Pricing Supplement dated June 28, 2024

Registration Statement No. 333-275898
Filed Pursuant to Rule 424(b)(2)

Royal Bank of Canada Trigger Absolute Return Autocallable Notes
$6,175,000 Notes Linked to the Common Stock of Target Corporation due July 2, 2026

Investment Description

The Trigger Absolute Return Autocallable Notes (the "Notes") are senior unsecured debt securities issued by Royal Bank of Canada linked to the performance of the common stock of Target Corporation (the "Underlying"). If the Underlying closes at or above the Initial Underlying Value on any quarterly Call Observation Date, we will automatically call the Notes early and pay you a Call Price equal to the principal amount of your Notes plus a Call Return, and no further amounts will be owed to you under the Notes. The Call Return increases based on the per annum Call Return Rate for each additional quarter the Notes remain outstanding. If the Notes are not called prior to maturity and the Final Underlying Value is greater than or equal to the Downside Threshold, we will pay you a cash payment at maturity equal to the principal amount of your Notes plus the Contingent Absolute Return equal to the absolute value of the percentage decline in the value of the Underlying from the Initial Underlying Value to the Final Underlying Value. However, if the Final Underlying Value is less than the Downside Threshold, the Contingent Absolute Return will not apply and we will pay you less than the full principal amount at maturity, if anything, resulting in a loss of principal amount that is proportionate to the negative Underlying Return, and you will lose up to 100% of the principal amount. **Investing in the Notes involves significant risks. The Notes do not pay interest. The Notes will not be automatically called if the Underlying closes below the Initial Underlying Value on a quarterly Call Observation Date. You will lose a significant portion or all of your principal amount if the Final Underlying Value is less than the Downside Threshold. The Contingent Absolute Return and any contingent repayment of principal apply only at maturity. Generally, the higher the Call Return Rate on a Note, the greater the risk of loss. Any payment on the Notes, including any repayment of principal, is subject to our creditworthiness. If we default on our payment obligations, you may not receive any amounts owed to you under the Notes and you could lose your entire investment. The Notes will not be listed on any securities exchange.**

Features

- **Call Return**— We will automatically call the Notes and pay you a Call Price equal to the principal amount of your Notes plus the applicable Call Return if the closing value of the Underlying on any quarterly Call Observation Date is greater than or equal to the Initial Underlying Value. The Call Return increases based on the per annum Call Return Rate for each additional quarter the Notes remain outstanding. If the Notes are not called, investors will have the potential for downside equity market risk at maturity.
- **Downside Exposure with Contingent Absolute Return at Maturity**— If by maturity the Notes have not been called and the Final Underlying Value is greater than or equal to the Downside Threshold, we will repay the full principal amount plus the Contingent Absolute Return at maturity. However, if the Final Underlying Value is less than the Downside Threshold, we will pay less than the full principal amount at maturity, if anything, resulting in a loss of principal amount that is proportionate to the negative Underlying Return. Accordingly, you may lose a significant portion or all of the principal amount of the Notes. Any payment on the Notes, including any repayment of principal, is subject to our creditworthiness.

Key Dates

Strike Date	June 27, 2024
Trade Date	June 28, 2024
Settlement Date	July 3, 2024
Call Observation Dates[1]	Quarterly (see page 5)
Final Valuation Date[1]	June 29, 2026
Maturity Date[1]	July 2, 2026

[1] Subject to postponement. See "General Terms of the Notes—Postponement of a Determination Date" and "General Terms of the Notes—Postponement of a Payment Date" in the accompanying product supplement.

NOTICE TO INVESTORS: THE NOTES ARE SIGNIFICANTLY RISKIER THAN CONVENTIONAL DEBT INSTRUMENTS. WE ARE NOT NECESSARILY OBLIGATED TO REPAY THE FULL PRINCIPAL AMOUNT OF THE NOTES AT MATURITY, AND THE NOTES CAN HAVE THE FULL DOWNSIDE MARKET RISK OF THE UNDERLYING. THIS MARKET RISK IS IN ADDITION TO THE CREDIT RISK INHERENT IN PURCHASING OUR DEBT OBLIGATIONS. YOU SHOULD NOT PURCHASE THE NOTES IF YOU DO NOT UNDERSTAND OR ARE NOT COMFORTABLE WITH THE SIGNIFICANT RISKS INVOLVED IN INVESTING IN THE NOTES.

YOU SHOULD CAREFULLY CONSIDER THE RISKS DESCRIBED UNDER "KEY RISKS" BEGINNING ON PAGE 6 OF THIS PRICING SUPPLEMENT AND UNDER "RISK FACTORS" IN THE ACCOMPANYING PROSPECTUS, PROSPECTUS SUPPLEMENT AND PRODUCT SUPPLEMENT BEFORE PURCHASING ANY NOTES. EVENTS RELATING TO ANY OF THOSE RISKS, OR OTHER RISKS AND UNCERTAINTIES, COULD ADVERSELY AFFECT THE MARKET VALUE OF, AND THE RETURN ON, YOUR NOTES. YOU COULD LOSE A SIGNIFICANT PORTION OR ALL OF THE PRINCIPAL AMOUNT OF YOUR NOTES.

Note Offering

We are offering Trigger Absolute Return Autocallable Notes Linked to the Common Stock of Target Corporation. The Notes will be issued in minimum denominations of $10, and integral multiples of $10 in excess thereof, with a minimum investment of $1,000. The Initial Underlying Value and Downside Threshold were determined on the Strike Date.

Underlying	Call Return Rate	Initial Underlying Value*	Downside Threshold**	CUSIP/ ISIN
Common stock of Target Corporation (TGT)	13.80% per annum	$146.72	$102.70, which is 70% of the Initial Underlying Value	78016U341 / US78016U3418

* The closing value of the Underlying on the Strike Date
** Rounded to two decimal places

See "Additional Information about Royal Bank of Canada and the Notes" in this pricing supplement. The Notes will have the terms specified in the prospectus dated December 20, 2023, the prospectus supplement dated December 20, 2023, the product supplement no. 1A dated May 16, 2024 and this pricing supplement.

None of the Securities and Exchange Commission (the "SEC"), any state securities commission or any other regulatory body has approved or disapproved of the Notes or passed upon the adequacy or accuracy of this pricing supplement. Any representation to the contrary is a criminal offense. The Notes will not constitute deposits insured by the Canada Deposit Insurance Corporation, the U.S. Federal Deposit Insurance Corporation or any other Canadian or U.S. governmental agency or instrumentality. The Notes are not bail-inable notes and are not subject to conversion into our common shares under subsection 39.2(2.3) of the Canada Deposit Insurance Corporation Act.

	Price to Public		Fees and Commissions[(1)]		Proceeds to Us	
Offering of the Notes	**Total**	**Per Note**	**Total**	**Per Note**	**Total**	**Per Note**
Notes Linked to the Common Stock of Target Corporation	$6,175,000	$10.00	$92,625	$0.15	$6,082,375	$9.85

[(1)] UBS Financial Services Inc., which we refer to as UBS, will receive a commission of $0.15 per Note. See "Supplemental Plan of Distribution (Conflicts of Interest)" below.

The initial estimated value of the Notes determined by us as of the Trade Date, which we refer to as the initial estimated value, is $9.81 per Note and is less than the public offering price of the Notes. The market value of the Notes at any time will reflect many factors, cannot be predicted with accuracy and may be less than this amount. We describe the determination of the initial estimated value in more detail below.

UBS Financial Services Inc. **RBC Capital Markets, LLC**

Additional Information about Royal Bank of Canada and the Notes

You should read this pricing supplement together with the prospectus dated December 20, 2023, as supplemented by the prospectus supplement dated December 20, 2023, relating to our Senior Global Medium-Term Notes, Series J, of which the Notes are a part, and the product supplement no. 1A dated May 16, 2024. **This pricing supplement, together with these documents, contains the terms of the Notes and supersedes all other prior or contemporaneous oral statements as well as any other written materials, including preliminary or indicative pricing terms, correspondence, trade ideas, structures for implementation, sample structures, fact sheets, brochures or other educational materials of ours.**

We have not authorized anyone to provide any information or to make any representations other than those contained or incorporated by reference in this pricing supplement and the documents listed below. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. These documents are an offer to sell only the Notes offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. The information contained in each such document is current only as of its date.

If the information in this pricing supplement differs from the information contained in the documents listed below, you should rely on the information in this pricing supplement.

You should carefully consider, among other things, the matters set forth in "Key Risks" in this pricing supplement and "Risk Factors" in the documents listed below, as the Notes involve risks not associated with conventional debt securities. We urge you to consult your investment, legal, tax, accounting and other advisers before you invest in the Notes.

You may access these documents on the SEC website at www.sec.gov as follows (or if such address has changed, by reviewing our filings for the relevant date on the SEC website):

- Prospectus dated December 20, 2023:
  https://www.sec.gov/Archives/edgar/data/1000275/000119312523299520/d645671d424b3.htm
- Prospectus Supplement dated December 20, 2023:
  https://www.sec.gov/Archives/edgar/data/1000275/000119312523299523/d638227d424b3.htm
- Product Supplement No. 1A dated May 16, 2024:
  https://www.sec.gov/Archives/edgar/data/1000275/000095010324006777/dp211286_424b2-ps1a.htm

Our Central Index Key, or CIK, on the SEC website is 1000275. As used in this pricing supplement, "Royal Bank of Canada," the "Bank," "we," "our" and "us" mean only Royal Bank of Canada.

Selected Purchase Considerations

The Notes may be appropriate for you if, among other considerations:

- You fully understand the risks inherent in an investment in the Notes, including the risk of loss of your entire initial investment.
- You can tolerate the loss of a significant portion or all of the principal amount of the Notes and are willing to make an investment that may have the full downside market risk of the Underlying.
- You believe that the closing value of the Underlying will be greater than or equal to the Initial Underlying Value on any Call Observation Date, or that the closing value of the Underlying will be greater than or equal to the Downside Threshold on the Final Valuation Date.
- You are willing to make an investment whose return is limited to the Call Return, regardless of any potential appreciation of the Underlying, which could be significant, or, if the Notes have not been called, to the Contingent Absolute Return.
- You are willing to invest in the Notes based on the Call Return Rate set forth on the cover page of this pricing supplement.
- You do not seek current income from your investment and are willing to forgo the dividends paid on the Underlying.
- You can tolerate fluctuations in the price of the Notes prior to maturity that may be similar to or exceed the downside fluctuations in the value of the Underlying.
- You fully understand and accept the risks associated with the Underlying.
- You are willing to invest in Notes that may be called early and you are otherwise willing to hold the Notes to maturity and accept that there may be little or no secondary market for the Notes.
- You are willing to assume our credit risk for all payments under the Notes, and understand that if we default on our obligations, you may not receive any amounts due to you, including any repayment of principal.

The Notes may not be appropriate for you if, among other considerations:

- You do not fully understand the risks inherent in an investment in the Notes, including the risk of loss of your entire initial investment.
- You cannot tolerate the loss of a significant portion or all of the principal amount of the Notes, and you are not willing to make an investment that may have the full downside market risk of the Underlying.
- You believe that the value of the Underlying will decline during the term of the Notes and is likely to close below the Initial Underlying Value on all of the Call Observation Dates and below the Downside Threshold on the Final Valuation Date.
- You seek an investment that participates in the full appreciation in the value of the Underlying or that has unlimited return potential.
- You are unwilling to invest in the Notes based on the Call Return Rate set forth on the cover page of this pricing supplement.
- You seek current income from your investment or prefer to receive the dividends paid on the Underlying.
- You cannot tolerate fluctuations in the price of the Notes prior to maturity that may be similar to or exceed the downside fluctuations in the value of the Underlying.
- You do not fully understand or accept the risks associated with the Underlying.
- You are unable or unwilling to hold Notes that may be called early, or you are otherwise unable or unwilling to hold the Notes to maturity, or you seek an investment for which there will be an active secondary market.
- You are not willing to assume our credit risk for all payments under the Notes, including any repayment of principal.

The considerations identified above are not exhaustive. Whether or not the Notes are an appropriate investment for you will depend on your individual circumstances, and you should reach an investment decision only after you and your investment, legal, tax, accounting, and other advisers have carefully considered the appropriateness of an investment in the Notes in light of your particular circumstances. You should also review carefully the "Key Risks" in this pricing supplement and "Risk Factors" in the accompanying prospectus, prospectus supplement and product supplement for risks related to an investment in the Notes. For more information about the Underlying, see "Information about the Underlying" below.

Final Terms of the Notes[1]

Issuer:	Royal Bank of Canada
Principal Amount:	$10 per Note (subject to minimum investment of 100 Notes)
Term:	Approximately two years, if not previously called
Underlying:	The common stock of Target Corporation ("TGT")
Automatic Call Feature:	The Notes will be called automatically if the closing value of the Underlying on any Call Observation Date (set forth on page 5) is greater than or equal to the Initial Underlying Value. If the Notes are called, we will pay you on the corresponding Call Settlement Date (set forth on page 5) an amount per Note equal to the Call Price. No further amounts will be owed to you under the Notes.
Call Price:	The Call Price will be calculated based on the following formula: $10 + ($10 × Call Return)
Call Return	The Call Price will be a fixed amount based upon the Call Return. The Call Return increases based on the per annum Call Return Rate for each additional quarter the Notes remain outstanding. The table on the following page sets forth each Call Observation Date, each Call Settlement Date and the corresponding Call Return and Call Price for the Notes.
Call Return Rate	13.80% per annum
Payment at Maturity:	**If the Notes are not called and the Final Underlying Value is greater than or equal to the Downside Threshold,** we will pay you at maturity an amount per Note equal to: $10 + ($10 × Contingent Absolute Return) **If the Notes are not called and the Final Underlying Value is less than the Downside Threshold,** we will pay you at maturity an amount per Note equal to: $10 + ($10 × Underlying Return) In this scenario, you will lose a significant portion or all of the principal amount of the Notes in an amount proportionate to the negative Underlying Return.
Underlying Return:	$\frac{\text{Final Underlying Value} - \text{Initial Underlying Value}}{\text{Initial Underlying Value}}$
Downside Threshold:	A percentage of the Initial Underlying Value, as specified on the cover of this pricing supplement
Contingent Absolute Return	The absolute value of the Underlying Return. For example, if the Underlying Return is -5%, the Contingent Absolute Return is 5%.
Initial Underlying Value:	The closing value of the Underlying on the Strike Date, as specified on the cover of this pricing supplement. The Initial Underlying Value is not the closing value of the Underlying on the Trade Date.
Final Underlying Value:	The closing value of the Underlying on the Final Valuation Date
Calculation Agent:	RBC Capital Markets, LLC ("RBCCM")

Investment Timeline

Strike Date:

The Initial Underlying Value and Downside Threshold were determined.

Quarterly:

The Notes will be called if the closing value of the Underlying on any Call Observation Date is greater than or equal to the Initial Underlying Value.

If the Notes are called, we will pay you an amount per Note equal to the Call Price.

Maturity Date:

The Final Underlying Value is observed on the Final Valuation Date.

If the Notes are not called and the Final Underlying Value is greater than or equal to the Downside Threshold, we will pay you at maturity an amount per Note equal to:

$10 + ($10 × Contingent Absolute Return)

If the Notes are not called and the Final Underlying Value is less than the Downside Threshold, we will pay you at maturity an amount per Note equal to:

$10 + ($10 × Underlying Return)

In this scenario, you will lose a significant portion or all of the principal amount of the Notes in an amount proportionate to the negative Underlying Return.

Investing in the Notes involves significant risks. The Notes do not pay interest. The Notes will not be automatically called if the Underlying closes below the Initial Underlying Value on a quarterly Call Observation Date. You will lose a significant portion or all of your principal amount if the Final Underlying Value is less than the Downside Threshold. The Contingent Absolute Return and any contingent repayment of principal apply only at maturity. Generally, the higher the Call Return Rate on a Note, the greater the risk of loss. Any payment on the Notes, including any repayment of principal, is subject to our creditworthiness. If we default on our payment obligations, you may not receive any amounts owed to you under the Notes and you could lose your entire investment.

[1] Terms used in this pricing supplement, but not defined herein, shall have the meanings ascribed to them in the accompanying product supplement.

Call Observation Dates and Call Settlement Dates*

Call Observation Dates	Call Settlement Dates	Call Return	Call Price
September 30, 2024	October 2, 2024	3.45%	$10.345
December 30, 2024	January 2, 2025	6.90%	$10.690
March 28, 2025	April 1, 2025	10.35%	$11.035
June 30, 2025	July 2, 2025	13.80%	$11.380
September 29, 2025	October 1, 2025	17.25%	$11.725
December 29, 2025	December 31, 2025	20.70%	$12.070
March 30, 2026	April 1, 2026	24.15%	$12.415
June 29, 2026 (Final Valuation Date)	July 2, 2026 (Maturity Date)	27.60%	$12.760

*Subject to postponement. See "General Terms of the Notes—Postponement of a Determination Date" and "General Terms of the Notes—Postponement of a Payment Date" in the accompanying product supplement.

Key Risks

An investment in the Notes involves significant risks. We urge you to consult your investment, legal, tax, accounting and other advisers before you invest in the Notes. Some of the risks that apply to an investment in the Notes are summarized below, but we urge you to read also the "Risk Factors" sections of the accompanying prospectus, prospectus supplement and product supplement. You should not purchase the Notes unless you understand and can bear the risks of investing in the Notes.

Risks Relating to the Terms and Structure of the Notes

- **Your Investment in the Notes May Result in a Loss of Principal** — The Notes differ from ordinary debt securities in that we are not necessarily obligated to repay the full principal amount of the Notes at maturity. If the Notes are not called and the Final Underlying Value is less than the Downside Threshold, you will be exposed to the negative Underlying Return, and we will pay you less than your principal amount at maturity, if anything, resulting in a loss of principal of your Notes that is proportionate to the percentage decline in the Underlying. Accordingly, you could lose a significant portion or all of the principal amount of the Notes.
- **Payments on the Notes Are Subject to Our Credit Risk, and Market Perceptions about Our Creditworthiness May Adversely Affect the Market Value of the Notes** — The Notes are our senior unsecured debt securities, and your receipt of any amounts due on the Notes is dependent upon our ability to pay our obligations as they come due. If we were to default on our payment obligations, you may not receive any amounts owed to you under the Notes and you could lose your entire investment. In addition, any negative changes in market perceptions about our creditworthiness may adversely affect the market value of the Notes.
- **The Contingent Repayment of Principal Applies Only If You Hold the Notes to Maturity** — The contingent repayment of principal applies only at maturity. If you are able to sell your Notes in the secondary market prior to maturity, you may have to sell them at a loss even if the value of the Underlying is above the Downside Threshold at the time of sale.
- **You Will Not Participate in Any Appreciation of the Underlying, and Any Potential Return on the Notes Is Limited** — The return on the Notes is limited to the pre-specified Contingent Absolute Return, regardless of the appreciation of the Underlying. As a result, the return on an investment in the Notes could be less than the return on a direct investment in the Underlying. Further, if the Notes are called due to the automatic call feature, you will not receive any other payments after the applicable Call Settlement Date. Since the Notes could be called as early as the first Call Observation Date, the total return on the Notes could be minimal. On the other hand, if the Notes have not been previously called and if the value of the Underlying is less than the Initial Underlying Value, as the Maturity Date approaches and the remaining number of Call Observation Dates decreases, the Notes are less likely to be automatically called, as there will be a shorter period of time remaining for the value of the Underlying to increase to the Initial Underlying Value. If the Notes are not called, you may be subject to the Underlying's risk of decline.
- **The Call Return Rate Reflects in Part the Volatility of the Underlying and May Not Be Sufficient to Compensate You for the Risk of Loss At Maturity** — Volatility is a measure of the degree of variation in the value of the Underlying over a period of time. The greater the volatility of the Underlying, the more likely it is that the value of the Underlying could close below the Downside Threshold on the Final Valuation Date. This risk is generally reflected in a higher Call Return Rate for the Notes than the interest rate payable on our conventional debt securities with a comparable term. However, while the Call Return Rate is a fixed amount, the Underlying's volatility can change significantly over the term of the Notes. The value of the Underlying could fall sharply, which could result in the Notes not being called and a significant loss of your principal amount.
- **The Notes May Be Called Early and Are Subject to Reinvestment Risk** — The Notes will be called automatically if the closing value of the Underlying is greater than or equal to the Initial Underlying Value on any Call Observation Date. In the event that the Notes are called prior to maturity, there is no guarantee that you will be able to reinvest the proceeds from an investment in the Notes at a comparable rate of return for a similar level of risk. To the extent you are able to reinvest your proceeds in an investment comparable to the Notes, you will incur transaction costs and the original issue price for such an investment is likely to include certain built in costs such as dealer discounts and hedging costs.
- **The Notes Do Not Pay Interest, and Your Return on the Notes May Be Lower Than the Return on a Conventional Debt Security of Comparable Maturity** — There will be no periodic interest payments on the Notes as there would be on a conventional fixed-rate or floating-rate debt security having the same maturity. The return that

you will receive on the Notes, which could be negative, may be less than the return you could earn on other investments. Even if your return is positive, your return may be less than the return you would earn if you purchased one of our conventional senior interest-bearing debt securities.

- **Any Payment on the Notes Will Be Determined Based on the Closing Values of the Underlying on the Dates Specified** — Any payment on the Notes will be determined based on the closing values of the Underlying on the dates specified. You will not benefit from any more favorable value of the Underlying determined at any other time.
- **The Notes Will Be Subject to Risks, Including Non-Payment in Full, under Canadian Bank Resolution Powers** — Under Canadian bank resolution powers, the Canada Deposit Insurance Corporation ("CDIC") may, in circumstances where we have ceased, or are about to cease, to be viable, assume temporary control or ownership over us and may be granted broad powers by one or more orders of the Governor in Council (Canada), including the power to sell or dispose of all or a part of our assets, and the power to carry out or cause us to carry out a transaction or a series of transactions the purpose of which is to restructure our business. See "Description of Debt Securities—Canadian Bank Resolution Powers" in the accompanying prospectus for a description of the Canadian bank resolution powers. If the CDIC were to take action under the Canadian bank resolution powers with respect to us, holders of the Notes could be exposed to losses.
- **The U.S. Federal Income Tax Consequences of an Investment in the Notes Are Uncertain** —There is no direct legal authority regarding the proper U.S. federal income tax treatment of the Notes, and significant aspects of the tax treatment of the Notes are uncertain. You should review carefully the section entitled "What Are the Tax Consequences of the Notes?—United States Federal Income Tax Considerations" herein, in combination with the section entitled "United States Federal Income Tax Considerations" in the accompanying product supplement, and consult your tax adviser regarding the U.S. federal income tax consequences of an investment in the Notes.

