



RBC Capital Markets®

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Registration Statement No. 333-227001

## Pricing Supplement

Dated December 20, 2019

To the Product Prospectus Supplement FIN-1 Dated September 20, 2018, and the Prospectus and Prospectus Supplement, each dated September 7, 2018

\$1,600,000

Redeemable Leveraged Steepener Notes,  
Due December 27, 2034  
Royal Bank of Canada

Royal Bank of Canada is offering the Redeemable Leveraged Steepener Notes (the “Notes”) described below.

The CUSIP number for the Notes is 78014RBV1. The Notes will not be listed on any securities exchange.

The Notes will pay interest annually, on the 27th day of December of each year, commencing on December 27, 2020. During the first two years of their term, the interest rate on the Notes is fixed. After the first two years of their term, the amount of interest payable on the Notes will depend on the Reference Rate. The Reference Rate (as defined in more detail below) will be equal to the difference between the 30 year CMS rate and the 5 year CMS rate. Interest will accrue at the following rates during the indicated years of the term of the Notes:

- Years 1-2: 4.00%
- Years 3-15: The Reference Rate **multiplied by** 10; provided that the interest rate will never be less than 0.00% or greater than 5.00% per annum.

The Notes will be automatically redeemed in whole, but not in part, on the Interest Payment Date occurring in December 2022, or on any annual Interest Payment Date thereafter, if we determine that a Target Early Redemption Event will occur on that date. As discussed in more detail below, a Target Early Redemption Event will occur if the amount of interest to be paid on an Interest Payment Date, taken together with all prior interest payments, will exceed a total return of 13% of the principal amount of the Notes.

Investing in the Notes involves a number of risks. See “Risk Factors” on page P-8 of this pricing supplement, “Additional Risk Factors Specific to the Notes” beginning on page PS-5 of the product prospectus supplement FIN-1 dated September 20, 2018 and “Risk Factors” beginning on page S-1 of the prospectus supplement dated September 7, 2018.

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 (the “SEC”) nor any state securities commission has approved or disapproved of these securities or determined that this pricing supplement is truthful or complete. Any representation to the contrary is a criminal offense.

The initial estimated value of the Notes as of the date of this pricing supplement is \$955.80 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 has offered the Notes at varying public offering prices, and will purchase the Notes from us on the Issue Date at a purchase price that is 99.25% of the principal amount. See “Supplemental Plan of Distribution (Conflicts of Interest)” below.

We will deliver the Notes in book-entry only form through the facilities of The Depository Trust Company on December 27, 2019, against payment in immediately available funds.

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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 FIN-1, the prospectus supplement, and the prospectus.*

Issuer:	Royal Bank of Canada (“Royal Bank”)
Underwriter:	RBC Capital Markets, LLC
Currency:	U.S. Dollars
Minimum Investment:	\$1,000 and minimum denominations of \$1,000 in excess of \$1,000
Pricing Date:	December 20, 2019
Issue Date:	December 27, 2019
Maturity Date:	December 27, 2034
Interest Rate:	Years 1-2: 4.00%
	Years 3-15: The Reference Rate <b>multiplied by</b> 10; provided that the interest rate will never be less than 0.00% or greater than 5.00% per annum.
Reference Rate:	High-Side Reference Rate minus Low-Side Reference Rate.
High-Side Reference Rate:	The 30-Year U.S. Dollar ICE Swap Rate (which we refer to as the “30 Year CMS Rate”), as reported on Reuters Page ICESWAP1 or any successor page thereto at 11:00 am New York time on the applicable Interest Determination Date.
Low-Side Reference Rate:	The 5-Year U.S. Dollar ICE Swap Rate (which we refer to as the “5 Year CMS Rate”), as reported on Reuters Page ICESWAP1 or any successor page thereto at 11:00 am New York time on the applicable Interest Determination Date.
Type of Note:	The Notes are called a “Leveraged Steepener Note” because, from the beginning of year 3 until the Maturity Date or early redemption, as the case may be, the Notes bear a variable rate of interest at a “leveraged,” or multiplied, rate, subject to a maximum interest rate, if the High-Side Reference Rate exceeds the Low-Side Reference Rate. If the High-Side Reference Rate does not exceed the Low-Side Reference Rate, interest will accrue at the rate of 0.00% for that interest period. <b>FOR EVERY INTEREST PERIOD THAT THE HIGH-SIDE REFERENCE RATE DOES NOT EXCEED THE LOW-SIDE REFERENCE RATE, YOU WILL NOT RECEIVE A COUPON PAYMENT.</b>
Interest Determination Dates:	The day that is five U.S. government securities settlement days prior to each applicable Interest Payment Date, beginning in the third year of the term of the Notes. A “U.S. government securities settlement day” is any day except a Saturday, a Sunday, or a day on which The Securities Industry and Financial Markets Association (or any successor thereto) recommends that the fixed income departments of its members be closed for the entire day for purposes of trading in U.S. government securities.
Interest Payment Dates:	Annually, in arrears, on the 27 <sup>th</sup> day of each year, commencing on December 27, 2020 and ending on the Maturity Date. If any Interest Payment Date is not a New York or London business day, interest will be paid on the next New York or London business day as discussed in the prospectus supplement, without adjustment for period end dates and no additional interest will be paid in respect of the postponement.

