

ROYAL BANK OF CANADA
Form 424B2
April 01, 2019

RBC Capital Markets® Filed Pursuant to Rule 424(b)(2)
Registration Statement No. 333-227001

Pricing Supplement
Dated March 29, 2019 \$2,480,000
To the Product Geared Buffered Booster Notes Linked to the S&P
Prospectus Supplement 500® Index, Due April 1, 2021
ERN-EI-1, Prospectus Supplement and Royal Bank of Canada
Prospectus, Each Dated
September 7, 2018

Royal Bank of Canada is offering the Geared Buffered Booster Notes (the “Notes”) linked to the S&P 500 Index (the “Reference Asset”). The Notes are senior unsecured obligations of Royal Bank of Canada and will have the terms described in the documents described above, as supplemented or modified by this pricing supplement.

The Notes do not pay interest. The Notes provide a fixed positive return of 9% if the Percentage Change of the Reference Asset is positive or 0%. Investors will receive their principal amount if the Reference Asset does not decrease by more than 25% from its Initial Level. Investors will lose approximately 1.333% of the principal amount for each 1% that the Final Level is less than its Initial Level by more than 25%. 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 S-1 of the prospectus supplement dated September 7, 2018, “Additional Risk Factors Specific to the Notes” beginning on page PS-4 of the product prospectus supplement dated September 7, 2018, and “Selected Risk Considerations” beginning on page P-6 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:	March 29, 2019	Principal Amount:	\$1,000 per Note		
Issue Date:	April 3, 2019	Maturity Date:	April 1, 2021		
Valuation Date:	March 29, 2021	Booster Coupon:	109% of the principal amount.		
Initial Level:	2,834.40, which was the closing level of the Reference Asset on the Trade Date.				
Final Level:	The closing level of the Reference Asset on the Valuation Date.				
Buffer Percentage:	25%				
Buffer Level:	2,125.80, which is 75% of the Initial Level.				
Payment at Maturity:	If the Final Level is greater than or equal to its Initial Level, the Notes provide a fixed positive return equal to the Booster Coupon.				
	If the Final Level is less than the Initial Level, but greater than or equal to the Buffer Level, the Notes will pay the principal amount.				
	If the Final Level is less than its Buffer Level, you will lose 1.333% of the principal amount for each 1% that its Final Level is less than the Initial Level by				

Edgar Filing: ROYAL BANK OF CANADA - Form 424B2

more than 25%. Any payments on the Notes are subject to our credit risk.

Interest Payments: None.
CUSIP: 78013X3Z9

	Per Note	Total
Price to public ⁽¹⁾	100.00%	\$2,480,000
Underwriting discounts and commissions ⁽¹⁾	2.00%	\$49,600
Proceeds to Royal Bank of Canada	98.00%	\$2,430,400

⁽¹⁾Certain dealers who purchased the Notes for sale to certain fee-based advisory accounts may have foregone some or all of their underwriting discount or selling concessions. The public offering price for investors purchasing the Notes in these accounts was between \$980.00 and \$1,000 per \$1,000 in principal amount.

The initial estimated value of the Notes as of the date of the Trade Date is \$969.72 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 \$20.00 per \$1,000 in principal amount of the Notes and used a portion of that commission to allow selling concessions to other dealers of up to \$20.00 per \$1,000 in principal amount of the Notes. The other dealers may forgo, in their sole discretion, some or all of their selling concessions. See “Supplemental Plan of Distribution (Conflicts of Interest)” below.

RBC Capital Markets, LLC

Geared Buffered Booster Notes Linked to the
S&P 500® Index
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 Geared Buffered Booster Notes (the “Notes”) linked to the S&P 500® Index (the “Reference Asset”).
Issuer:	Royal Bank of Canada (“Royal Bank”)
Reference Asset:	The S&P 500® Index (Bloomberg ticker: SPX)
Trade Date	
(Pricing Date):	March 29, 2019
Issue Date:	April 3, 2019
Valuation Date:	March 29, 2021
Maturity Date:	April 1, 2021
Denominations:	Minimum denomination of \$1,000, and integral multiples of \$1,000 thereafter.
Designated Currency:	U.S. Dollars
Initial Level:	The closing level of the Reference Asset on the Trade Date, as set forth on the cover page of this pricing supplement.
Final Level:	The closing level of the Reference Asset on the Valuation Date.
Booster Coupon:	109% of the principal amount (resulting in a maximum payment at maturity of \$1,090 per \$1,000 in principal amount).
Buffer Percentage:	25%
Buffer Level:	For each Reference Asset, 75% of its Initial Level, as set forth on the cover page of this pricing supplement.
Downside Multiplier:	100% divided by the Buffer Level. Accordingly, the Downside Multiplier will be 1.333.
Payment at Maturity:	If the Final Level is greater than or equal to its Initial Level, the Notes provide a fixed positive return equal to the Booster Coupon. If the Final Level is less than the Initial Level, but greater than or equal to the Buffer Level, the Notes provide a fixed positive return equal to the principal amount. If the Final Level is less than its Buffer Level, you will lose 1.333% of the principal amount for each 1% that its Final Level is less than the Initial Level by more than 25%.
Percentage Change:	$\frac{\text{Final Level} - \text{Initial Level}}{\text{Initial Level}}$
Principal at Risk:	The Notes are NOT principal protected. You may lose all or a substantial portion of your principal amount at maturity if the Final Level is less than the Buffer Level.
Calculation Agent:	RBC Capital Markets, LLC (“RBCCM”)