Risks Relating to the Initial Estimated Value of the Notes and the Secondary Market for the Notes

- **There May Not Be an Active Trading Market for the Notes; Sales in the Secondary Market May Result in Significant Losses** — There may be little or no secondary market for the Notes. The Notes will not be listed on any securities exchange. RBCCM and our other affiliates intend to make a market for the Notes; however, they are not required to do so and, if they choose to do so, may stop any market-making activities at any time. Because other dealers are not likely to make a secondary market for the Notes, the price at which you may be able to trade your Notes is likely to depend on the price, if any, at which RBCCM or any of our other affiliates is willing to buy the Notes. Even if a secondary market for the Notes develops, it may not provide enough liquidity to allow you to easily trade or sell the Notes. We expect that transaction costs in any secondary market would be high. As a result, the difference between bid and ask 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 price that you paid for them, and as a result, you may suffer significant losses. The Notes are not designed to be short-term trading instruments. Accordingly, you should be able and willing to hold your Notes to maturity.
- **The Initial Estimated Value of the Notes Is Less Than the Public Offering Price** — The initial estimated value of the Notes is less than the public offering price of the Notes and does not represent a minimum price at which we, RBCCM or any of our other affiliates would be willing to purchase the Notes in any secondary market (if any exists) at any time. If you attempt to sell the Notes prior to maturity, their market value may be lower than the price you paid for them and the initial estimated value. This is due to, among other things, changes in the value of the Underlying, the internal funding rate we pay to issue securities of this kind (which is lower than the rate at which we borrow funds by issuing conventional fixed rate debt), and the inclusion in the public offering price of the underwriting discount, our estimated profit and the estimated costs relating to our hedging of the Notes. These factors, together with various credit, market and economic factors over the term of the Notes, are expected to reduce the price at which you may be able to sell the Notes in any secondary market and will affect the value of the Notes in complex and unpredictable ways. Assuming no change in market conditions or any other relevant factors, the price, if any, at which you may be able to sell your Notes prior to maturity may be less than your original purchase price, as any such sale price would not be expected to include the underwriting discount, our estimated profit or the hedging costs relating to the Notes. In addition, any price at which you may sell the Notes is likely to reflect customary bid-ask spreads for similar trades. In addition to bid-ask spreads, the value of the Notes determined for any secondary market price is expected to be based on a secondary market rate rather than the internal funding rate used to price the Notes and determine the initial estimated value. As a result, the secondary market price will be less than if the internal funding rate were used.
- **The Initial Estimated Value of the Notes Is Only an Estimate, Calculated as of the Trade Date** — The initial estimated value of the Notes is based on the value of our obligation to make the payments on the Notes, together

with the mid-market value of the derivative embedded in the terms of the Notes. See "Structuring the Notes" below. Our estimate is based on a variety of assumptions, including our internal funding rate (which represents a discount from our credit spreads), expectations as to dividends, interest rates and volatility and the expected term of the Notes. These assumptions are based on certain forecasts about future events, which may prove to be incorrect. Other entities may value the Notes or similar securities at a price that is significantly different than we do.

The value of the Notes at any time after the Trade Date will vary based on many factors, including changes in market conditions, and cannot be predicted with accuracy. As a result, the actual value you would receive if you sold the Notes in any secondary market, if any, should be expected to differ materially from the initial estimated value of the Notes.

- **The Terms of the Notes at Issuance and Their Market Value Prior to Maturity Are Influenced by Many Unpredictable Factors** — Many economic and market factors influence the terms of the Notes at issuance and affect their value prior to maturity. These factors are similar in some ways to those that could affect the value of a combination of instruments that might be used to replicate the payments on the Notes, including a combination of a bond with one or more options or other derivative instruments. For the market value of the Notes, we expect that, generally, the value of the Underlying on any day will affect the value of the Notes more than any other single factor. However, you should not expect the value of the Notes in the secondary market to vary in proportion to changes in the value of the Underlying. The value of the Notes will be affected by a number of other factors that may either offset or magnify each other, including:
  - the value of the Underlying;
  - whether the value of the Underlying is below the Initial Underlying Value or the Downside Threshold;
  - the actual and expected volatility of the Underlying;
  - the time remaining to maturity of the Notes;
  - the dividend rate on the Underlying;
  - interest and yield rates in the market generally, as well as in the markets of the Underlying;
  - a variety of economic, financial, political, regulatory or judicial events; and
  - our creditworthiness, including actual or anticipated downgrades in our credit ratings.

  Some or all of these factors influence the terms of the Notes at issuance and affect the price you will receive if you choose to sell the Notes prior to maturity. The impact of any of the factors set forth above may enhance or offset some or all of any change resulting from another factor or factors.

Risks Relating to Conflicts of Interest and Our Trading Activities

- **Our, Our Affiliates' and UBS's Business and Trading Activities May Create Conflicts of Interest** — You should make your own independent investigation of the merits of investing in the Notes. Our, our affiliates' and UBS's economic interests are potentially adverse to your interests as an investor in the Notes due to our, our affiliates' and UBS's business and trading activities, and we, our affiliates and UBS have no obligation to consider your interests in taking any actions that might affect the value of the Notes. Trading by us, UBS and our respective affiliates may adversely affect the value of the Underlying and the market value of the Notes. See "Risk Factors—Risks Relating to Conflicts of Interest" in the accompanying product supplement.
- **RBCCM's Role as Calculation Agent May Create Conflicts of Interest** — As Calculation Agent, our affiliate, RBCCM, will determine any values of the Underlying and make any other determinations necessary to calculate any payments on the Notes. In making these determinations, the Calculation Agent may be required to make discretionary judgments, including those described under "—Risks Relating to the Underlying" below. In making these discretionary judgments, the economic interests of the Calculation Agent are potentially adverse to your interests as an investor in the Notes, and any of these determinations may adversely affect any payments on the Notes. The Calculation Agent will have no obligation to consider your interests as an investor in the Notes in making any determinations with respect to the Notes.

Risks Relating to the Underlying

- **An Investment in the Notes Is Subject to Single Stock Risk—**The value of the Underlying can rise or fall sharply due to factors specific to the Underlying and its issuer, such as stock price volatility, earnings, financial conditions, corporate, industry and regulatory developments, management changes and decisions and other events, as well as general market factors, such as general stock market volatility and levels, interest rates and economic and political

conditions. You, as an investor in the Notes, should make your own investigation into the Underlying issuer and the Underlying for your Notes. For additional information about the Underlying and its issuer, please see "Information about the Underlying" in this pricing supplement and the Underlying issuer's SEC filings referred to in that section. We urge you to review financial and other information filed periodically by the Underlying issuer with the SEC.

- **You Will Not Have Any Rights to the Underlying —**As an investor in the Notes, you will not have voting rights or rights to receive dividends or other distributions or any other rights with respect to the Underlying.
- **Any Payment on the Notes May Be Postponed and Adversely Affected by the Occurrence of a Market Disruption Event —**The timing and amount of any payment on the Notes is subject to adjustment upon the occurrence of a market disruption event affecting the Underlying. If a market disruption event persists for a sustained period, the Calculation Agent may make a discretionary determination of the closing value of the Underlying. See "General Terms of the Notes—Reference Stocks and Funds—Market Disruption Events," "General Terms of the Notes—Postponement of a Determination Date" and "General Terms of the Notes—Postponement of a Payment Date" in the accompanying product supplement.
- **Anti-dilution Protection Is Limited, and the Calculation Agent Has Discretion to Make Anti-dilution Adjustments** — The Calculation Agent may in its sole discretion make adjustments affecting any amounts payable on the Notes upon the occurrence of certain corporate events (such as stock splits or extraordinary or special dividends) that the Calculation Agent determines have a diluting or concentrative effect on the theoretical value of the Underlying. However, the Calculation Agent might not make adjustments in response to all such events that could affect the Underlying. The occurrence of any such event and any adjustment made by the Calculation Agent (or a determination by the Calculation Agent not to make any adjustment) may adversely affect the market price of, and any amounts payable on, the Notes. See "General Terms of the Notes—Reference Stocks and Funds—Anti-dilution Adjustments" in the accompanying product supplement.
- **Reorganization or Other Events Could Adversely Affect the Value of the Notes or Result in the Notes Being Accelerated** — Upon the occurrence of certain reorganization or other events affecting the Underlying, the Calculation Agent may make adjustments that result in payments on the Notes being based on the performance of (i) cash, securities of another issuer and/or other property distributed to holders of the Underlying upon the occurrence of that event or (ii) in the case of a reorganization event in which only cash is distributed to holders of the Underlying, a substitute security, if the Calculation Agent elects to select one. Any of these actions could adversely affect the value of the Underlying and, consequently, the value of the Notes. Alternatively, the Calculation Agent may accelerate the Maturity Date for a payment determined by the Calculation Agent. Any amount payable upon acceleration could be significantly less than any amount that would be due on the Notes if they were not accelerated. However, if the Calculation Agent elects not to accelerate the Notes, the value of, and any amount payable on, the Notes could be adversely affected, perhaps significantly. See "General Terms of the Notes—Reference Stocks and Funds—Anti-dilution Adjustments—Reorganization Events" in the accompanying product supplement.

Hypothetical Examples

Hypothetical terms only. Actual terms may vary. See the cover page for actual offering terms.

The examples are hypothetical and provided for illustrative purposes only. You should not take these examples as an indication or assurance of the expected performance of the Underlying. The numbers appearing in the examples and tables below have been rounded for ease of analysis. The following examples and tables illustrate the payment at maturity or upon an automatic call per Note on a hypothetical offering of the Notes, based on the following hypothetical assumptions:

Principal Amount:	$10
Term:	Approximately two years (unless earlier called)
Call Return Rate:	13.80% per annum
Call Observation Dates:	Quarterly
Hypothetical Initial Underlying Value*:	$100.00
Hypothetical Downside Threshold*:	$70.00 (which is 70% of the hypothetical Initial Underlying Value)

*Not the actual Initial Underlying Value or Downside Threshold applicable to the Notes. The actual Initial Underlying Value and Downside Threshold are set forth on the cover page of this pricing supplement.

Example 1 — Notes Are Called on the First Call Observation Date.

Date	Closing Value	Payment (per Note)
First Call Observation Date	$110.00 (at or above Initial Underlying Value)	$10.345
	Total Payment:	$10.345 (3.45% return)

Because the closing value of the Underlying on the first Call Observation Date is at or above the Initial Underlying Value, the Notes are called, and we will pay you on the first Call Settlement Date a total Call Price of $10.345 per Note, for a total return of 3.45% on the Notes. No further amount will be owed to you under the Notes.

Example 2 —Notes Are Called on the Final Valuation Date.

Date	Closing Value	Payment (per Note)
First through Seventh Call Observation Date	Various (below Initial Underlying Value)	$0.00 (Not called)
Final Valuation Date	$120 (at or above Initial Underlying Value)	$12.76 (Payment at Maturity)
	Total Payment:	$12.76 (27.60% return)

Because closing value of the Underlying on the Final Valuation Date is at or above the Initial Underlying Value, the Notes are called on the Final Valuation Date and we will pay you at maturity the Call Price of $12.76 per Note, for a total return of 27.60% on the Notes.

Example 3 —Notes Are NOT Called and the Final Underlying Value Is Above the Downside Threshold on the Final Valuation Date.

Date	Closing Value	Payment (per Note)
First through Seventh Call Observation Date	Various (below Initial Underlying Value)	$0.00 (Not called)
Final Valuation Date	$90 (at or above Downside Threshold; below Initial Underlying Value)	$10.00 + ($10.00 × Contingent Absolute Return) $10.00 + ($10.00 × 10%) $11.00 (Payment at Maturity)
	Total Payment:	$11.00 (10.00% return)

Because the Notes are not called and Final Underlying Value is below the Initial Underlying Value but greater than the Downside Threshold on the Final Valuation Date, we will pay you at maturity a total of $11.00 per Note, for a total return of 10.00% on the Notes. Accordingly, even though the value of the Underlying has decreased, you will receive a positive return on the Notes.

Example 4 — Notes Are NOT Called and the Final Underlying Value Is Below the Downside Threshold on the Final Valuation Date.

Date	Closing Value	Payment (per Note)
First through Seventh Call Observation Date	Various (below Initial Underlying Value)	$0.00 (Not called)
Final Valuation Date	$50 (below Downside Threshold)	$10.00 + ($10.00 × Underlying Return) $10.00 + ($10.00 × - 50%) $5.00 (Payment at Maturity)
	Total Payment:	$5.00 (-50.00% return)

Because the Notes are not called and the Final Underlying Value is less than the Downside Threshold, we will pay you at maturity $5.00 per Note, for a loss of 50.00% on the Notes. You will incur a loss at maturity equal to the full decline of the Underlying.

The Notes differ from ordinary debt securities in that we are not necessarily obligated to repay the full principal amount of the Notes at maturity. If the Notes are not called and the Final Underlying Value is less than the Downside Threshold, you will be exposed to the negative Underlying Return, and we will pay you less than your principal amount at maturity, if anything, resulting in a loss of principal of your Notes that is proportionate to the percentage decline in the Underlying.

Your receipt of any amounts due on the Notes is dependent upon our ability to pay our obligations as they come due. If we were to default on our payment obligations, you may not receive any amounts owed to you under the Notes and you could lose your entire investment.

What Are the Tax Consequences of the Notes?

United States Federal Income Tax Considerations

You should review carefully the section in the accompanying product supplement entitled "United States Federal Income Tax Considerations." The following discussion, when read in combination with that section, constitutes the full opinion of our counsel, Davis Polk & Wardwell LLP, regarding the material U.S. federal income tax consequences of owning and disposing of the Notes.

Generally, this discussion assumes that you purchased the Notes for cash in the original issuance at the stated issue price and does not address other circumstances specific to you, including consequences that may arise due to any other investments relating to the Underlying. You should consult your tax adviser regarding the effect any such circumstances may have on the U.S. federal income tax consequences of your ownership of a Note.

In the opinion of our counsel, it is reasonable to treat the Notes for U.S. federal income tax purposes as prepaid financial contracts that are "open transactions," as described in the section entitled "United States Federal Income Tax Considerations—Tax Consequences to U.S. Holders—Notes Treated as Prepaid Financial Contracts that are Open Transactions" in the accompanying product supplement. There is uncertainty regarding this treatment, and the Internal Revenue Service (the "IRS") or a court might not agree with it. A different tax treatment could be adverse to you. Generally, if this treatment is respected, (i) you should not recognize taxable income or loss prior to the taxable disposition of your notes (including upon maturity or an earlier redemption, if applicable) and (ii) the gain or loss on your notes should be treated as short-term capital gain or loss unless you have held the notes for more than one year, in which case your gain or loss should be treated as long-term capital gain or loss.

We do not plan to request a ruling from the IRS regarding the treatment of the Notes. An alternative characterization of the Notes could materially and adversely affect the tax consequences of ownership and disposition of the Notes, including the timing and character of income recognized. In addition, the U.S. Treasury Department and the IRS have requested comments on various issues regarding the U.S. federal income tax treatment of "prepaid forward contracts" and similar financial instruments and have indicated that such transactions may be the subject of future regulations or other guidance. Furthermore, members of Congress have proposed legislative changes to the tax treatment of derivative contracts. Any legislation, Treasury regulations or other guidance promulgated after consideration of these issues could materially and adversely affect the tax consequences of an investment in the Notes, possibly with retroactive effect.

Non-U.S. Holders. As discussed under "United States Federal Income Tax Considerations—Tax Consequences to Non-U.S. Holders—Dividend Equivalents under Section 871(m) of the Code" in the accompanying product supplement, Section 871(m) of the Internal Revenue Code and Treasury regulations promulgated thereunder ("Section 871(m)") generally impose a 30% withholding tax on dividend equivalents paid or deemed paid to Non-U.S. Holders with respect to certain financial instruments linked to U.S. equities or indices that include U.S. equities. The Treasury regulations, as modified by an IRS notice, exempt financial instruments issued prior to January 1, 2027 that do not have a "delta" of one. Based on certain determinations made by us, our counsel is of the opinion that Section 871(m) should not apply to the Notes with regard to Non-U.S. Holders. Our determination is not binding on the IRS, and the IRS may disagree with this determination.

We will not be required to pay any additional amounts with respect to U.S. federal withholding taxes.

You should consult your tax adviser regarding the U.S. federal income tax consequences of an investment in the Notes, including possible alternative treatments, as well as tax consequences arising under the laws of any state, local or non-U.S. taxing jurisdiction.

Canadian Federal Income Tax Consequences

For a discussion of the material Canadian federal income tax consequences relating to an investment in the Notes, please see the section entitled "Supplemental Discussion of Canadian Tax Consequences" in the accompanying product supplement, which you should carefully review prior to investing in the Notes.

Information about the Underlying

The Underlying is registered under the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Companies with securities registered under the Exchange Act are required to file financial and other information specified by the SEC periodically. Information provided to or filed with the SEC by the issuer of the Underlying can be located on a website maintained by the SEC at https://www.sec.gov by reference to that issuer's SEC file number provided below. Information from outside sources is not incorporated by reference in, and should not be considered part of, this pricing supplement. We have not independently verified the accuracy or completeness of the information contained in outside sources.

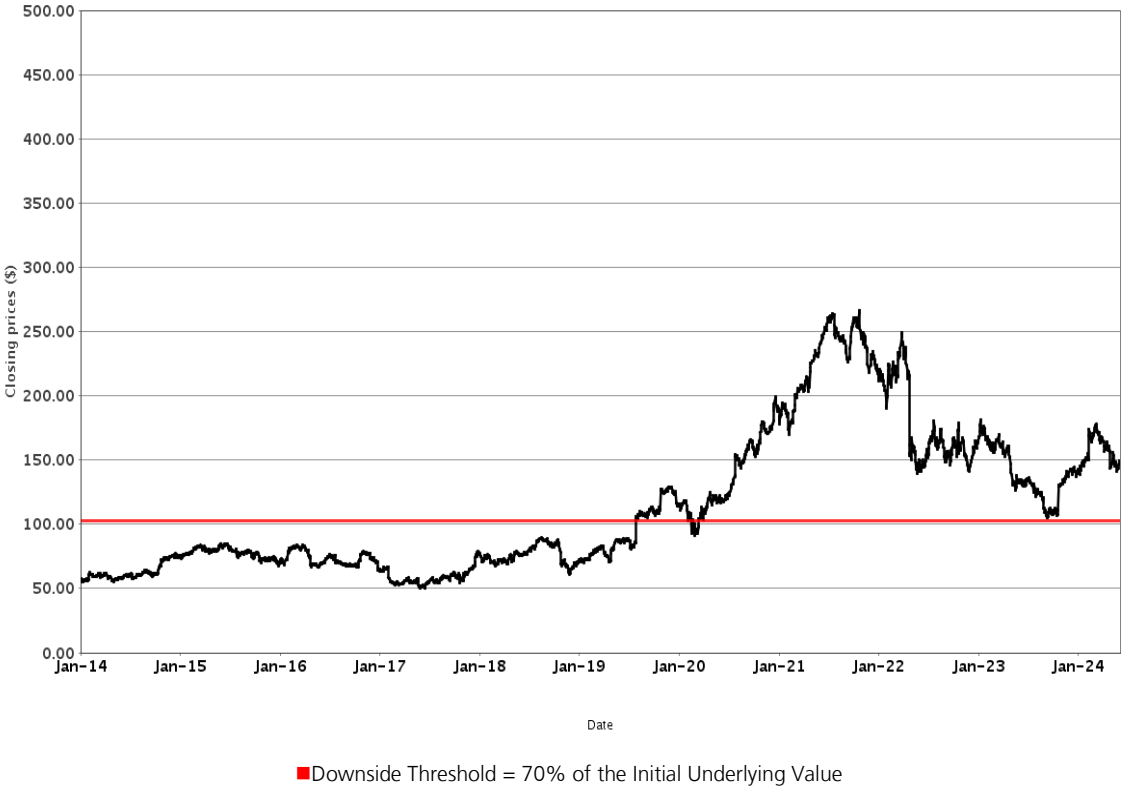
According to publicly available information, Target Corporation sells an assortment of general merchandise and food through its general merchandise stores, small format stores and digital channels.

The issuer of the Underlying's SEC file number is 001-06049. The Underlying is listed on the New York Stock Exchange under the ticker symbol "TGT."

Historical Information

The following graph sets forth historical closing values of the Underlying for the period from January 1, 2014 through June 27, 2024, reflecting the Initial Underlying Value of $146.72, the closing value on June 27, 2024. The solid line represents the Downside Threshold of $102.70, which is equal to 70% of the Initial Underlying Value. We obtained the information in the graph from Bloomberg Financial Markets, without independent investigation. **The historical performance of the Underlying should not be taken as an indication of its future performance. We cannot give you assurance that the performance of the Underlying will result in the return of all of your initial investment.**

The Common Stock of Target Corporation



PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE RESULTS.

Supplemental Plan of Distribution (Conflicts of Interest)

We have agreed to indemnify UBS and RBCCM against liabilities under the Securities Act of 1933, as amended, or to contribute payments that UBS and RBCCM may be required to make relating to these liabilities as described in the prospectus supplement and the prospectus. We have agreed that UBS may sell all or a part of the Notes that it will purchase from us to investors or to its affiliates at the price to public listed on the cover page of this pricing supplement. UBS may allow a concession not in excess of the underwriting discount set forth on the cover page of this pricing supplement to its affiliates for distribution of the Notes.

We or our affiliates may enter into swap agreements or related hedge transactions with one of our other affiliates or unaffiliated counterparties in connection with the sale of the Notes and RBCCM and/or an affiliate may earn additional income as a result of payments pursuant to the swap or related hedge transactions. See "Use of Proceeds and Hedging" in the accompanying product supplement.

The value of the Notes shown on your account statement may be based on RBCCM's estimate of the value of the Notes if RBCCM or another of our affiliates were to make a market in the Notes (which it is not obligated to do). That estimate will be based on the price that RBCCM may pay for the Notes in light of then-prevailing market conditions, our creditworthiness and transaction costs. For a period of approximately seven months after the Settlement Date, the value of the Notes that may be shown on your account statement may be higher than RBCCM's estimated value of the Notes at that time. This is because the estimated value of the Notes will not include the underwriting discount or our hedging costs and profits; however, the value of the Notes shown on your account statement during that period may initially be a higher amount, reflecting the addition of the underwriting discount and our estimated costs and profits from hedging the Notes. This excess is expected to decrease over time until the end of this period. After this period, if RBCCM repurchases your Notes, it expects to do so at prices that reflect their estimated value. This period may be reduced at RBCCM's discretion based on a variety of factors, including but not limited to, the amount of the Notes that we repurchase and our negotiated arrangements from time to time with UBS.

RBCCM or another of its affiliates or agents may use this pricing supplement in the initial sale of the Notes. In addition, RBCCM or another of our affiliates may use this pricing supplement in a market-making transaction in the Notes after their initial sale. Unless we or our agent informs the purchaser otherwise in the confirmation of sale, this pricing supplement is being used in a market-making transaction.

For additional information about the settlement cycle of the Notes, see "Plan of Distribution" in the accompanying prospectus. For additional information as to the relationship between us and RBCCM, see the section "Plan of Distribution—Conflicts of Interest" in the accompanying prospectus.

Structuring the Notes

The Notes are our debt securities. As is the case for all of our debt securities, including our structured notes, the economic terms of the Notes reflect our actual or perceived creditworthiness. In addition, because structured notes result in increased operational, funding and liability management costs to us, we typically borrow the funds under structured notes at a rate that is lower than the rate that we might pay for a conventional fixed or floating rate debt security of comparable maturity. The lower internal funding rate, the underwriting discount and the hedging-related costs relating to the Notes reduce the economic terms of the Notes to you and result in the initial estimated value for the Notes being less than their public offering price. Unlike the initial estimated value, any value of the Notes determined for purposes of a secondary market transaction may be based on a secondary market rate, which may result in a lower value for the Notes than if our initial internal funding rate were used.

In order to satisfy our payment obligations under the Notes, we may choose to enter into certain hedging arrangements (which may include call options, put options or other derivatives) with RBCCM and/or one of our other subsidiaries. The terms of these hedging arrangements take into account a number of factors, including our creditworthiness, interest rate movements, volatility and the tenor of the Notes. The economic terms of the Notes and the initial estimated value depend in part on the terms of these hedging arrangements.

See "Key Risks—Risks Relating to the Initial Estimated Value of the Notes and the Secondary Market for the Notes—The Initial Estimated Value of the Notes Is Less Than the Public Offering Price" above.

