

ROYAL BANK OF CANADA
Form 424B5
September 20, 2018

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Registration Statement No. 333-227001
Product Prospectus Supplement FIN-1 to the Prospectus dated September 7, 2018 and
the Prospectus Supplement dated September 7, 2018
Royal Bank of Canada
Senior Global Medium-Term Notes, Series H

Accrual Notes	Inverse Floating Rate Notes
Fixed Rate Notes	Leveraged Notes
Step Up Notes	Range Accrual Notes
Floating Rate Notes	Dual Range Accrual Notes
Fixed-to-Floating Rate Notes	Non-Inversion Range Accrual Notes
Floating-to-Fixed Rate Notes	Leveraged Steepener Notes

Royal Bank of Canada may offer and sell the types of notes listed above (collectively, the “notes”) from time to time of any maturity. The prospectus dated September 7, 2018, the prospectus supplement dated September 7, 2018 and this product prospectus supplement describe terms of different kinds of notes and the terms that may apply generally to the notes, including any notes you purchase. A separate pricing supplement will describe terms that apply specifically to your notes, including any changes to the terms specified below. If the terms described in the relevant pricing supplement are inconsistent with those described in this product prospectus supplement or in the accompanying prospectus supplement or prospectus, the terms described in the relevant pricing supplement shall control.

Subject to our credit risk, unless otherwise set forth in the applicable pricing supplement, you will receive the principal amount of your notes at maturity. You will also receive periodic interest on the dates specified in the applicable pricing supplement. The amount of the interest payments, and any method by which they will be determined, will also be set forth in the applicable pricing supplement.

The notes will not be listed on any securities exchange.

Your investment in the notes involves certain risks. See “Additional Risk Factors Specific to the Notes” beginning on page PS-5 to read about investment risks relating to the notes.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these notes or passed upon the accuracy of this product prospectus supplement or the accompanying prospectus and prospectus supplement. Any representation to the contrary is a criminal offense.

We may use this product prospectus supplement in the initial sale of notes. In addition, RBC Capital Markets, LLC or another of our affiliates may use this product prospectus supplement in a market-making transaction in notes after their initial sale. Unless we or our agent informs the purchaser otherwise in the confirmation of sale, this product prospectus supplement is being used in a market-making transaction.

The notes will not constitute deposits insured under the Canada Deposit Insurance Corporation or by the U.S. Federal Deposit Insurance Corporation or any other Canadian or U.S. governmental agency or instrumentality.

RBC Capital Markets, LLC

Product Prospectus Supplement dated September 20, 2018.

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In this product prospectus supplement, when we refer to the “notes,” including your notes, we mean the notes described in this product prospectus supplement unless the context requires otherwise. Also, references to the “prospectus” mean the prospectus, dated September 7, 2018, as supplemented by the prospectus supplement, dated September 7, 2018, of Royal Bank of Canada. References to the “relevant pricing supplement” or the “applicable pricing supplement” mean the pricing supplement that describes the specific terms of your notes.

SUMMARY

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

Issuer:	Royal Bank of Canada (“Royal Bank”).
Principal Amount:	As specified in the applicable pricing supplement.
Maturity Date:	As specified in the applicable pricing supplement.
Interest Rate:	As specified in the applicable pricing supplement.
Leverage Rate:	As specified in the applicable pricing supplement.
Reference Rate(s):	As specified in the applicable pricing supplement.
Reference Rate Range(s):	As specified in the applicable pricing supplement.
Initial Interest Period(s):	As specified in the applicable pricing supplement.
Subsequent Interest Period(s):	As specified in the applicable pricing supplement.
Type of Note:	As specified in the applicable pricing supplement.
Interest Determination Dates and Interest Reset Dates:	Unless otherwise set forth in the applicable pricing supplement, as set forth in the accompanying prospectus supplement. On the date or dates specified in the applicable pricing supplement; provided that if any such day is not a business day, that interest payment will be made on the next succeeding business day, and adjustment will be made to the interest period or to any interest payment made on any succeeding business day. The applicable pricing supplement may specify that the interest dates are monthly, quarterly, semi-annually, annually, or at other specified intervals, or that interest will be paid only at maturity.
Interest Payment Dates:	For any interest payment date (as specified in the applicable pricing supplement), you will receive: If your note is an accrual note, you will receive at maturity an amount equal to the fixed rate of interest (or other financial measure) specified in the applicable pricing supplement times the actual number of calendar days from and including the date of issue to but excluding the maturity date, assuming a calendar of twelve 30-day months, divided by 360 and compounded on the basis specified in the applicable pricing supplement.
Interest Payable:	If your note is a fixed rate note, you will receive on each interest payment date (as specified in the applicable pricing supplement) an amount equal to the fixed rate of interest (or other financial measure) specified in the applicable pricing supplement times the actual number of calendar days from and including the last interest payment date (or the date of issue, for the initial interest period) to but excluding the next interest payment date or the maturity date, as the case may be, in each case, assuming a calendar of twelve 30-day months, divided by 360. If your note is a step up note, you will receive on each interest payment date (as specified in the applicable pricing supplement) an amount equal to the applicable fixed rate of interest (or other financial measure) specified in the applicable pricing supplement for that period times the actual number, of

calendar days from and including the last interest payment date (or the date of issue for the initial interest period) to but excluding the next interest payment date or the maturity date, as the case may be, in each case assuming a calendar of twelve 30-day months, divided by 360.

If your note is a floating rate note, you will receive on each interest payment date an amount equal to the floating rate of interest (or other financial measure) specified in the applicable pricing supplement times the actual number of calendar days from and including the last interest payment date (or the date of issue, for the initial interest period) to but excluding the next interest payment date or the maturity date, as the case may be, in each case assuming a calendar of twelve 30-day months, divided by 360.

If your note is a fixed-to-floating rate note, the return on your note during the initial interest period will be the fixed rate of interest (or other financial measure), and during the subsequent interest period, the floating rate of interest (or other financial measure), all as specified in the applicable pricing supplement. During each period, you will receive on each interest payment date (as specified in the applicable pricing supplement) an amount equal to the fixed or floating rate of interest (or other financial measure), as applicable, times the actual number, of calendar days from and including the last interest payment date (or the date of issue for the initial interest period) to but excluding the next interest payment date or the maturity date, as the case may be, in each case, assuming a calendar of twelve 30-day months, divided by 360.

If your note is a floating-to-fixed rate note, the return on your note during the initial interest period will be the floating rate of interest (or other financial measure), and during the subsequent interest period, the fixed rate of interest (or other financial measure), all as specified in the applicable pricing supplement. During each period, you will receive on each interest payment date an amount equal to the floating or fixed rate of interest (or other financial measure), as applicable, times the actual number of calendar days from and including the last interest payment date (or the date of issue, for the initial interest period) to but excluding the next interest payment date or the maturity date, as the case may be, in each case, assuming a calendar of twelve 30-day months, divided by 360.

If your note is an inverse floating rate note, you will receive on each interest payment date (as specified in the applicable pricing supplement) an amount equal to a fixed rate of interest less the floating rate of interest (or other financial measure), each as specified in the applicable pricing supplement, times the actual number of calendar days from and including the last interest payment date (or the date of issue, for the initial interest period) to but excluding the next interest payment date or the maturity date, as the case may be, in each case assuming a calendar of twelve 30-day months, divided by 360.

If your note is a leveraged note, you will receive on each interest payment date an amount equal to the fixed or floating rate of interest (or other financial measure) times the leverage rate, each as specified in the applicable pricing supplement, times the actual number of calendar days from and including the last interest payment date (or the date of issue, for the initial interest period) to but excluding the next interest payment date or the maturity date, as the case may be, in each case assuming a calendar of twelve 30-day months, divided by 360.

If your note is a range accrual note, you will receive on each interest payment date a fixed or floating rate of interest (or other financial measure) specified in the applicable pricing supplement times a fraction, the numerator of which is the number of calendar days in the applicable interest period on which the reference rate is within the reference rate range, and the

denominator of which is the total number of calendar days in the applicable interest period, in each case assuming a calendar of twelve 30-day months, divided by 360. The reference rate on any non-business day will be equal to the rate on the immediately preceding business day, and for the last four business days before each interest payment date, the reference rate will be determined by reference to its level on the fifth business day before such interest payment date.

If your note is a dual range accrual note, you will receive on each interest payment date the fixed or floating rate of interest (or other financial measure) specified in the applicable pricing supplement, times a fraction, the numerator of which is the number of calendar days in the applicable interest period on which each of two specified reference rates are within the reference rate range(s), and the denominator of which is the total number of calendar days in the applicable interest period, in each case assuming a calendar of twelve 30-day months, divided by 360. The reference rates on any non-business day will be equal to the rates on the immediately preceding business day, and for the last four business days before each interest payment date, the reference rates will be determined by reference to their level on the fifth business day before such interest payment date.

If your note is a non-inversion range accrual note, you will receive on each interest payment date a fixed or floating rate of interest (or other financial measure) specified in the applicable pricing supplement times a fraction, the numerator of which is the number of calendar days in the applicable interest period on which the high-side reference rate exceeded the low-side reference rate (each as defined below) by an amount equal to or above the minimum spread level (as defined below) specified in the applicable pricing supplement, and the denominator of which is the total number of calendar days in the applicable interest period, in each case assuming a calendar of twelve 30-day months, divided by 360. The reference rate on any non-business day will be equal to the rate on the immediately preceding business day and, for the last four business days before each interest payment date, the low-side reference rate and the high-side reference rate will be determined by reference to their levels on the fifth business day (or, if not a business day, the immediately preceding business day) before such interest payment date.

If your note is a leveraged steepener note, you will receive on each interest payment date (as specified in the applicable pricing supplement) an amount equal to, during the initial interest period (if the applicable pricing supplement provides for an initial interest period), the initial rate of interest (or other financial measure) specified in the applicable pricing supplement (which will be a fixed rate), times the actual number of calendar days from and including the last interest payment date (or the date of issue, for the initial interest period) to but excluding the next interest payment date or the maturity date, as the case may be, in each case assuming a calendar of twelve 30-day months, divided by 360. During each subsequent interest period (or, if the applicable pricing supplement does not provide for an initial interest period, on each interest payment date during the term of the notes), you will receive an amount equal to the leverage factor times the difference between the high-side reference rate and the low-side reference rate (all as specified in the applicable pricing supplement), times the actual number of calendar days from and including the last interest payment date (or the date of issue, for the initial interest period) to but excluding the next interest payment date or the maturity date, as the case may be, in each case assuming a calendar of twelve 30-day months, divided by 360; provided, however, that the interest rate can never be less than 0.00% and that the interest rate on any non-business day will be equal to the interest rate on the immediately preceding business day.

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Payment at Maturity:	On the maturity date, you will receive the principal amount of your notes plus any accrued and unpaid interest.
Redemption:	If the applicable pricing supplement specifies that the notes are “Redeemable,” we will redeem the notes at a price equal to 100% of the principal amount plus accrued and unpaid interest to the redemption date on any payment date on or after the “Call Effective Date” specified in the applicable pricing supplement. If the applicable pricing supplement specifies that the notes are “Not Redeemable,” then we will not have the option to redeem your notes prior to maturity.
Put Option:	Except for the Survivor’s Option, you will only have the right to require us to repurchase your notes prior to maturity if so specified in the applicable pricing supplement.
Cap:	If the applicable pricing supplement specifies that the notes are “Capped,” the interest rate payable on your notes during any interest period will be the lesser of (a) the interest rate, determined as set forth in the pricing supplement and (b) the applicable Cap.
Survivor’s Option:	If the applicable pricing supplement specifies that the survivor’s option applies to your notes, then upon the death of the beneficial owner of a note, a valid exercise of the survivor’s option and the proper tender of that note for repayment, we will repay the note, in whole or in part, at a price equal to 100% of the principal amount of that note plus any accrued and unpaid interest to the payment date, subject to the limitations set forth below. See “General Terms of the Notes—Survivor’s Option” below.
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 accompanying prospectus).
Listing:	The notes will not be listed on any securities exchange.
Calculation Agent:	RBC Capital Markets, LLC.