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Automatic Redemption:	<p>If the Calculation Agent determines that the Total Aggregate Rate will be greater than or equal to the Target Rate (a “Target Early Redemption Event”) on the upcoming Interest Payment Date, the Notes will be automatically redeemed (in whole but not in part) on that Interest Payment Date.</p> <p>If a Target Early Redemption Event has occurred, the Notes will be automatically redeemed on the relevant Interest Payment Date, and we will have no further obligations with respect to the Notes, except for the obligation to make the payment of principal and accrued but unpaid interest due on that day. For the avoidance of doubt, no interest will be payable with respect to any period after the Notes are automatically redeemed.</p>
Total Aggregate Rate:	The Aggregate Rate plus the interest payment per \$1,000 in principal amount of the Notes that will be paid on the upcoming Interest Payment Date.
Aggregate Rate:	The sum of the interest payments per \$1,000 in principal amount of the Notes that have been previously paid on the Notes.
Target Rate:	13.00% of the principal amount.
Survivor’s Option:	Not Applicable
Minimum Investment:	\$1,000 (except for certain non-U.S. investors for whom the minimum investment will be higher)
U.S. Tax Treatment:	<p>The Notes will be treated as debt instruments for U.S. federal income tax purposes. We intend to take the position that the Notes will be treated as contingent payment debt instruments. Please see the discussion (including the opinion of our counsel Morrison &amp; Foerster LLP) in the product prospectus supplement FIN-1 dated September 20, 2018 under the “Supplemental Discussion of U.S. Federal Income Tax Consequences” and specifically the discussion under “Supplemental Discussion of U.S. Federal Income Tax Consequences—Supplemental U.S. Tax Considerations—Where the term of your notes will exceed one year—Leveraged Steepener Notes,” and under “Supplemental Discussion of U.S. Federal Income Tax Consequences—Supplemental U.S. Tax Considerations—Where the term of your notes will exceed one year—Rules Applicable to Notes Treated as Contingent Payment Debt Instruments for Tax Purposes,” which apply to your Notes.”</p> <p>The accompanying product prospectus supplement notes that FATCA withholding on payments of gross proceeds from a sale or redemption of the 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.</p>