Validity of the Notes

In the opinion of Norton Rose Fulbright Canada LLP, as Canadian counsel to the Bank, the issue and sale of the Notes has been duly authorized by all necessary corporate action of the Bank in conformity with the indenture, and when the Notes

have been duly executed, authenticated and issued in accordance with the Indenture and delivered against payment therefor, the Notes will be validly issued and, to the extent validity of the Notes is a matter governed by the laws of the Province of Ontario or Québec, or the federal laws of Canada applicable therein, will be valid obligations of the Bank, subject to the following limitations: (i) the enforceability of the indenture may be limited by the Canada Deposit Insurance Corporation Act (Canada), the Winding-up and Restructuring Act (Canada) and bankruptcy, insolvency, reorganization, receivership, moratorium, arrangement or winding-up laws or other similar laws of general application affecting the enforcement of creditors' rights generally; (ii) the enforceability of the indenture is subject to general equitable principles, including the principle that the availability of equitable remedies, such as specific performance and injunction, may only be granted at the discretion of a court of competent jurisdiction; (iii) under applicable limitations statutes generally, including that the enforceability of the indenture will be subject to the limitations contained in the Limitations Act, 2002 (Ontario), and such counsel expresses no opinion as to whether a court may find any provision of the indenture to be unenforceable as an attempt to vary or exclude a limitation period under such applicable limitations statutes; (iv) rights to indemnity and contribution under the Notes or the indenture which may be limited by applicable law; and (v) courts in Canada are precluded from giving a judgment in any currency other than the lawful money of Canada and such judgment may be based on a rate of exchange in existence on a day other than the day of payment, as prescribed by the Currency Act (Canada). This opinion is given as of the date hereof and is limited to the laws of the Provinces of Ontario and Québec and the federal laws of Canada applicable therein. In addition, this opinion is subject to customary assumptions about the trustee's authorization, execution and delivery of the indenture and the genuineness of signatures and to such counsel's reliance on the Bank and other sources as to certain factual matters, all as stated in the opinion letter of such counsel dated December 20, 2023, which has been filed as Exhibit 5.3 to the Bank's Form 6-K filed with the SEC dated December 20, 2023.

In the opinion of Davis Polk & Wardwell LLP, as special United States products counsel to the Bank, when the Notes offered by this pricing supplement have been issued by the Bank pursuant to the indenture, the trustee has made, in accordance with the indenture, the appropriate notation to the master note evidencing such Notes (the "master note"), and such Notes have been delivered against payment as contemplated herein, such Notes will be valid and binding obligations of the Bank, enforceable in accordance with their terms, subject to applicable bankruptcy, insolvency and similar laws affecting creditors' rights generally, concepts of reasonableness and equitable principles of general applicability (including, without limitation, concepts of good faith, fair dealing and the lack of bad faith) and possible judicial or regulatory actions or applications giving effect to governmental actions or foreign laws affecting creditors' rights, provided that such counsel expresses no opinion as to (i) the enforceability of any waiver of rights under any usury or stay law or (ii) the effect of fraudulent conveyance, fraudulent transfer or similar provision of applicable law on the conclusions expressed above. This opinion is given as of the date hereof and is limited to the laws of the State of New York. Insofar as the foregoing opinion involves matters governed by the laws of the Provinces of Ontario and Québec and the federal laws of Canada, you have received, and we understand that you are relying upon, the opinion of Norton Rose Fulbright Canada LLP, Canadian counsel for the Bank, set forth above. In addition, this opinion is subject to customary assumptions about the trustee's authorization, execution and delivery of the indenture and the authentication of the master note and the validity, binding nature and enforceability of the indenture with respect to the trustee, all as stated in the opinion of Davis Polk & Wardwell LLP dated May 16, 2024, which has been filed as an exhibit to the Bank's Form 6-K filed with the SEC on May 16, 2024.

Product Supplement No. 1A **Registration Statement No. 333-275898**
To the Prospectus dated December 20, 2023 and the **Rule 424(b)(2)**
Prospectus Supplement dated December 20, 2023

Royal Bank of Canada

Senior Global Medium-Term Notes, Series J

Fixed Rate Notes and Notes Linked to One or More Floating Interest Rates, Reference Stocks, Exchange-Traded Funds or Equity Indices

- Royal Bank of Canada may, from time to time, offer and sell fixed rate notes and notes linked to one or more floating interest rates (each, a "**Reference Rate**"), common equity securities or American depositary shares ("**ADSs**") of an unaffiliated company (each, a "**Reference Stock**"), exchange-traded funds (each, a "**Fund**") or equity indices (each, an "**Index**"), or any combination thereof. In this product supplement, we refer to each Reference Rate, Reference Stock, Fund and Index as an "**Underlier**" and to all such notes as the "**notes**."

- The notes are senior unsecured debt obligations of Royal Bank of Canada. All payments on the notes are subject to our credit risk.

- This product supplement describes terms that will apply generally to the notes and supplements the terms described in the accompanying prospectus supplement and prospectus. A separate term sheet or pricing supplement will describe terms that apply to specific issuances of the notes, including any changes to the terms specified in this product supplement or in the accompanying prospectus supplement or prospectus. We refer to those term sheets and pricing supplements generally as pricing supplements. The relevant pricing supplement or a separate underlying supplement will describe any Underlier to which the notes are linked. If the terms described in the relevant pricing supplement are inconsistent with those described in this product supplement or the accompanying prospectus supplement or prospectus, the terms described in the relevant pricing supplement will govern your notes.

- Unless otherwise specified in the relevant pricing supplement, the notes will not be listed on any securities exchange.

Your investment in the notes involves risks. The notes may differ from ordinary debt securities in that the full repayment of principal and payment of interest may not be guaranteed. Any payment on the notes, including any repayment of principal, is subject to our creditworthiness. See "Risk Factors" beginning on page PS-2 to read about investment risks relating to the notes, as well as the risks described under "Risk Factors" in the prospectus and the prospectus supplement and any risk factors described in the relevant pricing supplement.

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

None of the Securities and Exchange Commission (the "SEC"), any state securities commission or any other regulatory body has approved or disapproved of the notes or passed upon the accuracy of this product supplement or the accompanying prospectus and prospectus supplement. Any representation to the contrary is a criminal offense.

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

RBC Capital Markets, LLC

Product Supplement dated May 16, 2024

TABLE OF CONTENTS

We have not authorized anyone to provide any information other than that contained or incorporated by reference in the relevant pricing supplement, this product supplement, any underlying supplement, the prospectus supplement or the prospectus with respect to the notes offered by the relevant pricing supplement and with respect to us. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. The information in each of the relevant pricing supplement, this product supplement, any underlying supplement, the prospectus supplement and the prospectus may be accurate only as of the date of that document.

As used in this product supplement, "we," "us" and "our" refer only to Royal Bank of Canada. References to "$" are to U.S. dollars.

SUMMARY

The information in this "Summary" section is qualified by the more detailed information set forth in the relevant pricing supplement. The relevant pricing supplement may use another term to describe the same feature, some of which are identified below.

Underlier:	We refer to any floating interest rate (each, a "**Reference Rate**"), common equity security or ADS (each, a "**Reference Stock**"), exchange-traded fund (each, a "**Fund**") or equity index (each, an "**Index**") referenced in the determination of any payment on the notes as an "**Underlier**." The relevant pricing supplement may also refer to an Underlier as a "**Reference Asset**," a "**Market Measure**" or an "**Underlying**" or, when included in a basket, as a "**Basket Component**." The term "**issuer**" with respect to ADSs refers to the issuer of the common equity securities underlying the ADSs (the "**ADS underlying stock**"), the term "**Underlying Index**" refers to the index tracked by a Fund and the term "**Index Sponsor**" refers to the sponsor of an Index.
Initial Underlier Value:	The relevant pricing supplement will specify the manner in which the initial value of any Underlier (the "**Initial Underlier Value**") will be determined. For example, the relevant pricing supplement may specify that the Initial Underlier Value of an Underlier will be determined by reference to the closing value of that Underlier on one or more dates near the beginning of the term of the notes or that the Initial Underlier Value of an Underlier will be equal to a specified value. The Initial Underlier Value of an Underlier may be subject to adjustment under certain circumstances. See "General Terms of the Notes" below.
Final Underlier Value:	The relevant pricing supplement will specify the manner in which the final value of any Underlier (the "**Final Underlier Value**") will be determined. For example, the relevant pricing supplement may specify that the Final Underlier Value of an Underlier will be determined by reference to the closing value of that Underlier on one or more dates during the term of the notes. The Final Underlier Value of an Underlier may be subject to adjustment under certain circumstances. See "General Terms of the Notes" below.
Determination Dates:	The relevant pricing supplement will specify each date on which the value of any Underlier is to be referenced in the determination of any payment on the notes (each, a "**Determination Date**"). Unless otherwise specified in the relevant pricing supplement, each Determination Date is subject to postponement as described under "General Terms of Notes—Postponement of a Determination Date" below.
Payment Dates:	The relevant pricing supplement will specify the maturity date and any other date on which amounts will or may be payable on the notes (each, a "**Payment Date**"). Unless otherwise specified in the relevant pricing supplement, each Payment Date is subject to postponement as described under "General Terms of Notes—Postponement of a Payment Date" below.
Business Day:	A "**business day**" is, unless otherwise specified in the relevant pricing supplement, any day other than a day on which banking institutions in The City of New York are authorized or required by law, regulation or executive order to close or a day on which transactions in dollars are not conducted.
Calculation Agent:	Unless otherwise specified in the relevant pricing supplement, the agent appointed by us to make certain calculations with respect to the notes (the "**calculation agent**") will be RBC Capital Markets, LLC ("**RBCCM**"). See "General Terms of Notes—Calculation Agent" below. RBCCM is an affiliate of ours and may have interests adverse to yours. See "Risk Factors—Risks Relating to Conflicts of Interest—RBCCM's role as calculation agent may create conflicts of interest" below.
Clearance and Settlement:	The Depository Trust Company ("**DTC**") global, including through its indirect participants Euroclear and Clearstream, Luxembourg, as described under "Ownership and Book-Entry Issuance" in the accompanying prospectus.

RISK FACTORS

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 and any risk factors described in the relevant pricing supplement. Your notes are not secured debt and are riskier than ordinary unsecured debt securities. Also, investing in your notes is not equivalent to investing directly in any Underlier. You should carefully consider whether the notes are suited to your particular circumstances. This product supplement should be read together with the prospectus, the prospectus supplement, any applicable underlying 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 supplement and the relevant pricing supplement. ***This section describes 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 supplement and the prospectus, the prospectus supplement, any underlying supplement and the relevant pricing supplement, before investing in the notes.***

Risks Relating to the Notes Generally

The notes may differ from conventional debt securities and may not pay interest and you may lose some or all of your principal amount.

Any amounts payable on the notes will be determined pursuant to the terms set forth in the relevant pricing supplement. The notes will not pay interest unless specified in the relevant pricing supplement, and any interest payments may be contingent on the performance of the Underlier(s). The relevant pricing supplement may specify that you may lose some or all of your principal amount at maturity. Even if the relevant pricing supplement provides for payment of at least your principal amount at maturity (subject to our credit risk), you may receive no return on your investment at maturity or the return on your investment at maturity may be less than the amount that would be paid on a conventional debt security of ours of comparable maturity. Under these circumstances, you will not be compensated or fully compensated for any loss in value due to inflation and other factors relating to the value of money over time.

Payments on the notes are subject to our credit risk, and market perceptions about our creditworthiness may adversely affect the market value of the notes.

The notes are our senior unsecured debt securities, and your receipt of any amounts due on the notes is dependent upon our ability to pay our obligations as they come due. If we were to default on our payment obligations, you may not receive any amounts owed to you under the notes and you could lose your entire investment. In addition, any negative changes in market perceptions about our creditworthiness may adversely affect the market value of the notes.

The appreciation potential of the notes may be limited.

The relevant pricing supplement may specify that the return on the notes in excess of the principal amount will not exceed a specified rate or value. Under these circumstances, the appreciation potential of the notes will be limited to that specified rate or value, regardless of the performance of the Underlier(s). In addition, if the relevant pricing supplement specifies that the notes will or may pay interest, the appreciation potential of the notes may be limited to any interest payments, regardless of the performance of the Underlier(s). As a result, the return on an investment in the notes could be less than the return on a direct investment in the Underlier(s).

The notes may be redeemed early and are subject to reinvestment risk.

The term of the notes may be limited by any optional or automatic redemption feature set forth in the relevant pricing supplement. If your notes are redeemed early, the term of the notes will be reduced, and no further payments will be made on the notes after they have been redeemed. There is no guarantee that you would be able to reinvest the proceeds from an automatic redemption or an optional redemption of the notes at a comparable rate of return for a similar level of risk. To the extent you are able to reinvest such proceeds in an investment comparable to the notes, you may incur transaction costs such as dealer discounts and hedging costs built into the price of the new notes.

If we have the right to redeem the notes prior to their scheduled maturity, market factors are expected to influence whether we exercise that right.

It is more likely that we will redeem the notes at our sole discretion to the extent that the expected amounts payable on the notes are greater than the amounts that would be payable on other instruments issued by us of comparable maturity, terms and credit rating trading in the market. We are less likely to redeem the notes when the expected amounts payable on the notes are less than the amounts that would be payable on other comparable instruments issued by us. Therefore, the notes are more likely to remain outstanding when the expected amounts payable on the notes is less than what would be payable on other comparable instruments.

The amounts payable on your notes will be determined based on the values of the Underlier(s) on the dates specified in the relevant pricing supplement.

The value of an Underlier referenced for purposes of determining any payment on the notes may be based on the closing value of that Underlier on the dates specified in the relevant pricing supplement. You will not benefit from any more favorable value of any Underlier determined at any other time.

If you receive shares of a Reference Stock or Fund at maturity, the value of those shares may be less on the maturity date than on the final Determination Date.

For notes linked to one or more References Stocks or Funds, the relevant pricing supplement may specify that the payment at maturity will consist of the delivery of a predetermined number of shares. The market value on the final Determination Date of any such shares to be delivered at maturity may be less than your principal amount and could decrease further during the period between the final Determination Date and the maturity date. We will make no adjustments to the number of shares delivered to account for any fluctuations in the value of the shares to be delivered at maturity, and you will bear the risk of any decrease in the value of those shares between the final Determination Date and the maturity date.

The Notes do not provide any ownership interest or rights in any Underlier.

Investing in the notes is not equivalent to investing (or taking a short position) directly in any Underlier. As an investor in the notes, you will not have any ownership interests or rights in any of the foregoing.

Regulatory developments and investigations may result in changes to the rules or methodology used to determine the value of an Underlier, which may adversely affect any payment on the notes.

The methodologies used to determine the value of certain "benchmarks," which may include one or more Underliers, are the subject of recent national, international and other regulatory guidance, proposals for reform and investigations. These reforms or changes made in response to these regulatory developments and investigations may cause those benchmarks to perform differently than in the past and may have other consequences that cannot be predicted. In addition, market participants may elect not to continue to participate in the administration of certain benchmarks if these developments and investigations increase the costs and risks associated with those activities, which could cause changes in the rules or methodologies used in certain benchmarks or lead to the disappearance of certain benchmarks. Any of these changes could adversely affect the value of the notes and any payment on the notes.

Governmental legislative or regulatory actions, such as sanctions, could adversely affect your investment in the notes.

Governmental legislative or regulatory actions, including, without limitation, sanctions-related actions by the U.S. or a foreign government, could prohibit or otherwise restrict persons from holding the notes, an Underlier or its components, or engaging in transactions in them, and any such action could adversely affect the value of that Underlier. These legislative or regulatory actions could result in restrictions on the notes or the delisting of a Reference Stock or a Fund or the components of an Index or Fund. You may lose a significant portion or all of your initial investment in the notes if an Underlier or its components are delisted or if you are forced to divest the notes due to government mandates, especially if such delisting occurs or such divestment must be made at a time when the value of the notes has declined. In addition, for notes linked in whole or in part to any Underlier that provides direct

or indirect exposure to non-U.S. equity securities as determined by the calculation agent in its sole discretion, upon the occurrence of a legal or regulatory change that constitutes a change-in-law-event, the calculation agent may accelerate the maturity date for a payment determined by the calculation agent in its sole discretion. Any amount payable upon acceleration could be significantly less than any amount that would be due on the notes if they were not accelerated. See "General Terms of Notes—Change-in-Law Events" below.

If the relevant pricing supplement specifies that the notes will be offered for resale at varying prices, the price you pay for the notes may be higher than the prices paid by other investors.

If the relevant pricing supplement specifies that the notes will be offered for resale at varying prices, each agent may propose to offer the notes from time to time for sale to investors in one or more negotiated transactions, or otherwise, at market prices prevailing at the time of sale, at prices related to then-prevailing prices, at negotiated prices, or otherwise. Accordingly, there is a risk that the price you pay for the notes will be higher than the prices paid by other investors based on the date and time you make your purchase, from whom you purchase the notes (e.g., directly from an agent or through a broker or dealer), any related transaction cost (e.g., any brokerage commission), whether you hold your notes in a brokerage account, a fiduciary or fee-based account or another type of account and other market factors beyond the our control.

We may sell additional notes at prices are that differ from their original issue price.

At our sole option, we may decide to sell an additional amount of the notes offered by any pricing supplement subsequent to the date of that pricing supplement. The issue price of the notes in the subsequent sale may differ substantially (higher or lower) from the original issue price.

If you purchase your notes at a premium to the principal amount, the return on your investment will be lower than the return on notes purchased at the principal amount or at a discount to the principal amount.

Amounts payable on the notes will not be adjusted based on the price you pay for the notes. If you purchase notes at a price that differs from the principal amount of the notes, then the return on your investment in those notes held to the maturity date will differ from, and may be substantially less than, the return on notes purchased at the principal amount. In addition, the impact of certain terms of the notes on the return on your investment will depend upon the price you pay for your notes relative to the principal amount.

Risks Relating to the Market Value and the Secondary Market for the Notes

There may not be an active trading market for the notes; sales in the secondary market may result in significant losses.

There may be little or no secondary market for the notes. The notes will not be listed on any securities exchange. RBCCM and our other affiliates may make a market for the notes; however, they are not required to do so and, if they choose to do so, may stop any market-making activities at any time. Because other dealers are not likely to make a secondary market for the notes, the price at which you may be able to trade your notes is likely to depend on the price, if any, at which RBCCM or any of our other affiliates is willing to buy the notes. Even if a secondary market for the notes develops, it may not provide enough liquidity to allow you to easily trade or sell the notes. We expect that transaction costs in any secondary market would be high. As a result, the difference between bid and ask 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 price that you paid for them, and as a result, you may suffer significant losses. The notes are not designed to be short-term trading instruments. Accordingly, you should be able and willing to hold your notes to maturity.

The market value of the notes may be less than their original issue price, which may adversely affect the value of the notes prior to maturity.

We and our affiliates establish the offering price of the notes for initial sale to the public, and the offering price is not based upon any independent verification or valuation. If you attempt to sell the notes prior to maturity, their market value may be lower than the price you paid for them. This is due to, among other things, changes in the value of any Underlier, the borrowing rate we pay to issue securities of this kind (an internal funding rate that is lower

than the rate at which we borrow funds by issuing conventional fixed rate debt), and the inclusion in the original issue price of each agent's commission, our estimated profit and the estimated costs relating to our hedging of the notes. These factors, together with various credit, market and economic factors over the term of the notes, are expected to reduce the price at which you may be able to sell the notes in any secondary market and will affect the value of the notes in complex and unpredictable ways. Assuming no change in market conditions or any other relevant factors, the price, if any, at which you may be able to sell your notes prior to maturity may be less than your original purchase price, as any such sale price would not be expected to include each agent's commission and our estimated profit or the hedging costs relating to the notes. In addition, any price at which you may sell the notes is likely to reflect customary bid-ask spreads for similar trades. In addition to bid-ask spreads, the value of the notes determined for any secondary market price is expected to be based on a secondary market rate rather than the initial internal funding rate used to price the notes and determine the initial estimated value. As a result, the secondary market price may be less than if the initial internal funding rate were used.

Prior to maturity, the value of the notes will be influenced by many unpredictable factors.

Many economic and market factors will influence the value of the notes. We expect that, generally, the closing values of the Underlier(s) on any day will affect the value of the notes more than any other single factor. However, you should not expect the value of the notes in the secondary market to vary in proportion to changes in the closing value of any Underlier. The value of the notes will be affected by a number of other factors that may either offset or magnify each other, including:

- any actual or potential change in our creditworthiness or credit spreads;
- customary bid-ask spreads for similarly sized trades;
- our internal funding rates for structured debt issuances;
- the actual and expected frequency and magnitude of changes in the value of any Underlier (i.e., volatility);
- for notes linked to two or more Underliers, changes in correlation (the extent to which the values of the Underliers increase or decrease to the same degree at the same time) between the Underliers;
- the time to maturity of the notes;
- the dividend rate on a Reference Stock or Fund or on the equity securities underlying an Index;
- interest and yield rates in the market generally, as well as in the markets of a Reference Stock and the markets of the securities or other assets underlying an Index or a Fund;
- supply and demand for the notes;
- if a Reference Stock, an ADS underlying stock or the securities or other assets underlying an Index or a Fund are denominated in a non-U.S. currency, the exchange rate between the U.S. dollar and any such non-U.S. currency; and
- economic, financial, political, regulatory and judicial events that affect a Reference Stock or Fund, the securities or other assets underlying an Index or a Fund or stock markets generally.

Some or all of these factors will influence the price you will receive if you choose to sell your notes prior to maturity. The impact of any of the factors set forth above may enhance or offset some or all of any change resulting from another factor or factors. If you sell your notes before maturity, you may have to do so at a substantial discount from the price that you paid for them, and as a result, you may suffer significant losses.

If the value of an Underlier changes, the market value of your notes may not change in the same manner.

Owning the notes is not the same as owning direct exposure to an Underlier. Accordingly, changes in the value of an Underlier may not result in a comparable change of the market value of the notes. If the value of an Underlier increases, the value of the notes may not increase in a comparable manner, if at all. The value of an Underlier might increase while the value of the notes declines.

Risks Relating to Conflicts of Interest

You must rely on your own evaluation of the merits of an investment linked to any Underlier.

In the ordinary course of business, we, our affiliates and any agent or dealer may express research or investment views on expected movement in any Underlier or its components, including in acting as a research provider, investment advisor, market maker, principal investor or distributor, and may do so in the future. These views or reports may be communicated to our clients, and may be inconsistent with, or adverse to, the objectives of investors in the notes, and may adversely affect the value of the notes. However, these views are subject to change from time to time. Moreover, other professionals who transact business in markets relating to any Underlier or its components may at any time have significantly different views. You should not take the offering or sale of the notes as an expression of our views about how any Underlier or its components will perform in the future or as a recommendation to invest (directly or indirectly, by taking a long or short position) in any Underlier, including through an investment in the notes. We may, and often do, have positions (long, short or both) in an Underlier that conflict with an investment in the notes. You should make your own independent investigation of the merits of investing in the notes and any Underlier.

We, our affiliates and any agent or dealer may have economic interests that are adverse to those of the holders of the notes as a result of our and their hedging and other trading activities.

We expect to enter into hedging transactions relating to any Underlier, its components and related instruments as described under "Use of Proceeds and Hedging" below. In addition, we, our affiliates and any agent or dealer also trade in the foregoing on a regular basis (taking long or short positions or both), for their accounts, for other accounts under their management and to facilitate transactions, including block transactions, on behalf of customers. While we cannot predict an outcome, any of these hedging or other trading activities could potentially affect the value of any Underlier and may adversely affect the value of the notes or any payment on the notes.

