ROYAL BANK OF CANADA
Form 424B2
April 16, 2019

RBC Capital Markets®

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Pricing Supplement

Dated April 12, 2019
To the Product Prospectus Supplement No. CCBN-2, Dated September 10, 2018, the Prospectus Supplement Dated September 7, 2018, and the Prospectus Dated September 7, 2018

$2,925,000
Issuer Callable Contingent Coupon Barrier Notes Linked to the Lesser Performing of Three Equity Indices, Due April 15, 2021
Royal Bank of Canada

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 are our senior unsecured obligations, 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.

Reference Indices	Initial Levels	Trigger Levels*	Coupon Barriers*
S&P 500® Index ("SPX")	2,907.41	2,180.56, which is 75.00% of its Initial Level	2,180.56, which is 75.00% of its Initial Level
Russell 2000® Index ("RTY")	1,584.802	1,188.602, which is 75.00% of its Initial Level	1,188.602, which is 75.00% of its Initial Level
NASDAQ-100® Index ("NDX")	7,628.150	5,721.113, which is 75.00% of its Initial Level	5,721.113, which is 75.00% of its Initial Level

* Rounded to two decimal places in the case of the SPX, and three decimal places in the case of the RTY and 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 September 10, 2018, on page S-1 of the prospectus supplement dated September 7, 2018, and "Selected Risk Considerations" beginning on page P-8 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. The Notes are not subject to conversion into our common shares under subsection 39.2(2.3) of the Canada Deposit Insurance Corporation Act.

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:	April 12, 2019	Principal Amount:	$1,000 per Note

Issue Date:	April 17, 2019	Maturity Date:	April 15, 2021
Observation Periods:	Quarterly, as set forth below.	Coupon Payment Dates:	Quarterly, as set forth below
Valuation Date:	April 12, 2021	Contingent Coupon Rate:	10.75% per annum
Initial Level:	For each Reference Index, 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 each trading day during the applicable Observation Period, 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.		
Payment at Maturity (if held to maturity):	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. If the Final Level of the Lesser Performing Reference Indices 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 x Underlying Return of the Lesser Performing Reference Index) Investors could lose some or all of their principal amount if there has been a decline in the level of Lesser Performing Reference Index.		
Lesser Performing Reference Index:	The Reference Index with the lowest Underlying Return.		
Call Feature:	The Notes may be called at our discretion on any Coupon Payment Date (other than the final Coupon Payment Date), if we send prior written notice, as described below.		
CUSIP:	78013X5J3		

	Per Note	Total
Price to public	100.00%	$2,925,000
Underwriting discounts and commissions[(1)]	1.50%	$43,875
Proceeds to Royal Bank of Canada	98.50%	$2,881,125

The initial estimated value of the Notes as of the Trade Date is $977.57 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.

[(1)] If the Notes priced on the date of this pricing supplement, RBC Capital Markets, LLC, which we refer to as RBCCM, acting as agent for Royal Bank of Canada, did not receive any underwriting discount. The issuer may pay selected broker-dealers and other distributors fees or retrocessions of up to $15.00 per $1,000 in principal amount of the Notes in connection with the distribution of the Notes. 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
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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 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")
Trade Date:	April 12, 2019
Issue Date:	April 17, 2019
Valuation Date:	April 12, 2021
Maturity Date:	April 15, 2021
Denominations:	Minimum denomination of $1,000, and integral multiples of $1,000 thereafter.
Designated Currency:	U.S. Dollars
Contingent Coupon:	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: • If the closing level of each Reference Index is greater than or equal to its Coupon Barrier on each trading day during the applicable Observation Period, we will pay the Contingent Coupon applicable to that Observation Period. • If the closing level of any of the Reference Indices is less than its Coupon Barrier on any trading day during the applicable Observation Period, we will not pay you the Contingent Coupon applicable to that Observation Period. You may not receive a Contingent Coupon for one or more quarterly periods during the term of the Notes.
Contingent Coupon Rate:	10.75% per annum (2.6875% per quarter)

Observation Periods and Coupon Payment Dates:

Observation Period Start Dates	Observation Period End Dates	Coupon Payment Dates
April 12, 2019	July 12, 2019	July 17, 2019
July 15, 2019	October 14, 2019	October 17, 2019
October 15, 2019	January 13, 2020	January 16, 2020
January 14, 2020	April 13, 2020	April 16, 2020
April 14, 2020	July 13, 2020	July 16, 2020
July 14, 2020	October 12, 2020	October 15, 2020
October 13, 2020	January 12, 2021	January 15, 2021
January 13, 2021	April 12, 2021 (the Valuation Date)	April 15, 2021 (the Maturity Date)

Record Dates:	The record date for each Coupon Payment Date will be 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 (other than the final Coupon Payment Date) if we send written notice to the trustee at least five business days prior to that Coupon Payment Date.
Payment if Called:	If the Notes are called, then, on the applicable Coupon Payment Date, for each $1,000 principal amount, you will receive $1,000 plus any Contingent Coupon otherwise due on that Coupon Payment Date (if payable).