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Determination of CMS Rate:	<p>Each CMS rate will be the rate for U.S. dollar swaps with a maturity for the specified number of years, expressed as a percentage, on the applicable Interest Determination Date.</p> <p>If the applicable CMS rate is not reported on the Interest Determination Date, then the applicable CMS rate will be a percentage determined on the basis of the mid-market, semi-annual swap rate quotations</p>
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provided by five leading swap dealers in the New York City interbank market at approximately 11:00 a.m., New York City time, on that Interest Determination Date. For this purpose, the semi-annual swap rate means the mean of the bid and offered rates for the semi-annual fixed leg, calculated on a 30/360 day count basis, of a fixed-for-floating U.S. dollar interest rate swap transaction with a term equal to the applicable number of years commencing on the first date of the applicable interest period and in a representative amount with an acknowledged dealer of good credit in the swap market, where the floating leg, calculated on an Actual/360 day count basis, is based on a 3-month LIBOR rate (or any rate that the Calculation Agent determines to be a successor or an alternative rate to 3-month LIBOR). The Calculation Agent will select the five swap dealers after consultation with us and will request the principal New York City office of each of those dealers to provide a quotation of its rate. If at least three quotations are provided, the CMS rate for that Interest Determination Date will be the arithmetic mean of the quotations, eliminating the highest and lowest quotations or, in the event of equality, one of the highest and one of the lowest quotations.

If fewer than three leading swap dealers selected by the Calculation Agent are quoting as described above, the CMS rate will be the rate that the Calculation Agent, in its sole discretion, determines to be fair and reasonable under the circumstances at approximately 11:00 a.m., New York City time, on the relevant Interest Determination Date, taking into account any successor or alternative rate to 3-month LIBOR, if applicable.

Calculation Agent:	RBC Capital Markets, LLC
Listing:	The Notes will not be listed on any securities exchange.
Clearance and 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 “Listing” on pages P-2 and P-3 of this pricing supplement and the applicable terms appearing under the caption “General Terms of the Notes” in the product prospectus supplement FIN-1 dated September 20, 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 FIN-1 dated September 20, 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 FIN-1. In the event of any conflict, this pricing supplement will control. ***The Notes vary from the terms described in the product prospectus supplement FIN-1 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, “Additional Risk Factors Specific to the Notes” in the product prospectus supplement FIN-1 dated September 20, 2018 and “Additional Risk Factors” in this pricing supplement, 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 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 September 7, 2018:

<https://www.sec.gov/Archives/edgar/data/1000275/000121465918005973/I96181424b3.htm>

Prospectus Supplement dated September 7, 2018:

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

Product Prospectus Supplement FIN-1 dated September 20, 2018:

<https://www.sec.gov/Archives/edgar/data/1000275/000114036118038802/form424b5.htm>

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

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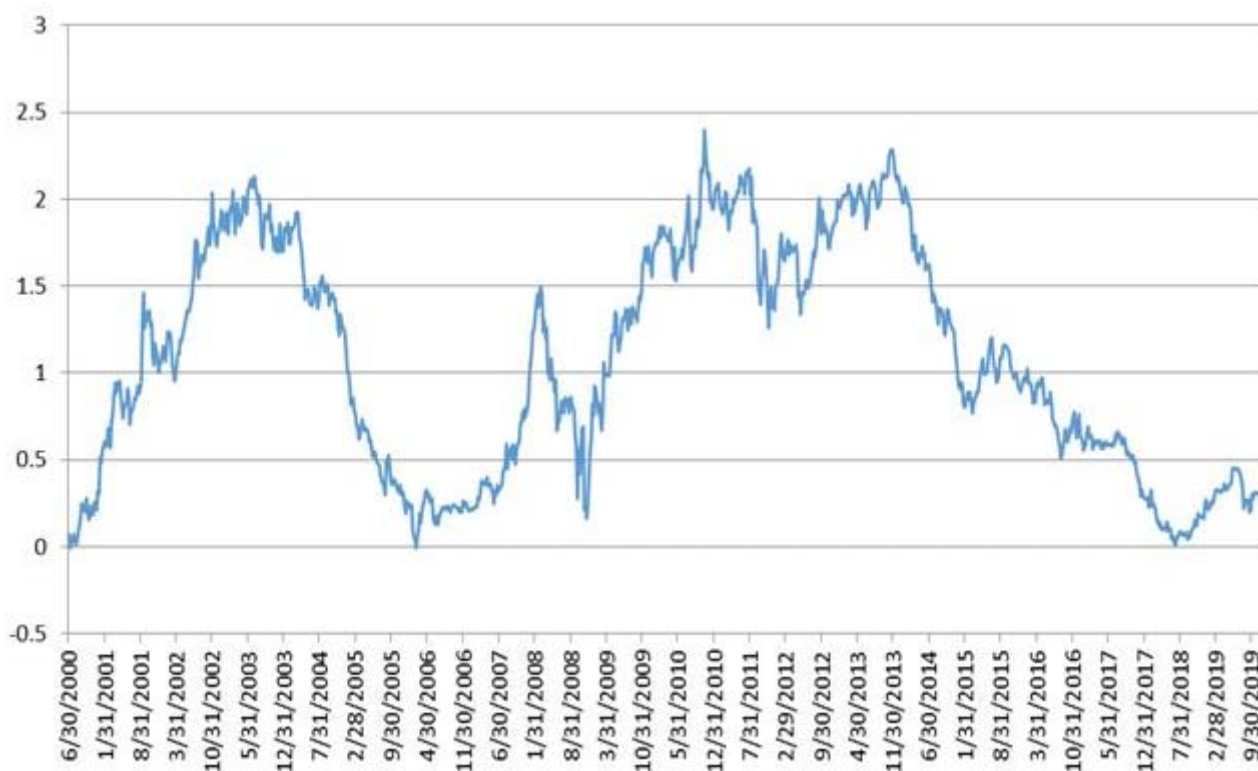
RBC Capital Markets, LLC