P-2 RBC Capital Markets, LLC

Geared Buffered Booster Notes Linked to the
S&P 500® Index
Royal Bank of Canada

U.S. Tax Treatment:	By purchasing a Note, each holder agrees (in the absence of a change in law, an administrative determination or a judicial ruling to the contrary) to treat the Note as a pre-paid cash-settled derivative contract in respect of the Reference Asset 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 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).
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, as modified by this pricing supplement.

P-3 RBC Capital Markets, LLC

Geared Buffered Booster Notes Linked to the
S&P 500® Index
Royal Bank of Canada

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 7, 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 “Additional Risk Factors Specific to the Notes” in the product prospectus supplement dated September 7, 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/1000275/000121465918005973/196181424b3.htm>

Prospectus Supplement dated September 7, 2018:

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

Product Prospectus Supplement ERN-EI-1 dated September 7, 2018:

<https://www.sec.gov/Archives/edgar/data/1000275/000114036118038044/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.

P-4 RBC Capital Markets, LLC

Geared Buffered Booster Notes Linked to the
S&P 500® Index
Royal Bank of Canada

HYPOTHETICAL EXAMPLES

The examples set out below are included for illustration purposes only. The hypothetical Percentage Changes of the Reference Asset used to illustrate the calculation of the Payment at Maturity (rounded to two decimal places) are not estimates or forecasts of the Final Level or the level of the Reference Asset on any trading day prior to the Maturity Date. All examples assume that a holder purchased Notes with an aggregate principal amount of \$1,000, and are based on the Buffer Percentage of 25% (resulting in a Buffer Level of 75% of the Initial Level), the Downside Multiplier of 1.333 (100% divided by 75%), and the Booster Coupon of 109.00% of the principal amount, and that no market disruption event occurs on the Valuation Date as to the Reference Asset.

Example 1 Calculation of the Payment at Maturity where the Percentage Change of the Reference Asset is positive.
Percentage Change: 10.00%
Payment at Maturity: $\$1,000 \times 109.00\% = \$1,090.00$
On a \$1,000 investment, a 10.00% Percentage Change results in a Payment at Maturity of \$1,090.00, a 9.00% return on the Notes, which is less than the Percentage Change.

Example 2 Calculation of the Payment at Maturity where the Final Level is less than the Initial Level, but is not less than the Buffer Level.
Percentage Change: -5%
Payment at Maturity: \$1,000
On a \$1,000 investment, a -5% Percentage Change results in a Payment at Maturity of \$1,000.00, a 0% return on the Notes.

Example 3 Calculation of the Payment at Maturity where the Percentage Change is negative (by more than the Buffer Percentage).
Percentage Change: -35%
Payment at Maturity: $\$1,000 + [\$1,000 \times (-35\% + 25\%) \times 1.333] = \$1,000 - \$133.30 = \866.70
On a \$1,000 investment, a -35% Percentage Change results in a Payment at Maturity of \$866.70, a -13.33% return on the Notes.

P-5 RBC Capital Markets, LLC

Geared Buffered Booster Notes Linked to the
S&P 500® Index
Royal Bank of Canada

SELECTED RISK CONSIDERATIONS

An investment in the Notes involves significant risks. Investing in the Notes is not equivalent to investing directly in the Reference Asset. These risks are explained in more detail in the section “Additional Risk Factors Specific to the Notes” 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 Reference Asset between the Trade Date and the Valuation Date. You will lose 1.333% of the principal amount of your Notes for each 1% that the Final Level of the Reference Asset is less than its Initial Level by more than 25%.

Your Return on the Notes Is Limited — Your return on the Notes will not exceed the percentage represented by the Booster Percentage. Even if the level of the Reference Asset increases significantly, your payment on the Notes will not exceed the product of the principal amount and the Booster Percentage.

