listed in the First Section of the TSE. Stocks listed in the First Section of the TSE are among the most actively traded stocks on the TSE. Nikkei Inc. rules require that the 75 most liquid issues (one-third of the component count of the NKY) be included in the NKY. Nikkei Inc. was first calculated and published the NKY in 1970; prior to 1970, the TSE calculated the NKY.

The 225 companies included in the NKY are divided into six sector categories: Technology, Financials, Consumer Goods, Materials, Capital Goods/Others and Transportation and Utilities. These six sector categories are further divided into 36 industrial classifications as follows:

- Technology — Pharmaceuticals, Electrical Machinery, Automobiles, Precision Machinery, Telecommunications;
- Financials — Banks, Miscellaneous Finance, Securities, Insurance;
- Consumer Goods — Marine Products, Food, Retail, Services;
- Materials — Mining, Textiles, Paper and Pulp, Chemicals, Oil, Rubber, Ceramics, Steel, Nonferrous Metals, Trading House;
- Capital Goods/Others — Constructions, Machinery, Shipbuilding, Transportation Equipment, Miscellaneous Manufacturing, Real Estate; and
- Transportation and Utilities — Railroads and Buses, Trucking, Shipping, Airlines, Warehousing, Electric Power, Gas.

##### Calculation of the NKY

The NKY is a modified, price-weighted index (i.e., a Nikkei Underlying Stock’s weight in the NKY is based on its price per share rather than the total market capitalization of the issuer) which is calculated by (i) multiplying the per share price of each Nikkei Underlying Stock by the corresponding weighting factor for such Nikkei Underlying Stock (a “Weight Factor”), (ii) calculating the sum of all these products and (iii) dividing such sum by a divisor (the “Divisor”). The Divisor was initially set at 225 for the date of May 16, 1949 (the date on which the TSE was reopened after World War II) using historical numbers from that date. The Divisor is subject to periodic adjustments as set forth below. Each Weight Factor is computed by dividing ¥50 by the presumed par value of the relevant Nikkei Underlying Stock, so that the share price of each Nikkei Underlying Stock when multiplied by its Weight Factor corresponds to a share price based on a uniform par value of ¥50. The stock prices used in the calculation of the NKY are those reported by a primary market for the Nikkei Underlying Stocks (currently the TSE). The level of the NKY is calculated once every 15 seconds during TSE trading hours.

In order to maintain continuity in the NKY in the event of certain changes due to non-market factors affecting the Nikkei Underlying Stocks, such as the addition or deletion of stocks, substitution of stocks, stock splits or distributions of assets to stockholders, the Divisor used in calculating the NKY is adjusted in a manner designed to prevent any instantaneous change or discontinuity in the level of the NKY. Thereafter, the Divisor remains at the new value until a further adjustment is necessary as the result of another change. As a result of such change affecting any Nikkei Underlying Stock, the Divisor is adjusted in such a way that the sum of all share prices immediately after such change multiplied by the applicable Weight Factor and divided by the new Divisor (i.e., the level of the NKY immediately after such change) will equal the level of the NKY immediately prior to the change.

Standards for Listing and Maintenance



A Nikkei Underlying Stock may be deleted or added by Nikkei Inc. Any stock becoming ineligible for listing in the First Section of the TSE due to any of the following reasons will be deleted from the Nikkei Underlying Stocks: (i) bankruptcy of the issuer, (ii) merger of the issuer with, or acquisition of the issuer by, another company, (iii) delisting of such stock, (iv) transfer of such stock to the “Seiri-Post” because of excess debt of the issuer or because of any other reason or (v) transfer of such stock to the Second Section. In addition, a component stock transferred to the “Kanri-Post” (Posts for stocks under supervision) becomes a candidate for deletion. Nikkei Underlying Stocks with relatively low liquidity, based on trading value and rate of price fluctuation over the past five years, may be deleted by Nikkei Inc. Upon deletion of a stock from the Nikkei Underlying Stocks, Nikkei Inc. will select a replacement for such deleted Nikkei Underlying Stock in accordance with certain criteria. In an exceptional case, a newly listed stock in the First Section of the TSE that is recognized by Nikkei Inc. to be representative of a market may be added to the Nikkei Underlying Stocks. In such a case, a newly listed stock in the First Section of the TSE that is recognized by Nikkei Inc. to be representative of a market may be