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ADDITIONAL RISK FACTORS SPECIFIC TO THE NOTES

An investment in your notes is subject to the risks described below, as well as the risks described under “Risk Factors” in the prospectus and the prospectus supplement. Your notes are not secured debt and are riskier than ordinary unsecured debt securities. You should carefully consider whether the notes are suited to your particular circumstances. This product prospectus supplement should be read together with the prospectus, the prospectus supplement and the relevant pricing supplement. The information in the prospectus and prospectus supplement is supplemented by, and to the extent inconsistent therewith replaced and superseded by, the information in this product prospectus supplement and the relevant pricing supplement. This section describes the most significant risks relating to the terms of the notes. We urge you to read the following information about these risks, together with the other information in this product prospectus supplement and the prospectus, the prospectus supplement and the relevant pricing supplement, before investing in the notes.

The Interest Rate of Certain Types of Notes Is Not Certain for One or More Interest Periods, and May Be Zero or Very Low.

Except for any interest periods, if any, in which your notes will bear interest at a fixed rate, the interest rate for one or more interest periods during the term of the notes will not be known on the pricing date of your notes. Depending on the terms set forth in the applicable pricing date, it is possible that the applicable interest rate for one or more interest periods may be 0%, or if the rate is above 0%, it may be substantially less than the rate of interest that we would pay on conventional debt securities with a comparable term. You should carefully read the terms of the notes that will be set forth in the applicable pricing supplement in order to determine the extent to which the interest rate on your notes during any period may be so limited.

If the reference rate(s) remain(s) outside the reference rate range(s) for range accrual notes, dual range accrual notes or non-inversion range accrual notes for a substantial number of days during an interest period, the effective yield on the notes for that interest period may be zero or less than the rate payable on conventional, fixed-rate notes of comparable maturity.

Even if your yield on the notes is positive, and even if your notes have a specified fixed rate of interest for one or more interest periods, your total yield may be less than the yield you would earn if you bought a standard senior non-callable debt security of Royal Bank with the same maturity date. The return on your investment may not compensate you for the opportunity cost when you take into account factors, such as inflation, that affect the time value of money.

Depending on the terms of your notes, you should, therefore, be prepared to realize no return at maturity over the principal amount of your notes.

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 each interest payment, if any, and the amount due on the maturity date is dependent upon Royal Bank’s ability to repay its obligations as of each payment date. No assurance can be given as to what our financial condition will be at any time during the term of the notes, or at maturity.

Your Notes May Be Subject to Early Redemption.

Depending upon the terms of your notes, we may have the right to redeem them, or the notes may be automatically redeemable under some circumstances. If we have the right to redeem them, we will be more likely to do so as the rate of interest payable on your notes increases. If we redeem your notes, depending on the market conditions at the time of redemption, you may not be able to reinvest the redemption proceeds in a security with a comparable return.

For Range Accrual Notes, Dual Range Accrual Notes and Non-Inversion Range Accrual Notes, the Applicable Reference Rate(s) for the Last Four Business Days of an Interest Period Will Be the Reference Rate(s) on the Applicable Business Day Immediately Preceding Those Four Days.

For range accrual notes, dual range accrual notes and non-inversion range accrual notes, because the applicable reference rate(s) for the last five business days of an interest period will be the reference rate(s) on the ending reference rate date (as defined below), if the reference rate(s) on that date is (are) outside the reference rate range(s), you will not receive any interest in respect of those five days even if the reference rate(s), if actually calculated on any of those days, would be within the reference rate range(s).

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. RBC Capital Markets, LLC and other affiliates of Royal Bank may make a market for the notes; however, they are not required to do so. RBC Capital Markets, LLC 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. If you sell your notes before maturity, you may have to do so at a substantial discount from the issue price, and as a result, you may suffer substantial losses.

You Must Rely on Your Own Evaluation of the Merits of an Investment Linked to the Applicable Reference Rate(s). In the ordinary course of their business, our affiliates may have expressed views on expected movements in any reference rate, and may do so in the future. These views or reports may be communicated to our clients and clients of our affiliates. However, these views are subject to change from time to time. Moreover, other professionals who transact business in markets relating to any reference rate may at any time have significantly different views from those of our affiliates. For these reasons, you are encouraged to derive information concerning any applicable reference rate from multiple sources, and you should not rely solely on views expressed by our affiliates.

The Market Value of Your Notes May Be Influenced by Many Unpredictable Factors.

The following factors, which are beyond our control, may influence the market value of your notes:

Changes in the level of the reference rate(s). For example, if you purchase Range Accrual Notes, an increase in the level of the reference rate could cause a decrease in the market value of the notes because no interest will be payable on the notes if the reference rate is outside the reference rate range. Conversely, a decrease in the level of the reference rate for any of the notes could cause an increase in the market value of the notes because interest will be payable (provided that the reference rate does not decrease below the lower end of the reference rate range).

However, if the level of the reference rate decreases and remains low, the likelihood of the notes being redeemed (if the notes are redeemable) would increase. In all cases, the level of the reference rate itself will be influenced by complex and interrelated political, economic, financial and other factors that can affect the money markets generally and the London interbank market or other applicable market in particular.

Changes in U.S. interest rates. In general, if U.S. interest rates increase, the market value of the notes may decrease, and if U.S. interest rates decrease, the market value of the notes may increase.

Volatility of the reference rate. Depending on the terms of your notes, if the size and frequency of fluctuations of the reference rate changes, the market value of the notes may decrease.

These factors may influence the market value of your notes if you sell your notes before maturity. Our creditworthiness, as represented by our credit ratings or as otherwise perceived in the market will also affect the market value of your notes. If you sell your notes prior to maturity, you may receive less than the principal amount of your notes.

The Method Used by the Publisher of a Reference Rate May Change in the Future.

The publisher of one or more of the reference rates for your notes may change the manner in which a reference rate is calculated. Any such changes could occur after the issue date of your notes, and may decrease the amounts of the payments that you receive on the notes. Unless otherwise set forth in the applicable pricing supplement, we will not have any obligation to compensate you for any reductions of this kind.

For Certain Types of Notes, the Interest Rate Payable During the Initial Interest Period May Not Be Indicative of the Interest Rate Payable During the Subsequent Interest Period.

The interest rate of certain notes that we may offer with this product prospectus supplement, may be based on a different rate during the initial interest period than in subsequent interest periods. In particular, during the interest period(s) where a fixed rate of interest (or other financial measure) applies, this fixed rate of interest (or other financial measure) may be higher than the floating rate of interest (or other financial measure) that will be applicable during subsequent interest period(s). As noted above, the interest rate during the any interest period where a floating rate of interest is applicable is uncertain and could be as little as 0.0%.

The Interest Rate on the Notes, if the Notes are “Capped,” Will Be Limited.

If the applicable pricing supplement specifies that your notes are “Capped,” the interest rate payable on your notes during any period will be limited to the Cap specified in the applicable pricing supplement. Therefore, the return you receive during any interest period may be less than what you would have received had you invested in a security linked to the reference that was not subject to the Cap.

The Inclusion in the Purchase Price of the Notes of a Selling Concession and of Our Cost of Hedging Our Market Risk under the Notes is Likely to Adversely Affect the Market Value of the Notes.

The price at which you purchase the notes includes a selling concession (including a broker’s commission), as well as the costs that we (or one of our affiliates) may incur in the hedging of our market risk under the notes. The hedging costs include the expected cost of undertaking this hedge, as well as the profit that we (or our affiliates) expect to realize in consideration for assuming the risks inherent in providing the hedge. As a result, 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 will likely be less than your original purchase price.

Trading Activities by Royal Bank or its Affiliates May Adversely Affect the Market Value of the Notes.

As described below under “Use of Proceeds and Hedging,” we or one or more affiliates may hedge our obligations under the notes by purchasing securities, futures, options or other derivative instruments with returns linked or related to changes in the level of the reference rate, and we may adjust these hedges by, among other things, purchasing or selling securities, futures, options or other derivative instruments at any time. It is possible that we or one or more of our affiliates could receive substantial returns from these hedging activities while the market value of the notes declines. We or one or more of our affiliates may also issue or underwrite other securities or financial or derivative instruments with returns linked or related to changes in the performance of the applicable reference rate. By introducing competing products into the marketplace in this manner, we or one or more of our affiliates could adversely affect the market value of the notes.

Historical Levels of the Reference Rate(s) Should Not Be Taken as an Indication of the Future Levels of Such Rate(s). The historical performance of the reference rate(s), which may be included in the applicable pricing supplement, should not be taken as an indication of the future performance of the reference rate(s) during the term of the notes. Changes in the level of the reference rate(s) will affect the trading price of the notes, but it is impossible to predict whether the level of the reference rate(s) will rise or fall.

The Business Activities of Royal Bank or Its Affiliates May Create Conflicts of Interest.

As noted above, we and our affiliates expect to engage in trading activities related to the reference rate(s) that are not for the account of holders of the notes or on their behalf. These trading activities may present a conflict between the holders' interest in the notes and the interests we and our affiliates will have in their proprietary accounts, in facilitating transactions, including options and other derivatives transactions, for their customers and in accounts under their management. These trading activities could be adverse to the interests of the holders of the notes.

There Are Potential Conflicts of Interest Between You and the Calculation Agent.

The calculation agent will, among other things, decide the amount of your payment for any interest payment date on the notes. Our wholly-owned subsidiary, RBC Capital Markets, LLC, will serve as the calculation agent. We may change the calculation agent after the original issue date without notice to you. For additional information as to the calculation agent's role, see "General Terms of the Notes—Role of Calculation Agent." The calculation agent will exercise its judgment when performing its functions and may take into consideration Royal Bank's ability to unwind any related hedges. Since this discretion by the calculation agent may affect payments on the notes, the calculation agent may have a conflict of interest if it needs to make any such decision.

Notes Linked to the Consumer Price Index (the "CPI") Are Subject to Additional Risks.

If the interest rate on your notes is linked to the CPI, the level of the CPI may decrease during periods of little or no inflation (and will decrease during periods of deflation). In such a case, the interest rate on your notes during any interest period may be small, and may even be 0.00%.

The CPI Itself and the Method by which the Bureau of Labor Statistics of the U.S. Bureau of Labor Statistics ("BLS") Calculates the CPI May Change In the Future. If the interest rate on your notes is linked to the CPI, the BLS may change the method by which it calculates the CPI, which could affect the level of the CPI used to calculate the interest rate (or, if applicable, determine whether the CPI is within the reference rate range) applicable to your notes. In particular, changes in the way the CPI is calculated could reduce the level of the CPI, which, if the interest rate on your notes is a floating rate of interest linked to the CPI, will result in lower interest payments during the applicable interest period(s), and in turn reduce the market value of the notes.

Consumer Prices May Change Unpredictably, Affecting the Level of the CPI and the Market Value of the Notes in Unforeseeable Ways. Market prices of the consumer items underlying the CPI may fluctuate based on numerous factors, including: changes in supply and demand relationships; weather; agriculture; trade; fiscal, monetary, and exchange control programs; domestic and foreign political and economic events and policies; disease; technological developments; and changes in interest rates. These factors may affect the level of the CPI and the market value of the notes in varying ways, and different factors may cause the level of the CPI to move in inconsistent directions at inconsistent rates.

