

ROYAL BANK OF CANADA  
Form 424B2  
February 13, 2018

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

Pricing Supplement

Dated February 9, 2018

To the Product

Prospectus Supplement \$1,790,000

No. TP-2, Dated January Issuer Callable Contingent Coupon Barrier Notes

11, 2016, the Prospectus Linked to the Lesser Performing of Two

Supplement Dated Equity Indices, Due August 14, 2023

January 8, 2016, and the Royal Bank of Canada

Prospectus Dated January

8, 2016

Royal Bank of Canada is offering Issuer Callable Contingent Coupon Barrier Notes (the “Notes”) linked to the lesser performing of two equity indices (each, a “Reference Index” and collectively, the “Reference Indices”). The Notes offered are senior unsecured obligations of Royal Bank of Canada, 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”)	2,619.55	1,571.73, which is 60.00% of its Initial Level	1,571.73, which is 60.00% of its Initial Level
Russell 2000® Index (“RTY”)	1,477.836	886.702, which is 60.00% of its Initial Level*	886.702, which is 60.00% of its Initial Level*

\* Rounded to three decimal places

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

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

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

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

Issuer:	Royal Bank of Canada	Stock Exchange Listing:	None
Trade Date:	February 9, 2018	Principal Amount:	\$1,000 per Note
Issue Date:	February 14, 2018	Maturity Date:	August 14, 2023
Observation Dates:	Quarterly, as set forth below.	Coupon Payment Dates:	Quarterly, as set forth below
Valuation Date:	August 9, 2023	Contingent Coupon Rate:	5.75% per annum

Initial Level:	For each Reference Index, its closing level on the Trade Date, as set forth in the table above.
Final Level:	For each Reference Index, its closing level on the Valuation Date.
Contingent Coupon:	<p>If the Notes have not been previously called, and 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.</p> <p>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.</p>
Payment at Maturity (if held to maturity):	<p>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:  <math>\\$1,000 + (\\$1,000 \times \text{Lesser Performing Reference Index Return})</math></p> <p>Investors in the Notes could lose some or all of their principal amount if the Final Level of the Lesser Performing Reference Index is below its Trigger Level.</p>
Lesser Performing Reference Index:	The Reference Index with the lowest Reference Index Return.
Call Feature:	The Notes may be called at our discretion starting on August 9, 2018 or on any Coupon Payment Date thereafter, if we send prior written notice, as described below.
CUSIP:	78013XEN4

	Per Note	Total
Price to public <sup>(1)</sup>	100.00%	\$1,790,000.00
Underwriting discounts and commissions <sup>(1)</sup>	2.25%	\$40,275.00
Proceeds to Royal Bank of Canada	97.75%	\$1,749,725.00

<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 \$977.50 and \$1,000 per \$1,000 in principal amount.

The initial estimated value of the Notes as of the date of this pricing supplement is \$933.98 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 \$22.50 per \$1,000 in principal amount of the Notes and used a portion of that commission to allow selling concessions to other dealers of up to \$22.50 per \$1,000 in principal amount of the Notes. The other dealers may forgo, in their sole discretion, some or all of their selling concessions. See “Supplemental Plan of Distribution (Conflicts of Interest)” below.

RBC Capital Markets, LLC

Issuer Callable Contingent Coupon Barrier  
Notes Linked to the Lesser Performing of Two  
Equity Indices, Due August 14, 2023  
Royal Bank of Canada

SUMMARY

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

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

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

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

**Trade Date:** February 9, 2018

**Issue Date:** February 14, 2018

**Term:** Approximately 5.5 years

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

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

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

**Contingent Coupon:**

- If the closing level of each Reference Index is greater than or equal to its Coupon Barrier on the applicable Observation Date, we will pay the Contingent Coupon applicable to that Observation Date.
- If the closing level of either 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:** 5.75% per annum (1.4375% per quarter)

**Observation Dates:** Quarterly on May 9, 2018, August 9, 2018, November 9, 2018, February 11, 2019, May 9, 2019, August 9, 2019, November 11, 2019, February 10, 2020, May 11, 2020, August 10, 2020, November 9, 2020, February 9, 2021, May 10, 2021, August 9, 2021, November 9, 2021, February 9, 2022, May 9, 2022, August 9, 2022, November 9, 2022, February 9, 2023, May 9, 2023 and the Valuation Date.

**Coupon Payment Dates:** The Contingent Coupon, if applicable, will be paid quarterly on May 14, 2018, August 14, 2018, November 15, 2018, February 14, 2019, May 14, 2019, August 14, 2019, November 14, 2019, February 13, 2020, May 14, 2020, August 13, 2020, November 13, 2020, February 12, 2021, May 13, 2021, August 12, 2021, November 15, 2021, February 14, 2022, May 12, 2022, August 12, 2022, November 15, 2022, February 14, 2023, May 12, 2023 and the Maturity Date.