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added to the Nikkei Underlying Stocks. In such a case, an existing Nikkei Underlying Stock with low trading volume and deemed not to be representative of a market will be deleted by Nikkei Inc.

A list of the issuers of the Nikkei Underlying Stocks constituting the NKY is available from the Nikkei Economic Electronic Databank System and from the Stock Market Indices Data Book published by Nikkei Inc. Nikkei Inc. may delete, add or substitute any stock underlying the NKY.

#### Property Rights and Disclaimers

The Nikkei Stock Average is an intellectual property of Nikkei Inc. “Nikkei,” “Nikkei Stock Average,” and “Nikkei 225” are the service marks of Nikkei Inc. Nikkei Inc. reserves all the rights, including copyright, to the NKY. Nikkei Digital Media, Inc., a wholly owned subsidiary of Nikkei Inc. calculates and disseminates the NKY under exclusive agreement with Nikkei Inc. Nikkei Inc. and Nikkei Digital Media Inc. are collectively the “Nikkei Index Sponsor.”

The Notes are not in any way sponsored, endorsed or promoted by the Nikkei Index Sponsor. The Nikkei Index Sponsor does not make any warranty or representation whatsoever, express or implied, either as to the results to be obtained as to the use of the NKY or the figure as which the NKY stands at any particular day or otherwise. The NKY is compiled and calculated solely by the Nikkei Index Sponsor. However, the Nikkei Index Sponsor shall not be liable to any person for any error in the NKY and the Nikkei Index Sponsor shall not be under any obligation to advise any person, including a purchase or vendor of the Notes, of any error therein.

In addition, the Nikkei Index Sponsor gives no assurance regarding any modification or change in any methodology used in calculating the NKY and is under no obligation to continue the calculation, publication and dissemination of the NKY.

#### License Agreement

Royal Bank has entered into a non-exclusive license agreement with Nikkei, which will allow us and our affiliates, in exchange for a fee, to use the NKY in connection with that offering. We are not affiliated with Nikkei; the only relationship between Nikkei and us will be the licensing of the use of the NKY and trademarks relating to the NKY. Nikkei is under no obligation to continue the calculation and dissemination of the NKY. The Notes are not sponsored, endorsed, sold or promoted by Nikkei. No inference should be drawn from the information contained in this document that Nikkei makes any representation or warranty, implied or express, to us, any holder of the Notes or any member of the public regarding the advisability of investing in securities generally, or in the Notes in particular, or the ability of the NKY to track general stock market performance.

Nikkei determines, composes and calculates the NKY without regard to the Notes. Nikkei has no obligation to take into account your interest, or that of anyone else having an interest, in the Notes in determining, composing or calculating the NKY. Nikkei is not responsible for, and has not participated in the determination of, the terms, prices or amount of the Notes and will not be responsible for, or participate in, any determination or calculation regarding the principal amount of the Notes payable at maturity. Nikkei has no obligation or liability in connection with the administration, marketing or trading of the Notes.

Nikkei disclaims all responsibility for any errors or omissions in the calculation and dissemination of the NKY or the manner in which the NKY is applied in determining any level of the NKY or any amount payable on the Notes.

**NIKKEI DOES NOT GUARANTEE THE ACCURACY OR THE COMPLETENESS OF THE NKY OR ANY DATA INCLUDED IN THE NKY. NIKKEI ASSUMES NO LIABILITY FOR ANY ERRORS OR OMISSIONS.**

“Nikkei®” is a trademark of Nikkei. The Notes are not sponsored, endorsed, sold or promoted by Nikkei, and Nikkei makes no representation regarding the advisability of investing in the Notes.