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## HISTORICAL INFORMATION

Historically, the High-Side Reference Rate and the Low-Side Reference Rate, and the difference between them, have experienced significant fluctuations. Any historical upward or downward trend in these rates during any period shown below is not an indication that the interest payable on the Notes is more or less likely to increase or decrease at any time during the term of the Notes. We cannot make any assurances that the future levels of the High-Side Reference Rate and the Low-Side Reference Rate will result in holders of the Notes receiving any interest payments after the first two annual payments.

The Reference Rate was 0.301% on December 20, 2019. The graph below sets forth the historical performance of the Reference Rate from June 30, 2000 through December 20, 2019.



Source: Bloomberg L.P.

Historical Period	
Total number of days in the historical period	5079

Number of days the High-Side Reference Rate was greater than the Low-Side Reference Rate	5074
Number of days the High-Side Reference Rate was not greater than the Low-Side Reference Rate	5

The historical performance shown above is not indicative of future performance.

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## HYPOTHETICAL EXAMPLES

The table below presents examples of the hypothetical interest which will accrue on the Notes with a principal amount of \$1,000 after the second year of the term of the Notes. The examples below are for purposes of illustration only. The actual interest payments will depend on the actual difference between the High-Side Reference Rate and the Low-Side Reference Rate on each Interest Determination Date. Whether or not you would receive interest at the hypothetical interest rates below would depend on, among other things, whether or not we determine that a Target Early Redemption Event has occurred.

Hypothetical Difference between the High-Side minus Low-Side Reference Rates	Hypothetical Interest Rate (per annum)	Hypothetical Annual Interest Payment
-1.50%	0.00%	\$0.00
-1.40%	0.00%	\$0.00
-1.25%	0.00%	\$0.00
-1.10%	0.00%	\$0.00
-0.95%	0.00%	\$0.00
-0.80%	0.00%	\$0.00
-0.65%	0.00%	\$0.00
-0.50%	0.00%	\$0.00
-0.35%	0.00%	\$0.00
-0.20%	0.00%	\$0.00
-0.05%	0.00%	\$0.00
0.00%	0.00%	\$0.00
0.05%	0.50%	\$5.00
0.10%	1.00%	\$10.00
0.25%	2.50%	\$25.00
0.40%	4.00%	\$40.00
0.45%	4.50%	\$45.00
0.50%	5.00%	\$50.00
0.55%	5.00%	\$50.00
0.70%	5.00%	\$50.00
0.85%	5.00%	\$50.00
1.00%	5.00%	\$50.00

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## RISK FACTORS

The Notes involve risks not associated with an investment in ordinary floating rate notes. An investment in Redeemable Leveraged Steepener Notes entails significant risks not associated with similar investments in a conventional debt security, including, but not limited to, fluctuations in the High-Side Reference Rate and the Low-Side Reference Rate and other events that are difficult to predict and beyond our control. This section describes the most significant risks relating to the terms of the Notes. For additional information as to the risks related to an investment in the Notes, please see the accompanying product prospectus supplement, prospectus supplement and prospectus. You should carefully consider whether the Notes are suited to your particular circumstances before you decide to purchase them. Accordingly, prospective investors should consult their financial and legal advisers as to the risks entailed by an investment in the Notes and the suitability of the Notes in light of their particular circumstances.

