

ROYAL BANK OF CANADA  
Form 424B2  
November 13, 2017

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

Pricing Supplement  
Dated November 10,  
2017

To the Product \$1,000,000  
Prospectus Supplement Auto-Callable Contingent Coupon Barrier Notes Linked to the  
No. TP-2, dated January Lesser Performing of Three Equity Indices,  
11, 2016, and the Due May 15, 2019  
Prospectus Supplement Royal Bank of Canada  
and Prospectus, Each  
Dated January 8, 2016

Royal Bank of Canada is offering Auto-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
NASDAQ-100® Index (“NDX”)	6,309.066	5,047.253, which is 80% of its Initial Level*
Nikkei 225 Index (“NKY”)	22,681.42	18,145.14, which is 80% of its Initial Level*
EURO STOXX® Banks Index (“SX7E”)	132.35	105.88, which is 80% of its Initial Level

\* Rounded to two decimal places in the case of the NKY and three decimal places in the case of the NDX.

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	Listing:	None
Trade Date:	November 10, 2017	Principal Amount:	\$1,000 per Note
Issue Date:	November 15, 2017	Maturity Date:	May 15, 2019
Observation Dates:	Quarterly, as set forth below.	Coupon Payment Dates:	Quarterly, as set forth below.
Valuation Date:	May 10, 2019	Contingent Coupon Rate:	15.25% 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:

If the closing level of each Reference Index is greater than or equal to its Initial Level on any Observation Date, the Notes will be automatically called for 100% of their principal amount, plus the Contingent Coupon applicable to that Observation Date.

Call Settlement Dates:

Quarterly, as set forth below.

CUSIP:

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	Per Note	Total
Price to public <sup>(1)</sup>	100.00%	\$1,000,000.00
Underwriting discounts and commissions	0.60%	\$6,000.00
Proceeds to Royal Bank of Canada	99.40%	\$994,000.00

<sup>(1)</sup>Certain dealers who purchase the Notes for sale to certain fee-based advisory accounts may forego some or all of their underwriting discount or selling concessions. The public offering price for investors purchasing the Notes in these accounts may be between \$994.00 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 \$975.38 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 \$6.00 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 \$6.00 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.

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Auto-Callable Contingent Coupon Barrier Notes  
 Linked to the Lesser Performing of Three Equity  
 Indices, Due May 15, 2019  
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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 Auto-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 10, 2017

**Issue Date:** November 15, 2017

**Term:** Approximately 18 months

**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:** 15.25% per annum (3.8125% per quarter).

**Observation Dates:** Quarterly, on February 9, 2018, May 10, 2018, August 10, 2018, November 12, 2018, February 12, 2019 and the Valuation Date.

**Coupon Payment Dates:** The Contingent Coupon, if applicable, will be paid on February 15, 2018, May 15, 2018, August 15, 2018, November 15, 2018, February 15, 2019 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:** If, on any Observation Date, the closing level of each Reference Index is greater than or equal to its Initial Level, then the Notes will be automatically called.

**Payment if Called:** If the Notes are automatically 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.

**Call Settlement Dates:** If the Notes are called on any Observation Date, the Call Settlement Date will be the Coupon Payment Date corresponding to that Observation Date.

**Valuation Date:** May 10, 2019

**Maturity Date:** May 15, 2019

**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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Final Level: For each Reference Index, its closing level on the Valuation Date.  
Trigger Level and Coupon: For each Reference Index, 80% of its Initial Level, as specified on the cover page of this pricing supplement.  
Barrier:

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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:

· 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.

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

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.

Lesser  
 Performing  
 Reference  
 Index:

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

Underlying  
 Return:

With respect to each Reference Index:

$\frac{\text{Final Level} - \text{Initial Level}}{\text{Initial Level}}$

Market  
 Disruption  
 Events:

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.

Calculation  
 Agent:

RBC Capital Markets, LLC (“RBCCM”)

U.S. Tax  
 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  
 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

All of the terms appearing above the item captioned “Secondary Market” on the cover page and pages Incorporated in P-2 and P-3 of this pricing supplement and the terms appearing under the caption “General Terms of

the Master Note: the Notes” in the product prospectus supplement dated January 11, 2016, as modified by this pricing supplement.