This hedging and trading activity may present a conflict of interest between your interests as a holder of the notes and the interests of us, our affiliates and any agent or dealer in hedging and other trading activities. These hedging and trading activities could also affect the price at which RBBCM is willing to purchase your notes in the secondary market, if at all. In addition, our hedging counterparties expect to make a profit. Because hedging our obligations entails risk and may be influenced by market forces beyond our or our affiliates' control, the actual cost of such hedging may result in a profit that is more or less than expected, or could result in a loss. It is possible that such hedging could result in substantial returns for us or our affiliates while the value of the notes declines.

We, our affiliates and any agent or dealer may have economic interests that are adverse to those of the holders of the notes as a result of our and their business activities.

We, our affiliates and any agent or dealer may currently or from time to time engage in business with the issuer of a Reference Stock, a Fund or companies the securities of which are included in an Index, held by a Fund or included in a relevant Underlying Index (the "**underlying companies**"), including extending loans to, making equity investments in or providing advisory services to the underlying companies, including merger and acquisition advisory services. We, our affiliates and any agent or dealer do not make any representation or warranty to any purchaser of notes with respect to any matters whatsoever relating to business with underlying companies.

In addition, in the course of our business, we, our affiliates and any agent or dealer may acquire nonpublic information about one or more Reference Stocks, Indices or Funds, their components or currency exchange rates relating to any of the foregoing, and we will not disclose any such information to you.

Furthermore, we, our affiliates and any agent or dealer may serve as issuer, agent or underwriter for issuances of other securities or financial instruments with returns linked or related to an Underlier or its components. Under these circumstances, our interests or the interests of our affiliates and any agent or dealer with respect to these securities or financial instruments may be adverse to those of the holders of the notes. By introducing competing products into the marketplace in this manner, we, our affiliates and any agent or dealer could adversely affect the value of the notes.

Some benchmark rates and values of certain commodities are established based on quotes, prices, values or other data provided by market participants, including, in some cases, us, our affiliates, an agent or a dealer. In addition, we, our affiliates and any agent or dealer may take part in, or have a supervisory role in connection with, the administration of certain benchmarks. We, our affiliates and any agent or dealer will have no obligation to consider your interests as a holder of the notes in taking any actions that might affect the value of any Underlier or the notes.

Agents and dealers may have economic interests that are adverse to those of the holders of the notes as a result of their roles as agents or dealers.

The role played by any agent or dealer for the notes could present conflicts of interest. For example, an agent, a dealer or their respective representatives may derive compensation or financial benefit from the distribution of the notes and such compensation or financial benefit may serve as an incentive to sell the notes instead of other investments. Furthermore, if any other agent or dealer participating in the distribution of the notes or any of its affiliates conducts hedging activities for us in connection with the notes, that participating dealer or its affiliates will expect to realize a projected profit from such hedging activities, and this projected profit will be in addition to any selling concession that the participating agent or dealer realizes for the sale of the notes to you. This additional projected profit may create a further incentive for the participating agent or dealer to sell the notes to you.

RBCCM's role as calculation agent may create conflicts of interest.

As calculation agent, our affiliate, RBCCM, will determine any values of any Underlier and make any other determinations necessary to calculate any payments on the notes. In making these determinations, the calculation agent may be required to make discretionary judgments, including those described under "General Terms of the Notes—Reference Stocks and Funds" and "General Terms of the Notes—Indices" below. In making these discretionary judgments, the economic interests of the calculation agent are potentially adverse to your interests as an investor in the notes, and any of these determinations may adversely affect any payments on the notes. The calculation agent will have no obligation to consider your interests as an investor in the notes in making any determinations with respect to the 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. You will not be entitled to any compensation from us for any loss suffered as a result of any determinations made by the calculation agent with respect to the notes.

Risks Relating to a Reference Rate

Notes linked to a Reference Rate are subject to certain risks.

Notes linked to a Reference Rate are subject to significant risks not associated with conventional fixed-rate debt securities. These risks include fluctuation of the Reference Rate and the possibility that, in the future, you will receive a lesser amount of interest or no interest at all. We have no control over a number of factors that may affect interest rates, including economic, financial and political events that are important in determining the existence, magnitude and longevity of these risks and their results. Interest rates have been volatile in recent years and could remain volatile in the future. You may receive a rate of interest that is less than the rate of interest on other debt securities with the same maturity issued by us or an issuer with the same credit rating. In addition, the notes may be subject to a maximum interest rate.

Changes in the method pursuant to which any Reference Rate is determined may adversely affect the value of your notes.

The method by which any Reference Rate is calculated may change in the future, as a result of governmental actions, actions by the publisher of that Reference Rate or otherwise. We cannot predict whether the method by which a Reference Rate is calculated will change or what the impact of any change might be. Any of these changes could adversely affect a Reference Rate, the market value of the notes and any amounts payable on the notes.

A Reference Rate may be replaced by a successor or alternative reference rate.

The terms of the notes governing the determination of a Reference Rate may provide that such Reference Rate will be replaced by a successor or alternative reference rate in certain circumstances. Those circumstances may, for example, include that Reference Rate being permanently discontinued or that Reference Rate becoming no longer representative of the underlying market and economic reality that such Reference Rate was intended to measure. If a Reference Rate is replaced by a successor or alternative rate, the terms of the notes may permit the calculation agent to apply an adjustment spread or an adjustment formula in calculating that successor or alternative rate and/or the calculation agent may be authorized to specify other changes to the terms of the notes, including but not limited to the relevant spread, day count convention and screen page, definition of business day and the method for determining the fallback rate in relation to that successor or alternative rate. The circumstances that can lead to the replacement of a Reference Rate with a successor or alternative reference rate are beyond our control. The use of a successor or alterative reference rate may adversely affect the market value of the notes and any amounts payable on the notes.

Risks Relating to a Reference Stock, a Fund or an Index

The market value of the notes and any amounts payable on the notes will be affected by equity market risks.

We expect that changes in the financial condition of a Reference Stock issuer, a Fund or underlying companies of a Fund or an Index will cause the value of the relevant Underlier to fluctuate. The financial condition of the issuer of an equity security may become impaired or the general condition of the equity market may deteriorate, either of which may cause a decrease in the value of an Underlier and thus in the market value of the notes and any amounts payable on the notes. Equity securities are susceptible to general equity market fluctuations, to speculative trading by third parties and to volatile increases and decreases in value as market confidence in and perceptions regarding those equity securities, or equity markets more generally, change. Investor perceptions regarding the issuer of an equity security are based on various factors, which may be unpredictable, including expectations regarding government, economic, monetary and fiscal policies, inflation and interest rates, economic expansion or contraction, and global or regional political, economic and banking crises.

You will not have any rights to any Reference Stock or Fund or the component securities of any Index or Fund.

As an investor in the notes, you will not have voting rights or rights to receive dividends or other distributions or any other rights with respect to any Reference Stock or Fund or the component securities of any Index or Fund.

Actions by a sponsor, issuer or an investment adviser of any Underlier or its components may adversely affect the value of the notes.

Unless otherwise specified in the relevant pricing supplement, we will not be affiliated with any sponsor, issuer or investment adviser of an Underlier or its components, no such sponsor, issuer or investment adviser will have involvement in the offer and sale of the notes and no such sponsor, issuer or investment adviser will owe any obligation to you. We have no ability to control or predict the actions of any such sponsor, issuer or investment adviser. The issuer of a Reference Stock or the underlying companies of a Fund or an Index can engage in a variety of corporate actions, including mergers, asset sales, tender offers, delisting or the commencement of bankruptcy proceedings, that could affect the value of that Reference Stock, Fund or Index. The investment adviser of a Fund may add, delete or substitute the component securities held by that Fund or make changes to its investment strategy, and the sponsor of an Index or an Underlying Index may add, delete, substitute or adjust the securities composing that Index or Underlying Index, as applicable, may make other methodological changes to that Index or Underlying

Index, as applicable, that could affect its performance or may discontinue or suspend calculation and publication of that Index or Underlying Index, as applicable.

If the sponsor of an Index discontinues or suspends calculation or publication of that Index at any time, the calculation agent may select a successor index that the calculation agent determines to be comparable to the discontinued Index or, if no successor index is available, the calculation agent will determine the value to be used as the closing value of that Index. See "General Terms of the Notes—Indices—Discontinuation of, or Adjustments to, an Index" below. A replacement or substitute Index may perform significantly worse than the Index it replaces.

Any of these actions could adversely affect the value of an Underlier and, consequently, the value of the Notes. You have no recourse to the sponsor or issuer of any Underlier or any of its components.

We and our affiliates have no affiliation with the issuer of any Reference Stock, any Index Sponsor or any Fund and are not responsible for its public disclosure of information.

Unless otherwise specified in the relevant pricing supplement, we derive the information about any Reference Stock issuer, Index, Underlying Index or Fund from publicly available information, without independent verification. We have not participated, and will not participate, in the preparation of any of that publicly available information, nor have we made, nor will we make, any due diligence investigation or any inquiry with respect to any Reference Stock issuer, Index, Underlying Index or Fund in connection with the offering of the notes. Neither we nor any of our affiliates assume any responsibility for the adequacy or accuracy of the information about any Reference Stock issuer, Index, Underlying Index or Fund. You, as an investor in the notes, should make your own investigation into any Reference Stock issuer, Index, Underlying Index or Fund. We urge you to review financial and other information filed periodically by any Reference Stock issuer, Index Sponsor or Fund with the SEC.

The historical performance of an Underlier should not be taken as an indication of their future performance.

The value of an Underlier may determine the amount of any payment on the notes. The historical performance of an Underlier does not give an indication of its future performance. As a result, it is impossible to predict whether the value of an Underlier will rise or fall during the term of the notes. The value of an Underlier will be influenced by complex and interrelated political, economic, financial and other factors. The value of an Underlier may decrease such that the value of, and payments on, the notes may be adversely affected. There can be no assurance that the value of an Underlier will not decrease.

A Fund and its Underlying Index are different.

The performance of a Fund will not exactly replicate the performance of its Underlying Index. A Fund is subject to management risk, which is the risk that the investment strategy for that Fund, the implementation of which is subject to a number of constraints, may not produce the intended results. A Fund's investment adviser may have the right to use a portion of that Fund's assets to invest in securities or other assets or instruments, including derivatives, that are not included in its Underlying Index. In addition, unlike an Underlying Index, a Fund will reflect transaction costs and fees that will reduce its performance relative to its Underlying Index.

The performance of a Fund may diverge significantly from the performance of its Underlying Index due to differences in trading hours between that Fund and the securities composing its Underlying Index or other circumstances. During periods of market volatility, the component securities held by a Fund may be unavailable in the secondary market, market participants may be unable to calculate accurately the intraday net asset value per share of that Fund and the liquidity of that Fund may be adversely affected. This kind of market volatility may also disrupt the ability of market participants to create and redeem shares in a Fund. Further, market volatility may adversely affect, sometimes materially, the prices at which market participants are willing to buy and sell shares of a Fund. As a result, under these circumstances, the market value of a Fund may vary substantially from the net asset value per share of that Fund.

For notes linked to an Index of non-U.S. equity securities, if the prices of those non-U.S. equity securities are converted into U.S. dollars for purposes of calculating the value of that Index, the notes will be subject to currency exchange risk.

If the notes are linked to an Index of non-U.S. equity securities and the prices of those non-U.S. equity securities are converted into U.S. dollars for purposes of calculating the value of that Index, then investors in those notes will be exposed to the currency exchange rate risk with respect to each of the currencies in which the non-U.S. equity securities underlying that Index trade. Exchange rate movements for a particular currency can often be volatile and are the result of numerous factors including the supply of, and the demand for, those currencies, as well as the relevant government policy, intervention or actions, but are also influenced significantly from time to time by political or economic developments, and by macroeconomic factors and speculative actions related to the relevant region. An investor's net exposure will depend on the extent to which the currencies of the non-U.S. equity securities underlying the applicable Index strengthen or weaken against the U.S. dollar and the relative weight of the non-U.S. equity securities denominated in those currencies. If, taking into account that weighting, the dollar strengthens against the currencies of the securities underlying that Index, the value of that Index will be adversely affected and any amounts payable on the notes may be reduced.

Of particular importance to potential currency exchange risk are: existing and expected rates of inflation; existing and expected interest rate levels; the balance of payments in the relevant countries and the United States and between each relevant country and its major trading partners; the extent of governmental surplus or deficit in the relevant countries and the United States; and intervention by the relevant countries or the United States in currency exchange rates, including through the imposition of currency controls. All of these factors are, in turn, sensitive to the monetary, fiscal and trade policies pursued by the relevant countries, the United States and those of other countries important to international trade and finance.

For notes linked to an Index of non-U.S. equity securities, if the prices of those non-U.S. equity securities are not converted into U.S. dollars for purposes of calculating the value of that Index, any amounts payable on the notes will not be adjusted for fluctuations in exchange rates.

If the notes are linked to an Index of non-U.S. equity securities and the prices of those non-U.S. equity securities are not converted into U.S. dollars for purposes of calculating the value of that Index, then the value of the notes will not be adjusted for exchange rate fluctuations between the U.S. dollar and the currencies in which the non-U.S. equity securities underlying that Index are denominated, although any currency fluctuations could affect the performance of that Index. If any applicable currency appreciates relative to the U.S. dollar over the term of the notes, investors will not receive the benefit of that increase, which they would have had they owned the non-U.S. equity securities underlying that Index directly.

Notes linked to a Fund holding non-U.S. equity securities will be subject to currency exchange risk.

Because the value of a Fund that holds non-U.S. equity securities is related to the U.S. dollar value of those non-U.S. equity securities, investors in notes linked to such a Fund will be exposed to the currency exchange rate risk with respect to each of the currencies in which the non-U.S. equity securities held by that Fund trade. Currency exchange rates may be subject to a high degree of fluctuation, as described above under "—For notes linked to an Index of non-U.S. equity securities, if the prices of those non-U.S. equity securities are converted into U.S. dollars for purposes of calculating the value of that Index, the notes will be subject to currency exchange risk" above. An investor's net exposure will depend on the extent to which the currencies of the non-U.S. equity securities held by a Fund strengthen or weaken against the U.S. dollar and the relative weight of the non-U.S. equity securities denominated in those currencies. If, taking into account that weighting, the U.S. dollar strengthens against the currencies of the securities held by a Fund, the value of that Fund's portfolio will be adversely affected, which is expected to have an adverse effect on the price per share of that Fund, and any amounts payable on the notes may be reduced.

Notes linked to a Reference Stock that is a non-U.S. equity security, an Index of non-U.S. equity securities and/or a Fund that holds non-U.S. equity securities will be subject to risks associated with non-U.S. securities markets and to the risk that the notes will be accelerated upon the occurrence of a change-in-law event.

Non-U.S. equity securities are issued by non-U.S. companies in non-U.S. securities markets. Investments in notes linked to the value of a Reference Stock that is a non-U.S. equity security, an Index of non-U.S. equity securities and/or a Fund that holds non-U.S. equity securities will be subject to risks associated with non-U.S. securities markets in the home countries of the issuers of those non-U.S. equity securities. Non-U.S. securities markets may have less liquidity and may be more volatile than U.S. securities markets, and market developments may affect non-U.S. markets differently than U.S. securities markets. Direct or indirect government intervention to stabilize a non-U.S. securities market, as well as cross-shareholdings in non-U.S. companies, may affect trading prices and volumes in those markets. In addition, governments may seek to regulate not only the Underliers or the equity securities composing or held by the Underliers to which your notes are linked but also derivative instruments based on the equity securities, which can affect the value of the equity securities and your notes. Also, there is generally less publicly available information about companies in some of these jurisdictions than there is about U.S. companies that are subject to the reporting requirements of the SEC, and generally non-U.S. companies are subject to accounting, auditing and financial reporting standards and requirements and securities trading rules different from those applicable to U.S. reporting companies. The prices of securities in non-U.S. markets may be affected by political, economic, financial and social factors in those countries, or global regions, including changes in government, economic and fiscal policies and currency exchange laws.

Further, non-U.S. equity securities may be issued by companies in countries based in emerging markets. Emerging markets pose further risks in addition to the risks associated with investing in foreign equity markets generally. Countries with emerging markets may have relatively unstable financial markets and governments; may present the risks of nationalization of businesses; may impose restrictions on currency conversion, exports or foreign ownership and prohibitions on the repatriation of assets; may pose a greater likelihood of regulation by the national, provincial and local governments of the emerging market countries, including the imposition of currency exchange laws and taxes; and may have less protection of property rights, less access to legal recourse and less comprehensive financial reporting and auditing requirements than more developed countries. The economies of countries with emerging markets may be based on only a few industries, may be highly vulnerable to changes in local or global trade conditions, and may suffer from extreme and volatile debt burdens or inflation rates. Local securities markets may trade a small number of securities and may be unable to respond effectively to increases in trading volume, potentially making prompt liquidation of holdings difficult or impossible at times. Moreover, the economies in such countries may differ unfavorably from the economy in the United States in such respects as growth of gross national product, rate of inflation, capital reinvestment, resources, self-sufficiency and balance of payment positions. The currencies of emerging markets may also be less liquid and more volatile than those of developed markets and may be affected by political and economic developments in different ways than developed markets. The foregoing factors may adversely affect the performance of companies based in emerging markets.

Some or all of these factors may adversely affect the performance of the applicable non-U.S. equity securities and, as a result, the market value of the notes and any amounts payable on the notes.

In addition, for notes linked in whole or in part to any Underlier that provides direct or indirect exposure to non-U.S. equity securities as determined by the calculation agent in its sole discretion, upon the occurrence of legal or regulatory changes that may, among other things, prohibit or otherwise materially restrict persons from holding the notes or an Underlier or its components, or engaging in transactions in them, the calculation agent may determine that a change-in-law-event has occurred and accelerate the maturity date for a payment determined by the calculation agent in its sole discretion. Any amount payable upon acceleration could be significantly less than any amount that would be due on the notes if they were not accelerated. However, if we elect not to accelerate the notes, the value of, and any amount payable on, the notes could be adversely affected, perhaps significantly by the occurrence of such legal or regulatory changes. See “General Terms of Notes—Change-in-Law Events” below.

Time differences between U.S. and international markets may create discrepancies in the market value of the securities if any Underlier or the equity securities composing or held by any Underlier trade wholly or partly on international markets.

In the event that an Underlier or the equity securities held by an Underlier trade wholly or partly on an international market, time differences between U.S. and international markets may result in discrepancies between the value of that Underliers or the equity securities composing or held by that Underlier. To the extent that U.S. markets are closed while markets for an Underlier or the equity securities composing or held by an Underlier remain open, significant price or rate movements may take place in that Underlier or the equity securities composing or held by that Underlier that will not be reflected immediately in the market value of the notes. In addition, there may be periods when the relevant international markets are closed for trading (e.g., during holidays in a foreign country), causing the values of an Underlier or the equity securities composing or held by an Underlier to remain unchanged for multiple trading days.

Notes linked to ADSs carry exchange rate risk.

Because ADSs are denominated in U.S. dollars but represent non-U.S. equity securities that are denominated in a non-U.S. currency, changes in currency exchange rates may adversely impact the value of the ADSs. The value of the non-U.S. currency may be subject to a high degree of fluctuation, as described above under "—For notes linked to an Index of non-U.S. equity securities, if the prices of those non-U.S. equity securities are converted into U.S. dollars for purposes of calculating the value of that Index, the notes will be subject to currency exchange risk" above. Therefore, exposure to exchange rate risk may result in reduced returns for notes linked to ADSs.

Additional risks relating to notes linked to ADSs.

There are important differences between the rights of holders of ADSs and the rights of holders of the shares of equity securities underlying the ADSs. Each ADS is a security evidenced by American depositary receipts that represent a certain number of shares of the issuing company. The ADSs are issued pursuant to a deposit agreement, which sets forth the rights and responsibilities of the depositary, the company, and holders of the ADSs, which may be different from the rights of holders of the underlying shares. For example, a company may make distributions in respect of the underlying shares that are not passed on to the holders of its ADSs. Any differences between the rights of holders of the ADSs and the rights of holders of the underlying shares of the company may be significant and may materially and adversely affect the value of the ADSs and, as a result, the value of notes that are linked to ADSs.

The trading patterns of the ADSs will generally reflect the characteristics and valuations of the ADS underlying stock; however, the value of the ADSs may not completely track the value of those shares. Trading volume and pricing on the applicable non-U.S. exchange may, but will not necessarily, have similar characteristics as the ADSs. For example, certain factors may increase or decrease the public float of the ADSs and, as a result, the ADSs may have less liquidity or lower market value than the ADS underlying stock.

Holders of the underlying company's ADSs may surrender the ADSs in order to receive and trade the ADS underlying stock. This provision permits investors in the ADSs to take advantage of price differentials between markets. However, this provision may also cause the market prices of the Reference Stock to more closely correspond with the values of the common shares in the applicable non-U.S. markets. As a result, a market outside of the U.S. for the ADS underlying stock that is not liquid may also result in an illiquid market for the ADSs.

Notes linked to an ADS may become linked to the ADS underlying stock.

If the Reference Stock is an ADS and the ADS is no longer listed or admitted to trading on a U.S. securities exchange registered under the Exchange Act nor included in the OTC Bulletin Board Service operated by FINRA, or if the ADS facility between the issuer of the ADS underlying stock and the ADS depositary is terminated for any reason, the determination as to the payments on the notes, will be based on the common stock represented by the ADS. Such delisting of the ADS or termination of the ADS facility and the consequent adjustments may materially and adversely affect the value of the notes. See "General Terms of Notes—Reference Stocks and Funds—Delisting of ADSs or Termination of ADS Facility" below.

Any payment on the notes may be postponed and adversely affected by the occurrence of a market disruption event.

The timing and amount of any payment on the notes is subject to adjustment upon the occurrence of a market disruption event affecting an Underlier. If a market disruption event persists for a sustained period in respect of an Underlier, the calculation agent may make a determination of the closing value of that Underlier. See "General Terms of the Notes—Reference Stocks and Funds—Market Disruption Events," "General Terms of the Notes—Indices—Market Disruption Events", "General Terms of the Notes—Postponement of a Determination Date" and "General Terms of the Notes—Postponement of a Payment Date" below. You will not be entitled to compensation from us or the calculation agent for any loss suffered as a result of the postponement of any Determination Date, any resulting delay in payment, any change in the value of any affected Underlier after the originally scheduled Determination Date or any value of the affected Underlier determined by the calculation agent.

As a result of the foregoing, or in the event that a scheduled Payment Date (including the maturity date) is not a business day, Payment Dates for the notes may be postponed, as described under "General Terms of the Notes—Postponement of a Payment Date" below. If a Payment Date is postponed, we will not be obligated to pay, and you may not receive, any amounts payable on the relevant Payment Date until several days after the originally scheduled Payment Date.

Anti-dilution protection is limited, and the calculation agent has discretion to make anti-dilution adjustments.

The calculation agent may in its sole discretion make adjustments affecting any amounts payable on the notes upon the occurrence of certain corporate events (such as stock splits or extraordinary or special dividends) that the calculation agent determines have a diluting or concentrative effect on the theoretical value of a Reference Stock or a Fund. However, the calculation agent might not make adjustments in response to all such events that could affect a Reference Stock or a Fund. The occurrence of any such event and any adjustment made by the calculation agent (or a determination by the calculation agent not to make any adjustment) may adversely affect the market price of, and any amounts payable on, the notes. See "General Terms of the Notes—Reference Stocks and Funds—Anti-dilution Adjustments" below.