Significant Aspects of the Tax Treatment of an Investment in the Notes May Be Uncertain.

The tax treatment of an investment in the notes may be uncertain. Specifically, for U.S. federal income tax purposes, the tax treatment of range accrual notes, dual range accrual notes, non-inversion range accrual notes, floating rate notes, leveraged steepener notes and leveraged notes, with a term of one year or less is uncertain because there are no rules that specifically govern short-term contingent debt. We do not plan to request a ruling from the Internal Revenue Service or the Canada Revenue Agency regarding the tax treatment of an investment in the notes, and the Internal Revenue Service, the Canada Revenue Agency or a court may not agree with the tax treatment described in this product prospectus supplement.

In addition, because the tax disclosure in this product prospectus supplement has been prepared without regard to any particular offering of notes, the tax disclosure does not take into account the terms of any particular note. The U.S. federal income tax consequences of a note with terms that are not consistent with the assumptions made in the section entitled “Supplemental Discussion of U.S. Federal Income Tax Consequences” in this product prospectus supplement may be significantly different from the anticipated tax treatment discussed in this document. You should therefore not rely on the disclosure in this product prospectus supplement or the disclosure under “Tax Consequences—United States Taxation” in the prospectus or “Certain Income Tax Consequences—United States Taxation” in the prospectus supplement, with regard to an investment in any particular note because it does not take into account the terms of any particular note or the tax consequences of investing in or holding any particular note unless the pricing supplement applicable to your notes indicates that you may so rely. There may also be other features or terms of any specific offering of notes that will cause the tax section in this product prospectus supplement to be inapplicable to any specific offering of notes.

Please read carefully the sections entitled “Supplemental Discussion of U.S. Federal Income Tax Consequences” in this product prospectus supplement, the section “Tax Consequences” in the accompanying prospectus and the section entitled “Certain Income Tax Consequences” in the accompanying prospectus supplement. You should consult your tax advisor about your own tax situation.

For a more complete discussion of the Canadian federal income tax consequences of investing in the notes, please see “Tax Consequences—Canadian Taxation” in the accompanying prospectus. If you are not a Non-resident Holder (as that term is defined in “Tax Consequences—Canadian Taxation” in the accompanying prospectus) or if you acquire the notes in the secondary market, you should consult your tax advisor as to the consequences of acquiring, holding and disposing of the notes and receiving the payments that might be due under the notes.

U.S. Taxpayers Will Be Required to Pay Taxes Each Year on Notes that Are Treated as Contingent Payment Debt Instruments and Notes that Are Issued with Original Issue Discount

If the notes are subject to special rules governing contingent payment debt instruments for U.S. federal income tax purposes and the holder is a U.S. individual or taxable entity, that holder generally will be required to pay taxes on ordinary income over the term of such notes based on the comparable yield for the notes, even though that holder may not receive any payments from us until maturity. This comparable yield is determined solely to calculate the amounts a holder will be taxed on prior to maturity and is neither a prediction nor a guarantee of what the actual yield will be. Any gain that may be recognized on the sale, redemption or maturity of such notes will generally be ordinary income. Any loss that may be recognized upon the sale, redemption or maturity of such notes will generally be ordinary loss to the extent of the interest that the holder included as income in the current or previous taxable years in respect of the notes and thereafter will be capital loss. The deductibility of capital losses is subject to limitations.

Similarly, if the notes are treated as issued with original issue discount, U.S. holders will be required to accrue interest on the notes and pay tax accordingly, even though such holders may not receive any payments from us until maturity.

For further discussion, see “Supplemental Discussion of U.S. Federal Income Tax Consequences.”

Non-U.S. Investors May Be Subject to Certain Additional Risks.

The notes will be denominated in U.S. dollars. If you are a non-U.S. investor who purchases the notes with a currency other than U.S. dollars, changes in rates of exchange may have an adverse effect on the value, price or returns of your investment.

This product prospectus supplement contains a general description of certain U.S. and Canadian tax considerations relating to the notes. If you are a non-U.S. investor, you should consult your tax advisors as to the consequences, under the tax laws of the country where you are resident for tax purposes, of acquiring, holding and disposing of the notes and receiving the payments that may be due under the notes.

This product prospectus supplement also contains a general description of certain Canadian tax considerations relating to the notes. If you are not a Non-resident Holder (as defined in the section titled “Tax Consequences—Canadian Taxation” in the accompanying prospectus) or if you acquire the notes in the secondary market, you should consult your tax advisors as to the consequences of acquiring, holding and disposing of the notes and receiving the payments that may be due under the notes.

Certain Considerations for Insurance Companies and Employee Benefit Plans.

Any insurance company or fiduciary of a pension plan or other employee benefit plan that is subject to the prohibited transaction rules of the Employee Retirement Income Security Act of 1974, as amended, which we call “ERISA,” or the Internal Revenue Code of 1986, as amended, including an IRA or a Keogh plan (or a governmental plan to which similar prohibitions apply), and that is considering purchasing the notes with the assets of the insurance company or the assets of such a plan, should consult with its counsel regarding whether the purchase or holding of the notes could become a “prohibited transaction” under ERISA, the Internal Revenue Code or any substantially similar prohibition in light of the representations a purchaser or holder in any of the above categories is deemed to make by purchasing and holding the notes. For additional information, please see the discussion under “Employee Retirement Income Security Act” below.

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GENERAL TERMS OF THE NOTES

Please note that in this section entitled “General Terms of the Notes,” references to “holders” mean those who own notes registered in their own names, on the books that we or the trustee maintain for this purpose, and not those who own beneficial interests in notes registered in street name or in notes issued in book-entry form through The Depository Trust Company (“DTC”) or another depository. Owners of beneficial interests in the notes should read the section entitled “Description of the Notes We May Offer—Legal Ownership” in the prospectus supplement and “Description of Debt Securities—Ownership and Book-Entry Issuance” in the prospectus.

In addition to the terms described on the front and inside cover of this product prospectus supplement, the following general terms will apply to the notes, including your notes:

Specified Currency

Unless otherwise specified in the relevant pricing supplement, all payments of principal and interest will be made in U.S. dollars (“\$”).

Form and Denomination

The notes will be issued only in global form through DTC. Unless otherwise specified in the relevant pricing supplement, the denomination of each note will be \$1,000 and integral multiples in excess of \$1,000.

No Listing

Your notes will not be listed on any securities exchange.

Redemption

If the applicable pricing supplement specifies that the notes are “Redeemable,” we may redeem your notes at a price equal to 100% of the principal amount plus accrued and unpaid interest to the redemption date on any payment date on or after the “Call Effective Date” specified in the applicable pricing supplement. If the applicable pricing supplement specifies that the notes are “Not Redeemable,” then we will not have the option to redeem your notes.

Cap

If the applicable pricing supplement specifies that the notes are “Capped,” the interest rate payable on your notes during any interest period will be limited to the Cap specified in the applicable pricing supplement.

Defeasance, Default Amount, Other Terms

Neither full defeasance nor covenant defeasance will apply to your notes. The following will apply to your notes: the default amount payable on any acceleration of the maturity of your notes as described under “—Default Amount on Acceleration” below; and

· a business day for your notes will have the meaning described under “—Special Calculation Provisions” below.

Please note that the information about the settlement or pricing date, issue price discounts or commissions and net proceeds to Royal Bank in the relevant pricing supplement relates only to the initial issuance and sale of your notes. If you have purchased your notes in a market-making transaction after the initial issuance and sale, any such relevant information about the sale to you will be provided in a separate confirmation of sale.

Payment at Maturity

At maturity, unless otherwise set forth in the applicable pricing supplement, you will receive the principal amount of your notes, plus accrued and unpaid interest, if any, as described under “—Interest Payments” below.

Maturity Date

The maturity date will be the date specified in the relevant pricing supplement, unless that date is not a business day, in which case the maturity date will be the next following business day, provided that the maturity date will never be later than the third business day after the relevant specified date or, if the relevant specified date is not a business day, later than the fourth business day after the relevant specified date. No interest will accrue past the maturity date specified in the relevant pricing supplement.

Interest Payments

General

The notes, other than accrual notes, will bear interest from and including each interest payment date (or the issuance date of the notes, as applicable) to but excluding the following interest payment date (or the maturity date or redemption date of the notes, as applicable) (each, an “interest period”) calculated in accordance with the applicable formula below.

Accrual Notes:

Accrual notes do not pay interest during the term of the note. Interest compounds on the basis stated in the applicable pricing supplement at a rate calculated as follows:

$$\text{Interest rate} = R \times \left(\frac{N}{360}\right)$$

Where:

“R” is the reference rate (which will be a fixed rate) specified in the applicable pricing supplement; and
“N” is the total number of calendar days from and including the first date in the compounding period (or, in the case of the initial compounding period, the issue date) to but excluding the end of the compounding period (or, in the case of the final compounding period, the maturity date), assuming a calendar of twelve 30-day months.

Fixed Rate Notes:

$$\text{Interest rate} = R \times \left(\frac{N}{360}\right)$$

Where:

“R” is the reference rate (which will be a fixed rate) specified in the applicable pricing supplement; and
“N” is the actual number of calendar days from and including the last interest payment date (or the date of issue, for the initial interest period) to but excluding the next interest payment date or the maturity date, as the case may be, assuming a calendar of twelve 30-day months.

Step Up Notes:

$$\text{Interest rate} = R \times \left(\frac{N}{360}\right)$$

Where:

“R” is the reference rate for that interest period as specified in the applicable pricing supplement; and
“N” is the actual number of calendar days from and including the last interest payment date (or the date of issue, for the initial interest period) to but excluding the next interest payment date or the maturity date, as the case may be, assuming a calendar of twelve 30-day months.

Floating Rate Notes:

$$\text{Interest rate} = R \times \left(\frac{N}{360}\right)$$

Where:

“R” is the reference rate (which will be a floating rate) specified in the applicable pricing supplement; and
“N” is the actual number of calendar days from and including the last interest payment date (or the date of issue, for the initial interest period) to but excluding the next interest payment date or the maturity date, as the case may be, assuming a calendar of twelve 30-day months.

Fixed-to-Floating Rate Notes:

During the initial interest period:

$$\text{Interest rate} = R_1 \times \left(\frac{N}{360}\right)$$

During the subsequent interest period:

$$\text{Interest rate} = R_2 \times \left(\frac{N}{360}\right)$$

Where:

“R” is the reference rate (which will be a fixed rate of interest) specified in the applicable pricing supplement;
“R” is the reference rate (which will be a floating rate of interest or other financial measure) specified in the applicable pricing supplement; and
“N” is the actual number of calendar days from and including the last interest payment date (or the date of issue, for the initial interest period) to but excluding the next interest payment date or the maturity date, as the case may be, assuming a calendar of twelve 30-day months.

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Floating-to-Fixed Rate Notes:

During the initial interest period:

$$\text{Interest rate} = R_1 \times \left(\frac{N}{360} \right)$$

During the subsequent interest period:

$$\text{Interest rate} = R_2 \times \left(\frac{N}{360} \right)$$

Where:

“ R_1 ” is the reference rate (which will be a floating rate of interest or other financial measure) specified in the applicable pricing supplement;

“ R_2 ” is the reference rate (which will be a fixed rate of interest) specified in the applicable pricing supplement; and

“ N ” is the actual number of calendar days from and including the last interest payment date (or the date of issue, for the initial interest period) to but excluding the next interest payment date or the maturity date, as the case may be, assuming a calendar of twelve 30-day months.