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#### 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 automatically called prior to maturity:

Hypothetical Initial Level (for each Reference Index):	1,000.00*
Hypothetical Trigger Level (for each Reference Index):	800.00, which is 80.00% of the hypothetical Initial Level
Hypothetical Coupon Barrier (for each Reference Index):	800.00, which is 80.00% of the hypothetical Initial Level
Contingent Coupon Rate:	15.25% per annum (or 3.8125% per quarter)
Contingent Coupon Amount:	\$38.125 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	103.8125%	\$1,038.125*
1,200.00	103.8125%	\$1,038.125*
1,100.00	103.8125%	\$1,038.125*
1,000.00	103.8125%	\$1,038.125*
900.00	103.8125%	\$1,038.125*
800.00	103.8125%	\$1,038.125*
799.90	79.99%	\$799.90
700.00	70.00%	\$700.00
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 800.00, the investor receives at maturity, in addition to the final Contingent Coupon of \$38.125 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 800.00, the investor receives at maturity, in addition to the final Contingent Coupon of \$38.125 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 of 800.00. Because the Final Level of the Lesser Performing Reference Index is less than its Trigger Level and Coupon Barrier, 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 automatically 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 Automatic Call** — If on any Observation Date, the closing level of each Reference Index is greater than or equal to its Initial Level, then the Notes will be automatically called. If the Notes are automatically called, then, on the applicable Call Settlement Date, for each \$1,000 in principal amount, you will receive \$1,000 plus the Contingent Coupon otherwise due on the applicable Call Settlement Date. You will not receive any Contingent Coupons after the Call Settlement Date. You may be unable to reinvest your proceeds from the automatic 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.

**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 automatic 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 Settlement Date. Since the Notes could be called as early as the first Observation Date, the total return on the Notes could be minimal. 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 our other affiliates may make a market for the Notes; however, they are not required to do so. RBCCM or any other affiliate of ours 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 Relating to Non-U.S. Securities Markets** - Because foreign companies or foreign equity securities included in the NDX, NKY and SX7E 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-

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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.

##### The NASDAQ-100® Index

The NASDAQ-100® Index (“NDX”) is a modified market capitalization-weighted index of 100 of the largest stocks of both U.S. and non-U.S. non-financial companies listed on The NASDAQ Stock Market based on market capitalization. It does not contain securities of financial companies, including investment companies. The NASDAQ-100® Index, which includes companies across a variety of major industry groups, was launched on January 31, 1985, with a base index value of 250.00. On January 1, 1994, the base index value was reset to 125.00. The NASDAQ OMX Group, Inc. publishes the NDX. Current information regarding the market value of the NDX is available from NASDAQ OMX Group, Inc. (“NASDAQ OMX”) as well as numerous market information services. The share weights of the component securities of the NDX at any time are based upon the total shares outstanding in each of those securities and are additionally subject, in certain cases, to rebalancing. Accordingly, each underlying stock’s influence on the level of the NDX is directly proportional to the value of its share weight.

##### Index Calculation

At any moment in time, the level of the NDX equals the aggregate value of the then-current share weights of each of the component securities, which are based on the total shares outstanding of each such component security, multiplied by each such security’s respective last sale price on The NASDAQ Stock Market (which may be the official closing price published by The NASDAQ Stock Market), and divided by a scaling factor (the “divisor”), which becomes the basis for the reported level of the NDX. The divisor serves the purpose of scaling such aggregate value to a lower order of magnitude, which is more desirable for reporting purposes.