**After the Second Year of the Notes, the Amount of Interest Payable Is Uncertain and Could Be 0.00%.** After the second year of the term of the Notes, the amount of interest payable on the Notes in any interest period will depend on whether and the extent to which the High-Side Reference Rate is greater than the Low-Side Reference Rate on the related Interest Determination Date. If the High-Side Reference Rate does not exceed the Low-Side Reference Rate on any Interest Determination Date, the rate of interest payable for the related interest payment period will be 0%. The High-Side Reference Rate may only exceed the Low-Side Reference Rate by a small amount, such that the amount of interest that you receive any applicable Interest Payment Date may be minimal. As a result, the effective yield on the Notes may be less than what would be payable on our conventional notes of comparable maturity. The actual interest payments on the Notes may not compensate you for the effects of inflation and other factors relating to the value of money over time.

After the second year of the term of the Notes, the Interest Determination Date for the applicable annual period will fall only a few business days prior to the applicable Interest Payment Date. Accordingly, the interest rate for each such period will not be known until the end of that period.

**The Amount of Interest Payable on the Notes in Any Interest Period Is Capped.** The interest rate on the Notes for each annual interest period during the variable interest rate period is capped for that period at the maximum interest rate of 5.00%. You will not receive more than 5.00% interest for any annual period, even if the difference between the High-Side Reference Rate and the Low-Side Reference Rate increases substantially. Accordingly, you will not receive the full benefit of the High-Side Reference Rate exceeding the Low-Side Reference Rate due to this maximum interest rate. Moreover, due to the Target Rate of 13.00% and the redemption feature, any interest payment of 5.00% will be the final interest payment on the Notes.

**The Notes Are Subject to Early Redemption.** The Notes will be automatically redeemed if a Target Early Redemption Event, as set forth above, occurs. If the Notes are automatically redeemed prior to their stated maturity date, you will not receive any interest payments on the Notes after the redemption date and you may have to reinvest the proceeds in a lower interest rate environment.

**Investors Are Subject to Our Credit Risk, and Our Credit Ratings and Credit Spreads May Adversely Affect the Market Value of the Notes.** Investors are dependent on our ability to pay all amounts due on the Notes on Interest Payment Dates and at maturity, and, therefore, investors are subject to our credit risk and to changes in the market's view of our creditworthiness. Any decrease in our credit ratings or increase in the credit spreads charged by the market for taking our credit risk is likely to adversely affect the market value of the Notes.

**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 level of the Reference Rate, 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 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 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 pricing 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.

**Recent Regulatory Investigations Regarding Potential Manipulation of the High Side Reference Rate and the Low Side Reference Rate May Adversely Affect Your Notes.** It has been reported that certain U.S. and non-U.S. regulators are investigating potential manipulation of these rates and other swap rates. If such manipulation occurred, it may have resulted in these rates being artificially lower (or higher) than it or they would otherwise have been. Any changes or reforms affecting the determination or supervision of these rates in light of these investigations may result in a sudden or prolonged increase or decrease in these reported rates, which may have an adverse impact on the trading market for CMS-benchmarked securities, such as the Notes, the market value of your notes and the payments on your Notes after the second year of their term.