Inverse Floating Rate Notes:

$$\text{Interest rate} = \frac{(F - R) \times \left(\frac{N}{360} \right)}{x}$$

Where:

“ F ” is the fixed rate of interest specified in the applicable pricing supplement;

“ R ” is the reference rate (which will be a floating rate) specified in the applicable pricing supplement; and

“ N ” is the actual number of calendar days from and including the last interest payment date (or the date of issue, for the initial interest period) to but excluding the next interest payment date or the maturity date, as the case may be, assuming a calendar of twelve 30-day months.

Leveraged Notes:

$$\text{Interest rate} = R \times L \times \left(\frac{N}{360} \right)$$

Where:

“ R ” is the reference rate specified in the applicable pricing supplement;

“ L ” is the leverage rate specified in the applicable pricing supplement; and

“ N ” is the actual number of calendar days from and including the last interest payment date (or the date of issue, for the initial interest period) to but excluding the next interest payment date or the maturity date, as the case may be, assuming a calendar of twelve 30-day months.

Range Accrual Notes:

$$\text{Interest rate} = R \times \left(\frac{N}{D}\right)$$

Where:

“R” is the fixed or floating rate of interest (or other financial measure) specified in the applicable pricing supplement for that interest period;

“N” is the total number of calendar days in the applicable interest period on which the reference rate is within the reference rate range; provided, however, that the reference rate on any non-business day will be equal to the reference rate (as defined below) on the immediately preceding business day; and provided further, that the reference rate for any day from and including the fifth business day preceding the related interest payment date for any interest period shall be the reference rate as in effect on the ending reference rate date; and

“D” is the total number of calendar days in the applicable interest period.

The “ending reference rate date” for any interest period and with respect to an interest payment date is the fifth business day preceding such interest payment date (or the maturity date or redemption date of the notes, as applicable).

The “reference rate” will be the rate specified in the applicable pricing supplement. See below under “—Common Reference Rates” for a description of certain reference rates that may be applicable to your notes.

The “reference rate range” will be specified in the applicable pricing supplement.

“N” will not increase with respect to any day on which the reference rate are not within the reference rate range. Interest will be calculated on the basis of a 360-day year consisting of twelve 30-day months.

Dual Range Accrual Notes:

$$\text{Interest rate} = R \times \left(\frac{N}{D}\right)$$

Where:

“R” is the fixed or floating rate of interest (or other financial measure) specified in the applicable pricing supplement for that interest period;

“N” is the total number of calendar days in the applicable interest period on which each of two specified reference rates are within the reference rate range(s); provided, however, that the reference rates on any non-business day will be equal to the reference rates on the immediately preceding business day; and provided further, that the reference rates for any day from and including the fifth business day preceding the related interest payment date for any interest period shall be the reference rates as in effect on the ending reference rate date (as defined below); and

“D” is the total number of calendar days in the applicable interest period.

The “ending reference rate date” for any interest period and with respect to an interest payment date is the fifth business day preceding such interest payment date (or the maturity date or redemption date of the notes, as applicable).

The “reference rates” will be the rates specified in the applicable pricing supplement. See below under “—Common Reference Rates” for a description of certain reference rates that may be applicable to your notes.

The “reference rate range(s)” will be specified in the applicable pricing supplement.

“N” will not increase with respect to any day on which the reference rates are not within the reference rate range(s). Interest will be calculated on the basis of a 360-day year consisting of twelve 30-day months.

Non-Inversion Range Accrual Notes:

$$\text{Interest rate} = R \times \left(\frac{N}{D}\right)$$

Where:

“R” is the fixed or floating rate of interest (or other financial measure) specified in the applicable pricing supplement for that interest period;

“N” is the total number of calendar days in the applicable interest period on which the high-side reference rate exceeded the low-side reference rate by an amount equal to or above minimum spread level specified in the applicable pricing supplement; provided, however, that the reference rate on any non-business day will be equal to the reference rate on the immediately preceding business day; and provided further, that for the last four business days before such interest payment date, the low-side reference rate and the high-side reference rate will be determined by reference to their levels on the ending reference rate date; and

“D” is the total number of calendar days in the applicable interest period.

The “ending reference rate date” for any interest period and with respect to an interest payment date is the fifth business day preceding such interest payment date (or the maturity date or redemption date of the notes, as applicable).

The “reference rate” will be the rate specified in the applicable pricing supplement. See below under “—Common Reference Rates.”

“N” will not increase with respect to any day on which the high-side reference rate does not exceed the low-side reference rate. Interest will be calculated on the basis of a 360-day year consisting of twelve 30-day months.

Leveraged Steepener Notes:

During the initial interest period (if the applicable pricing supplement provides for an initial interest period):

$$\text{Interest rate} = R_1 \times \left(\frac{N_1}{360}\right)$$

During subsequent interest periods (or, if the applicable pricing supplement does not provide for an initial interest period, on each interest payment date during the term of the notes):

$$\text{Interest rate} = R_2 \times (H - L) \times \left(\frac{N_2}{360}\right)$$

Where:

The interest rate can never be less than 0.00%, but may be subject to a Cap;

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“ R ” is the rate of interest (if specified in the applicable pricing supplement) and “ R_1 ” is the Leverage Factor (or other financial measure) specified in the applicable pricing supplement (where R_1 will be a fixed rate);

“H” is the high-side reference rate specified in the applicable pricing supplement, set five business days prior to the beginning of the interest period;

“L” is the low-side reference rate specified in the applicable pricing supplement, set five business days prior to the beginning of the interest period;

“ N ” is the actual number of calendar days from and including the last interest payment date (or the date of issue, for the initial interest period) to but excluding the next interest payment date or the maturity date, as the case may be, assuming a calendar of twelve 30-day months; and

“ N_1 ” is the actual number of calendar days from and including the last interest payment date (or the date of issue, for the initial interest period) to but excluding the next interest payment date or the maturity date, as the case may be, assuming a calendar of twelve 30-day months.

The “ending reference rate date” for any interest period and with respect to an interest payment date is the fifth business day preceding such interest payment date (or the maturity date or redemption date of the notes, as applicable).

The “reference rate” will be the rate specified in the applicable pricing supplement. See below under “—Common Reference Rates” for a description of certain reference rates that may be applicable to your notes.

The “reference rate range” will be specified in the applicable pricing supplement.

Survivor’s Option

If the “Survivor’s Option” is specified in the applicable pricing supplement as applicable to your note, then the successor holders of your note will have the right to require us to repay your note prior to its maturity date upon the death of the beneficial owner as described below.

Upon a valid exercise of the survivor’s option as described below and a proper tender of the relevant notes, we will, at our option, either repay or purchase the relevant notes at a price equal to 100% of the principal amount of the relevant notes plus accrued and unpaid interest to the date of such repayment or purchase, subject to limitations on the aggregate amount of notes we will repay or purchase in any calendar year as described below.

The aggregate principal amount of notes as to which the survivor’s option may be exercised is limited as follows:

In any calendar year, to the greater of \$250,000 or 1% of the outstanding aggregate principal amount of the relevant class of notes as of December 31 of the most recently completed year (the “Annual Limitation”).

For any deceased beneficial owner or, if owned jointly, for the last surviving beneficial owner of the notes, to \$100,000 for any calendar year (the “Individual Limitation”).

We will not make principal repayments or purchase notes upon the exercise of the survivor’s option in amounts that are less than \$1,000. If the limitations described above would result in the partial repayment or purchase of any note, the principal amount of the note remaining outstanding after repayment or purchase must be at least \$1,000 (or any larger minimum principal amount of the applicable notes).

We will accept, in the order delivered, each note delivered upon the valid exercise of the survivor's option, unless the acceptance of that note would contravene the Annual Limitation or the Individual Limitation.

Any note that we accept for repayment or purchase upon exercise of the survivor's option will be repaid or purchased no later than the first interest payment date to occur that is at least 20 calendar days after the date of acceptance or, if the notes pay interest only at maturity, on the date that is 60 days after the date of acceptance. If that date is not a business day, payment will be made on the next succeeding business day. Each note delivered for repayment or purchase that is not accepted in any calendar year due to the application of the Annual Limitation or the Individual Limitation will not be accepted in any subsequent years. Other than as described in the immediately preceding sentence, notes delivered to us upon exercise of the survivor's option may not be withdrawn.

If a note delivered for purchase or repayment upon valid exercise of the survivor's option is not accepted, the trustee for the notes will deliver a notice by first-class mail to the registered holder that states the reason that the note has not been accepted. Following receipt of such notice from the trustee, the representative for the deceased beneficial owner may withdraw the relevant notes and abandon the exercise of the survivor's option.

Subject to the Annual Limitation and the Individual Limitation, all questions as to the eligibility or validity of any exercise of the survivor's option will be determined by us in our sole discretion. Our determination will be final and binding on all parties.

The death of a person owning a note:

in joint tenancy (with or without right of survivorship) or tenancy by the entirety, provided all other such tenants are previously deceased, will be deemed the death of the beneficial owner of the note, and the entire principal amount of the note will be subject to the survivor's option;

by tenancy in common will be deemed the death of the beneficial owner of a note only with respect to the deceased holder's interest in that note, except that if notes are held by a husband and wife as tenants in common, only the death of both husband and wife will be deemed the death of the beneficial owner of the note, and the entire principal amount of that note will be subject to the survivor's option.

The death of a person who, during his or her lifetime, was entitled to substantially all of the beneficial interests of ownership of a note will be deemed the death of the beneficial owner for purposes of the survivor's option, regardless of the registered holder, if the beneficial interest can be established to the satisfaction of the trustee. A beneficial interest will be deemed to exist in typical cases of nominee ownership, ownership under the Uniform Gifts to Minors Act or community property and trust arrangements where one person has substantially all of the beneficial ownership interest in the note during his or her lifetime.

If the beneficial owner held legal title and beneficial interest in the note, either in its entirety or as a joint tenant or tenant in common, we will deem the personal representative of the deceased beneficial owner (as determined in accordance with the laws of the relevant jurisdiction) to be the representative of the beneficial owner. If the beneficial owner held the beneficial title to the note and the legal title was held by an agent, nominee, bare trustee or spouse, we will deem the agent, nominee, bare trustee or spouse (collectively referred to as a "nominee") to be the representative of the beneficial owner. If the beneficial owner has designated a beneficiary or beneficiaries in accordance with the laws of the applicable jurisdiction, including without limitation Individual Retirement Accounts, Roth IRA Accounts, and Transfer on Death Accounts, we will deem the designated beneficiary or beneficiaries to be the representative of the beneficial owner.

In the case of repayment or purchase upon the exercise of the survivor's option, for notes represented by a global security, the depositary or its nominee will be the holder of the note and therefore will be the only entity that can exercise the survivor's option. To obtain repayment upon exercise of the survivor's option with respect to a note represented by a global security, the representative must provide to the broker or other entity through which the deceased owner held the beneficial interest:

- a written request for repayment signed by the representative, with the signature guaranteed by a member firm of a registered national securities exchange or of the Financial Industry Regulatory Authority (“FINRA”) or a commercial bank or trust company having an office or correspondent in the United States;
- appropriate evidence satisfactory to the trustee that the representative has authority to act on behalf of the deceased beneficial owner, the death of the beneficial owner has occurred and the deceased was the owner of a beneficial interest in the note at the time of death;
- instructions to the broker or other entity to notify the depository of its desire to obtain repayment upon exercise of the survivor’s option;
- a description of the relevant note, including the CUSIP number; and
- the deceased’s social security number.