Reorganization or Other Events Relating to a Reference Stock or a Fund Could Adversely Affect the Value of the Notes or Result in the Notes Being Accelerated.

Upon the occurrence of certain reorganization or other events affecting a Reference Stock or a Fund, the calculation agent may make adjustments to that Reference Stock or Fund, as applicable, that result in payments on the notes being based on (i) the performance of other property, such as cash, securities of another issuer and/or other property distributed to holders of that Reference Stock or Fund, as applicable, upon the occurrence of that event, (ii) in the case of a reorganization event affecting a Reference Stock in which only cash is distributed to holders of that Reference Stock, the performance of a substitute security if the calculation agent elects to select a substitute security or (iii) in the case of a Fund that is delisted or terminated, the performance of a successor fund selected by the calculation agent. Alternatively, the calculation agent may accelerate the maturity date for a payment determined by the calculation agent in its sole discretion. Any of these actions could adversely affect the value of the affected Reference Stock or Fund and, consequently, the value of the notes. Any amount payable upon acceleration could be significantly less than any amount that would be due on the notes if they were not accelerated. However, if we elect not to accelerate the notes, the value of, and any amount payable on, the notes could be adversely affected, perhaps significantly. See "General Terms of the Notes—Reference Stocks and Funds—Anti-dilution Adjustments—Reorganization Events" and "General Terms of the Notes—Reference Stocks and Funds—Discontinuation of, or Adjustments to, a Fund" below.

Risks Relating to Tax and Related Matters

The U.S. federal income tax consequences of an investment in the notes may be uncertain.

There is no direct legal authority regarding the proper U.S. federal income tax treatment of certain notes that may be offered under this product supplement, and we do not plan to request a ruling from the Internal Revenue Service (the "**IRS**"). Consequently, significant aspects of the tax treatment of those notes are uncertain, and the IRS or a court might not agree with the treatment of them described in "United States Federal Income Tax

Considerations." If the IRS were successful in asserting an alternative treatment for the notes, the tax consequences (including, for non-U.S. investors, the withholding tax consequences) of ownership and disposition of the notes might be materially and adversely affected.

As described below under "United States Federal Income Tax Considerations—Tax Treatment of the Notes," the U.S. Treasury Department ("**Treasury**") and the IRS have requested comments on various issues regarding the U.S. federal income tax treatment of "prepaid forward contracts" and similar financial instruments and have indicated that such transactions may be the subject of future regulations or other guidance. In addition, members of Congress have proposed legislative changes to the tax treatment of derivative contracts. Any legislation, Treasury regulations or other guidance promulgated after consideration of these issues could materially and adversely affect the tax consequences of an investment in the notes, possibly with retroactive effect.

In addition, in 2015, Treasury and the IRS released notices designating certain "basket options," "basket contracts" and substantially similar transactions as "reportable transactions." The notices apply to specified transactions in which a taxpayer or its "designee" has, and exercises, discretion to change the assets or an algorithm underlying the transaction. If we, an Index Sponsor or calculation agent or other person were to exercise discretion under the terms of a note that is not treated as a debt instrument for U.S. federal income tax purposes, or an Index underlying such a note, and were treated as a holder's designee for these purposes, unless an exception applied certain holders of the relevant notes would be required to report certain information to the IRS, as set forth in the applicable Treasury regulations, or be subject to penalties. We might also be required to report information regarding the transaction to the IRS.

Further, there is significant uncertainty about whether certain gain or loss a holder recognizes at maturity (or earlier retirement) of a note that is linked solely to interest rates (or a similar market measure) and that is not treated as a debt instrument for U.S. federal income tax purposes should be treated as capital gain or loss or as ordinary income or loss. An ordinary loss recognized by an individual holder might, among other things, be treated as a non-deductible "miscellaneous itemized deduction" and ordinary income recognized by an individual holder would not be eligible for the lower tax rates applicable to long-term capital gain.

You should review carefully the section of this product supplement entitled "United States Federal Income Tax Considerations." You should also consult your tax adviser regarding the U.S. federal income tax consequences of an investment in the notes, as well as tax consequences arising under the laws of any state, local or non-U.S. taxing jurisdiction.

The Canadian federal income tax consequences of an investment in the notes may be uncertain.

This product supplement, the accompanying prospectus, and the accompanying prospectus supplement contain a general description of certain Canadian federal income tax considerations relating to the notes. 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 might be due under the notes. For a more complete discussion of the Canadian federal income tax consequences of investing in the notes please see, as applicable, the description of material Canadian federal income tax considerations relevant to a Non-resident Holder (as that term is defined in the section entitled "Tax Consequences—Canadian Taxation" in the accompanying prospectus) of owning debt securities under "Tax Consequences—Canadian Taxation" in the accompanying prospectus or the description of material Canadian federal income tax considerations relevant to a Resident Holder (as that term is defined in the section entitled "Certain Income Tax Consequences – Canadian Taxation" in the accompanying prospectus supplement) owning debt securities under "Certain Income Tax Consequences – Canadian Taxation – Noteholders Resident in Canada" in the accompanying prospectus supplement, together with the discussion under the heading "Supplemental Discussion of Canadian Tax Consequences" in this prospectus supplement.

In certain circumstances, the Canadian tax treatment of an investment in the notes may be uncertain. We do not plan to request a ruling from the Canada Revenue Agency regarding the tax treatment of an investment in the notes, and the Canada Revenue Agency or a court may not agree with the tax treatment described in this product supplement.

Non-U.S. investors may be subject to withholding tax under Section 871(m) of the Internal Revenue Code of 1986, as amended, in respect of certain notes.

Section 871(m) of the Internal Revenue Code of 1986, as amended (the "Code"), imposes a withholding tax of up to 30% on "dividend equivalents" paid or deemed paid to non-U.S. investors with respect to certain financial instruments linked to U.S. equities. This withholding regime generally applies to financial instruments that substantially replicate the economic performance of one or more underlying U.S. equities, as determined based on tests set forth in the applicable Treasury regulations.

The Section 871(m) regime requires complex calculations to be made with respect to financial instruments linked to U.S. equities, and its application to a specific issue of notes may be uncertain. Accordingly, even if we determine that certain notes are not subject to Section 871(m), the IRS could challenge our determination and assert that withholding is required in respect of those notes. Moreover, the application of Section 871(m) to a note may be affected by a non-U.S. investor's other transactions. Non-U.S. investors should review the discussion under "United States Federal Income Tax Considerations—Tax Consequences to Non-U.S. Holders—Dividend Equivalents under Section 871(m) of the Code." Non-U.S. investors should also consult their tax advisers regarding the application of Section 871(m) in their particular circumstances.

We will not be required to pay any additional amounts with respect to U.S. federal withholding taxes.

You may be required to recognize taxable income on the notes prior to maturity.

If you are a U.S. investor in a note, you may be required to recognize taxable interest income in each year that you hold the note, even though, in the case of certain notes, you will not receive any payment in respect of the note prior to maturity (or earlier sale, exchange or retirement). In addition, any gain you recognize may be treated as ordinary interest income rather than capital gain. You should review the section of this product supplement entitled "United States Federal Income Tax Considerations."

Possible taxable event for U.S. federal income tax purposes.

Certain changes affecting the notes could result in a "significant modification" of the affected notes for U.S. federal income tax purposes. For example, a change in the methodology by which an Underlier is calculated, a change in the components of an Underlier, a change in the timing or amount of payments on a note due to a market disruption event, the designation of a successor Underlier, or the designation of a substitute or successor rate or other similar circumstances resulting in a material change to an Underlier could result in a significant modification of the affected notes. Additionally, in certain circumstances where our obligations under the notes are assumed by another entity, such substitution could result in a significant modification of the affected notes.

A significant modification would generally result in the notes being treated as terminated and reissued for U.S. federal income tax purposes. In that event, a U.S. investor would generally be required to recognize gain or loss (subject to possible treatment as a recapitalization or, in the case of loss, to the possible application of the wash sale rules) with respect to the notes. Moreover, the treatment of the notes after such an event could differ from their prior treatment. A changed treatment of the notes could have possible withholding tax consequences to non-U.S. investors. You should consult your tax adviser regarding the risk of such an event.

A 30% U.S. federal withholding tax may be withheld on coupon payments to non-U.S. investors with respect to certain notes.

Because significant aspects of the tax treatment of notes that are not treated as debt instruments for U.S. federal income tax purposes (including for this purpose notes treated as a Put Option and a Deposit) are uncertain, persons having withholding responsibility in respect of such notes may treat a portion or all of each coupon payment on the notes to non-U.S. investors as subject to U.S. federal withholding tax. To the extent that we have withholding responsibility in respect of such notes, we would expect generally to treat the coupon payments as subject to U.S. withholding tax. You should expect that, if the applicable withholding agent determines that withholding tax should apply, it will be at a rate of 30% (or lower treaty rate). We will not pay any additional amounts in respect of such withholding. Please read carefully the sections entitled "United States Federal Income Tax Considerations—Tax Consequences to Non-U.S. Holders" in this product 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 adviser about your own tax situation.

Insurance companies and employee benefit plans should consult counsel regarding the notes.

Any insurance company or fiduciary of a pension plan or other employee benefit plan or arrangement 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 Code, including an IRA or a Keogh plan (or a governmental or other 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 or arrangement, should consult with its counsel regarding whether the purchase or holding of the notes could give rise to a "prohibited transaction" under ERISA or the Code or any 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 "Benefit Plan Investor Considerations" below.

USE OF PROCEEDS AND HEDGING

Unless otherwise specified in the relevant pricing supplement, the net proceeds we receive from the sale of the notes will be used for general corporate purposes and, in part, by us or by one or more of our affiliates in connection with hedging our obligations under the notes. See also "Use of Proceeds" in the accompanying prospectus.

Unless otherwise specified in the relevant pricing supplement, the original issue price of the notes will include each agent's commissions (as shown on the cover page of the relevant pricing supplement) paid with respect to the notes, the reimbursement of certain issuance costs and the estimated cost of hedging our obligations under the notes. The estimated cost of hedging includes the projected profit that our affiliates expect to realize in consideration for assuming the risks inherent in hedging our obligations under the notes. Because hedging our obligations entails risk and may be influenced by market forces beyond our or our affiliates' control, the actual cost of such hedging may result in a profit that is more or less than expected, or could result in a loss. It is possible that such hedging could result in substantial returns for us or our affiliates while the value of the notes declines.

In anticipation of, or in connection with, the sale of the notes, we expect to enter into hedging transactions with one or more of our affiliates, or with one or more of the agents or their affiliates, in respect of some or all of our anticipated exposure in connection with the notes. We may adjust or exit any hedge positions at or prior to any Determination Date or at any other time. Our hedging activity may include entering, adjusting or exiting positions in one or more Reference Stocks, Indices or Funds, the securities or other assets underlying one or more Indices or Funds, related currency exchange rates and/or listed or over-the-counter derivative instruments that reference or relate to any of the foregoing or any Reference Rate. From time to time, prior to maturity of the notes, we may pursue a dynamic hedging strategy that may involve taking long or short positions in any of the foregoing.

We, the agents and our respective affiliates may also 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 securities at any time.

GENERAL TERMS OF THE NOTES

General

The notes will be issued as part of a series of senior unsecured debt securities entitled "Senior Global Medium-Term Notes, Series J," which is more fully described in the accompanying prospectus supplement and will rank *pari passu* with all of our other unsecured and unsubordinated obligations. The notes will be issued by Royal Bank of Canada under an indenture dated October 23, 2003, as amended or supplemented from time to time, between Royal Bank of Canada and The Bank of New York Mellon, as trustee.

The notes will be issued in denominations of $1,000 and integral multiples thereof, unless otherwise specified in the relevant pricing supplement. The notes may be represented by one or more permanent global notes registered in the name of DTC, or its nominee, as described under "Ownership and Book-Entry Issuance—Considerations Relating to DTC" in the prospectus. Unless otherwise specified in the relevant pricing supplement, the notes will be represented by a type of global note referred to as a master note. A master note evidences multiple securities that may be issued at different times and that may have different terms. Unless otherwise specified in the relevant pricing supplement, in connection with each issuance, we will instruct the trustee to make appropriate notations to indicate that the master note evidences the notes in that issuance.

We will irrevocably deposit with DTC no later than the opening of business on the applicable date funds sufficient to make payments of the amount payable, if any, with respect to the notes on such date. We will give DTC irrevocable instructions and authority to pay that amount to the holders of the notes entitled thereto.

Subject to the foregoing and to applicable law (including, without limitation, U.S. federal laws), we or our affiliates may, at any time and from time to time, purchase outstanding notes by tender, in the open market or by private agreement.

In this "General Terms of the Notes" section, 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 DTC or another depositary. 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 "Ownership and Book-Entry Issuance" in the prospectus.

Payments on the Notes

Any amount payable on the notes will be determined pursuant to the terms set forth in the relevant pricing supplement. If the amount of any payment calculated as set forth in the relevant pricing supplement is less than zero, the amount of that payment will be $0. **Any payment on the notes is subject to our credit risk.**

Interest Payments

If the relevant pricing supplement specifies that the notes will bear periodic interest, the notes will pay interest in arrears at the per annum rate, or such other rate or rates, including rates that reference the performance of one or more Underliers, as specified in the relevant pricing supplement. The relevant pricing supplement may also specify that the payment of interest is contingent on the performance of one or more Underliers.

30/360 day count convention. Unless otherwise specified in the relevant pricing supplement, if the relevant pricing supplement specifies that interest is payable on the notes and that a 30/360 day count convention applies, the interest payment due on each interest payment date specified in the relevant pricing supplement for each note will be calculated as follows:

$$\text{principal amount} \times \text{interest rate} \times \text{day count fraction}$$

where the "**interest rate**" is determined for each interest payment date (or for the interest period relating to each interest payment date) as specified in the relevant pricing supplement and the "**day count fraction**" is calculated as follows for the interest period relating to each interest payment date:

$$\text{day count fraction} = \frac{[360 \times (Y_2 - Y_1)] + [30 \times (M_2 - M_1)] + (D_2 - D_1)}{360}$$

where:

"**Y1**" is the year, expressed as a number, in which the first day of the relevant interest period falls;

"**Y2**" is the year, expressed as a number, in which the day immediately following the last day included in the relevant interest period falls;

"**M1**" is the calendar month, expressed as a number, in which the first day of the relevant interest period falls;

"**M2**" is the calendar month, expressed as number, in which the day immediately following the last day included in the relevant interest period falls;

"**D1**" is the first calendar day, expressed as a number, of the relevant interest period, unless that number would be 31, in which case D1 will be 30; and

"**D2**" is the calendar day, expressed as a number, immediately following the last day included in the relevant interest period, unless that number would be 31 and D1 is greater than 29, in which case D2 will be 30.

Unless otherwise specified in the relevant pricing supplement, each period from and including an interest payment date (or, for the first such period, the issue date of the notes) to but excluding the next following interest payment date will be an "**interest payment period**."

No day count convention. Unless otherwise specified in the relevant pricing supplement, if the relevant pricing supplement specifies that interest is payable on the notes but does not specify that any day count convention applies, the interest payment due on each interest payment date specified in the relevant pricing supplement for each note will be calculated as follows:

principal amount × interest rate × 1 / number of interest payment dates per year

where the "**interest rate**" is determined as specified in the relevant pricing supplement and the "**number of interest payment dates per year**" is determined by the frequency of the scheduled interest payment dates and how many scheduled interest payment dates would occur over the course of a full year, regardless of the actual term of the notes. If the payment of interest is contingent on the performance of one or more Underliers, the relevant pricing supplement may refer to the interest rate as a "contingent interest rate."

Unless otherwise specified in the relevant pricing supplement, interest will accrue from and including the issue date of the notes to but excluding the maturity date or the date on which the notes are redeemed early, if applicable. Unless otherwise specified in the relevant pricing supplement, interest will be payable in arrears on each interest payment date to and including the maturity date or the date on which the notes are redeemed early, if applicable, to the holders of record at the close of business on the business day prior to that interest payment date, *provided* that any interest payable at maturity or upon early redemption will be payable to the person to whom the payment at maturity or upon early redemption, as applicable, will be payable.

Payment at Maturity

The relevant pricing supplement will specify the manner in which any payment at maturity will be determined. **If so specified in the relevant pricing supplement, you may lose some or all of your principal amount at maturity.**

For notes linked to one or more References Stocks or Funds, the relevant pricing supplement may specify that the payment at maturity will consist of the delivery of a predetermined number of shares (or the cash value of those shares), which is referred to in this product supplement as the "**physical delivery amount**." **The market value of shares delivered as the physical delivery amount (or the cash value of those shares) may be less than your principal amount and may be zero.** Any physical delivery amount is subject to adjustment as described under "Reference Stocks and Funds—Anti-dilution Adjustments" below.

No Fractional Shares. If we deliver shares to you at maturity, we will pay cash in lieu of delivering any fractional shares in an amount equal to the Final Underlier Value *times* the applicable fractional amount, unless otherwise specified in the relevant pricing supplement.

Delivery of Shares. We may designate any of our affiliates to deliver any shares pursuant to the terms of the notes, and we will be discharged of any obligation to deliver those shares to the extent of that performance by its affiliates. References in this product supplement to delivery of shares will be deemed to include delivery of shares by any affiliate of ours. If, due to an event beyond our control, we determine it is impossible, impracticable (including unduly burdensome) or illegal for us to deliver shares to you, we will pay the cash equivalent of those shares in lieu of delivering shares.

Payment upon Early Redemption

The relevant pricing supplement may specify that the notes will be subject to early redemption. **No further payments will be made on the notes after they have been redeemed.**

Optional Redemption. If the relevant pricing supplement provides for an optional redemption feature to apply to the notes, we will have the right, at our election, to redeem the notes on any of the dates specified in the relevant pricing supplement for a cash payment that will be determined as set forth in the relevant pricing supplement. The relevant pricing supplement will specify whether we will have the right to redeem the notes in whole or in part. If we intend to redeem your notes, we will deliver notice to DTC, as holder of the notes, at least such number of business days specified in the relevant pricing supplement prior to the date on which the notes are to be redeemed.

Automatic Redemption. If the relevant pricing supplement provides for an automatic redemption feature to apply to the notes, the notes will be automatically redeemed under the circumstances set forth in the relevant pricing supplement for a cash payment that will be determined as set forth in the relevant pricing supplement on the relevant date(s) specified in the relevant pricing supplement.

Reference Rates

Certain Definitions

A "**U.S. Government Securities Business Day**" is any day except for a Saturday, a Sunday or a day on which The Securities Industry and Financial Markets Association (or any successor ore replacement organization) recommends that the fixed income departments of its members be closed for the entire day for purposes of trading in U.S. government securities.

Daily SOFR and Compounded SOFR

The Secured Overnight Financing Rate ("**SOFR**") is published by the Federal Reserve Bank of New York (together with any successor administrator of SOFR, "**FRBNY**") and is intended to be a broad measure of the cost of borrowing cash overnight collateralized by Treasury securities. FRBNY reports that SOFR includes all trades in the Broad General Collateral Rate, plus bilateral Treasury repurchase agreement ("repo") transactions cleared through the delivery-versus-payment service offered by the Fixed Income Clearing Corporation (the "**FICC**"), a subsidiary of The Depository Trust & Clearing Corporation. SOFR is filtered by FRBNY to remove a portion of the foregoing transactions considered to be "specials." According to FRBNY, "specials" are repos for specific-issue collateral, which take place at cash-lending rates below those for general collateral repos because cash providers are willing to accept a lesser return on their cash in order to obtain a particular security.

FRBNY reports that SOFR is calculated as a volume-weighted median of transaction-level tri-party repo data collected from The Bank of New York Mellon, which currently acts as the clearing bank for the tri-party repo market, as well as General Collateral Finance Repo transaction data and data on bilateral Treasury repo transactions cleared through the FICC's delivery-versus-payment service, which are obtained from the U.S. Department of the Treasury's Office of Financial Research.

FRBNY currently publishes SOFR daily on its website. Information contained in the publication page for SOFR is not incorporated by reference in, and should not be considered part of, this product supplement.

Daily SOFR. "**Daily SOFR**" means, with respect to any U.S. Government Securities Business Day:

(1) the Secured Overnight Financing Rate published for that U.S. Government Securities Business Day as that rate appears on the FRBNY's website (or any successor source) on or about 5:00 p.m. (New York time) on the immediately following U.S. Government Securities Business Day (the "**SOFR Determination Time**");

(2) if the rate specified in (1) above does not so appear, the Secured Overnight Financing Rate as published with respect to the first preceding U.S. Government Securities Business Day for which the Secured Overnight Financing Rate was published on the FRBNY's website (or any successor source), *provided* that if the rate does not appear for five consecutive U.S. Government Business Days, Daily SOFR will be determined by the calculation agent in its sole discretion, taking into account any sources it deems reasonable in order to determine Daily SOFR in respect of that U.S. Government Business Day.

Compounded SOFR (Lookback). Unless the relevant pricing supplement specifies that an "Observation Period Shift" applies to the calculation of Compounded SOFR, "**Compounded SOFR**" means, with respect to any interest period (or any other period over which Compounded SOFR is to be calculated), the rate of return of a daily compound interest investment over that interest period (or that other period), calculated as follows with the resulting percentage being rounded, if necessary, to the nearest one hundred-thousandth of a percentage point (0.000005% being rounded upwards to 0.00001%):

$$\left[\prod_{i=1}^{d_0}\left(1+\frac{\mathrm{SOFR}_{i-\mathrm{xUSBD}}\times n_i}{360}\right)-1\right]\times\frac{360}{d}$$

where:

"$\mathbf{d_0}$" means the number of U.S. Government Securities Business Days in that interest period (or that other period);

"**i**" is a series of whole numbers from one to d_0, each representing the relevant U.S. Government Securities Business Day in chronological order from, and including, the first U.S. Government Securities Business Day in that interest period (or that other period);

"$\mathbf{SOFR_{i\text{-}xUSBD}}$" means, for any U.S. Government Securities Business Day "*i*" in that interest period (or that other period), Daily SOFR with respect to the U.S. Government Securities Business Day falling a number of U.S. Government Securities Business Days prior to that day "*i*" equal to the "Lookback" specified in the relevant pricing supplement, *provided* that the Lookback will be five if no Lookback is specified in the relevant pricing supplement;

"$\mathbf{n_i}$" means, for any U.S. Government Securities Business Day "*i*" in that interest period (or that other period), the number of calendar days in that interest period (or that other period) from, and including, that U.S. Government Securities Business Day "*i*" up to, but excluding, the following U.S. Government Securities Business Day; and

"**d**" means the number of calendar days in that interest period (or that other period).

Compounded SOFR (Observation Period Shift). If the relevant pricing supplement specifies that an "Observation Period Shift" applies to the calculation of Compounded SOFR, then "**Compounded SOFR**" means, with respect to any interest period (or any other period over which Compounded SOFR is to be calculated), the rate of return of a daily compound interest investment over the Observation Period corresponding to that interest period

(or that other period), calculated as follows with the resulting percentage being rounded, if necessary, to the nearest one hundred-thousandth of a percentage point (0.000005% being rounded upwards to 0.00001%):

$$\left[\prod_{i=1}^{d_0}\left(1+\frac{\mathrm{SOFR}_i \times n_i}{360}\right)-1\right]\times\frac{360}{d}$$

where:

"**d_0**" means the number of U.S. Government Securities Business Days in that Observation Period;

"**i**" is a series of whole numbers from one to d_0, each representing the relevant U.S. Government Securities Business Day in chronological order from, and including, the first U.S. Government Securities Business Day in that Observation Period;

"**SOFR_i**" means, for any U.S. Government Securities Business Day "*i*" in that Observation Period, Daily SOFR with respect to that day "*i*";

"**n_i**" means, for any U.S. Government Securities Business Day "*i*" in that Observation Period, the number of calendar days in that Observation Period from, and including, that U.S. Government Securities Business Day "*i*" up to, but excluding, the following U.S. Government Securities Business Day; and

"**d**" means the number of calendar days in that Observation Period.