##### Underlying Stock Eligibility Criteria and Annual Ranking Review

###### Initial Eligibility Criteria

To be eligible for initial inclusion in the NDX, a security must be listed on The NASDAQ Stock Market and meet the following criteria:

- the security’s U.S. listing must be exclusively on the NASDAQ Global Select Market or the NASDAQ Global Market;
- the security must be issued by a non-financial company;
- the security may not be issued by an issuer currently in bankruptcy proceedings;
- the security must generally be a common stock, ordinary share, American Depositary Receipt, or tracking stock (closed-end funds, convertible debentures, exchange traded funds, limited liability companies, limited partnership interests, preferred stocks, rights, shares or units of beneficial interests, warrants, units and other derivative securities are not included in the NDX, nor are the securities of investment companies);
- the security must have a three-month average daily trading volume of at least 200,000 shares;
- if the security is issued by an issuer organized under the laws of a jurisdiction outside the United States, it must have listed options on a recognized market in the United States or be eligible for listed-options trading on a recognized



options market in the United States;

the issuer of the security may not have entered into a definitive agreement or other arrangement which would likely result in the security no longer being eligible;

the issuer of the security may not have annual financial statements with an audit opinion that is currently withdrawn;  
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the issuer of the security must have “seasoned” on the NASDAQ Stock Market or another recognized market (generally, a company is considered to be seasoned if it has been listed on a market for at least three full months, excluding the first month of initial listing).

Continued Eligibility Criteria

In addition, to be eligible for continued inclusion in the NDX the following criteria apply:

- the security’s U.S. listing must be exclusively on the NASDAQ Global Select Market or the NASDAQ Global Market;
  - the security must be issued by a non-financial company;
  - the security may not be issued by an issuer currently in bankruptcy proceedings;
  - the security must have an average daily trading volume of at least 200,000 shares in the previous three-month trading period as measured annually during the ranking review process described below;
  - if the issuer of the security is organized under the laws of a jurisdiction outside the United States, then such security must have listed options on a recognized market in the United States or be eligible for listed-options trading on a recognized options market in the United States, as measured annually during the ranking review process;
  - the issuer of the security may not have entered into a definitive agreement or other arrangement that would likely result in the security no longer being eligible;
  - the security must have an adjusted market capitalization equal to or exceeding 0.10% of the aggregate adjusted market capitalization of the NDX at each month-end. In the event that a company does not meet this criterion for two consecutive month-ends, it will be removed from the NDX effective after the close of trading on the third Friday of the following month; and
  - the issuer of the security may not have annual financial statements with an audit opinion that is currently withdrawn.
- These eligibility criteria may be revised from time to time by NASDAQ OMX without regard to the Notes.

Annual Ranking Review

The component securities are evaluated on an annual basis (the “Ranking Review”), except under extraordinary circumstances, which may result in an interim evaluation, as follows. Securities that meet the applicable eligibility criteria are ranked by market value. eligible securities that are already in the NDX and that are ranked in the top 100 eligible securities (based on market capitalization) are retained in the NDX. A security that is ranked 101 to 125 is also retained, provided that such security was ranked in the top 100 eligible securities as of the previous Ranking Review or was added to the NDX subsequent to the previous Ranking Review. Securities not meeting such criteria are replaced. The replacement securities chosen are those eligible securities not currently in the NDX that have the largest market capitalization. The data used in the ranking includes end of October market data and is updated for total shares outstanding submitted in a publicly filed SEC document via EDGAR through the end of November.

Replacements are made effective after the close of trading on the third Friday in December. Moreover, if at any time during the year other than the Ranking Review, a component security is determined by NASDAQ OMX to become ineligible for continued inclusion in the NDX, the security will be replaced with the largest market capitalization security meeting the eligibility criteria listed above and not currently included in the NDX.

Index Maintenance

In addition to the Ranking Review, the securities in the NDX are monitored every day by NASDAQ OMX with respect to changes in total shares outstanding arising from corporate events, such as stock dividends, stock splits and certain spin-offs and rights issuances. NASDAQ OMX has adopted the following quarterly scheduled weight adjustment procedures with respect to those changes. If the change in total shares outstanding arising from a corporate action is greater than or equal to 10%, that change will be made to the NDX as soon as practical, normally within ten days of such corporate action. Otherwise, if the change in total shares outstanding is less than 10%, then all such changes are accumulated and made effective at one time on a quarterly basis after the close of trading on the third

Friday in each of March, June, September and December.

In either case, the share weights for those component securities are adjusted by the same percentage amount by which the total shares outstanding have changed in those securities. Ordinarily, whenever there is a change in the share weights, a change in a component security, or a change to the price of a component security due to spin-off, rights issuances or special cash dividends, NASDAQ OMX adjusts the divisor to ensure that there is no discontinuity in the level of the NDX that might otherwise be caused by any of those changes. All changes will be announced in advance.