The broker or other entity will provide to the trustee:

- a written request for repayment signed by the representative, with the signature guaranteed by a member firm of a registered national securities exchange or of FINRA or a commercial bank or trust company having an office or correspondent in the United States;
- appropriate evidence satisfactory to the trustee that the representative has authority to act on behalf of the deceased beneficial owner, the death of the beneficial owner has occurred and the deceased was the owner of a beneficial interest in the note at the time of death;
- a certificate or letter satisfactory to the trustee from the broker or other entity stating that it represents the deceased beneficial owner and describing the deceased’s beneficial interest in the note; and
- a description of the note, including the CUSIP number.

The broker or other entity will be responsible for disbursing any payments it receives upon exercise of the survivor’s option to the appropriate representative.

In order to validly exercise a survivor’s option for a note held in definitive rather than global form, the representative must deliver to the trustee the same information, noted above, to be delivered to the broker or other entity for exercise of such right for a global note (other than instructions to notify DTC), plus the note, a properly executed assignment of the note, and evidence of beneficial ownership of any note held in the name of a nominee.

Attached as Annex A to this product prospectus supplement is a form to be used by a representative to exercise the survivor’s option on behalf of a deceased beneficial owner of a note. In addition, a representative may obtain these forms from The Bank of New York Mellon, Survivor's Option Processing, 2001 Bryan Street 9th FL, Dallas, TX 75201, or call its Survivor's Option Processing Department at (800) 254-2826 or email them at survivors_options@bnymellon.com, during normal business hours.

Common Reference Rates

Some of the reference rates that may be applicable to your notes are described below. In addition, the following additional reference rates are described in the accompanying prospectus supplement: commercial paper rate, U.S. prime rate, LIBOR, EURIBOR, the treasury rate, the CMT rate, and the federal funds rate. The pricing supplement applicable to your notes will specify which reference rate will apply to your notes (which may or may not be one of the reference rates described below or in the accompanying prospectus supplement). In the event of a conflict between the applicable pricing supplement and this product prospectus supplement or the prospectus supplement, the applicable pricing supplement will control.

CMS Rate

The “CMS rate” means, on any day during an interest payment period, the rate for U.S. dollar swaps with a maturity for a specified number of years, in the applicable pricing supplement, expressed as a percentage, which appears on Reuters screen “ISDAFIX1” page as of 11:00 a.m., New York City time, on the related reference rate determination date.

The following procedures will be used if the CMS rate cannot be determined as described above:

If that information is no longer displayed by 11:00 a.m., New York City time, on the reference rate determination date, then the CMS rate will be a percentage determined on the basis of the mid-market, semi-annual swap rate quotations provided by five leading swap dealers in the New York City interbank market (which may include us or one of our affiliates) at approximately 11:00 a.m., New York City time, on the reference rate 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 maturity designated in the relevant pricing supplement, commencing on that reference rate determination date, with an acknowledged dealer of good credit in the swap market, where the floating leg, calculated on an Actual/360 day count basis, is equivalent to “LIBOR Reuters” with a maturity of three months. 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 reference rate 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 remain the CMS rate in effect on that reference rate determination date or, if that reference rate determination date is the first reference rate determination date, the initial interest rate.

Consumer Price Index

The Consumer Price Index (“CPI”) is the non-revised index adjusted U.S. City Average All Items Consumer Price Index for All Urban Consumers, published monthly by the U.S. Bureau of Labor Statistics and published on Bloomberg CPURNSA or any successor service. The CPI for a particular month is published during the following month.

The CPI is a measure of the average change in consumer prices over time for a fixed market basket of goods and services, including food, clothing, shelter, fuels, transportation, charges for doctors’ and dentists’ services and drugs. In calculating the CPI, the prices of the various items included in the fixed market basket are averaged together with weights that represent their importance in the spending of urban households in the United States. The BLS periodically updates the contents of the market basket of goods and services and the weights assigned to the various items to take into account changes in consumer expenditure patterns. The CPI is expressed in relative terms in relation to a time base reference period for which the level was set to 100.0.

Payment of Additional Amounts

We will pay any amounts to be paid by us on the notes without deduction or withholding for, or on account of, any and all present or future income, stamp and other taxes, levies, imposts, duties, charges, fees, deductions or withholdings (“taxes”) now or hereafter imposed, levied, collected, withheld or assessed by or on behalf of Canada or any Canadian political subdivision or authority that has the power to tax, unless the deduction or withholding is required by law or by the interpretation or administration thereof by the relevant governmental authority. At any time a Canadian taxing jurisdiction requires us to deduct or withhold for or on account of taxes from any payment made under or in respect of the notes, we will pay such additional amounts (“Additional Amounts”) as may be necessary so that the net amounts received by each holder (including Additional Amounts), after such deduction or

withholding, shall not be less than the amount the holder would have received had no such deduction or withholding been required.

However, no Additional Amounts will be payable with respect to a payment made to a holder of a note or of a right to receive payments in respect thereto (a "Payment Recipient"), which we refer to as an "Excluded Holder," in respect of a beneficial owner or Payment Recipient:

- (i) with whom we do not deal at arm's length (within the meaning of the Income Tax Act (Canada)) at the time of making such payment;
 - who is subject to such taxes by reason of its being connected presently or formerly with Canada or any province or territory thereof otherwise than by reason of the holder's activity in connection with purchasing the notes, the holding of notes or the receipt of payments thereunder;
- (ii) who is, or who does not deal at arm's length with a person who is, a "specified shareholder" (within the meaning of subsection 18(5) of the Income Tax Act (Canada)) of Royal Bank of Canada (generally a person will be a "specified shareholder" for this purpose if that person, either alone or together with persons with whom the person does not deal at arm's length, owns 25% or more of (a) our voting shares, or (b) the fair market value of all of our issued and outstanding shares);
 - who presents such note for payment (where presentation is required) more than 30 days after the relevant date (except to the extent that the holder thereof would have been entitled to such Additional Amounts on presenting a note for payment on the last day of such 30 day period); for this purpose, the "relevant date" in relation to any payments on any note means:
 - (a) the due date for payment thereof, or
 - if the full amount of the monies payable on such date has not been received by the Trustee on or prior to such due date, the date on which the full amount of such monies has been received and notice to that effect is given to holders of the notes in accordance with the Indenture;
 - who could lawfully avoid (but has not so avoided) such withholding or deduction by complying, or procuring that any third party comply, with any statutory requirements necessary to establish qualification for an exemption from withholding or by making, or procuring that any third party make, a declaration of non-residence or other similar claim for exemption to any relevant tax authority; or
 - who is subject to deduction or withholding on account of any tax, assessment, or other governmental charge that is imposed or withheld by reason of the application of Section 1471 through 1474 of the United States Internal Revenue Code of 1986, as amended (the "Code") (or any successor provisions), any regulation, pronouncement, or agreement thereunder, official interpretations thereof, or any law implementing an intergovernmental approach thereto, whether currently in effect or as published and amended from time to time.
- (iii) "specified shareholder" for this purpose if that person, either alone or together with persons with whom the person does not deal at arm's length, owns 25% or more of (a) our voting shares, or (b) the fair market value of all of our issued and outstanding shares);
 - who presents such note for payment (where presentation is required) more than 30 days after the relevant date (except to the extent that the holder thereof would have been entitled to such Additional Amounts on presenting a note for payment on the last day of such 30 day period); for this purpose, the "relevant date" in relation to any payments on any note means:
 - (a) the due date for payment thereof, or
 - if the full amount of the monies payable on such date has not been received by the Trustee on or prior to such due date, the date on which the full amount of such monies has been received and notice to that effect is given to holders of the notes in accordance with the Indenture;
 - who could lawfully avoid (but has not so avoided) such withholding or deduction by complying, or procuring that any third party comply, with any statutory requirements necessary to establish qualification for an exemption from withholding or by making, or procuring that any third party make, a declaration of non-residence or other similar claim for exemption to any relevant tax authority; or
 - who is subject to deduction or withholding on account of any tax, assessment, or other governmental charge that is imposed or withheld by reason of the application of Section 1471 through 1474 of the United States Internal Revenue Code of 1986, as amended (the "Code") (or any successor provisions), any regulation, pronouncement, or agreement thereunder, official interpretations thereof, or any law implementing an intergovernmental approach thereto, whether currently in effect or as published and amended from time to time.
- (iv) Revenue Code of 1986, as amended (the "Code") (or any successor provisions), any regulation, pronouncement, or agreement thereunder, official interpretations thereof, or any law implementing an intergovernmental approach thereto, whether currently in effect or as published and amended from time to time.

For the avoidance of doubt, we will not have any obligation to pay any holders Additional Amounts on any tax which is payable otherwise than by deduction or withholding from payments made under or in respect of the notes at maturity.

We will also make such withholding or deduction and remit the full amount deducted or withheld to the relevant authority in accordance with applicable law. We will furnish to the trustee, within 30 days after the date the payment of any taxes is due under applicable law, certified copies of tax receipts evidencing that such payment has been made or other evidence of such payment satisfactory to the trustee. We will indemnify and hold harmless each holder of notes (other than an Excluded Holder) and upon written request reimburse each such holder for the amount

of (x) any taxes so levied or imposed and paid by such holder as a result of payments made under or with respect to the notes, and (y) any taxes levied or imposed and paid by such holder with respect to any reimbursement under (x) above, but excluding any such taxes on such holder's net income or capital.

For additional information, see the section entitled "Supplemental Discussion of Canadian Tax Consequences."

Default Amount on Acceleration

If an event of default occurs and the maturity of the notes is accelerated, we will pay to you on the acceleration date, unless otherwise set forth in the applicable pricing supplement, your principal amount, together with accrued and unpaid interest through the date of acceleration.

Manner of Payment and Delivery

Any payment on the notes at maturity will be made to accounts designated by you and approved by us, or at the office of the trustee in New York City. The payment at maturity will only be made when the notes are surrendered to the trustee at that office. We also may make any payment or delivery in accordance with the applicable procedures of the depository.

Modified Business Day

As described in the accompanying prospectus, any payment on your note that would otherwise be due on a day that is not a business day may instead be paid on the next day that is a business day, with the same effect as if paid on the original due date. However, if the reference rate is LIBOR or EURIBOR, and the next business day falls in the next calendar month, then the interest payment date will be advanced to the next preceding day that is a business day. For your note, however, the term business day may have a different meaning than it does for other Series H medium-term notes. We discuss this term under "—Special Calculation Provisions" below.

Role of Calculation Agent

The calculation agent will make all determinations regarding the reference rate and the amount payable on your notes. Absent manifest error, all determinations of the calculation agent will be final and binding on you and us, without any liability on the part of the calculation agent.

Our subsidiary, RBC Capital Markets, LLC, is currently serving as the calculation agent for the notes. We may change the calculation agent for your notes at any time without notice and The Bank of New York Mellon may resign as calculation agent at any time upon 60 days' written notice to Royal Bank of Canada.

Special Calculation Provisions

Business Day

When we refer to a business day with respect to your notes, we mean a day that is a business day of the kind described in the accompanying prospectus, unless otherwise specified in the relevant pricing supplement. If the relevant pricing supplement specifies a different meaning for the term business day, we will use that modified definition in determining each interest payment date as well as the maturity date for your notes, all as described in this product prospectus supplement.

USE OF PROCEEDS AND HEDGING

We will use the net proceeds we receive from the sale of the notes for the purposes we describe in the attached prospectus supplement under “Use of Proceeds.” We or our affiliates may also use those proceeds in transactions intended to hedge our obligations under the notes as described below.