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Initial Level:	For each Reference Index, its closing level on the Trade Date, as specified on the cover page of this document.
Final Level:	For each Reference Index, its closing level on the Valuation Date.
Trigger Level:	For each Reference Index, 75.00% of its Initial Level, as specified on the cover page of this document.
Coupon Barrier:	For each Reference Index, 75.00% of its Initial Level, as specified on the cover page of this document.
Payment at Maturity (if not previously called and held to maturity):	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 below its Trigger Level, you will receive at maturity, for each $1,000 in principal amount, a cash payment equal to: $1,000 + ($1,000 x 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 there has been a decline in the level of the Lesser Performing Reference Index below its Trigger Level.
Underlying Return:	With respect to each Reference Index: Final Level – Initial Level Initial Level
Lesser Performing Reference Index:	The Reference Index with the lowest Underlying Return.
Market Disruption Events:	If a market disruption event occurs as to any of the Reference Indices on any trading day during an Observation Period, the closing level of that Reference Index will be disregarded for the purpose of determining whether the Contingent Coupon is payable for that Observation Period. The occurrence of a market disruption event (or a non-trading day) as to any of the Reference Indices on the scheduled Valuation Date will result in the postponement of the Valuation Date as to that Reference Index, as described in the product prospectus supplement. A market disruption event affecting one Reference Index on the Valuation Date will not affect the determination of the closing level for any other 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 Notes 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 September 10, 2018 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 September 7, 2018).
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 September 10, 2018, 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 September 7, 2018, as supplemented by the prospectus supplement dated September 7, 2018 and the product prospectus supplement dated September 10, 2018, relating to our Senior Global Medium-Term Notes, Series H, 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 September 7, 2018 and in the product prospectus supplement dated September 10, 2018, 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 as follows (or if that address has changed, by reviewing our filings for the relevant date on the SEC website):

Prospectus dated September 7, 2018:
https://www.sec.gov/Archives/edgar/data/1000275/000121465918005973/l96181424b3.htm
Prospectus Supplement dated September 7, 2018:
https://www.sec.gov/Archives/edgar/data/1000275/000121465918005975/f97180424b3.htm
Product Prospectus Supplement dated September 10, 2018:
https://www.sec.gov/Archives/edgar/data/1000275/000114036118038089/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:	10.75% per annum (or 2.6875% per quarter)
Contingent Coupon Amount:	$26.875 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 is 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 of the Lesser Performing Reference Index are shown in the first column on the left. The second column shows the Payment at Maturity as a percentage of the principal amount for a range of Final Levels. 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 any 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	102.6875%*	$1,026.875*
1,250.00	102.6875%*	$1,026.875*
1,100.00	102.6875%*	$1,026.875*
1,000.00	102.6875%*	$1,026.875*
900.00	102.6875%*	$1,026.875*
800.00	102.6875%*	$1,026.875*
750.00	102.6875%*	$1,026.875*
749.90	74.99%	$749.90
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.

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, the investor receives at maturity, in addition to the final Contingent Coupon of $26.875 otherwise due on the Notes (if payable), 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 10% 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, the investor receives at maturity, in addition to the final Contingent Coupon of $26.875 otherwise due on the Notes (if payable), a cash payment of $1,000 per Note, despite the 10% 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 750.00. 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 called and the Final Level of the Lesser Performing Reference Index 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. 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 any Contingent Coupon otherwise due on the applicable Coupon Payment Date (if payable). 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 any trading day during an Observation Period is less than its Coupon Barrier, we will not pay you the Contingent Coupon applicable to that Observation Period. If the closing level of any of the Reference Indices is less than its Coupon Barrier on at least one trading day during each of the Observation Periods 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.
- 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 Periods during 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 Periods after the applicable Coupon Payment Date. Since the Notes could be called as early as the first Coupon Payment 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 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 our 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 our 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 that is 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 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 RTY consists of stocks issued by companies with relatively small market capitalizations. These companies often have greater stock price volatility, lower trading volume and less liquidity than large-capitalization companies. As a result, the level of the RTY 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 often 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.