The "**Observation Period**" means, with respect to each interest period (or each other period over which Compounded SOFR is to be calculated), the period from, and including, the date a number of U.S. Government Securities Business Days preceding the first date in that interest period equal to the "Lookback" specified in the relevant pricing supplement (or the date a number of U.S. Government Securities Business Days preceding the first date in that other period equal to the Lookback) to, but excluding, the date a number of U.S. Government Securities Business Days preceding the interest payment date for that interest period equal to the Lookback (or the date a number of U.S. Government Securities Business Days preceding the calendar day immediately following the final day of that other period equal to the Lookback), *provided* that the Lookback will be five if no Lookback is specified in the relevant pricing supplement.

Effect of a Benchmark Transition Event. Notwithstanding anything to the contrary as outlined above, if the calculation agent determines that a Benchmark Transition Event and its related Benchmark Replacement Date have occurred prior to the Reference Time in respect of any determination of the Benchmark on any date, the Benchmark Replacement will replace the then-current Benchmark for all purposes relating to the notes in respect of such determination on such date and all determinations on all subsequent dates. In connection with the implementation of a Benchmark Replacement, the calculation agent will have the right to make Benchmark Replacement Conforming Changes from time to time. Any determination, decision or election that may be made by us or by the calculation agent pursuant to the benchmark transition provisions described herein, including any determination with respect to a tenor, rate or adjustment or of the occurrence or non-occurrence of an event, circumstance or date and any decision to take or refrain from taking any action or any selection:

- will be conclusive and binding absent manifest error;
- will be made in our or the calculation agent's sole discretion, notwithstanding anything to the contrary in this product supplement or in the accompanying prospectus or prospectus supplement; and
- will become effective without consent from the holders of the notes or any other party.

Any determination, decision or election pursuant to the benchmark transition provisions made by the calculation agent will be made after consultation with us, and the calculation agent will not make any such determination, decision or election to which we object. Any determination, decision or election pursuant to the benchmark transition provisions not made by the calculation agent will be made by us on the basis as described above. The calculation agent shall have no liability for not making any such determination, decision or election. In addition, we

may designate an entity (which may be our affiliate) to make any determination, decision or election that we have the right to make in connection with the benchmark transition provisions set forth in this pricing supplement.

Certain Definitions. For the purposes of this "Daily SOFR and Compounded SOFR" subsection:

"**Benchmark**" means, initially, Daily SOFR or Compounded SOFR, as specified in the relevant pricing supplement; *provided* that if a Benchmark Transition Event and its related Benchmark Replacement Date have occurred with respect to Daily SOFR or Compounded SOFR, as applicable (or, in the case of Compounded SOFR, with respect to Daily SOFR as used in the calculation of Compounded SOFR), or the then-current Benchmark, then "**Benchmark**" means the applicable Benchmark Replacement.

"**Benchmark Replacement**" means the first alternative set forth in the order below that can be determined by the calculation agent as of the Benchmark Replacement Date:

(1) the sum of: (a) the alternate rate of interest that has been selected or recommended by the Relevant Governmental Body as the replacement for the then-current Benchmark and (b) the Benchmark Replacement Adjustment;

(2) if the calculation agent determines that the ISDA Fallback Rate is an industry-accepted rate of interest as a replacement for the then-current Benchmark for U.S. dollar-denominated floating rate notes at such time, the sum of: (a) the ISDA Fallback Rate and (b) the Benchmark Replacement Adjustment;

(3) the sum of: (a) the alternate rate of interest that has been selected by the calculation agent as the replacement for the then-current Benchmark giving due consideration to any industry-accepted rate of interest as a replacement for the then-current Benchmark for U.S. dollar-denominated floating rate notes at such time and (b) the Benchmark Replacement Adjustment.

"**Benchmark Replacement Adjustment**" means the first alternative set forth in the order below that can be determined by the calculation agent as of the Benchmark Replacement Date:

(1) the spread adjustment (which may be a positive or negative value or zero), or method for calculating or determining such spread adjustment, that has been selected or recommended by the Relevant Governmental Body for the applicable Unadjusted Benchmark Replacement;

(2) if the applicable Unadjusted Benchmark Replacement is equivalent to the ISDA Fallback Rate, then the ISDA Fallback Adjustment;

(3) the spread adjustment (which may be a positive or negative value or zero) that has been selected by the calculation agent giving due consideration to any industry-accepted spread adjustment, or method for calculating or determining such spread adjustment, for the replacement of the then-current Benchmark with the applicable Unadjusted Benchmark Replacement for U.S. dollar-denominated floating rate notes at such time.

"**Benchmark Replacement Conforming Changes**" means, with respect to any Benchmark Replacement, any technical, administrative or operational changes (including changes to the definitions or interpretations of "interest determination date," "interest period" and "Observation Period," the methodology, timing and frequency of determining rates and making payments of interest, the rounding of amounts or tenors, and other administrative matters) that the calculation agent decides may be appropriate to reflect the adoption of such Benchmark Replacement in a manner substantially consistent with market practice (or, if the calculation agent decides that adoption of any portion of such market practice is not administratively feasible or if the calculation agent determines that no market practice for use of the Benchmark Replacement exists or that no market practice for such use is applicable to the notes, in such other manner as the calculation agent determines is reasonably practicable).

"**Benchmark Replacement Date**" means the earliest to occur of the following events with respect to the then-current Benchmark:

(1) in the case of clause (1) or (2) of the definition of "Benchmark Transition Event," the later of (a) the date of the public statement or publication of information referenced therein and (b) the date on which the administrator of the Benchmark permanently or indefinitely ceases to provide the Benchmark; or

(2) in the case of clause (3) of the definition of "Benchmark Transition Event," the date of the public statement or publication of information referenced therein.

For the avoidance of doubt, if the event giving rise to the Benchmark Replacement Date occurs on the same day as, but earlier than, the Reference Time in respect of any determination, the Benchmark Replacement Date will be deemed to have occurred prior to the Reference Time for such determination. For the avoidance of doubt, for purposes of the definitions of Benchmark Replacement Date and Benchmark Transition Event, references to Benchmark also include any reference rate underlying that Benchmark.

"**Benchmark Transition Event**" means the occurrence of one or more of the following events with respect to the then-current Benchmark:

(1) a public statement or publication of information by or on behalf of the administrator of the Benchmark announcing that such administrator has ceased or will cease to provide the Benchmark, permanently or indefinitely, *provided* that, at the time of such statement or publication, there is no successor administrator that will continue to provide the Benchmark;

(2) a public statement or publication of information by the regulatory supervisor for the administrator of the Benchmark, the central bank for the currency of the Benchmark, an insolvency official with jurisdiction over the administrator for the Benchmark, a resolution authority with jurisdiction over the administrator for the Benchmark or a court or an entity with similar insolvency or resolution authority over the administrator for the Benchmark, which states that the administrator of the Benchmark has ceased or will cease to provide the Benchmark permanently or indefinitely, *provided* that, at the time of such statement or publication, there is no successor administrator that will continue to provide the Benchmark; or

(3) a public statement or publication of information by the regulatory supervisor for the administrator of the Benchmark announcing that the Benchmark is no longer representative.

"**ISDA Definitions**" means the 2021 ISDA Definitions published by the International Swaps and Derivatives Association, Inc. or any successor thereto, as amended or supplemented from time to time, or any successor definitional booklet for interest rate derivatives published from time to time.

"**ISDA Fallback Adjustment**" means the spread adjustment (which may be a positive or negative value or zero) that would apply for derivatives transactions referencing the ISDA Definitions to be determined upon the occurrence of an index cessation event with respect to the Benchmark for the applicable tenor.

"**ISDA Fallback Rate**" means the rate that would apply for derivatives transactions referencing the ISDA Definitions to be effective upon the occurrence of an index cessation date with respect to the Benchmark for the applicable tenor excluding the applicable ISDA Fallback Adjustment.

"**Reference Time**" with respect to any determination of the Benchmark means (1) if the Benchmark is Daily SOFR or Compounded SOFR, the SOFR Determination Time, and (2) if the Benchmark is not Daily SOFR or Compounded SOFR, the time determined by the calculation agent in accordance with the Benchmark Replacement Conforming Changes.

"**Relevant Governmental Body**" means the Federal Reserve Board and/or the Federal Reserve Bank of New York, or a committee officially endorsed or convened by the Federal Reserve Board and/or the Federal Reserve Bank of New York or any successor thereto.

"**Unadjusted Benchmark Replacement**" means the Benchmark Replacement excluding the Benchmark Replacement Adjustment.

U.S. Dollar SOFR ICE Swap Rate

A U.S. Dollar SOFR ICE Swap Rate is a "constant maturity swap rate" that measures the annual fixed rate of interest payable on a hypothetical fixed-for-floating U.S. dollar interest rate swap transaction with a specified maturity. In such a hypothetical swap transaction, the fixed rate of interest, payable annually on an actual / 360 basis (i.e., interest accrues based on the actual number of days elapsed, with a year assumed to comprise 360 days), is exchangeable for a floating payment stream based on SOFR (as defined below) (compounded in arrears for twelve months using standard market conventions), also payable annually on an actual / 360 basis. SOFR is intended to be a broad measure of the cost of borrowing cash overnight collateralized by Treasury securities. See "—Compounded SOFR" above for additional information about SOFR.

According to information provided by ICE Benchmark Administration Limited ("**IBA**") (which we have not independently verified), each U.S. Dollar SOFR ICE Swap Rate is calculated using eligible prices and volumes for specified interest rate derivative products provided by trading venues in accordance with a "waterfall" methodology. The first level of the waterfall ("**Level 1**") uses eligible, executable prices and volumes provided by regulated, electronic, trading venues. If these trading venues do not provide sufficient eligible input data to calculate a rate in accordance with Level 1 of the methodology, then the second level of the waterfall ("**Level 2**") uses eligible dealer to client prices and volumes displayed electronically by trading venues. If there is insufficient eligible input data to calculate a rate in accordance with Level 2 of the methodology, then the third level of the waterfall ("**Level 3**") uses movement interpolation, where possible for applicable tenors, to calculate the rate. Where it is not possible to calculate a rate at Level 1, Level 2 or Level 3 of the waterfall, then an insufficient data policy applies for that rate, and the applicable U.S. Dollar SOFR ICE Swap Rate may not be published for that date.

U.S. Dollar SOFR ICE Swap Rates. Unless otherwise specified in the relevant pricing supplement, with respect to any day, the "**U.S. Dollar SOFR ICE Swap Rate**" refers to the rate for U.S. dollar swaps with a designated maturity as specified in the relevant pricing supplement, referencing SOFR (compounded in arrears for twelve months using standard market conventions), that appears on the Relevant Bloomberg Screen Page at approximately 11:00 a.m., New York City time, on that day, as determined by the calculation agent, *provided* that, if no such rate appears on the Relevant Bloomberg Screen Page on that day at approximately 11:00 a.m., New York City time, then the calculation agent, after consulting such sources as it deems comparable to the foregoing display page, or any such source it deems reasonable from which to estimate the relevant rate for U.S. dollar swaps referencing SOFR, will determine the relevant U.S. Dollar SOFR ICE Swap Rate for that day in its sole discretion.

"**Relevant Bloomberg Screen Page**" means the display designated as the Bloomberg screen specified in the relevant pricing supplement or such other page as may replace that Bloomberg screen on that service or such other service or services as may be selected for the purpose of displaying rates for U.S. dollar swaps referencing SOFR by IBA or its successor or such other entity that assumes the responsibility of IBA or its successor in calculating rates for U.S. dollar swaps referencing SOFR if IBA or its successor ceases to do so.

Notwithstanding the foregoing in this "U.S. Dollar SOFR ICE Swap Rate" subsection:

(1) If the calculation agent determines in its sole discretion on or prior to the relevant day that the relevant rate for U.S. dollar swaps referencing SOFR has been discontinued or that rate has ceased to be published permanently or indefinitely, then the calculation agent will use as the relevant U.S. Dollar SOFR ICE Swap Rate for that day a substitute or successor rate that it has determined in its sole discretion to be a commercially reasonable replacement rate; and

(2) If the calculation agent has determined a substitute or successor rate in accordance with the foregoing, the calculation agent may determine in its sole discretion to adjust the definitions of business day, interest determination date and any other relevant methodology for calculating that substitute or successor rate, including any adjustment factor, spread and/or formula it determines is needed to make that substitute or successor rate comparable to the relevant rate for U.S. dollar swaps referencing SOFR, in a manner that it determines to be consistent with industry-accepted practices for that substitute or successor rate.

Reference Stocks and Funds

Certain Definitions

In this "Reference Stocks and Funds" section, we refer to any Reference Stock, the shares of any Fund and any other security for which a price must be determined under the terms of the notes as a "**Reference Security**."

Unless otherwise set forth in the relevant pricing supplement, the "**closing value**" for any Reference Security on any day will equal the closing sale price or last reported sale price, regular way (or, in the case of The Nasdaq Stock Market, the official closing price) for that Reference Security, on a per-share or other unit basis:

- on the principal U.S. national securities exchange on which that Reference Security is listed for trading on that day or, if that Reference Security is issued by a non-U.S. issuer and is not listed or admitted to trading on a U.S. securities exchange or market, on the principal non-U.S. securities exchange on which that Reference Security is listed for trading on that day;

- if that Reference Security is not quoted on any U.S. national securities exchange on that day, on any other market system or quotation system that is the primary market for the trading of that Reference Security; or

- if that Reference Security is issued by a non-U.S. issuer and is not listed or admitted to trading on a U.S. securities exchange or market, on the principal non-U.S. securities exchange on which that Reference Security is listed for trading on that day.

If that Reference Security is not listed or traded as described above, then the closing value for that Reference Security on any day will be the average, as determined by the calculation agent, of the bid prices for the Reference Security obtained from as many dealers in that Reference Security selected by the calculation agent as will make those bid prices available to the calculation agent. The number of dealers need not exceed three and may include the calculation agent or any of its or our affiliates. If no bid prices are provided from any third-party dealers, the closing value will be determined by the calculation agent in its sole discretion, taking into account any information that it deems relevant. The closing value of a Reference Security is subject to adjustment as set forth below under "—Anti-dilution Adjustments," "—Delisting of ADSs or Termination of ADS Facility" and "General Terms of the Notes—Postponement of a Calculation Day" below.

Unless otherwise specified in the relevant pricing supplement, a "**scheduled trading day**" for any Reference Security is a day, as determined by the calculation agent, on which trading is scheduled to open on the principal U.S. national securities exchange or the over-the-counter market for equity securities in the United States on which that Reference Security is listed or admitted to trading or, with respect to a security issued by a non-U.S. issuer that is not listed or admitted to trading on a U.S. securities exchange or market, a day, as determined by the calculation agent, on which trading is scheduled to open on the primary non-U.S. securities exchange or market on which that Reference Security is listed or admitted to trading.

Market Disruption Events

Unless otherwise specified in the relevant pricing supplement, with respect to a Reference Security, a "**market disruption event**" means the occurrence of any of the following events, in each case as determined by the calculation agent in its sole discretion:

- a suspension, absence or limitation of trading in (i) that Reference Security in its primary market, as determined by the calculation agent, or (ii) futures or option contracts relating to that Reference Security in the respective primary market for those contracts;

- any event that disrupts or impairs the ability of market participants to (i) effect transactions in, or obtain market values for, that Reference Security in its primary market, or (ii) effect transactions in, or obtain market values for, futures or option contracts relating to that Reference Security in the respective primary markets for those contracts;

- the closure on any day of the primary market for that Reference Security or the primary market for futures or option contracts relating to that Reference Security, in each case, on a scheduled trading day prior to the scheduled closing time of that market (without regard to after hours or any other trading outside of the regular trading session hours) unless such earlier closing time is announced by that market at least one hour prior to the earlier of (i) the actual closing time for the regular trading session on that market on that scheduled trading day and (ii) the submission deadline for orders to be entered into the relevant exchange system for execution at the close of trading on that scheduled trading day;

- any scheduled trading day on which (i) the primary market for that Reference Security or (ii) the exchanges or quotation systems, if any, on which futures or option contracts on that Reference Security are traded, fails to open for trading during its regular trading session; or

- any other event, if the calculation agent determines in its sole discretion that the event interferes with our ability or the ability of any of our affiliates to establish, adjust or unwind any portion of a hedge with respect to the notes that we or our affiliates have effected or may effect as described under "Use of Proceeds and Hedging" above.

Notwithstanding the foregoing, the occurrence of an event set forth above will not constitute a market disruption event if the calculation agent determines in its sole discretion that such event does not interfere with our ability or the ability of any of our affiliates to establish, adjust or unwind any portion of a hedge with respect to the notes that we or our affiliates have effected or may effect as described under "Use of Proceeds and Hedging" above.

Anti-dilution Adjustments

The calculation agent may in its sole discretion adjust any variable described in the relevant pricing supplement, including, but not limited to, any value of a Reference Security (including but not limited to the Initial Underlier Value, any value derived from the Initial Underlier Value, the Final Underlier Value and the closing value or any other relevant price of that Reference Security on any Determination Date), any physical delivery amount and any combination thereof or any other variable described in the relevant pricing supplement, if an event described below occurs on or before the final Determination Date (or, in the case of any physical delivery amount, before the maturity date) and the calculation agent determines that the event has a diluting or concentrative effect on the theoretical value of the shares. The calculation agent will make any such adjustment with a view to offsetting, to the extent practicable, any change in your economic position relative to the notes, that results solely from that event, and the calculation agent may modify the anti-dilution adjustments below as necessary to ensure an equitable result. The calculation agent will also determine the effective date of any adjustment.

In determining whether or not any adjustment achieves an equitable result, the calculation agent may in its sole discretion consider any adjustment made by the Options Clearing Corporation or any other equity derivatives clearing organization on option contracts on the affected Reference Security.

If more than one such event occurs, to the extent practicable, the calculation agent will make any adjustment for each event in the order in which the events occur, and on a cumulative basis. Thus, to the extent practicable, having adjusted the values for the appropriate variables for the first event, the calculation agent will adjust the appropriate values for the second event, applying any adjustments cumulatively.

If an event occurs and an offeree may elect to receive property pursuant to that event in a designated form, the property delivered in that event will be deemed to be composed of marketable securities in the maximum amount that a holder of the applicable Reference Security would be permitted to elect, if any, and the remainder of the property delivered in that event, if any, will be deemed to include the kind and amount of cash and other property received by offerees who do not make an election except in respect of those marketable securities, in each case as determined by the calculation agent in its sole discretion.

Stock Splits, Reverse Stock Splits and Stock Dividends

If a Reference Security is subject to a stock split or a reverse stock split or if a stock dividend is declared, then the calculation agent may in its sole discretion determine to make any adjustment to the terms of the notes based on an adjustment factor equal to (1) the number of shares of that Reference Security outstanding immediately after the

stock split or stock dividend becomes effective *divided by* (2) the number of shares of that Reference Security outstanding immediately before the stock split or stock dividend becomes effective. For example, the calculation agent might determine to adjust the Initial Underlier Value of the relevant Reference Security, and any value derived therefrom, by dividing that value by that adjustment factor, or the calculation agent might determine to make other adjustments that it determines are appropriate.

Extraordinary Dividends

The calculation agent will not make any anti-dilution adjustments for ordinary cash dividends. Any distribution or dividend on a Reference Security determined by the calculation agent in its sole discretion to be a distribution or dividend that is not in the ordinary course of the issuer's historical dividend practices will be deemed to be an extraordinary dividend.

If any extraordinary dividend occurs with respect to a Reference Security, then the calculation agent may in its sole discretion determine to make any adjustment to the terms of the notes based on an adjustment factor equal to (1) the amount by which the closing value of that Reference Security on the trading day before the ex-dividend date of that extraordinary dividend exceeds the extraordinary dividend amount *divided by* (2) the closing value of that Reference Security on the trading day before that ex-dividend date.

The extraordinary dividend amount with respect to an extraordinary dividend for a Reference Security will be determined by the calculation agent and will equal:

- for an extraordinary dividend that is paid in lieu of a regular quarterly dividend, (1) the amount of the extraordinary dividend per share of that Reference Security *minus* (2) the amount per share of the immediately preceding dividend, if any, that was not an extraordinary dividend for that Reference Security; or

- for an extraordinary dividend that is not paid in lieu of a regular quarterly dividend, the amount per share of that extraordinary dividend.

To the extent an extraordinary dividend is not paid in cash, the value of the non-cash component will be determined by the calculation agent in its sole discretion. In the case of an extraordinary dividend that is a stock dividend, an issuance of transferable rights or warrants or a spin-off event, any adjustment will be made only as described under "—Stock Splits, Reverse Stock Splits and Stock Dividends" above, "—Transferable Rights and Warrants" below or "—Reorganization Events" below, as the case may be, and no adjustment will be made under this "Extraordinary Dividends" section.

Transferable Rights and Warrants

If the issuer of a Reference Security issues transferable rights or warrants to all holders of that Reference Security to subscribe for or purchase shares of that Reference Security at an exercise price per share that is less than the closing value of that Reference Security, then the calculation agent may in its sole discretion determine to make any adjustment to the terms of the notes based on an adjustment factor determined as follows:

- (1) the number of shares of that Reference Security outstanding at the close of business on the day before the ex-dividend date for the issuance *plus* (2) the number of additional shares of that Reference Security that the aggregate offering price of the total number of shares of that Reference Security so offered for subscription or purchase pursuant to the transferable rights or warrants could purchase at the closing value on the trading day before the ex-dividend date (with that number of additional shares being determined by multiplying the total number of shares so offered by the exercise price of those transferable rights or warrants and dividing the resulting product by the closing value on the trading day before that ex-dividend date), *divided by*

- (1) the number of shares of that Reference Security outstanding at the close of business on the day before that ex-dividend date *plus* (2) the number of additional shares of that Reference Security offered for subscription or purchase under those transferable rights or warrants.

Reorganization Events

Each of the following is a reorganization event with respect to a Reference Security:

- a Reference Security is reclassified or changed;
- the issuer of a Reference Security has been subject to a merger, consolidation or other combination and either is not the surviving entity or is the surviving entity but all the outstanding stock is exchanged for or converted into other property;
- a statutory share exchange involving the outstanding stock and the securities of another entity occurs, other than as part of an event described in the two bullet points above;
- the issuer of a Reference Security sells or otherwise transfers its property and assets as an entirety or substantially as an entirety to another entity;
- the issuer of a Reference Security effects a spin-off—that is, issues to all holders of that Reference Security the securities of another issuer, other than as part of an event described in the four bullet points above;
- the issuer of a Reference Security is liquidated, dissolved or wound up or is subject to a proceeding under any applicable bankruptcy, insolvency or other similar law;
- another entity completes a tender or exchange offer for all of the outstanding stock of the issuer of a Reference Security; or
- a delisting, liquidation or termination of a Fund occurs and no successor fund is available, as described under "—Discontinuation of, or Adjustments to, a Fund" below.