In anticipation of the sale of the notes, we or our affiliates expect to enter into hedging transactions involving purchases of securities or over-the-counter derivative instruments linked to the applicable reference rate(s) prior to or on the pricing date. From time to time, we or our affiliates may enter into additional hedging transactions or unwind those we have entered into.

We or our affiliates may acquire a long or short position in securities similar to the notes from time to time and may, in our or their sole discretion, hold or resell those similar securities. We or our affiliates may close out our or their hedge on or before the maturity date.

The hedging activity discussed above may adversely affect the market value of the notes from time to time. See “Additional Risk Factors Specific to Your Notes—Trading Activities by Royal Bank or its Affiliates May Adversely Affect the Market Value of the Notes” and “—The Business Activities of Royal Bank or its Affiliates May Create Conflicts of Interest” in this product prospectus supplement for a discussion of these adverse effects.

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HISTORICAL REFERENCE RATE INFORMATION

We may provide historical information on the applicable reference rate(s) in the relevant pricing supplement. You should not take any such historical information concerning the reference rate(s) as an indication of the future levels of such rates.

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SUPPLEMENTAL DISCUSSION OF CANADIAN TAX CONSEQUENCES

An investor should read carefully the description of material Canadian federal income tax considerations relevant to a Non-resident Holder owning debt securities under “Tax Consequences—Canadian Taxation” in the accompanying prospectus.

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SUPPLEMENTAL DISCUSSION OF U.S. FEDERAL INCOME TAX CONSEQUENCES

The following is a general description of the material U.S. tax considerations relating to the notes. It does not purport to be a complete analysis of all tax considerations relating to the notes. Prospective purchasers of the notes should consult their tax advisors as to the consequences under the tax laws of the country of which they are resident for tax purposes and the tax laws of Canada and the U.S. of acquiring, holding and disposing of the notes and receiving payments of interest, principal and/or other amounts under the notes. This summary is based upon the law as in effect on the date of this product prospectus supplement and is subject to any change in law that may take effect after such date.

Supplemental U.S. Tax Considerations

The following disclosure—including the opinion of Morrison & Foerster LLP—has been prepared without regard to any particular note that you may purchase and, therefore, is provided solely as a matter of general information. You should not rely upon the following disclosure, or the disclosure under “Tax Consequences—United States Taxation” in the prospectus or “Certain Income Tax Consequences—United States Taxation” in the prospectus supplement, with regard to an investment in any particular note because it does not take into account the terms of any particular note or the tax consequences of investing in or holding any particular note unless the pricing supplement applicable to your notes expressly indicates that you may rely on the following disclosure and expressly states that you may rely on the opinion of Morrison & Foerster LLP. Any note that you purchase may have terms that would result in a tax treatment that is significantly different from the treatment described below. For example, unless stated otherwise, the discussion below assumes that interest will be payable on your notes at least annually and at fixed intervals. In addition, the discussion below assumes that any floating rate of interest that is paid with respect to the notes is determined using a single fixed formula that is based on objective financial or economic information that is not unique to the circumstances of, or within the control of Royal Bank (other than the credit quality of Royal Bank) and that any caps or floors on any variable rate of interest payable with respect to the notes are fixed throughout the term of the notes. Further, apart from the case of accrual notes and notes that are treated as contingent payment debt instruments, as described below, this disclosure assumes that the notes are issued at par. The U.S. federal income tax consequences of a note with terms that are not consistent with the assumptions made in this section may be significantly different from the tax consequences discussed below. There may be other features or terms of your notes that will cause this tax section to be inapplicable to your notes. Further, this discussion does not address the tax consequences applicable to any holders under Section 451(b) of the U.S. Internal Revenue Code of 1986, as amended (the “Code”).

Consequently, any tax disclosure relevant to any note you may purchase will be set forth only in the pricing supplement relating to your note, and, unless the pricing supplement indicates otherwise, you should not rely on the tax disclosure below or in the prospectus supplement or prospectus in deciding whether to invest in any note. Moreover, in all cases, you should consult with your own tax advisor concerning the consequences of investing in and holding any particular note you propose to purchase.

The following section supplements the discussion of U.S. federal income taxation in the accompanying prospectus and prospectus supplement with respect to U.S. holders (as defined in the accompanying prospectus). It applies only to holders that purchase notes upon original issuance and who are not excluded from the discussion of U.S. federal income taxation in the accompanying prospectus. Unless otherwise specified in a relevant supplement, Royal Bank intends to treat any interest with respect to the notes, as determined for U.S. federal income tax purposes, as from sources within the U.S.

You should consult your tax advisor concerning the U.S. federal income tax and other tax consequences of your investment in the notes in your particular circumstances, including the application of state, local or other tax laws and the possible effects of changes in federal or other tax laws.

The following discussion is the opinion of Morrison & Foerster LLP, counsel to Royal Bank. The U.S. federal income tax treatment of your notes will depend on whether (i) the term of your notes will exceed one year, or (ii) the

term of your notes will not exceed one year. Accordingly, we set forth a separate subsection for each of the situations described in the previous sentence. In addition, the following discussion assumes that the notes are

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denominated in U.S. dollars and that any non-interest rate financial measure from which the amount of interest is paid or accrued with respect to the notes is an inflation rate. The relevant pricing supplement will discuss the tax consequences of any notes that are not denominated in U.S. dollars or that are linked to a non-interest rate financial measure other than an inflation rate.

Where the term of your notes will exceed one year

Accrual Notes

If the notes are accrual notes, with respect to which this discussion assumes that interest will not be payable at least annually, a holder must generally include original issue discount, or OID, in income before the holder receives cash attributable to that income. The amount of OID that must be included in income is calculated using a constant-yield method, and generally holders will include increasingly greater amounts of OID in income over the life of accrual notes. For a detailed discussion of the OID rules, please see “Tax Consequences—United States Taxation—Original Issue Discount” in the accompanying prospectus.

Fixed Rate Notes, Floating Rate Notes, Inverse Floating Rate Notes, Step Up Notes, Leveraged Notes, Range Accrual Notes, Dual Range Accrual Notes and Non-Inversion Range Accrual Notes

If the notes are fixed rate notes, floating rate notes, inverse floating rate notes, step up notes, leveraged notes, range accrual notes, dual range accrual notes or non-inversion range accrual notes, subject to the exceptions listed below, a holder will generally be taxed on any interest on the notes as ordinary income at the time the holder receives the interest or when it accrues, depending on the holder’s method of accounting for tax purposes.

If the notes are step up notes, the tax treatment described in the preceding paragraph assumes that the issuer will have the right to call the notes at par (plus accrued but unpaid interest) on each date that the interest rate increases. If this is not the case, step up notes may be treated as issued with OID, in which case the notes generally would be subject to the rules discussed in the accompanying prospectus under the heading “Tax Consequences—United States Taxation—Original Issue Discount.”

If the notes are range accrual notes, dual range accrual notes, inverse floating rate notes or non-inversion range accrual notes, the tax treatment described in the second preceding paragraph assumes that the interest will not be front or back-loaded. The interest rate in respect of such notes will be treated as front or back-loaded if it is reasonably expected that the average value of the interest rate during the first half of the notes’ term will be either significantly less than or significantly greater than the average value of the interest rate during the final half of the notes’ term. Likewise, if the notes are floating rate notes or leveraged notes, the tax treatment described in the second preceding paragraph assumes that either (i) the interest paid in respect of the notes will not be front or back-loaded or (ii) the interest is paid at a rate that is properly characterized as a “qualified floating rate.” A floating rate will generally be a qualified floating rate if the value of the rate on any date during the term of the note is set no earlier than three months prior to the first day on which that value is in effect and no later than one year following that first day and either (i) variations in the value of the rate can reasonably be expected to measure contemporaneous variations in the cost of newly borrowed funds in the currency in which the note is denominated or (ii) the rate is equal to a rate that can reasonably be expected to measure such contemporaneous variations in the cost of newly borrowed funds multiplied by either: (x) a fixed multiple that is greater than 0.65 but not more than 1.35 or (y) a fixed multiple greater than 0.65 but not more than 1.35, increased or decreased by a fixed rate.

If any of the assumptions in the prior paragraph are not correct with respect to a floating rate note, inverse floating rate note, leveraged note, range accrual note, dual range accrual note or non-inversion range accrual note, or if such a note does not qualify as a variable rate debt instrument under the rules described in the accompanying prospectus under the heading “Tax Consequences—United States Taxation—Original Issue Discount—Variable Rate Debt Securities,” that note may be treated as a debt instrument that is subject to the special rules that govern contingent payment debt instruments as

discussed below under “—Rules Applicable to Notes Treated as Contingent Payment Debt Instruments for Tax Purposes.”

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Leveraged Steepener Notes

The tax treatment of leveraged steepener notes will depend upon whether such notes are properly treated as variable rate debt instruments or contingent payment debt instruments. If the notes are properly characterized as variable rate debt instruments and do not provide for an initial fixed interest rate, holders will generally be taxed on any interest on the notes as ordinary income at the time that interest is received or when it accrues, depending on the holder's method of accounting for tax purposes. If, alternatively, the notes are treated as contingent payment debt instruments, the notes will be subject to the special rules, which are discussed below under “—Rules Applicable to Notes Treated as Contingent Payment Debt Instruments for Tax Purposes.”

Whether leveraged steepener notes are properly treated as variable rate debt instruments or contingent payment debt instruments may depend upon whether the interest payable on the notes is front-loaded or back-loaded. More specifically, interest will be treated as front or back-loaded if it is reasonably expected that the average value of the interest rate during the first half of the notes' term will be either significantly less than or significantly greater than the average value of the interest rate during the final half of the notes' term. If leveraged steepener notes are treated as front-loaded or back-loaded, such notes should generally be treated as debt instruments subject to the special rules governing contingent payment debt instruments for U.S. federal income tax purposes, which are discussed below under “—Rules Applicable to Notes Treated as Contingent Payment Debt Instruments for Tax Purposes.”

If leveraged steepener notes are not treated as paying interest that is front-loaded or back-loaded, the tax treatment of the notes may depend on whether the notes provide for an initial fixed interest rate. If such notes do not provide for an initial fixed interest rate, the notes will generally be treated as variable rate debt instruments.

If leveraged steepener notes do provide for an initial fixed interest rate, the tax treatment of the notes will depend on whether (i) the fixed interest rate paid on the notes is provided for a period of 1 year or less, and (ii) the floating rate of interest is intended to approximate the fixed rate of interest paid on the notes. However, applicable U.S. Treasury regulations provide that an initial fixed interest rate that is paid for a period of 1 year or less followed by a variable rate that is otherwise treated as an “objective rate” for a subsequent period will be conclusively presumed to constitute a single “objective rate” for purposes of determining whether an obligation is a variable rate debt instrument if the value of the initial fixed interest rate does not differ from the value of the variable rate by more than 25 basis points on the date the instrument is issued. Accordingly, if (i) the initial fixed rate paid on leveraged steepener notes is within 25 basis points of the value of the floating rate on the issue date of the notes, and (ii) the initial fixed rate on the notes is provided for a term of 1 year or less, it would be reasonable to treat the notes as variable rate debt instruments. If, alternatively, leveraged steepener notes (i) provide for an initial fixed rate that is not within 25 basis points of the value of the floating rate on the notes' date of issue (and the value of the floating rate is not intended to approximate the initial fixed rate), or (ii) provide for an initial fixed rate for a period that extends beyond 1 year, such notes should generally be treated as contingent payment debt instruments, which are discussed below under “—Rules Applicable to Notes Treated as Contingent Payment Debt Instruments for Tax Purposes.”