- Market Disruption Events and Adjustments — The payment at maturity 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.

S&P 500® Index ("SPX")

The SPX is intended to provide an indication of the pattern of common stock price movement. The calculation of the level of the SPX is based on the relative value of the aggregate market value of the common stocks of 500 companies as of a particular time compared to the aggregate average market value of the common stocks of 500 similar companies during the base period of the years 1941 through 1943.

S&P calculates the SPX by reference to the prices of the constituent stocks of the SPX without taking account of the value of dividends paid on those stocks. As a result, the return on the Notes will not reflect the return you would realize if you actually owned the SPX constituent stocks and received the dividends paid on those stocks.

Effective with the September 2015 rebalance, consolidated share class lines will no longer be included in the SPX. Each share class line will be subject to public float and liquidity criteria individually, but the company's total market capitalization will be used to evaluate each share class line. This may result in one listed share class line of a company being included in the SPX while a second listed share class line of the same company is excluded.

Computation of the SPX

While S&P currently employs the following methodology to calculate the SPX, no assurance can be given that S&P will not modify or change this methodology in a manner that may affect the payments on the Notes.

Historically, the market value of any component stock of the SPX was calculated as the product of the market price per share and the number of then outstanding shares of such component stock. In March 2005, S&P began shifting the SPX halfway from a market capitalization weighted formula to a float-adjusted formula, before moving the SPX to full float adjustment on September 16, 2005. S&P's criteria for selecting stocks for the SPX did not change with the shift to float adjustment. However, the adjustment affects each company's weight in the SPX.

Under float adjustment, the share counts used in calculating the SPX reflect only those shares that are available to investors, not all of a company's outstanding shares. Float adjustment excludes shares that are closely held by control groups, other publicly traded companies or government agencies.

In September 2012, all shareholdings representing more than 5% of a stock's outstanding shares, other than holdings by "block owners," were removed from the float for purposes of calculating the SPX. Generally, these "control holders"

will include officers and directors, private equity, venture capital and special equity firms, other publicly traded companies that hold shares for control, strategic partners, holders of restricted shares, ESOPs, employee and family trusts, foundations associated with the company, holders of unlisted share classes of stock, government entities at all levels (other than government retirement/pension funds) and any individual person who controls a 5% or greater stake in a company as reported in regulatory filings. However, holdings by block owners, such as depositary banks, pension funds, mutual funds and ETF providers, 401(k) plans of the company, government retirement/pension funds, investment funds of insurance companies, asset managers and investment funds, independent foundations and savings and investment plans, will ordinarily be considered part of the float.

Treasury stock, stock options equity participation units, warrants, preferred stock, convertible stock, and rights are not part of the float. Shares held in a trust to allow investors in countries outside the country of domicile, such as depositary shares and Canadian exchangeable shares are normally part of the float unless those shares form a control block.

For each stock, an investable weight factor ("IWF") is calculated by dividing the available float shares by the total shares outstanding. Available float shares are defined as the total shares outstanding less shares held by control holders. This calculation is subject to a 5% minimum threshold for control blocks. For example, if a company's officers and directors hold 3% of the company's shares, and no other

control group holds 5% of the company's shares, S&P would assign that company an IWF of 1.00, as no control group meets the 5% threshold. However, if a company's officers and directors hold 3% of the company's shares and another control group holds 20% of the company's shares, S&P would assign an IWF of 0.77, reflecting the fact that 23% of the company's outstanding shares are considered to be held for control. As of July 31, 2017, companies with multiple share class lines are no longer eligible for inclusion in the Reference Index. Constituents of the Reference Index prior to July 31, 2017 with multiple share class lines will be grandfathered in and continue to be included in the Reference Index. If a constituent company of the Reference Index reorganizes into a multiple share class line structure, that company will remain in the Reference Index at the discretion of the S&P Index Committee in order to minimize turnover.

The SPX is calculated using a base-weighted aggregate methodology. The level of the SPX reflects the total market value of all 500 component stocks relative to the base period of the years 1941 through 1943. An indexed number is used to represent the results of this calculation in order to make the level easier to use and track over time. The actual total market value of the component stocks during the base period of the years 1941 through 1943 has been set to an indexed level of 10. This is often indicated by the notation 1941-43 = 10. In practice, the daily calculation of the SPX is computed by dividing the total market value of the component stocks by the "index divisor." By itself, the index divisor is an arbitrary number. However, in the context of the calculation of the SPX, it serves as a link to the original base period level of the SPX. The index divisor keeps the SPX comparable over time and is the manipulation point for all adjustments to the SPX, which is index maintenance.