**Uncertainty About the Future of LIBOR and the Potential Discontinuance of LIBOR May Adversely Affect the Value of the Notes. The Reference Rates Are Based on Hypothetical Interest Rate Swaps Referencing 3-Month U.S. Dollar LIBOR.** The Chief Executive of the United Kingdom Financial Conduct Authority (the “FCA”), which regulates LIBOR, has announced that the FCA intends to stop persuading or compelling banks to submit rates for the calculation of LIBOR after 2021. At this time, it is not possible to predict the effect of any such changes on 3-month U.S. dollar LIBOR and, therefore, the High Side Reference Rate and the Low Side Reference Rate. Uncertainty as to the nature of such potential changes or other reforms may adversely affect the payments on the Notes after the second year of their term, and accordingly, the value of and the trading market for the Notes during their term. If either of these rates are discontinued, the Calculation Agent will have significant discretion in determining the interest payable on the Notes.

## SUPPLEMENTAL PLAN OF DISTRIBUTION (CONFLICTS OF INTEREST)

Delivery of the Notes will be made against payment for the Notes on December 27, 2019, which is the fourth (4th) business day following the Pricing Date (this settlement cycle being referred to as “T+4”). See “Plan of Distribution” in the prospectus supplement dated September 7, 2018. For additional information as to the relationship between us and RBC Capital Markets, LLC, please see the section “Plan of Distribution—Conflicts of Interest” in the prospectus dated September 7, 2018.

After the initial offering of the Notes, the price to the public may change.

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 up to approximately six months after the issue date of the Notes, the value of the Notes that may be shown on your account statement is expected to 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 initially 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, RBC Capital Markets, LLC 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.***

Each of RBCCM and any other broker-dealer offering the Notes have not offered, sold or otherwise made available and will not offer, sell or otherwise make available any of the Notes to, any retail investor in the European Economic Area ("EEA"). For these purposes, the expression "offer" includes the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe the Notes, and a "retail investor" means a person who is one (or more) of: (a) a retail client, as defined in point (11) of Article 4(1) of Directive 2014/65/EU (as amended, "MiFID II"); or (b) a customer, within the meaning of Directive 2016/97/EU, as amended, where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II; or (c) not a qualified investor as defined in Regulation (EU) (2017/1129) (the "Prospectus Regulation"). Consequently, no key information document required by Regulation (EU) No 1286/2014 (as amended, the "PRIIPs Regulation") for offering or selling the Notes or otherwise making them available to retail investors in the EEA has been prepared, and therefore, offering or selling the Notes or otherwise making them available to any retail investor in the EEA may be unlawful under the PRIIPs Regulation.

## STRUCTURING THE NOTES

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

In order to satisfy our payment obligations under the Notes, we may choose to enter into certain hedging arrangements (which may include call options, put options or other derivatives) on the issue date with RBCCM or one of our other subsidiaries. The terms of these hedging arrangements take into account a number of factors, including our creditworthiness, interest rate movements, the volatility of the Reference Rate, 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 pricing date being less than their public offering price. See "Risk Factors—The Initial Estimated Value of the Notes Is Less than the Price to the Public" above.

## VALIDITY OF THE NOTES

In the opinion of Norton Rose Fulbright Canada LLP, the issue and sale of the Notes has been duly authorized by all necessary corporate action of the Bank in conformity with the Indenture, and when the Notes have been duly executed, authenticated and issued in accordance with the Indenture and delivered against payment therefor, the Notes will be validly issued

and, to the extent validity of the Notes is a matter governed by the laws of the Province of Ontario or Québec, or the laws of Canada applicable therein, and will be valid obligations of the Bank, subject to equitable remedies which may only be granted at the discretion of a court of competent authority, subject to applicable bankruptcy, to rights to indemnity and contribution under the Notes or the Indenture which may be limited by applicable law; to insolvency and other laws of general application affecting creditors' rights, to limitations under applicable limitations statutes, and to limitations as to the currency in which judgments in Canada may be rendered, as prescribed by the Currency Act (Canada). This opinion is given as of the date hereof and is limited to the laws of the Provinces of Ontario and Québec and the federal laws of Canada applicable thereto. In addition, this opinion is subject to customary assumptions about the Trustee's authorization, execution and delivery of the Indenture and the genuineness of signatures and certain factual matters, all as stated in the letter of such counsel dated 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.