Fixed-to-Floating Rate Notes and Floating-to-Fixed Rate Notes

Fixed-to-floating rate notes and floating-to-fixed rate notes will generally be treated as either variable rate debt instruments or contingent payment debt instruments, depending on the specific terms of the notes. The applicable pricing supplement will specify whether such notes should be treated as variable rate debt instruments or contingent payment debt instruments.

If the notes are properly characterized as variable rate debt instruments, holders will generally be taxed on any interest on the notes as ordinary income at the time that interest is received or when it accrues, depending on the holder's method of accounting for tax purposes, unless otherwise specified in the applicable pricing supplement. In addition, depending on the terms of the notes and the rates in effect on the issue date, such notes may be issued with OID. For a detailed discussion of these rules, please see “Tax Consequences—United States Taxation—Original Issue

Discount—Variable Rate Debt Securities” in the accompanying prospectus. If, alternatively, the notes are treated as contingent payment debt instruments, the notes will be subject to special rules, which are discussed below under “—Rules Applicable to Notes Treated as Contingent Payment Debt Instruments for Tax Purposes.”

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Market Discount or Premium

If the notes are purchased at a price other than the initial offering price of the notes, the rules related to market discount or amortizable bond premium may also apply to the notes. These rules are discussed in the accompanying prospectus under the headings “Tax Consequences—United States Taxation—Market Discount” and “Tax Consequences—United States Taxation—Debt Securities Purchased at a Premium.”

Sale, Redemption or Maturity of Notes that Are Not Treated as Contingent Payment Debt Instruments

Holders will generally recognize gain or loss on the sale, redemption or maturity of the notes equal to the difference between the amount realized on the sale, redemption or maturity, excluding any amounts attributable to accrued but unpaid interest (which will be treated as interest payments), and the holder’s tax basis in the notes. A holder’s tax basis in the notes will generally be the amount the holder paid for the notes adjusted by:

- adding any OID or market discount, de minimis OID and de minimis market discount previously included in income with respect to the notes; and then
- subtracting (i) for notes that are treated as issued with OID, any payments on the notes that are not qualified stated interest payments, and (ii) any amortizable bond premium applied to reduce interest on the notes.

Such gain or loss would be capital gain or loss except to the extent (i) attributable to accrued but unpaid interest, and (ii) described under “Tax Consequences—United States Taxation—Market Discount” in the accompanying prospectus. Capital gain of an individual U.S. holder is generally taxed at preferential rates where the holder has a holding period of greater than one year. The deductibility of capital losses is subject to limitations.

Rules Applicable to Notes Treated as Contingent Payment Debt Instruments for Tax Purposes

If the notes are subject to the special rules applicable to contingent payment debt instruments, the amount of interest holders are required to take into account for each accrual period will be determined by constructing a projected payment schedule for the notes and applying rules similar to those for accruing OID on a hypothetical noncontingent debt instrument with that projected payment schedule. This method is applied by first determining the yield at which we would issue a noncontingent fixed rate debt instrument with terms and conditions similar to the notes (the “comparable yield”) and then determining a payment schedule as of the issue date that would produce the comparable yield. A projected payment schedule with respect to a note generally is a series of projected payments, the amount and timing of which would produce a yield to maturity on that note equal to the comparable yield. This projected payment schedule will consist of the principal amount, any noncontingent payments provided under the terms of the note, and a projection for tax purposes of each contingent payment. These rules could possibly have the effect of requiring holders to include amounts in income in respect of the notes prior to receipt of cash attributable to that income.

The amount of interest that a holder will be required to include in income during each accrual period for the notes will equal the product of the adjusted issue price for the notes at the beginning of the accrual period and the comparable yield for the notes for such period. The adjusted issue price of the notes will equal the original offering price for the notes plus any interest that has accrued on the notes (under the rules governing contingent payment debt instruments, but disregarding any adjustments made if the actual payments differ from the projected payments) and decreased by the projected amount of any payments previously made on the notes.

The comparable yield and projected payment schedule for a particular note can be obtained by calling RBC Capital Markets, LLC toll free at (866) 609-6009. A holder is required to use this comparable yield and projected payment schedule in determining its interest accruals in respect of a note treated as a contingent payment debt instrument unless the holder timely discloses and justifies on its federal income tax return the use of a different comparable yield and projected payment schedule.

The comparable yield and projected payment schedule are not provided for any purpose other than the determination of interest accruals in respect of the notes, and we make no representations regarding the amount of

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contingent payments with respect to the notes. Any Form 1099-OID will be based on such comparable yield and projected payment schedule.

In addition to accruing interest income in accordance with the comparable yield, a holder will be required to make adjustments (as described below) if the actual amounts that holder receives in any taxable year differs from the projected payment schedule.

If, during any taxable year, a holder receives actual payments with respect to the notes that, in the aggregate, exceed the total amount of projected payments for that taxable year, that holder will incur a “net positive adjustment” under applicable U.S. Treasury regulations equal to the amount of such excess. A holder will treat a net positive adjustment as additional interest income in that taxable year.

If a holder receives in a taxable year actual payments with respect to the notes that, in the aggregate, are less than the amount of projected payments for that taxable year, that holder will incur a “net negative adjustment” under applicable U.S. Treasury regulations equal to the amount of such deficit. This net negative adjustment will (a) reduce interest income on the notes for that taxable year, and (b) to the extent of any excess after the application of (a), give rise to an ordinary loss to the extent of the holder’s interest income on the notes during prior taxable years, reduced to the extent such interest was offset by prior net negative adjustments. Any net negative adjustment in excess of the amounts described in (a) and (b) will be carried forward as a negative adjustment to offset future interest income with respect to the notes or to reduce the amount realized on a sale, redemption or maturity of the notes. A net negative adjustment is not subject to the two percent floor limitation on miscellaneous itemized deductions.

If the notes are purchased for an amount that differs from the notes’ adjusted issue price at the time of the purchase, a holder must determine the extent to which the difference between the price paid for the notes and the notes’ adjusted issue price is attributable to a change in expectations as to the projected payment schedule, a change in interest rates, or both, and allocate the difference accordingly.

If the notes are purchased for an amount that is less than the adjusted issue price of the notes, holders must (i) make positive adjustments increasing the amount of interest that would otherwise accrue and be included in income each year to the extent of amounts allocated to a change in interest rates under the preceding paragraph, and (ii) make positive adjustments increasing the amount of ordinary income (or decreasing the amount of loss) that would otherwise be recognized upon the receipt, if any, of each remaining contingent payment to the extent of amounts allocated to a change in expectations as to the projected payment schedule under the preceding paragraph. If the notes are purchased for an amount that is greater than the adjusted issue price of the notes, holders must (i) make negative adjustments decreasing the amount of interest that would otherwise accrue and be included in income each year to the extent of amounts allocated to a change in interest rates under the preceding paragraph, and (ii) make negative adjustments decreasing the amount of ordinary income (or increasing the amount of loss) that would otherwise be recognized upon the receipt, if any, of each remaining contingent payment to the extent of amounts allocated to a change in expectations as to the projected payment schedule under the preceding paragraph. Adjustments allocated to the interest amount are not made until the date the daily portion of interest accrues.

Because any Form 1099-OID that a holder may receive will not reflect the effects of any positive or negative adjustments, holders are urged to consult with their tax advisors as to whether and how the adjustments described in the preceding paragraph should be made to the amounts reported on any Form 1099-OID.

If a contingent payment on the notes becomes fixed (within the meaning of applicable U.S. Treasury regulations) more than six months before the payment is due, a positive or negative adjustment, as appropriate, is made to reflect the difference between the present value of the amount that is fixed and the present value of the projected amount. The present value of each amount is determined by discounting the amount from the date the payment is due to the date the payment becomes fixed, using a discount rate equal to the comparable yield. If all contingent payments on the notes become fixed, substantially contemporaneously, applicable U.S. Treasury regulations provide that holders

should take into account positive or negative adjustments in respect of such contingent payments over the period to which they related in a reasonable manner. Holders should consult their tax advisors as to what would be a “reasonable manner” in their particular situation.

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Holders will recognize gain or loss on the sale, redemption or maturity of the notes in an amount equal to the difference, if any, between the amount of cash received at that time and their adjusted basis in the notes. In general, a holder's adjusted basis in the notes will equal the amount the holder paid for the notes, increased by the amount of interest that was previously accrued with respect to the notes (in accordance with the comparable yield for the notes, but disregarding any adjustments made if the actual payments differ from the projected payments), decreased by the projected amount of any payments previously made on the notes, and increased or decreased by the amount of any positive or negative adjustment, if any, that is made with respect to the notes under the rules set forth above with respect to secondary purchasers.

Any gain that may be recognized on the sale, redemption or maturity of notes treated as contingent payment debt instruments will generally be ordinary interest income. Any loss that may be recognized upon the sale, redemption or maturity of such notes will generally be ordinary loss to the extent the interest included as income in the current or previous taxable years in respect of the notes exceeded the total net negative adjustments that the holder took into account as ordinary loss, and thereafter will be capital loss. If the notes are held until maturity and the payment at maturity is less than the projected payment at maturity, the difference will first reduce interest that would otherwise accrue in respect of the notes in such taxable year, and any remainder will be ordinary loss to the extent the interest that the holder previously accrued as income in respect of the notes exceeded the total net negative adjustments that the holder took into account as ordinary loss, and thereafter will be capital loss. The deductibility of capital losses is subject to limitations.

Where the term of your notes will not exceed one year

Accrual Notes, Fixed Rate Notes and Step Up Notes

This subsection provides a general description of the U.S. federal income tax consequences of holding accrual notes, fixed rate notes or step up notes with a term that will not exceed one year. In general, an individual or other cash basis U.S. holder of a note with a term of one year or less (a "short-term note"), is not required to accrue OID, as specially defined below for the purposes of this paragraph, for U.S. federal income tax purposes unless that holder elects to do so (although it is possible that a holder may be required to include any stated interest in income as that holder receives it). However, accrual basis taxpayers, taxpayers in a special class, including, but not limited to, regulated investment companies, common trust funds and certain types of pass-through entities, and cash basis taxpayers who so elect will be required to accrue OID on short-term notes on either a straight-line basis or under the constant-yield method, based on daily compounding.

Holders who are not required to and do not elect to include OID in income currently will generally recognize ordinary income upon the sale or retirement of a short-term note to the extent of the accrued OID, which will be determined on a straight-line basis unless the holder makes an election to accrue the OID under the constant-yield method through the date of sale or retirement. However, a holder that is not required and does not elect to accrue OID on its short-term notes will be required to defer deductions for interest on borrowings allocable to the holder's short-term notes in an amount not exceeding the deferred income until the deferred income is realized.

In determining the amount of OID subject to these rules, a holder must include all interest payments on a short-term note, including stated interest, in its short-term note's stated redemption price at maturity.

Range Accrual Notes, Dual Range Accrual Notes, Non-Inversion Range Accrual Notes, Floating Rate Notes, Inverse Floating Rate Notes, Leveraged Steepener Notes, Fixed-to-Floating Rate Notes, Floating-to-Fixed Rate Notes and Leveraged Notes

The following subsection provides a general description of the U.S. federal income tax consequences of holding range accrual notes, dual range accrual notes, non-inversion range accrual notes, floating rate notes, inverse floating rate notes, leveraged steepener notes, fixed-to-floating rate notes, floating-to-fixed rate notes and leveraged notes with a

term that will not exceed one year. The notes should be treated as debt instruments subject to the rules governing short-term debt instruments. Accordingly, interest paid or accrued on the notes should be ordinary income for U.S. federal income tax purposes.