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

**Call Feature:** The Notes may be called at our discretion starting on August 9, 2018 or on any Coupon Payment Date thereafter, if we send written notice to the trustee at least three business days prior to that Coupon Payment Date.

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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 the Contingent Coupon otherwise due on that Coupon Payment Date (if payable).

Valuation Date: August 9, 2023

Maturity Date: August 14, 2023

Initial Level: For each Reference Index, its closing level on the Trade Date, as specified on the cover page of this pricing supplement.

Final Level: For each Reference Index, its closing level on the Valuation Date.

Trigger Level and Coupon Barrier: For each Reference Index, 60.00% of its Initial Level, as specified on the cover page of this pricing supplement.

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Issuer Callable Contingent Coupon Barrier  
Notes Linked to the Lesser Performing of Two  
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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 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 Reference Index 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 principal amount if the Final Level of the Lesser Performing Reference Index is below its Trigger Level.

With respect to each Reference Index:  
Final Level – Initial Level  
Initial Level

Reference Index Return:

Lesser Performing Reference Index:  
The Reference Index with the lowest Reference Index Return.

Market Disruption Events:  
The occurrence of a market disruption event (or a non-trading day) as to either 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 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 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 Incorporated in  
All of the terms appearing above the item captioned “Secondary Market” on the cover page and pages P-2 and P-3 of this pricing supplement and the terms appearing under the caption “General Terms of the Notes” in the product prospectus supplement dated January 11, 2016, as modified by this pricing

the Master supplement.  
Note:

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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 called prior to maturity:

Hypothetical Initial Level (for each Reference Index):	1,000.00*
Hypothetical Trigger Level (for each Reference Index):	600.00, which is 60.00% of the hypothetical Initial Level
Hypothetical Coupon Barrier (for each Reference Index):	600.00, which is 60.00% of the hypothetical Initial Level
Contingent Coupon Rate:	5.75% per annum (or 1.4375% per quarter)
Contingent Coupon Amount:	\$14.375 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 of the Lesser Performing Reference Index 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	101.4375%*	\$1,014.375*
1,250.00	101.4375%*	\$1,014.375*
1,100.00	101.4375%*	\$1,014.375*
1,000.00	101.4375%*	\$1,014.375*
900.00	101.4375%*	\$1,014.375*
800.00	101.4375%*	\$1,014.375*
750.00	101.4375%*	\$1,014.375*
700.00	101.4375%*	\$1,014.375*
600.00	101.4375%*	\$1,014.375*
599.90	59.99%	\$599.90
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 600.00, the investor receives at maturity, in addition to the final Contingent Coupon of \$14.375 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 20% from the Initial Level of 1,000.00 to its Final Level of 800.00. Because the Final Level of the Lesser Performing Reference Index is greater than its Trigger Level and Coupon Barrier of 600.00, the investor receives at maturity, in addition to the final Contingent Coupon of \$14.375 otherwise due on the Notes, a cash payment of \$1,000 per Note, despite the 20% decline in the level of the Lesser Performing Reference Index.

Example 3: The level of the Lesser Performing Reference Index decreases by 50% from the Initial Level of 1,000.00 to its Final Level of 500.00, which is less than its Trigger Level of 600.00. Because the Final Level of the Lesser Performing Reference Index is less than its Trigger Level and Coupon Barrier of 600.00, 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 Reference Index Return of the Lesser Performing Reference Index)  
= \$1,000 + (\$1,000 x -50.00%) = \$1,000 - \$500.00 = \$500.00

\* \* \*

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

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#### SELECTED RISK CONSIDERATIONS

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

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

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

**You May Not Receive Any Contingent Coupons** — We will not necessarily make any coupon payments on the Notes. If the closing level of either 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 either 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 Index Performs Better** — If either 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 two Reference Indices. Even if the Final Level of the other Reference Index has increased compared to its Initial Level, or has 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 Index.

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

Index.

**The Call Feature and the Contingent Coupon Feature Limit Your Potential Return** — The return potential of the Notes is limited to the pre-specified Contingent Coupon Rate, regardless of the appreciation of the Reference Indices. In addition, the total return on the Notes will vary based on the number of Observation Dates on which the Contingent Coupon becomes payable prior to maturity or an issuer call. Further, if the Notes are called due to the Call Feature, you will not receive any Contingent Coupons or any other payment in respect of any Observation Dates after the applicable Coupon Payment Date. Since the Notes could be called as early as August 2018, the total return on the Notes could be limited to six months of Contingent Coupon Payments, none of which are guaranteed. 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.

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**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 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

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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, 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 either 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<sup>®</sup> 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 Payment at Maturity.

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 depository 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 depository shares and Canadian exchangeable shares are normally part of the float unless those shares form a control block.

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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 shares outstanding and IWF due to its acquisition of another public company are made as soon as reasonably possible. At S&P’s discretion,