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#### Index Rebalancing

Under the methodology employed, on a quarterly basis coinciding with NASDAQ OMX's quarterly scheduled weight adjustment procedures, the component securities are categorized as either "Large Stocks" or "Small Stocks" depending on whether their current percentage weights (after taking into account scheduled weight adjustments due to stock repurchases, secondary offerings or other corporate actions) are greater than, or less than or equal to, the average percentage weight in the NDX (i.e., as a 100-stock index, the average percentage weight in the NDX is 1%).

This quarterly examination will result in an index rebalancing if it is determined that: (1) the current weight of the single largest market capitalization component security is greater than 24% or (2) the "collective weight" of those component securities, the individual current weights of which are in excess of 4.5%, when added together, exceed 48%. In addition, NASDAQ OMX may conduct a special rebalancing at any time if it is determined to be necessary to maintain the integrity of the NDX.

If either one or both of these weight distribution requirements are met upon quarterly review, or NASDAQ OMX determines that a special rebalancing is required, a weight rebalancing will be performed. First, relating to weight distribution requirement (1) above, if the current weight of the single largest component security exceeds 24%, then the weights of all Large Stocks will be scaled down proportionately towards 1% by enough of an amount for the adjusted weight of the single largest component security to be set to 20%. Second, relating to weight distribution requirement (2) above, for those component securities whose individual current weights or adjusted weights in accordance with the preceding step are in excess of 4.5%, if their "collective weight" exceeds 48%, then the weights of all Large Stocks will be scaled down proportionately towards 1% by just enough amount for the "collective weight," so adjusted, to be set to 40%.

The aggregate weight reduction among the Large Stocks resulting from either or both of the above rescalings will then be redistributed to the Small Stocks in the following iterative manner. In the first iteration, the weight of the largest Small Stock will be scaled upwards by a factor which sets it equal to the average Index weight of 1.0%. The weights of each of the smaller remaining Small Stocks will be scaled up by the same factor, reduced in relation to each stock's relative ranking among the Small Stocks, such that the smaller the component security in the ranking, the less the scale-up of its weight. This is intended to reduce the market impact of the weight rebalancing on the smallest component securities in the NDX.

In the second iteration, the weight of the second largest Small Stock, already adjusted in the first iteration, will be scaled upwards by a factor which sets it equal to the average index weight of 1%. The weights of each of the smaller remaining Small Stocks will be scaled up by this same factor, reduced in relation to each stock's relative ranking among the Small Stocks, such that, once again, the smaller the component stock in the ranking, the less the scale-up of its weight.

Additional iterations will be performed until the accumulated increase in weight among the Small Stocks exactly equals the aggregate weight reduction among the Large Stocks from rebalancing in accordance with weight distribution requirement (1) and/or weight distribution requirement (2).

Then, to complete the rebalancing procedure, once the final percent weights of each of the component securities are set, the share weights will be determined anew based upon the last sale prices and aggregate capitalization of the NDX at the close of trading on the last day in February, May, August and November. Changes to the share weights will be made effective after the close of trading on the third Friday in March, June, September and December, and an adjustment to the divisor will be made to ensure continuity of the NDX.

Ordinarily, new rebalanced weights will be determined by applying the above procedures to the current share weights. However, NASDAQ OMX may from time to time determine rebalanced weights, if necessary, by instead applying the above procedure to the actual current market capitalization of the component securities. In those instances, NASDAQ OMX would announce the different basis for rebalancing prior to its implementation.