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NO STATUTORY, JUDICIAL OR ADMINISTRATIVE AUTHORITY DIRECTLY DISCUSSES HOW THE NOTES SHOULD BE TREATED FOR U.S. FEDERAL INCOME TAX PURPOSES. AS A RESULT, THE U.S. FEDERAL INCOME TAX CONSEQUENCES OF AN INVESTMENT IN THE NOTES ARE UNCERTAIN. BECAUSE OF THE UNCERTAINTY, YOU SHOULD CONSULT YOUR TAX ADVISOR IN DETERMINING THE U.S. FEDERAL INCOME TAX AND OTHER TAX CONSEQUENCES OF AN INVESTMENT IN THE NOTES, INCLUDING THE APPLICATION OF STATE, LOCAL OR OTHER TAX LAWS AND THE POSSIBLE EFFECTS OF CHANGES IN FEDERAL OR OTHER TAX LAWS.

As described above under “—Accrual Notes, Fixed Rate Notes and Step Up Notes,” all interest paid with respect to a short-term note is treated as OID and is required to be accrued by accrual basis taxpayers and electing cash basis taxpayers on either the straight-line method, or, if elected, the constant yield method, compounded daily. There are no regulations, published rulings or judicial decisions, however, that address the determination of OID on short-term notes where coupon payments are not fixed in amount. In the absence of authority, it would be reasonable for a holder to include interest with respect to the notes into income in accordance with the holder’s regular method of accounting.

Alternative approaches would also be reasonable. For example, an accrual basis holder, a cash basis holder that elects to accrue interest currently, or a holder in a special class of holders (as described above under “—Accrual, Notes, Fixed Rate Notes and Step Up Notes”) who are otherwise required to accrue OID with respect to short-term debt instruments, could calculate and accrue OID on the notes under rules analogous to the rules for accruing interest on a contingent payment debt instrument.

Treatment Upon Sale, Redemption or Maturity

Holders of short-term notes will recognize gain or loss on the sale, redemption or maturity of the notes in an amount equal to the difference, if any, between the fair market value of the amount received at such time and the holder’s adjusted basis in the notes. The adjusted basis of a cash basis taxpayer in the notes will generally be the purchase price of the notes. The adjusted basis in the notes of an accrual basis holder or a cash basis holder that elects to accrue interest on your notes currently will generally be the purchase price of the notes increased by the amount of interest accrued on the notes by the holder and decreased by the interest paid on the notes to the holder. Any gain realized on the sale, redemption or maturity of the notes would be ordinary income to the extent of the interest that had accrued on the notes, and assuming the notes are treated as short-term debt for U.S. federal income tax purposes, the balance would be short-term capital gain or loss. Short-term capital gains are taxed at ordinary income rates and the deductibility of capital losses is limited.

Backup Withholding and Information Reporting

Payments made with respect to the notes and proceeds from the sale of the notes may be subject to a backup withholding tax unless, in general, the holder complies with certain procedures or is an exempt recipient. Any amounts so withheld generally will be refunded by the Internal Revenue Service or allowed as a credit against the holder’s U.S. federal income tax, provided the holder makes a timely filing of an appropriate tax return or refund claim.

Reports will be made to the Internal Revenue Service and to holders that are not exempted from the reporting requirements.

Non-U.S. Holders

The following discussion applies to non-U.S. holders of the notes. You are a non-U.S. holder if you are a beneficial owner of a note and are for U.S. federal income tax purposes a non-resident alien individual, a foreign corporation, or a foreign estate or trust.

Payments made to a non-U.S. holder, and any gain realized on the sale, redemption or maturity of the notes, generally should be exempt from U.S. federal income and withholding tax, subject to generally applicable exceptions set forth in the rules exempting “portfolio interest” from U.S. withholding tax, provided that (i) the holder complies with applicable certification requirements, which certification may be made on Form W-8BEN or Form W-8BEN-E (as

applicable, or a substitute or successor form) on which the holder certifies, under penalties of

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perjury, that the holder is not a U.S. person and provides its name and address, (ii) the payment or gain is not effectively connected with the conduct by the holder of a U.S. trade or business, and (iii) if the holder is a non-resident alien individual, the holder is not present in the U.S. for 183 days or more during the taxable year of the sale or at maturity of the notes. In the case of (ii) above, the holder generally should be subject to U.S. federal income tax with respect to any income or gain in the same manner as if the holder were a U.S. holder and, in the case of a holder that is a corporation, the holder may also be subject to a branch profits tax equal to 30% (or such lower rate provided by an applicable U.S. income tax treaty) of a portion of its earnings and profits for the taxable year that are effectively connected with its conduct of a trade or business in the U.S., subject to certain adjustments. Payments made to a non-U.S. holder may be subject to information reporting and to backup withholding unless the holder complies with applicable certification and identification requirements as to its foreign status.

Foreign Account Tax Compliance Act

The Foreign Account Tax Compliance Act (“FATCA”) imposes a 30% U.S. withholding tax on certain U.S. source payments, including interest (and OID), dividends, other fixed or determinable annual or periodical gain, profits, and income, and on the gross proceeds from a disposition of property of a type which can produce U.S. source interest or dividends (“Withholdable Payments”), if paid to a foreign financial institution (including amounts paid to a foreign financial institution on behalf of a holder), unless such institution enters into an agreement with the U.S. Treasury to collect and provide to the U.S. Treasury certain information regarding U.S. financial account holders, including certain account holders that are foreign entities with U.S. owners, with such institution or otherwise complies with FATCA. In addition, the notes may constitute a “financial account” for these purposes and thus, be subject to information reporting requirements pursuant to FATCA. FATCA also generally imposes a withholding tax of 30% on Withholdable Payments made to a non-financial foreign entity unless such entity provides the withholding agent with a certification that it does not have any substantial U.S. owners or a certification identifying the direct and indirect substantial U.S. owners of the entity. Under certain circumstances, a holder may be eligible for refunds or credits of such taxes.

The U.S. Treasury Department and the IRS have announced that withholding on payments of gross proceeds from a sale or redemption of the notes will only apply to payments made after December 31, 2018. If we determine withholding is appropriate with respect to the notes, we will withhold tax at the applicable statutory rate, and we will not pay any additional amounts in respect of such withholding. Foreign financial institutions and non-financial foreign entities located in jurisdictions that have an intergovernmental agreement with the United States governing FATCA may be subject to different rules. Prospective investors are urged to consult with their own tax advisors regarding the possible implications of FATCA on their investment in the notes.

EMPLOYEE RETIREMENT INCOME SECURITY ACT

This section is only relevant to you if you are an insurance company or the fiduciary of a pension plan or an employee benefit plan (including a governmental plan, an IRA or a Keogh Plan) proposing to invest in the notes.

The Employee Retirement Income Security Act of 1974, as amended (“ERISA”), imposes certain requirements on “employee benefit plans” (as defined in Section 3(3) of ERISA) subject to ERISA, including entities such as collective investment funds and separate accounts whose underlying assets include the assets of such plans (collectively, “ERISA Plans”) and on those persons who are fiduciaries with respect to ERISA Plans. Each fiduciary of an ERISA Plan should consider the fiduciary standards of ERISA in the context of the ERISA Plan’s particular circumstances before authorizing an investment in the covered bonds. Accordingly, among other factors, the fiduciary should consider whether the investment would satisfy the prudence and diversification requirements of ERISA and would be consistent with the documents and instruments governing the ERISA Plan.

In addition, Section 406 of ERISA and Section 4975 of the Internal Revenue Code prohibit certain transactions involving the assets of an ERISA Plan, as well as those plans that are not subject to ERISA but which are subject to Section 4975 of the Internal Revenue Code, such as individual retirement accounts, including entities whose underlying assets include the assets of such plans (together with ERISA Plans, “Plans”) and certain persons (referred to as “parties in interest” or “disqualified persons”) having certain relationships to such Plans, unless a statutory or administrative exemption is applicable to the transaction. Governmental plans may be subject to similar prohibitions. Therefore, a plan fiduciary considering purchasing notes should consider whether the purchase or holding of such instruments might constitute a “prohibited transaction.”

Royal Bank and certain of its affiliates each may be considered a “party in interest” or a “disqualified person” with respect to many employee benefit plans by reason of, for example, Royal Bank (or its affiliate) providing services to such plans. Prohibited transactions within the meaning of ERISA or the Internal Revenue Code may arise, for example, if notes are acquired by or with the assets of a Plan, and with respect to which Royal Bank or any of its affiliates is a “party in interest” or a “disqualified person,” unless those notes are acquired under an exemption for transactions effected on behalf of that Plan by a “qualified professional asset manager” or an “in-house asset manager,” for transactions involving insurance company general accounts, for transactions involving insurance company pooled separate accounts, for transactions involving bank collective investment funds, or under another available exemption. Section 408(b)(17) provides an additional exemption for the purchase and sale of securities and related lending transactions where neither the issuer of the securities nor any of its affiliates have or exercise any discretionary authority or control or render any investment advice with respect to the assets of any Plan involved in the transaction and the Plan pays no more than “adequate consideration” in connection with the transaction. The person making the decision on behalf of a Plan or a governmental plan shall be deemed, on behalf of itself and any such plan, by purchasing and holding the notes, or exercising any rights related thereto, to represent that (a) such purchase, holding and exercise of the notes will not result in a non-exempt prohibited transaction under ERISA or the Internal Revenue Code (or, with respect to a governmental plan, under any similar applicable law or regulation) and (b) neither Royal Bank nor any of its affiliates is a “fiduciary” (within the meaning of Section 3(21) of ERISA) with respect to the purchaser or holder in connection with such person’s acquisition, disposition or holding of the notes, or any exercise related thereto or as a result of any exercise by Royal Bank or any of its affiliates of any rights in connection with the notes, and no advice provided by Royal Bank or any of its affiliates has formed a primary basis for any investment decision by or on behalf of such purchaser or holder in connection with the notes and the transactions contemplated with respect to the notes.

If you are an insurance company or the fiduciary of a pension plan or an employee benefit plan, and propose to invest in notes, you should consult your legal counsel.

SUPPLEMENTAL PLAN OF DISTRIBUTION

With respect to each note to be issued, Royal Bank will agree to sell to RBC Capital Markets, LLC, and RBC Capital Markets, LLC will agree to purchase from Royal Bank, the principal amount of the note specified, at the price specified under “Net proceeds to the issuer,” in the relevant pricing supplement. RBC Capital Markets, LLC intends to resell each note it purchases at the original issue price specified in the relevant pricing supplement. In the future, RBC Capital Markets, LLC or one of our affiliates may repurchase and resell the notes in market-making transactions, with resales being made at prices related to prevailing market prices at the time of resale or at negotiated prices. For more information about the plan of distribution, the distribution agreement and possible market-making activities, see “Supplemental Plan of Distribution” in the accompanying prospectus supplement.

No Prospectus (as defined in Directive 2003/71/EC (as amended, the “Prospectus Directive”)) will be prepared in connection with the notes. Accordingly, the notes may not be offered to the public in any member state of the European Economic Area (the “EEA”), and any purchaser of the notes who subsequently sells any of the notes in any EEA member state must do so only in accordance with the requirements of the Prospectus Directive, as implemented in that member state.

The notes are not intended to be offered, sold or otherwise made available to, and should not be offered, sold or otherwise made available to, any retail investor in the 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 Insurance Distribution 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 the Prospectus Directi