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Historical Information

Below is a table setting forth the intra-day high, intra-day low and period-end closing levels of this Reference Index. The information provided in the table is for the period from January 1, 2013 through November 15, 2017.

| Period-Start Date | Period-End Date | High Intra-Day Level of this Reference Index | Low Intra-Day Level of this Reference Index | Period-End Closing Level of this Reference Index |
|-------------------|-----------------|--|---|--|
| 1/1/2013          | 3/31/2013       | 12,650.26                                    | 10,398.61                                   | 12,335.96  |
| 4/1/2013          | 6/30/2013       | 15,942.60                                    | 11,805.78                                   | 13,677.32  |
| 7/1/2013          | 9/30/2013       | 14,953.29                                    | 13,188.14                                   | 14,455.80  |
| 10/1/2013         | 12/31/2013      | 16,320.22                                    | 13,748.94                                   | 16,291.31  |
| 1/1/2014          | 3/31/2014       | 16,164.01                                    | 13,995.86                                   | 14,827.83  |
| 4/1/2014          | 6/30/2014       | 15,442.67                                    | 13,885.11                                   | 15,162.10  |
| 7/1/2014          | 9/30/2014       | 16,374.14                                    | 14,753.84                                   | 16,173.52  |
| 10/1/2014         | 12/31/2014      | 18,030.83                                    | 14,529.03                                   | 17,450.77  |
| 1/1/2015          | 3/31/2015       | 19,778.60                                    | 16,592.57                                   | 19,206.99  |
| 4/1/2015          | 6/30/2015       | 20,952.71                                    | 18,927.95                                   | 20,235.73  |
| 7/1/2015          | 9/30/2015       | 20,946.93                                    | 16,901.49                                   | 17,388.15  |
| 10/1/2015         | 12/31/2015      | 20,012.40                                    | 17,389.57                                   | 19,033.71  |
| 1/1/2016          | 3/31/2016       | 18,951.12                                    | 14,865.77                                   | 16,758.67  |
| 4/1/2016          | 6/30/2016       | 17,613.56                                    | 14,864.01                                   | 15,575.92  |
| 7/1/2016          | 9/30/2016       | 17,156.36                                    | 15,106.52                                   | 16,449.84  |
| 10/1/2016         | 12/31/2016      | 19,592.90                                    | 16,111.81                                   | 19,114.37  |
| 1/1/2017          | 3/31/2017       | 19,668.01                                    | 18,650.33                                   | 18,909.26  |
| 4/1/2017          | 6/30/2017       | 20,318.11                                    | 18,224.68                                   | 20,033.43  |
| 7/1/2017          | 9/30/2017       | 20,481.27                                    | 19,239.52                                   | 20,356.28  |
| 10/1/2017         | 11/15/2017      | 23,382.15                                    | 20,363.28                                   | 22,028.32  |

PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE RESULTS.

The graph below illustrates the performance of this Reference Index from January 1, 2013 to November 15, 2017, reflecting its Initial Level of 22,028.32. The red line represents its Coupon Barrier and Trigger Level of 16,521.24, which is equal to 75.00% of its Initial Level.

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

The following disclosure supplements, and to the extent inconsistent supersedes, the discussion in the product prospectus supplement dated January 11, 2016 under “Supplemental Discussion of U.S. Federal Income Tax Consequences.”

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 IRS has issued guidance that states that the U.S. Treasury Department and the IRS intend to amend the effective dates of the U.S. Treasury Department regulations to provide that withholding on dividend equivalent payments will not apply to specified ELIs that are not delta-one instruments and that are issued before January 1, 2019. Based on our determination that the Notes are not delta-one instruments, non-U.S. holders should not be subject to withholding on dividend equivalent payments, if any, under the Notes. However, it is possible that the Notes could be treated as deemed reissued for U.S. federal income tax purposes upon the occurrence of certain events affecting the Reference Indices or the Notes (for example, upon a Reference Index rebalancing), and following such occurrence the Notes 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 Reference Indices or the Notes should consult their tax advisors as to the application of the dividend equivalent withholding tax in the context of the Notes 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.