License Agreement

The Notes are not sponsored, endorsed, sold or promoted by Nasdaq, Inc. or its affiliates (collectively, "Nasdaq"). Nasdaq has not passed on the legality or suitability of, or the accuracy or adequacy of descriptions and disclosures relating to, the Notes. Nasdaq 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 NDX to track general stock market performance. Nasdaq's only relationship to us is in the licensing of the Nasdaq®, NDX trademarks or service marks, and certain trade names of Nasdaq and the use of the NDX which are determined, composed and calculated by NASDAQ without regard to us or the Notes. Nasdaq has no obligation to take the needs of us or the owners of the Notes into consideration in determining, composing or calculating the NDX. Nasdaq is not responsible for and has not participated in the determination of the timing of, prices at, or quantities

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of the Notes to be issued or in the determination or calculation of the equation by which the Notes are to be converted into cash. Nasdaq has no liability in connection with the administration, marketing or trading of the Notes. NASDAQ DOES NOT GUARANTEE THE ACCURACY AND/OR UNINTERRUPTED CALCULATION OF THE NDX OR ANY DATA INCLUDED THEREIN. NASDAQ MAKES NO WARRANTY, EXPRESS OR IMPLIED, AS TO RESULTS TO BE OBTAINED BY LICENSEE, OWNERS OF THE NOTES, OR ANY OTHER PERSON OR ENTITY FROM THE USE OF THE NDX OR ANY DATA INCLUDED THEREIN. NASDAQ MAKES NO EXPRESS OR IMPLIED WARRANTIES, AND EXPRESSLY DISCLAIMS ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE WITH RESPECT TO THE NDX OR ANY DATA INCLUDED THEREIN. WITHOUT LIMITING ANY OF THE FOREGOING, IN NO EVENT SHALL NASDAQ HAVE ANY LIABILITY FOR ANY LOST PROFITS OR SPECIAL, INCIDENTAL, PUNITIVE, INDIRECT, OR CONSEQUENTIAL DAMAGES, EVEN IF NOTIFIED OF THE POSSIBILITY OF SUCH DAMAGES. NASDAQ®, NASDAQ 100® AND NASDAQ 100 INDEX® ARE TRADE OR SERVICE MARKS OF NASDAQ AND ARE INCENSED FOR USE BY US. THE NOTES HAVE NOT BEEN PASSED ON BY NASDAQ AS TO THEIR LEGALITY OR SUITABILITY. THE NOTES ARE NOT ISSUED, ENDORSED, SOLD OR PROMOTED BY NASDAQ. NASDAQ MAKES NO WARRANTIES AND BEARS NO LIABILITY WITH RESPECT TO 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 10, 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	2,820.669	2,689.830	2,818.690
4/1/2013	6/30/2013	3,053.507	2,730.967	2,909.599
7/1/2013	9/30/2013	3,248.523	2,913.479	3,218.198
10/1/2013	12/31/2013	3,591.996	3,117.693	3,591.996
1/1/2014	3/31/2014	3,738.319	3,418.883	3,595.736
4/1/2014	6/30/2014	3,860.646	3,414.107	3,849.479
7/1/2014	9/30/2014	4,118.908	3,837.155	4,049.445
10/1/2014	12/31/2014	4,347.087	3,700.225	4,236.279
1/1/2015	3/31/2015	4,483.970	4,078.848	4,382.819
4/1/2015	6/30/2015	4,562.333	4,283.913	4,379.865
7/1/2015	9/30/2015	4,694.134	3,787.227	4,083.372
10/1/2015	12/31/2015	4,739.753	4,124.545	4,652.008
1/1/2016	3/31/2016	3,888.781	4,490.875	4,522.119
4/1/2016	6/30/2016	4,179.735	4,364.738	4,574.383
7/1/2016	9/30/2016	4,375.724	4,838.300	4,895.496
10/1/2016	12/31/2016	4,647.590	4,863.620	4,992.078
1/1/2017	3/31/2017	5,451.497	4,884.522	5,436.232
4/1/2017	6/30/2017	5,897.688	5,353.586	5,646.917
7/1/2017	9/30/2017	6,012.954	5,579.641	5,979.298
10/1/2017	11/10/2017	6,346.978	5,955.829	6,309.066

PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE RESULTS.

The graph below illustrates the performance of this Reference Index from January 1, 2013 to November 10, 2017, reflecting its Initial Level of 6,309.066. The red line represents its Coupon Barrier and Trigger Level of 5,047.253, which is equal to 80.00% 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 10, 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	11/10/2017	23,382.15	20,363.28	22,681.42

PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE RESULTS.

The graph below illustrates the performance of this Reference Index from January 1, 2013 to November 10, 2017, reflecting its Initial Level of 22,681.42. The red line represents its Coupon Barrier and Trigger Level of 18,145.14, which is equal to 80.00% of its Initial Level, rounded to two decimal places.