Your Return May Be Lower than the Return on a Conventional Debt Security of Comparable Maturity – You will not receive any interest payments on the Notes as there would be on a conventional fixed-rate or floating-rate debt security having the same 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. Your return may be less than the return you would earn if you bought a conventional senior interest bearing debt security of Royal Bank.

Payments on the Notes Are Subject to Our Credit Risk, and Changes in Our Credit Ratings Are Expected to Affect the Market Value of the Notes – The Notes are Royal Bank’s senior unsecured debt securities. As a result, your receipt of the Redemption Amount is dependent upon Royal Bank’s ability to repay its obligations at that time. This will be the case even if the level of the Reference Asset increases after the Trade Date. No assurance can be given as to what our financial condition will be at the maturity of the Notes.

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

Owning the Notes Is Not the Same as Owning the Securities Represented by the Reference Asset — The return on your Notes is unlikely to reflect the return you would realize if you actually owned the securities represented by the Reference Asset. 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 Asset may have.

The Initial Estimated Value of the Notes Is Less than the Price to the Public — The initial estimated value of the Notes 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 level of the Reference Asset, 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

P-6 RBC Capital Markets, LLC

Geared Buffered Booster Notes Linked to the
S&P 500® Index
Royal Bank of Canada

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 Asset. We may also publish research from time to time on financial markets and other matters that may influence the level of the Reference Asset 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 Asset. You should make your own independent investigation of the merits of investing in the Notes and the Reference Asset.

Market Disruption Events and Adjustments – The Redemption Amount 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.

P-7 RBC Capital Markets, LLC

Geared Buffered Booster Notes Linked to the
S&P 500® Index
Royal Bank of Canada

INFORMATION REGARDING THE REFERENCE ASSET

All disclosures contained in this document regarding the Reference Asset, including, without limitation, its make-up, method of calculation, and changes in its components, have been derived from publicly available sources. The information reflects the policies of, and is subject to change by, S&P Dow Jones Indices LLC (“S&P”). S&P, which owns the copyright and all other rights to the Reference Asset, has no obligation to continue to publish, and may discontinue publication of, the Reference Asset. The consequences of S&P discontinuing publication of the Reference Asset are discussed in the section of the product prospectus supplement entitled “General Terms of the Notes—Unavailability of the Level of the Reference Asset.” Neither we nor RBCCM accepts any responsibility for the calculation, maintenance or publication of the Reference Asset or any successor index.

The Reference Asset is intended to provide an indication of the pattern of common stock price movement. The calculation of the level of the Reference Asset 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 Reference Asset by reference to the prices of the constituent stocks of the Reference Asset 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 Reference Asset 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 Reference Asset. 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 Reference Asset while a second listed share class line of the same company is excluded.

Computation of the Reference Asset

While S&P currently employs the following methodology to calculate the Reference Asset, 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 Reference Asset 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 Reference Asset halfway from a market capitalization weighted formula to a float-adjusted formula, before moving the Reference Asset to full float adjustment on September 16, 2005. S&P’s criteria for selecting stocks for the Reference Asset did not change with the shift to float adjustment. However, the adjustment affects each company’s weight in the Reference Asset.

Under float adjustment, the share counts used in calculating the Reference Asset 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 Reference Asset. 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

P-8 RBC Capital Markets, LLC

Geared Buffered Booster Notes Linked to the
S&P 500® Index
Royal Bank of Canada

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 Asset. Constituents of the Reference Asset prior to July 31, 2017 with multiple share class lines will be grandfathered in and continue to be included in the Reference Asset. If a constituent company of the Reference Asset reorganizes into a multiple share class line structure, that company will remain in the Reference Asset at the discretion of the S&P Index Committee in order to minimize turnover.

The Reference Asset is calculated using a base-weighted aggregate methodology. The level of the Reference Asset 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 Reference Asset 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 Reference Asset, it serves as a link to the original base period level of the Reference Asset. The index divisor keeps the Reference Asset comparable over time and is the manipulation point for all adjustments to the Reference Asset, 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 Reference Asset, and do not require index divisor adjustments.

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

License Agreement

S&P® is a registered trademark of Standard & Poor's Financial Services LLC and Dow Jones® is a registered trademark of Dow Jones Trademark Holdings LLC ("Dow Jones"). These trademarks have been licensed for use by S&P. "Standard & Poor's", "S&P 500" and "S&P" are trademarks of Standard & Poor's Financial Services LLC. These trademarks have been sublicensed for certain purposes by us. The Reference Asset is a product of S&P and/or its affiliates and has been licensed for use by us.