On or after the effective date of a reorganization event, the calculation agent may, in its sole discretion, make an adjustment to any value of the affected Reference Security (including but not limited to the Initial Underlier Value, any value derived from the Initial Underlier Value, the Final Underlier Value and the closing value or any other relevant price of that Reference Security on any Determination Date), any physical delivery amount and any combination thereof or any other variable described in the relevant pricing supplement, that the calculation agent determines in its sole discretion is appropriate to account for the economic effect on the notes of that reorganization event (including adjustments to account for (i) changes in volatility, expected dividends, stock loan rates or liquidity relevant to the relevant Reference Security or to the notes or (ii) the replacement of that Reference Security with replacement property as described below). For the avoidance of doubt, any adjustment will be made on or after the effective date of the reorganization event and not on the date of the announcement of a plan or intention to effect such an event.

If the issuer of a Reference Security undergoes a reorganization event in which property other than that Reference Security—for example, cash, securities of another issuer ("**new securities**") and/or other property—is distributed in respect of that Reference Security, then the calculation agent will determine the closing value or other value of that Reference Security by reference to the value of the cash, new securities and other property distributed in respect of one share of that Reference Security as determined in the sole discretion of the calculation agent (subject to adjustment as described below, "**replacement property**"), *provided* that:

- if cash and/or other property and new securities are distributed in respect of one share of that Reference Security, the calculation agent may for this purpose determine in its sole discretion to replace any cash or other property distributed in respect of one share of that Reference Security with additional shares of new securities in an amount determined by the calculation agent by reference to the relative values of (1) that cash and/or other property as determined in the sole discretion of the calculation agent and (2) one share of new securities; and
- if only cash is distributed in respect of one share of that Reference Security and the calculation agent elects in its sole discretion to identify a substitute security as described under "—Substitute Securities"

below, the replacement property will consist of shares of the substitute security in an amount determined by the calculation agent by reference to the relative values of (1) that cash and (2) one share of that substitute security.

Following a reorganization event, when we refer to the relevant Reference Security in this product supplement, we refer to the replacement property, and when we refer to the issuer of a Reference Security, we mean the issuer of any new securities or substitute securities included in the replacement property.

As an alternative to applying the provisions of the two preceding paragraphs, the calculation agent may elect in its sole discretion to cause the maturity date of the notes to be accelerated to a date no later than the tenth business day following the effective date of the reorganization event relating to any relevant Reference Security. In the event of such an acceleration, the amount payable in respect of the notes on the maturity date as so accelerated will be the value of the notes, as determined by the calculation agent in its sole discretion by reference to, among other things, the value of any embedded options or other derivatives, on a day determined by the calculation agent that falls on or after the effective date of the reorganization event and prior to the maturity date as so accelerated (or, if the calculation agent determines in its sole discretion that referencing another day would achieve a more equitable result, such other day). In determining the value of the notes, the calculation agent will not take into account our creditworthiness or credit spreads. In the case of an acceleration of the maturity date on the notes, any accrued but unpaid interest payable under the notes will be paid through and excluding the related date of the accelerated payment.

Substitute Securities

If the issuer of a Reference Security undergoes a reorganization event and only cash is distributed in respect of one share of that Reference Security as described under "—Reorganization Events" above, the calculation agent will have the right (but not the obligation) to identify a substitute security. With respect to a Reference Security, a "**substitute security**" at any time of determination means the common stock or the ADSs of a company then-included in the same primary "Industry" classification as the issuer of that Reference Security as published on the Bloomberg Professional® service page <Ticker> <Equity> RV <GO> (or any successor thereto) (the "**industry criteria**") that, as determined by the calculation agent in its sole discretion:

- is listed or approved for trading on a national U.S. securities exchange;
- satisfies all regulatory standards applicable to the notes at the time of selection;
- is not subject to a hedging restriction or any other law, regulation or order that would prohibit or materially restrict the direct or indirect sale, purchase, beneficial ownership, holding, or transfer of, or any other transaction or other dealing related to that common stock or those ADSs by us, our affiliates, other market participants or any class of eligible potential purchasers of the notes; and
- excluding all securities that do not meet all the above requirements, is the most comparable to that Reference Security, based upon relevant criteria determined by the calculation agent, including, but not limited to, market capitalization, stock price volatility and dividend yield.

A company is subject to a "hedging restriction" if we or any of our affiliates is subject to a trading restriction under our or any of our affiliates' trading restriction policies that would materially limit our or any of our affiliates' ability to hedge the notes with respect to the common stock or ADSs of that company.

If the calculation agent is unable to identify a substitute security that meets the above requirements, the calculation agent may select a substitute security using an alternate industry criteria that references a different source, in the following order: (1) the primary "Sub-Industry" classification, (2) the primary "Industry" classification and (3) the primary "Industry Group" classification, in each case, determined by reference to the Global Industry Classification Standard ("**GICS**"). If GICS is altered or abandoned, the calculation agent may select an alternate classification system and implement similar procedures in its sole discretion.

Adjustments Relating to ADSs

For purposes of any adjustments relating to ADSs that constitute a Reference Security, the calculation agent will consider the effect of any of the relevant events on the holders of that Reference Security. For example, if a holder of a Reference Security receives an extraordinary dividend, the provisions described in this section would apply to that Reference Security. On the other hand, if a spin-off occurs, and a Reference Security represents both the spun-off security as well as the existing ADS underlying stock, the calculation agent may determine not to effect the anti-dilution adjustments set forth in this section. More particularly, the calculation agent may not make an adjustment (1) if holders of the Reference Security are not eligible to participate in any of the events that would otherwise require anti-dilution adjustments as set forth in this section or (2) to the extent that the calculation agent determines that the underlying company or the depositary for the ADSs has adjusted the number of shares of the ADS underlying stock represented by each share of the Reference Security so that the market price of the relevant Reference Security would not be expected to be affected by the corporate event in question.

If the underlying company or the depository for the ADSs, in the absence of any of the events described in this section, elects to adjust the number of common shares of the underlying company represented by each share of a Reference Security, then the calculation agent may make the appropriate anti-dilution adjustments to reflect that change. The depository for ADSs may also make adjustments in respect of the ADSs for share distributions, rights distributions, cash distributions and distributions other than shares, rights, and cash. Upon any such adjustment by the depository, the calculation agent may adjust such terms of the notes as the calculation agent determines appropriate to account for that event.

Delisting of ADSs or Termination of ADS Facility

If ADSs serving as a Reference Security are no longer listed or admitted to trading on a U.S. securities exchange registered under the Exchange Act nor included in the OTC Bulletin Board Service operated by FINRA, or if the ADS facility is terminated by the issuer of the ADS underlying stock or the ADS depositary for any reason, then, on and after the date that those ADSs are no longer so listed or admitted to trading or the date of that termination, the calculation agent may, in its sole discretion, determine to replace that Reference Security with the ADS underlying stock and make an adjustment to any value of that Reference Security (including but not limited to the Initial Underlier Value, any value derived from the Initial Underlier Value, the Final Underlier Value and the closing value or any other relevant price of that Reference Security on any Determination Date), any physical delivery amount and any combination thereof or any other variable described in the relevant pricing supplement, that the calculation agent determines in its sole discretion is appropriate to account for that replacement. Such adjustments may include, but are not limited to, adjustments that reflect the number of shares of ADS underlying stock represented by each ADSs and an exchange rate determined by the calculation agent in such manner as it determines to be commercially reasonable. Following such an event, when we refer to the relevant Reference Security in this product supplement, we refer to the relevant ADS underlying stock.

Discontinuation of, or Adjustments to, a Fund

If the shares of a Fund are delisted from the relevant exchange (and not immediately relisted on another U.S. national securities exchange) or if a Fund is liquidated or otherwise terminated, then the calculation agent will substitute another exchange-traded fund that the calculation agent determines, in its sole discretion, is comparable to the discontinued Fund (such other exchange-traded fund being referred to as a "**successor fund**"). That successor fund will be used as a substitute for the original Fund for all purposes. Under these circumstances, the calculation agent may in its sole discretion adjust any value of the original Fund and the successor fund (including but not limited to the Initial Underlier Value, any value derived from the Initial Underlier Value, the Final Underlier Value and the closing value or any other relevant value of the original Fund or the successor fund on any Determination Date) with a view to offsetting, to the extent practicable, any difference in the relative values of the original Fund and the successor fund at the time the original Fund is replaced by the successor fund.

If the shares of a Fund are delisted from the relevant exchange (and not immediately relisted on another U.S. national securities exchange), or if a Fund is liquidated or otherwise terminated, and the calculation agent determines that no successor fund is available, then a reorganization event will be deemed to occur in with respect to the shares of that Fund. See "—Anti-dilution Adjustments—Reorganization Events" above.

If at any time a Fund or its Underlying Index is changed in a material respect, or if a Fund or its Underlying Index is in any other way modified so that the Fund does not, in the opinion of the calculation agent, fairly represent the value of that Fund had those changes or modifications not been made, then the calculation agent may, in its sole discretion, determine to make such calculations and adjustments as it determines may be necessary in order to arrive at a closing value of that Fund comparable to that Fund as if those changes or modifications had not been made. The calculation agent may also determine to make no calculations or adjustments.

Notwithstanding these alternative arrangements, discontinuance of a Fund, or adjustments to a Fund or its Underlying Index, may adversely affect the value of your notes.

Change-in-Law Events

Unless otherwise specified in the relevant pricing supplement, the provisions in this "Change-in-Law Events" section will apply to notes linked in whole or in part to any Underlier that provides direct or indirect exposure to non-U.S. equity securities as determined by the calculation agent in its sole discretion.

If a change-in-law-event occurs, then the calculation agent may elect in its sole discretion to cause the maturity date of the notes to be accelerated to a date no later than the tenth business day following the date on which that change-in-law-event occurs. In the event of such an acceleration, the amount payable in respect of the notes on the maturity date as so accelerated will be the value of the notes, as determined by the calculation agent in its sole discretion by reference to, among other things, the value of any embedded options or other derivatives, on a day determined by the calculation agent that falls on or after the date on which that change-in-law-event occurs and prior to the maturity date as so accelerated (or, if the calculation agent determines in its sole discretion that referencing another day would achieve a more equitable result, such other day). In determining the value of the notes, the calculation agent will not take into account our creditworthiness or credit spreads. In the case of an acceleration of the maturity date on the notes, any accrued but unpaid interest payable under the notes will be paid through and excluding the related date of the accelerated payment.

A "**change-in-law-event**" will occur if due to (1) the adoption of or any change in any applicable law, regulation or order (including, for the avoidance of doubt and without limitation, adoption or promulgation of new regulations authorized or mandated by existing statute) or (2) the promulgation of or any change, announcement or statement of the formal or informal interpretation by any court, tribunal, regulatory or executive authority with competent jurisdiction of any applicable law, regulation or order, the calculation agent determines in its sole discretion that the direct or indirect sale, purchase, beneficial ownership, holding, or transfer of, or any other transaction or other dealing related to, the notes or any Underlier or its components by us, our affiliates, other market participants or any class of eligible potential purchasers of the notes is prohibited or materially restricted or, after giving effect to any applicable liquidation, unwind or cure period, will be prohibited or materially restricted.

Indices

Certain Definitions

Unless otherwise set forth in the relevant pricing supplement, the "**closing value**" for any Index on any day means the official closing level of that Index reported by the relevant Index Sponsor on that day, as obtained by the calculation agent from any licensed third-party market data vendor contracted by the calculation agent at that time, taking into account, in particular, the decimal precision and/or rounding convention employed by that Index Sponsor and/or that licensed third-party market data vendor on that date. The closing value of an Index is subject to adjustment as set forth below under "—Discontinuation of, or Adjustments to, an Index" and "General Terms of the Notes—Postponement of a Calculation Day" below.

A "**scheduled trading day**" means a day, as determined by the calculation agent, on which (i) the relevant Index Sponsor is scheduled to publish the official closing level of that Index, (ii) the primary markets for components constituting 20% or more, by weight, of that Index are scheduled to be open for trading for their regular trading sessions and (iii) each primary market for futures and option contracts with respect to that Index is scheduled to be open for trading for its regular trading session.

Market Disruption Events

Unless otherwise specified in the relevant pricing supplement, with respect to an Index, a "**market disruption event**" means the occurrence of any of the following events, in each case as determined by the calculation agent in its sole discretion:

- a suspension, absence or limitation of trading in (i) components constituting 20% or more, by weight, of that Index in their primary markets, as determined by the calculation agent, or (ii) futures or option contracts relating to that Index in the respective primary markets for those contracts;

- any event that disrupts or impairs, as determined by the calculation agent, the ability of market participants to (i) effect transactions in, or obtain market values for, components constituting 20% or more, by weight, of that Index, or (ii) effect transactions in, or obtain market values for, futures or option contracts relating to that Index on their respective markets in the respective primary markets for those contracts;

- the closure on any day of the primary market for futures or option contracts relating to that Index or components constituting 20% or more, by weight, of that Index, in each case, on a scheduled trading day prior to the scheduled weekday closing time of that market (without regard to after hours or any other trading outside of the regular trading session hours) unless such earlier closing time is announced by that market at least one hour prior to the earlier of (i) the actual closing time for the regular trading session on that market on that scheduled trading day and (ii) the submission deadline for orders to be entered into the relevant exchange system for execution at the close of trading on that scheduled trading day;

- any scheduled trading day on which (i) the primary markets for components constituting 20% or more, by weight, of that Index or (ii) the exchanges or quotation systems, if any, on which futures or option contracts on that Index are traded, fails to open for trading during its regular trading session;

- the Index Sponsor fails to publish the official closing level of that Index on a scheduled trading day; or

- any other event, if the calculation agent determines in its sole discretion that the event interferes with our ability or the ability of any of our affiliates to establish, adjust or unwind any portion of a hedge with respect to the notes that we or our affiliates have effected or may effect as described under "Use of Proceeds and Hedging" above.

Notwithstanding the foregoing, the occurrence of an event set forth above will not constitute a market disruption event if the calculation agent determines in its sole discretion that such event does not interfere with our ability or the ability of any of our affiliates to establish, adjust or unwind any portion of a hedge with respect to the notes that we or our affiliates have effected or may effect as described under "Use of Proceeds and Hedging" above.

Discontinuation of, or Adjustments to, an Index

If an Index Sponsor discontinues publication of an Index, and that Index Sponsor or another entity publishes a successor or substitute index that has been licensed for our use (or can be licensed on commercially reasonable terms for our use, as determined by us in our sole discretion) for purposes of the notes and that the calculation agent determines, in its sole discretion, to be comparable to the discontinued index (such successor or substitute index being referred to as a "**successor index**"), then that successor index will be used as a substitute for the original Index for all purposes. Under these circumstances, the calculation agent may in its sole discretion adjust any value of the original Index and the successor index (including but not limited to the Initial Underlier Value, any value derived from the Initial Underlier Value, the Final Underlier Value and the closing value or any other relevant value of the original Index or the successor index on any Determination Date) with a view to offsetting, to the extent practicable, any difference in the relative levels of the original Index and the successor index at the time the original Index is replaced by the successor index.

Upon any selection by the calculation agent of a successor index, the calculation agent will provide written notice to the trustee of the selection, and the trustee will furnish written notice thereof, to the extent the trustee is required to under the indenture, to holders of the notes.

If an Index Sponsor discontinues publication of an Index prior to, and that discontinuance is continuing on, any day on which the level of that Index must be determined, and the calculation agent determines, in its sole discretion, that no successor index is available at that time, then the calculation agent will determine the level of the Index for that day in accordance with the formula for and method of calculating the Index last in effect prior to the discontinuance, without rebalancing or substitution, using the closing value (or, if trading in any component of the Index has been materially suspended or materially limited, its good faith estimate of the closing value that would have prevailed but for that suspension or limitation) at the close of the principal trading session of the relevant exchange on that date of each component most recently composing the Index. If, however, the calculation agent determines that calculating the closing value of that Index on that day is impossible or impracticable as described above, the calculation agent will determine the closing value of that Index on that day in good faith and in a commercially reasonable manner.

If at any time the method of calculating a closing value for an Index is changed in a material respect, or if an Index is in any other way modified so that the Index does not, in the opinion of the calculation agent, fairly represent the level of that Index had those changes or modifications not been made, then the calculation agent may, in its sole discretion, determine to make such calculations and adjustments as it determines may be necessary in order to arrive at a closing value of that Index comparable to that Index as if those changes or modifications had not been made. Accordingly, if the method of calculating an Index is modified so that the value of that Index is a fraction of what it would have been if it had not been modified (e.g., due to a rebasing of that Index), then the calculation agent will adjust that Index in order to arrive at a value of that Index as if it had not been modified (e.g., as if such rebasing had not occurred).

Notwithstanding these alternative arrangements, discontinuance of the publication of an Index, or adjustments to an Index, may adversely affect the value of your notes.

Postponement of a Determination Date

Certain definitions

Unless otherwise specified in the relevant pricing supplement, with respect to an Underlier and a Determination Date, the "**Final Disrupted Determination Date**" means the tenth scheduled trading day for that Underlier after that Determination Date, as originally scheduled.

Unless otherwise specified in the relevant pricing supplement, with respect to an Underlier and the Final Disrupted Determination Date for a Determination Date, the "**Fallback Value**" means:

- in the case of a Reference Stock or a Fund, the calculation agent's good faith estimate of the closing value of that Reference Stock or Fund that would have prevailed on that Final Disrupted Determination Date but for the occurrence of the relevant market disruption event; and

- in the case of an Index, the closing value of that Index on that Final Disrupted Determination Date determined by the calculation agent in accordance with the formula for and method of calculating the closing value of that Index last in effect prior to the commencement of the market disruption event, using the closing value (or, if trading in the relevant securities has been materially suspended or materially limited, the calculation agent's good faith estimate of the closing value that would have prevailed but for that suspension or limitation) on that Final Disrupted Determination Date of each security most recently constituting that Index.

Notes Linked to a Single Underlier

If a Determination Date is not a scheduled trading day with respect to the Underlier, that Determination Date will be postponed to the next succeeding scheduled trading day with respect to the Underlier.

If a market disruption event occurs or is continuing with respect to the Underlier on a Determination Date, then that Determination Date will be postponed to the first succeeding scheduled trading day for the Underlier on which a market disruption event for the Underlier has not occurred and is not continuing; however, if that first succeeding trading day has not occurred as of the Final Disrupted Determination Date for the Underlier, that Final Disrupted Determination Date will be deemed to be that Determination Date. If a Determination Date has been postponed to the Final Disrupted Determination Date and a market disruption event occurs or is continuing with respect to the Underlier on that Final Disrupted Determination Date, the closing value of the Underlier on that Final Disrupted Determination Date will be the Fallback Value of the Underlier on that Final Disrupted Determination Date.

Notes Linked to Multiple Underliers

If a Determination Date is not a scheduled trading day with respect to an Underlier, that Determination Date for each Underlier will be postponed to the next succeeding day that is a scheduled trading day with respect to each Underlier.

If a market disruption event occurs or is continuing with respect to an Underlier on a Determination Date, then that Determination Date for that Underlier will be postponed to the first succeeding scheduled trading day for that Underlier on which a market disruption event for that Underlier has not occurred and is not continuing; however, if that first succeeding trading day has not occurred as of the Final Disrupted Determination Date for that Underlier, that Final Disrupted Determination Date will be deemed to be the Determination Date for that Underlier. If a Determination Date for an Underlier has been postponed to the Final Disrupted Determination Date for an Underlier and a market disruption event occurs or is continuing with respect to that Underlier on that Disrupted Determination Date, the closing value of that Underlier on that Final Disrupted Determination Date will be the Fallback Value of that Underlier on that Final Disrupted Determination Date.

Notwithstanding the postponement of a Determination Date for an Underlier due to a market disruption event with respect to that Underlier on that Determination Date, the originally scheduled Determination Date will remain the Determination Date for any Underlier not affected by a market disruption event on the originally scheduled Determination Date.

Postponement of a Payment Date

If any scheduled Payment Date is not a business day, then that Payment Date will be the next succeeding business day following the scheduled Payment Date. If, due to a market disruption event, any Determination Date referenced in the determination of a payment on the notes that will or may be payable on any Payment Date is postponed so that it falls less than three business days prior to that scheduled Payment Date, that Payment Date will be the third business day following the latest such Determination Date, as postponed, unless otherwise specified in the relevant pricing supplement. If any Payment Date is adjusted as the result of a non-business day or a market disruption event, any payment of interest due on that Payment Date will be made on that Payment Date, as postponed, with the same force and effect as if that Payment Date had not been postponed, but no interest will accrue or be payable as a result of the delayed payment.

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;

(ii) who is subject to such taxes by reason of the holder 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 the notes or the receipt of payments thereunder;

(iii) 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); or who is a "specified entity" as defined in proposals to amend the Income Tax Act (Canada) contained in Bill C-59 tabled on November 21, 2023, with respect to "hybrid mismatch arrangements" with respect to Royal Bank of Canada or substantially analogous provisions of any finally enacted amendment to the Income Tax Act (Canada);

(iv) who presents such note for payment (where presentation is required, such as if a note is issued in definitive form) more than 30 days after the relevant date; for this purpose, the "**relevant date**" in relation to any payments on any note means:

(a) the due date for payment thereof (whether at maturity or upon an earlier acceleration), or

(b) 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;

(v) 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 deduction 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

(vi) 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 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 purposes of clause (iv) above, if a note is presented for payment more than 30 days after the relevant date, we shall only be required to pay such Additional Amounts as shall have accrued as of such 30th day, and no further Additional Amounts shall accrue or become payable after such date.

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.

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 Canadian taxes is due pursuant to 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 the notes (other than an Excluded Holder) and upon written request reimburse each such holder for the amount of (x) any Canadian 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 Canadian 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."

Calculation Agent

Unless otherwise specified in the relevant pricing supplement, RBCCM will act as the calculation agent. The calculation agent will make all necessary calculations and determinations in connection with the notes, including calculations and determinations relating to each Underlier and any payments on the notes. All determinations made by the calculation agent will be at the sole discretion of the calculation agent and will, in the absence of manifest error, be conclusive for all purposes and binding on you and on us. We may appoint a different calculation agent from time to time after the date of the relevant pricing supplement without your consent and without notifying you.

All calculations with respect to a value of, or return on, an Underlier will be rounded to the nearest one ten-thousandth, with five one-hundred-thousandth rounded upward (e.g., 0.87645 would be rounded to 0.8765); all dollar amounts related to determination of the payment per note on any Payment Date will be rounded to the nearest one ten-thousandth, with five one hundred-thousandths rounded upward (e.g., 0.76545 would be rounded up to 0.7655); and all dollar amounts paid, if any, on the aggregate principal amount of notes per holder will be rounded to the nearest cent, with one-half cent rounded upward.

Events of Default

Under the heading "Description of Debt Securities—Events of Default" in the accompanying prospectus is a description of events of default relating to debt securities including the notes.

Payment upon an Event of Default

Unless otherwise specified in the relevant pricing supplement, in case an event of default with respect to the notes shall have occurred and be continuing, the amount declared due and payable per note upon any acceleration of the notes will be determined by the calculation agent and will be an amount in cash equal to the amount payable at maturity per note calculated in the manner described in the relevant pricing supplement and calculated as if the date of acceleration were (a) the final Determination Date (or, if the Final Underlier Value of an Underlier is determined over multiple Determination Dates, each such Determination Date that has not yet occurred) and (b) if a market disruption event occurs or is continuing on the date of acceleration, the Final Disrupted Determination Date for any relevant Determination Date. Unless otherwise specified in the relevant pricing supplement, any amount payable will include any accrued and unpaid interest on the notes, *provided* that any interest payable will be prorated based on the ratio of the actual number of days from and including the previous interest payment date to but excluding the date of acceleration over the number of days from and including the previous interest payment date to but excluding the next scheduled interest payment date.