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#### EURO STOXX® Banks Index (“SX7E”)

##### The SX7E

The SX7E was created by STOXX, a subsidiary of Deutsche Börse AG. Publication of the SX7E began on June 15, 1998, based on an initial index level of 1,000 at December 31, 1991.

##### Composition and Maintenance

The SX7E is one of the 19 EURO STOXX® Supersector indices that compose the STOXX® Europe 600 Index. The STOXX® Europe 600 Index contains the 600 largest stocks traded on the major exchanges of 18 European countries and are organized into the following 19 Supersectors: automobiles & parts; banks; basic resources; chemicals; construction & materials; financial services; food & beverage; health care; industrial goods & services; insurance; media; oil & gas; personal & household goods; real estate; retail; technology; telecommunications; travel & leisure; and utilities. The SX7E includes companies in the banks supersector, which tracks companies providing a broad range of financial services, including retail banking, loans and money transmissions. The SX7E currently includes 26 stocks. Additional information about the Index, including information about its components, may be found on the STOXX website; however, information on that website is not included or incorporated by reference in this document.

The SX7E is weighted by free float market capitalization. Each component’s weight is capped at 30% of the SX7E’s total free float market capitalization. Free float weights are reviewed quarterly. The composition of each of the EURO STOXX® Supersector index is reviewed quarterly, based on the closing stock data on the last trading day of the month following the implementation of the last quarterly index review. The component stocks are announced on the fourth Tuesday of the month immediately prior to the review implementation month. Changes to the component stocks are implemented on the third Friday in each of March, June, September and December and are effective the following trading day. All index components will be adjusted for corporate actions.

##### Calculation of the SX7E

The SX7E 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 SX7E value can be expressed as follows:

$$SX7E = \frac{\text{Free float market capitalization of the SX7E}}{\text{Adjusted base date market capitalization of the SX7E}} \times 1,000$$

The “free float market capitalization of the SX7E” is equal to the sum of the products of the closing price, market capitalization, and free float factor for each component stock as of the time the SX7E is being calculated.

The SX7E is also subject to a divisor, which is adjusted to maintain the continuity of the SX7E 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 SX7E) 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 SX7E 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 SX7E, 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 SX7E and the data included in the SX7E;
  - the accuracy or completeness of the SX7E and its data;
  - the merchantability and the fitness for a particular purpose or use of the SX7E and its data;
- STOXX will have no liability for any errors, omissions, or interruptions in the SX7E 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 10, 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	128.20	100.01	102.46
4/1/2013	6/30/2013	119.79	99.30	101.39
7/1/2013	9/30/2013	130.52	97.73	125.84
10/1/2013	12/31/2013	142.71	125.96	141.43
1/1/2014	3/31/2014	157.31	138.64	155.26
4/1/2014	6/30/2014	163.34	143.80	146.52
7/1/2014	9/30/2014	155.57	133.34	149.21
10/1/2014	12/31/2014	150.79	125.55	134.51
1/1/2015	3/31/2015	158.97	122.68	157.65
4/1/2015	6/30/2015	162.00	146.05	149.91
7/1/2015	9/30/2015	162.42	125.95	131.34
10/1/2015	12/31/2015	142.64	122.97	127.87
1/1/2016	3/31/2016	127.87	88.85	101.38
4/1/2016	6/30/2016	112.21	77.26	83.25
7/1/2016	9/30/2016	100.54	77.24	92.54
10/1/2016	12/31/2016	120.92	91.14	117.67
1/1/2017	3/31/2017	128.68	110.80	127.52
4/1/2017	6/30/2017	140.92	118.61	131.16
7/1/2017	9/30/2017	140.00	127.35	138.38
10/1/2017	11/10/2017	138.46	130.78	132.35

PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE RESULTS.

The graph below illustrates the performance of this Reference Index from January 1, 2013 to November 10, 2017, reflecting its Initial Level of 132.35. The red line represents its Coupon Barrier and Trigger Level of 105.88, which is equal to 80.00% 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 15, 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 will be 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 will 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 settlement 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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