The Notes are not sponsored, endorsed, sold or promoted by S&P Dow Jones Indices LLC, Standard & Poor's Financial Services LLC or any of their respective affiliates (collectively, "S&P Dow Jones Indices"). S&P Dow Jones Indices make no representation or warranty, express or implied, to the holders of the Notes or any member of the public regarding the advisability of investing in securities generally or in the Notes particularly or the ability of the Reference Asset to track general market performance. S&P Dow Jones Indices' only relationship to us with respect to the Reference Asset is the licensing of the Reference Asset and certain trademarks, service marks and/or trade names of S&P Dow Jones Indices and/or its third party licensors. The Reference Asset is determined, composed and calculated by S&P Dow Jones Indices without regard to us or the Notes. S&P Dow Jones Indices have no obligation to take our needs or the needs of holders of the Notes into consideration in determining, composing or calculating the Reference Asset. S&P Dow Jones Indices are not responsible for and have not participated in the determination of the prices, and amount of the Notes or the timing of the issuance or sale of the Notes or in the determination or calculation of the equation by which the Notes are to be converted into cash. S&P Dow Jones Indices have no obligation or liability in connection with the administration, marketing or trading of the Notes. There is no assurance that

P-9 RBC Capital Markets, LLC

Geared Buffered Booster Notes Linked to the
S&P 500® Index
Royal Bank of Canada

investment products based on the Reference Asset will accurately track index performance or provide positive investment returns. S&P Dow Jones Indices LLC and its subsidiaries are not investment advisors. Inclusion of a security or futures contract within an index is not a recommendation by S&P Dow Jones Indices to buy, sell, or hold such security or futures contract, nor is it considered to be investment advice. Notwithstanding the foregoing, CME Group Inc. and its affiliates may independently issue and/or sponsor financial products unrelated to the Notes currently being issued by us, but which may be similar to and competitive with the Notes. In addition, CME Group Inc. and its affiliates may trade financial products which are linked to the performance of the Reference Asset. It is possible that this trading activity will affect the value of the Notes.

S&P DOW JONES INDICES DO NOT GUARANTEE THE ADEQUACY, ACCURACY, TIMELINESS AND/OR THE COMPLETENESS OF THE REFERENCE ASSET OR ANY DATA RELATED THERETO OR ANY COMMUNICATION, INCLUDING BUT NOT LIMITED TO, ORAL OR WRITTEN COMMUNICATION (INCLUDING ELECTRONIC COMMUNICATIONS) WITH RESPECT THERETO. S&P DOW JONES INDICES SHALL NOT BE SUBJECT TO ANY DAMAGES OR LIABILITY FOR ANY ERRORS, OMISSIONS, OR DELAYS THEREIN. S&P DOW JONES INDICES MAKE NO EXPRESS OR IMPLIED WARRANTIES, AND EXPRESSLY DISCLAIMS ALL WARRANTIES, OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE OR AS TO RESULTS TO BE OBTAINED BY US, HOLDERS OF THE NOTES, OR ANY OTHER PERSON OR ENTITY FROM THE USE OF THE REFERENCE ASSET OR WITH RESPECT TO ANY DATA RELATED THERETO. WITHOUT LIMITING ANY OF THE FOREGOING, IN NO EVENT WHATSOEVER SHALL S&P DOW JONES INDICES BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, PUNITIVE, OR CONSEQUENTIAL DAMAGES INCLUDING BUT NOT LIMITED TO, LOSS OF PROFITS, TRADING LOSSES, LOST TIME OR GOODWILL, EVEN IF THEY HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, WHETHER IN CONTRACT, TORT, STRICT LIABILITY, OR OTHERWISE. THERE ARE NO THIRD PARTY BENEFICIARIES OF ANY AGREEMENTS OR ARRANGEMENTS BETWEEN S&P DOW JONES INDICES AND US, OTHER THAN THE LICENSORS OF S&P DOW JONES INDICES.

P-10 RBC Capital Markets, LLC

Geared Buffered Booster Notes Linked to the
S&P 500® Index
Royal Bank of Canada

Historical Information

The graph below sets forth the information relating to the historical performance of the Reference Asset for the period from January 1, 2009 through March 29, 2019.

We obtained the information regarding the historical performance of the Reference Asset in the graph below from Bloomberg Financial Markets.

We have not independently verified the accuracy or completeness of the information obtained from Bloomberg Financial Markets. The historical performance of the Reference Asset should not be taken as an indication of its future performance, and no assurance can be given as to the Final Level of the Reference Asset. We cannot give you assurance that the performance of the Reference Asset will result in any positive return on your initial investment. S&P 500® Index (“SPX”)

PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE RESULTS.

P-11 RBC Capital Markets, LLC

Geared Buffered Booster Notes Linked to the
S&P 500® Index
Royal Bank of Canada

**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 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