#### SUPPLEMENTAL PLAN OF DISTRIBUTION (CONFLICTS OF INTEREST)

Delivery of the Notes will be made against payment for the Notes on November 20, 2017, which is the third (3rd) business day following the trade date (this settlement cycle being referred to as “T+3”). See “Plan of Distribution” in the prospectus dated January 8, 2016. For additional information as to the relationship between us and RBCCM, please see the section “Plan of Distribution—Conflicts of Interest” in the prospectus dated January 8, 2016.

In the initial offering of the Notes, they were offered to investors at a purchase price equal to par, except with respect to certain accounts as indicated on the cover page of this document.

We expect to deliver the Notes on a date that is greater than two business days following the trade date. Under Rule 15c6-1 of the Exchange Act, trades in the secondary market generally are required to settle in two business days, unless the parties to any such trade expressly agree otherwise. Accordingly, purchasers who wish to trade the Notes more than two business days prior to the original issue date will be required to specify alternative arrangements to prevent a failed settlement.

The value of the Notes shown on your account statement may be based on RBCCM’s estimate of the value of the Notes if RBCCM or another of our affiliates were to make a market in the Notes (which it is not obligated to do). That estimate will be based upon the price that RBCCM may pay for the Notes in light of then prevailing market conditions, our creditworthiness and transaction costs. For a period of approximately three months after the issue date of the Notes, the value of the Notes that may be shown on your account statement may be higher than RBCCM’s estimated value of the Notes at that time. This is because the estimated value of the Notes will not include the underwriting discount and our hedging costs and profits; however, the value of the Notes shown on your account

statement during that period may be a higher amount, reflecting the addition of RBCCM's underwriting discount and our estimated costs and profits from hedging the Notes. This excess is expected to decrease over time until the end of this period. After this period, if RBCCM repurchases your Notes, it expects to do so at prices that reflect their estimated value.

We may use this pricing supplement in the initial sale of the Notes. In addition, RBCCM or another of our affiliates may use this pricing supplement in a market-making transaction in the Notes after their initial sale. Unless we or our agent informs the purchaser otherwise in the confirmation of sale, this pricing supplement is being used in a market-making transaction.

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## STRUCTURING THE NOTES

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

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

The lower implied borrowing rate is a factor that reduced the economic terms of the Notes to you. The initial offering price of the Notes also reflects the underwriting commission and our estimated hedging costs. These factors resulted in the initial estimated value for the Notes on the trade date being less than their public offering price. See “Selected Risk Considerations—The Initial Estimated Value of the Notes Is Less than the Price to the Public” above.

## VALIDITY OF THE NOTES

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

In the opinion of Morrison & Foerster LLP, when the Notes have been duly completed in accordance with the Indenture and issued and sold as contemplated by the prospectus supplement and the prospectus, the Notes will be valid, binding and enforceable obligations of Royal Bank, entitled to the benefits of the Indenture, subject to applicable bankruptcy, insolvency and similar laws affecting creditors’ rights generally, concepts of reasonableness and equitable principles of general applicability (including, without limitation, concepts of good faith, fair dealing and the lack of bad faith). This opinion is given as of the date hereof and is limited to the laws of the State of New York. This opinion is subject to customary assumptions about the Trustee’s authorization, execution and delivery of the

Indenture and the genuineness of signatures and to such counsel's reliance on the Bank and other sources as to certain factual matters, all as stated in the legal opinion dated January 8, 2016, which has been filed as Exhibit 5.2 to the Bank's Form 6-K dated January 8, 2016.

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