Index Maintenance

Index maintenance includes monitoring and completing the adjustments for company additions and deletions, share changes, stock splits, stock dividends, and stock price adjustments due to company restructuring or spinoffs. Some corporate actions, such as stock splits and stock dividends, require changes in the common shares outstanding and the stock prices of the companies in the SPX, and do not require index divisor adjustments.

To prevent the level of the SPX from changing due to corporate actions, corporate actions which affect the total market value of the SPX require an index divisor adjustment. By adjusting the index divisor for the change in market value, the level of the SPX remains constant and does not reflect the corporate actions of individual companies in the SPX. Index divisor adjustments are made after the close of trading and after the calculation of the SPX closing level.

Changes in a company's total shares outstanding of 5% or more due to public offerings are made as soon as reasonably possible. Other changes of 5% or more (for example, due to tender offers, Dutch auctions, voluntary exchange offers, company stock repurchases, private placements, acquisitions of private companies or non-index companies that do not trade on a major exchange, redemptions, exercise of options, warrants, conversion of preferred stock, notes, debt, equity participations, at-the-market stock offerings or other recapitalizations) are made weekly, and are generally announced on Fridays for implementation after the close of trading the following Friday (one week later). If a 5% or more share change causes a company's IWF to change by five percentage points or more, the IWF is updated at the same time as the share change. IWF changes resulting from partial tender offers are considered on a case-by-case basis.

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Issuer Callable Contingent Coupon Barrier
Notes Linked to the Lesser Performing of Three
Equity Indices
Royal Bank of Canada

The graph below illustrates the performance of this Reference Index from January 1, 2008 to April 12, 2019, reflecting its Initial Level of 2,907.41. The red line represents its Coupon Barrier and Trigger Level of 2,180.56, which is equal to 75.00% of its Initial Level, rounded to two decimal places.

Issuer Callable Contingent Coupon Barrier
Notes Linked to the Lesser Performing of Three
Equity Indices
Royal Bank of Canada

Russell 2000® 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® Index, the RTY consists of the smallest 2,000 companies included in the Russell 3000® Index. The Russell 3000® 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 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.

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Issuer Callable Contingent Coupon Barrier
Notes Linked to the Lesser Performing of Three
Equity Indices
Royal Bank of Canada

The graph below illustrates the performance of this Reference Index from January 1, 2008 to April 12, 2019, reflecting its Initial Level of 1,584.802. The red line represents its Coupon Barrier and Trigger Level of 1,188.602, which is equal to 75.00% of its Initial Level, rounded to three decimal places.

Issuer Callable Contingent Coupon Barrier
Notes Linked to the Lesser Performing of Three
Equity Indices
Royal Bank of Canada

NASDAQ-100® Index ("NDX")

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; and
- 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.

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.

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The graph below illustrates the performance of this Reference Index from January 1, 2008 to April 12, 2019, reflecting its Initial Level of 7,628.150. The red line represents its Coupon Barrier and Trigger Level of 5,721.113, which is equal to 75.00% of its Initial Level, rounded to three decimal places.

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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 September 10, 2018 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, 2021. 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.

The accompanying product prospectus supplement notes that FATCA withholding on payments of gross proceeds from a sale or redemption of Notes will only apply to payments made after December 31, 2018. That discussion is modified to reflect regulations proposed by the U.S. Treasury Department in December 2018 indicating an intent to eliminate the requirement under FATCA of withholding on gross proceeds of the disposition of financial instruments. The U.S. Treasury Department has indicated that taxpayers may rely on these proposed regulations pending their finalization. Prospective investors are urged to consult with their own tax advisors regarding the possible implications of FATCA on their investment in the Notes.

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SUPPLEMENTAL PLAN OF DISTRIBUTION (CONFLICTS OF INTEREST)

Delivery of the Notes will be made against payment for the Notes on April 17, 2019, 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 September 7, 2018. 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 September 7, 2018.

We will deliver the Notes on a date that is greater than two business days following the Trade Date. Under Rule 15c6-1 under 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 6 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.

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 that is set forth on the cover page of 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.

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

In the opinion of Morrison & Foerster LLP, when the 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 September 7, 2018, which has been filed as Exhibit 5.2 to the Bank's Form 6-K dated September 7, 2018.