The amount determined as described above will constitute the final payment on the notes, and no additional amounts will accrue with respect to the notes following the date of acceleration, regardless of any performance of the Underlier(s) following the date of acceleration.

Terms Incorporated in the Master Note

Unless otherwise specified in the relevant pricing supplement, all terms of the notes included in the relevant pricing supplement (including any bail-in acknowledgment of holders and beneficial owners of bail-inable notes) and the relevant terms included in this "General Terms of the Notes" section, as modified by the relevant pricing supplement, if applicable, are incorporated into the master note.

Modification

Under the heading "Description of Debt Securities—Modification and Waiver of the Debt Securities" in the accompanying prospectus is a description of when the consent of each affected holder of debt securities is required to modify the indenture.

Defeasance

The provisions described in the accompanying prospectus under the heading "Description of Debt Securities—Defeasance" are not applicable to the notes.

Listing

The notes will not be listed on any securities exchange, unless otherwise specified in the relevant pricing supplement.

Registrar, Transfer Agent and Paying Agent

Payment of amounts due on the notes will be payable and the transfer of the notes will be registrable at the principal corporate trust office of The Bank of New York Mellon in The City of New York.

The Bank of New York Mellon or one of its affiliates will act as registrar and transfer agent for the notes. The Bank of New York Mellon will also act as paying agent and may designate additional paying agents.

Registration of transfers of the notes will be effected without charge by or on behalf of The Bank of New York Mellon, but upon payment (with the giving of such indemnity as The Bank of New York Mellon may require) in respect of any tax or other governmental charges that may be imposed in relation to it.

Governing Law

The indenture and the notes will be governed by and interpreted in accordance with the laws of the State of New York, except that certain provisions relating to the status of the senior debt securities under Canadian law and provisions relating to the bail-in acknowledgment of holders and beneficial owners of bail-inable debt securities in the senior debt indenture will be governed by the laws of the Province of Ontario and the laws of Canada applicable therein as described under "Description of Debt Securities—The Indentures—Governing Law" in the accompanying prospectus.

SUPPLEMENTAL DISCUSSION OF CANADIAN TAX CONSEQUENCES

Noteholders Not Resident in Canada

An investor should read carefully the description of material Canadian federal income tax considerations relevant to a Non-resident Holder (as that term is defined in the section entitled "Tax Consequences—Canadian Taxation" in the accompanying prospectus) of owning debt securities under "Tax Consequences—Canadian Taxation" in the accompanying prospectus.

The Canadian tax disclosure in the prospectus is based on the assumption that a note is not at the time of acquisition and during any relevant period "taxable Canadian property" (as defined in the *Income Tax Act* (Canada)) of a Non-resident Holder. A Non-resident Holder should contact its tax advisors to determine whether shares of a Reference Stock or Fund acquired pursuant to the terms of a note may be taxable Canadian property to the Non-resident Holder, and the Canadian tax consequences and obligations resulting therefrom.

For the purposes of this product supplement, the information provided under the heading "Tax Consequences—Canadian Taxation" in the prospectus is modified as follows:

> This summary also assumes that a Non-resident Holder: (i) is not an entity in respect of which the Bank or any transferee resident (or deemed to be resident) in Canada to whom the Non-Resident Holder disposes of, loans or otherwise transfers debt securities or warrants is a "specified entity", and is not a "specified entity" in respect of such transferee (in each case for purposes of proposed amendments contained in Bill C-59, tabled on November 21, 2023) (the "Hybrid Mismatch Proposals"); and (ii) does not hold or dispose of debt securities or warrants, under, or in connection with, a "structured arrangement" (as defined in the Hybrid Mismatch Proposals). The Hybrid Mismatch Proposals are in consultation form, are highly complex, and there remains significant uncertainty as to their interpretation and application. There can be no assurance that the Hybrid Mismatch Proposals will be enacted in their current form, or at all.

Noteholders Resident in Canada

An investor should read carefully the description of material Canadian federal income tax considerations relevant to a Resident Holder (as that term is defined in the section entitled "Certain Income Tax Consequences—Canadian Taxation" in the accompanying prospectus supplement) owning debt securities under "Certain Income Tax Consequences—Canadian Taxation—Noteholders Resident in Canada" in the accompanying prospectus supplement.

For the purposes of this product supplement, the information provided in the accompanying prospectus supplement is modified as follows:

(1) under the heading "Certain Income Tax Consequences—Canadian Taxation—Noteholders Resident in Canada—Interest" the last paragraph is replaced by the following:

> In certain circumstances, provisions of the Tax Act require a holder of a "prescribed debt obligation" (as defined for the purposes of the Tax Act) to include in income for each taxation year the amount of any interest, bonus or premium receivable on the obligation over its term based on the maximum amount of interest, bonus or premium receivable on the obligation. Indexed Notes may be considered to be prescribed debt obligations to a Resident Holder. However, counsel understands that the CRA's current administrative practice is not to require any such accrual of interest on a prescribed debt obligation until such time as the return thereon becomes determinable. **Resident Holders are advised to consult their tax advisors with respect to whether a particular Indexed Note is prescribed debt obligation and the consequences to the Resident Holder in their particular circumstances.**

(2) under the heading "Certain Income Tax Consequences – Canadian Taxation—Noteholders Resident in Canada—Treatment of Capital Gains and Losses" the following is added:

Pursuant to certain proposals contained in the Canadian federal budget, tabled in the House of Commons on April 16, 2024, the capital gains inclusion rate is proposed to be increased from one-half to two-thirds for (i) all capital gains realized on or after June 25, 2024, by corporations and trusts and (ii) the portion of capital gains realized on or after June 25, 2024, by individuals in excess of an annual $250,000 threshold. In determining whether the proposed $250,000 threshold for individuals is exceeded, the capital gain will be calculated net of, inter alia, the individual's current year capital losses, capital loss carryforwards and carrybacks and capital gains in respect of which the lifetime capital gains exemption is claimed. Corresponding changes to the proportion of a capital loss that is an allowable capital loss are also proposed. For tax years that begin before and end on or after June 25, 2024, two different inclusion rates will apply and transitional rules will apply to separately identify capital gains and losses realized before the effective date of the proposals and capital gains and losses realized on or after the effective date of the proposals. The details of the transitional rules have not yet been released by the Government of Canada.

Resident Holders should consult their own tax advisors regarding the effect, in their particular circumstances, of the proposed increase to the capital gains inclusion rate contained in the Federal Budget.

(3) under the heading "Certain Income Tax Consequences—Canadian Taxation—Noteholders Resident in Canada—Other Taxes" the first paragraph is modified as follows:

A Resident Holder that is throughout the relevant taxation year a "Canadian controlled private corporation" (as defined in the Tax Act) or at any time in the year, a "substantive CCPC" (pursuant to proposed amendments contained in Bill C-59, tabled on November 21, 2023) may be liable to pay an additional tax of 10 2/3% on its "aggregate investment income" (as defined in the Tax Act) for the year, including interest and taxable capital gains. Such additional tax may be refundable in certain circumstances. Resident Holders should consult their own tax advisors in this regard.

UNITED STATES FEDERAL INCOME TAX CONSIDERATIONS

The following is a discussion of the material U.S. federal income tax consequences of the ownership and disposition of the notes. This discussion generally assumes that you purchase a note for cash in the initial offering at the "issue price," which is the first price at which a substantial amount of the notes is sold to the public (not including sales to bond houses, brokers or similar persons or organizations acting in the capacity of underwriters, placement agents or wholesalers), and hold it as a capital asset within the meaning of Section 1221 of the Code. Purchasers of notes at another time or price may have different consequences than those described below, and therefore such purchasers should consult their tax advisers regarding the U.S. federal income tax consequences to them of the ownership and disposition of the notes. This discussion does not address all of the tax consequences that may be relevant to you in light of your particular circumstances or if you are a holder subject to special rules, such as:

- a bank or other financial institution;
- an insurance company;
- a real estate investment trust or "regulated investment company";
- a tax-exempt entity, including an "individual retirement account" or "Roth IRA";
- a dealer or trader subject to a mark-to-market method of tax accounting with respect to the notes;
- a person holding a note as part of a "straddle" or conversion transaction or one who enters into a "constructive sale" with respect to a note;
- a person subject to special tax accounting rules under Section 451(b) of the Code;
- a U.S. Holder (as defined below) whose functional currency is not the U.S. dollar; or
- an entity classified as a partnership for U.S. federal income tax purposes.

If an entity that is classified as a partnership for U.S. federal income tax purposes holds the notes, the U.S. federal income tax treatment of a partner will generally depend on the status of the partner and the activities of the partnership. If you are a partnership holding the notes or a partner in such a partnership, you should consult your tax adviser as to the particular U.S. federal income tax consequences of holding and disposing of the notes to you.

This discussion does not address the U.S. federal income tax consequences of the ownership or disposition of the shares of the Underlier(s) that you may receive at maturity or otherwise upon retirement or exchange of a note. You should consult your tax adviser regarding the particular U.S. federal income tax consequences of the ownership and disposition of the shares of the Underlier(s).

We will not attempt to ascertain whether any issuer of any Reference Stock, Fund or stock underlying an Index to which the notes relate (collectively, the "Underlying Issuer") should be treated as a "U.S. real property holding corporation" ("USRPHC") within the meaning of Section 897 of the Code or a "passive foreign investment company" ("PFIC") within the meaning of Section 1297 of the Code. If any Underlying Issuer were so treated, certain adverse U.S. federal income tax consequences might apply to you, in the case of a USRPHC if you are a Non-U.S. Holder (as defined below), and in the case of a PFIC if you are a U.S. Holder, upon a sale, exchange, retirement or other taxable disposition (each, a "taxable disposition") of the notes. If you are a U.S. Holder and you own or are deemed to own an equity interest in a PFIC for any taxable year, you would generally be required to file IRS Form 8621 with your annual U.S. federal income tax return for that year, subject to certain exceptions. Failure to timely file the form may extend the time for tax assessment by the IRS. You should refer to information filed with the SEC or another governmental authority by each Underlying Issuer and consult your tax adviser regarding the possible consequences to you if any Underlying Issuer is or becomes a USRPHC or PFIC.

This discussion is based on the Code, final, temporary and proposed Treasury regulations, rulings, current administrative interpretations and official pronouncements of the IRS, and judicial decisions, all as of the date of this

product supplement, changes to any of which subsequent to the date of this product supplement may affect the tax consequences described herein, possibly with retroactive effect. This discussion does not address the effects of any applicable state, local, non-U.S. or other tax laws, estate or gift tax laws, or the potential application of the alternative minimum tax or the Medicare tax on net investment income. You should consult your tax adviser about the application of the U.S. federal income and estate tax laws (including the possibility of alternative treatments of the notes) to your particular situation, as well as any tax consequences arising under the laws of any state, local or non-U.S. taxing jurisdiction.

This discussion may be supplemented, modified or superseded by disclosure regarding U.S. federal income tax consequences set out in an applicable pricing supplement, which you should read before making a decision to invest in the relevant notes.

Tax Treatment of the Notes

There are no statutory, judicial or administrative authorities that directly address the U.S. federal income tax treatment of certain notes described in this product supplement. In particular, the consequences of ownership and disposition of the notes that are not treated as debt instruments for U.S. federal income tax purposes are subject to substantial uncertainty. For notes that are treated as debt instruments, there may be uncertainty regarding specific aspects of the timing and character of income you are required to recognize on the notes. We do not plan to request a ruling from the IRS, and the IRS or a court might not agree with the treatment and consequences described below.

Alternative U.S. federal income tax treatments of the notes are possible that, if applied, could materially and adversely affect the timing and character of income, gain or loss with respect to the notes. For example, the IRS could treat notes that are not intended to be treated as debt instruments for U.S. federal income tax purposes in their entirety as debt instruments issued by us, with the consequences to U.S. Holders generally as described under "Tax Consequences to U.S. Holders—Notes Treated as Debt Instruments." Under this treatment, as well as other potential alternative characterizations of the notes, you might be required to recognize taxable income at a time earlier than that described herein and/or recognize ordinary income or short-term capital gain rather than long-term capital gain.

For Non-U.S. Holders, an alternative treatment of a note could cause payments on the note to be subject to U.S. federal withholding tax as well as different information reporting requirements.

Treasury and the IRS have requested comments on various issues regarding the U.S. federal income tax treatment of "prepaid forward contracts" and similar financial instruments and have indicated that such transactions may be the subject of future regulations or other guidance. In addition, members of Congress have proposed legislative changes to the tax treatment of derivative contracts. Any legislation, Treasury regulations or other guidance promulgated after consideration of these issues could materially and adversely affect the tax consequences of an investment in the notes, possibly with retroactive effect.

Moreover, if there is a change to the notes that results in the notes being treated as retired and reissued for U.S. federal income tax purposes, as discussed below under "Possible Taxable Event," the treatment of the notes after such an event could differ from their prior treatment.

Except where stated otherwise, the following discussions of specific types of notes generally assume that the stated treatment of each type of note is respected and that no deemed retirement and reissuance of the notes has occurred. You should consult your tax adviser regarding the risk that an alternative U.S. federal income tax treatment applies to the notes.

Tax Consequences to U.S. Holders

This section applies only to U.S. Holders. You are a "U.S. Holder" if, for U.S. federal income tax purposes, you are a beneficial owner of a note that is:

- a citizen or individual resident of the United States;
- a corporation created or organized in or under the laws of the United States, any state thereof or the District of Columbia; or

- an estate or trust the income of which is subject to U.S. federal income taxation regardless of its source.

Notes Treated as Debt Instruments

The following discussion applies to notes treated as debt instruments for U.S. federal income tax purposes.

General

The discussion below applies generally to all notes treated as debt instruments, but is subject to special rules applicable to certain categories of debt instruments described below under "—Short-Term Notes," "—Notes Treated as Variable Rate Debt Instruments," and "—Notes Treated as Contingent Payment Debt Instruments" and should be read in conjunction with those discussions, as applicable.

If a market disruption event occurs, the timing (and potentially the character) of income you recognize with respect to the notes could be affected. See also "Potential Taxable Event" regarding the possibility that certain changes could cause a note to be deemed retired and reissued for U.S. federal income tax purposes.

Payments of Interest. "Qualified stated interest" (as described below under "—Original Issue Discount") on a note generally will be taxable to you as ordinary interest income at the time it accrues or is received in accordance with your method of tax accounting.

Original Issue Discount. A note that has an "issue price" that is less than its "stated redemption price at maturity" will be treated as issued with original issue discount ("OID") for U.S. federal income tax purposes (an "OID note") unless the discount is less than a de minimis amount as described below. Special rules governing the tax treatment of short-term notes and contingent payment debt instruments (which are not subject to this discussion) are described below under "— Short-Term Notes" and "— Notes Treated as Contingent Payment Debt Instruments," respectively. The amount of OID will be equal to the excess of the stated redemption price at maturity over the issue price. The "stated redemption price at maturity" of a note generally will equal the sum of all payments required under the note other than payments of "qualified stated interest." Qualified stated interest ("QSI") generally includes stated interest unconditionally payable (other than in debt instruments of the issuer) at least annually at a single fixed rate, and also includes stated interest on certain floating-rate notes (as described under "—Notes Treated as Variable Rate Debt Instruments" below). If a note provides for more than one fixed rate of stated interest, interest payable at the lowest stated rate generally is QSI, with any excess included in the stated redemption price at maturity for purposes of determining whether the note was issued with OID.

If the difference between a note's stated redemption price at maturity and its issue price is less than a de minimis amount as determined under applicable Treasury regulations, the note will not be treated as issued with OID and therefore will not be subject to the rules described below. In this case, all stated interest on the notes will generally be treated as QSI, and you generally will include the discount in income, as capital gain, on a pro rata basis as principal payments are made on the note.

If you hold OID notes, you will be required to include any QSI in income when received or accrued in accordance with your method of tax accounting. In addition, you will be required to include OID in income as it accrues in accordance with a constant-yield method based on a compounding of interest, regardless of your method of tax accounting.

Under this method, you will be required to include in ordinary income the sum of the "daily portions" of OID for all days during the taxable year that you own the OID note. The daily portions of OID are determined by allocating to each day in any accrual period a ratable portion of the OID on the OID note that is allocable to that period. Accrual periods may be any length and may vary in length over the term of an OID note, so long as no accrual period is longer than one year and each scheduled payment of principal or interest occurs on the first or last day of an accrual period. The amount of OID allocable to each accrual period is determined by (i) multiplying the "adjusted issue price" (as defined below) of the OID note at the beginning of the accrual period by the yield to maturity (as defined below) of the OID note, adjusted to take account of the length of the accrual period, and (ii) subtracting from that product the amount of QSI, if any, allocable to that accrual period. The "adjusted issue price" of an OID note at the beginning of any accrual period will generally be the sum of its issue price and the amount of

OID allocable to all prior accrual periods, reduced by the amount of payments in all prior accrual periods other than QSI. The "yield to maturity" of an OID note is the discount rate that causes the present value on the issue date of all payments on the OID note to equal the issue price.

You may make an election to include in gross income all interest that accrues on any note (including, among other things, QSI, OID and de minimis OID) in accordance with the constant-yield method based on the compounding of interest (a "constant-yield election"). This election may be revoked only with the consent of the IRS.

A note subject to redemption prior to maturity may be subject to rules that differ from the general rules described above for purposes of determining the yield and maturity of the note (which may affect whether the note is treated as issued with OID and, if so, the timing of accrual of the OID). Under applicable Treasury regulations, we will generally be presumed to exercise an unconditional option to redeem a note if the exercise of the option would lower the yield on the note. Conversely, you will generally be presumed to exercise an unconditional option to require us to repurchase a note if the exercise of the option would increase the yield on the note. In either case, if such an option is not in fact exercised, the note will be treated, solely for purposes of calculating OID, as if it were redeemed and a new note were issued on the presumed exercise date for an amount equal to the note's adjusted issue price on that date.

Under these rules, if a note provides for a fixed rate of interest that increases over the term of the note, the note's issue price is not below its stated principal amount and we have an unconditional option to redeem the note for an amount equal to the stated principal amount (plus accrued interest, if any) on or prior to the first date on which an increased rate of interest is in effect, the yield on the note will be lowered if we redeem the note before the initial increase in the interest rate, and therefore our redemption option will be treated as exercised. Since the note will therefore be treated as if it were redeemed and reissued prior to the initial increase in the interest rate, the note will not be treated as issued with OID. If a note is not treated as issued with OID and if, contrary to the presumption in the applicable Treasury regulations, we do not redeem the note before the initial increase in the interest rate, the same analysis will apply to all subsequent increases in the interest rate. This means that the note that is deemed reissued will be treated as redeemed prior to any subsequent increase in the interest rate, and therefore as issued without OID. If the actual remaining term of a note is one year or less at the time of a deemed reissuance, it is possible that the deemed reissued note would be treated as a short-term debt instrument. See "—Short-Term Notes" below. While a note with a deemed remaining term of one year or less based on the presumed exercise of an option should not be treated as a short-term debt instrument, the IRS or a court might treat the stated interest payable on the note as OID instead of QSI during that deemed remaining term. You should consult with your tax adviser regarding this uncertainty.

Amortizable Bond Premium. If you purchase a note (other than a CPDI (as defined below)) for an amount that is greater than the sum of all amounts payable on the note after the purchase date, other than payments of QSI, you generally will be considered to have purchased the note with amortizable bond premium equal to such excess. If the note is not optionally redeemable prior to its maturity date, you generally may elect to amortize this premium over the remaining term of the note using a constant-yield method. If, however, the note may be optionally redeemed prior to maturity after you have acquired it, the amount of amortizable bond premium is generally determined by substituting the redemption date for the maturity date and the redemption price for the amount payable at maturity but only if the substitution results in a smaller amount of premium attributable to the period before the redemption date. You may generally use the amortizable bond premium allocable to an accrual period to offset QSI required to be included in your income with respect to the note in that accrual period. In addition, if you have purchased an OID note with amortizable bond premium, you will not be required to accrue any OID on such note. If you elect to amortize bond premium, you must reduce your tax basis in the note by the amount of the premium amortized in any year. An election to amortize bond premium applies to all taxable debt instruments then owned or thereafter acquired and may be revoked only with the consent of the IRS.

If you make a constant-yield election (as described under "— Original Issue Discount" above) for a note with amortizable bond premium, that election will result in a deemed election to amortize bond premium for all of your debt instruments with amortizable bond premium.

Taxable Disposition of a Note. Upon a taxable disposition of a note, you will recognize gain or loss equal to the difference between the amount realized and your tax basis in the note. For this purpose, the amount realized does not

include any amount attributable to accrued but unpaid QSI, which will be treated as a payment of interest and taxed as described under "—Payments of Interest" above. Your tax basis in a note will equal its cost, increased by the amounts of any OID you have previously accrued with respect to the note, if any, and decreased by any amortized premium and any principal payments you received prior to the taxable disposition of a note and by the amount of any other payments on the note that did not constitute QSI.

Generally, gain or loss realized upon the taxable disposition of a note will be capital gain or loss and will be long-term capital gain or loss if you have held the note for more than one year. The deductibility of capital losses is subject to limitations.

Short-Term Notes

The following discussion applies to notes with a term of one year or less (from but excluding the issue date to and including the last possible date that the notes could be outstanding pursuant to their terms) ("Short-Term Notes"). Generally, a Short-Term Note is treated as issued at a discount equal to the sum of all payments required on the note minus its issue price.

If you are a cash-method U.S. Holder, you generally will not be required to recognize income with respect to a Short-Term Note prior to maturity, other than with respect to the receipt of interest payments, if any, or pursuant to a taxable disposition of the note. If you are an accrual-method U.S. Holder (or a cash-method U.S. Holder who elects to accrue income on the note currently), you will be subject to rules that generally require accrual of discount on Short-Term Notes on a straight-line basis, unless you elect a constant-yield method of accrual based on daily compounding. In the case of Short-Term Notes that provide for one or more contingent payments, it is not clear whether or how any accrual should be determined prior to the relevant Determination Date for such a payment. You should consult your tax adviser regarding the amount and timing of any accruals on such notes.

Upon a taxable disposition of a Short-Term Note, you will generally recognize gain or loss equal to the difference between the amount realized on the taxable disposition and your tax basis in the note. Your tax basis in the note should equal its cost, increased, if you accrue income on the note currently, by any previously accrued but unpaid discount. The amount of any resulting loss generally will be treated as a short-term capital loss, the deductibility of which is subject to limitations. Additionally, if you recognize a loss above certain thresholds, you may be required to file a disclosure statement with the IRS, as described below under "Reportable Transactions." You should consult your tax adviser regarding this reporting obligation. The excess of the amount received at maturity over your tax basis in the note generally should be treated as ordinary income. If you sell a Short-Term Note providing for a contingent payment at maturity prior to the time the contingent payment has been fixed, it is not clear whether any gain you recognize should be treated as ordinary income, short-term capital gain, or a combination of ordinary income and short-term capital gain. You should consult your tax adviser regarding the treatment of a taxable disposition of Short-Term Notes providing for contingent payments.

If you are a cash-method U.S. Holder, unless you make the election to accrue income currently on a Short-Term Note, you will generally be required to defer deductions for interest paid on indebtedness incurred to purchase or carry the note in an amount not exceeding the accrued discount that you have not included in income. As discussed above, in the case of a Short-Term Note providing for a contingent payment, it is unclear whether or how accrual of discount should be determined prior to the relevant Determination Date in respect of the payment. If you make the election to accrue income currently, that election will apply to all short-term debt instruments acquired by you on or after the first day of the first taxable year to which that election applies. You should consult your tax adviser regarding these rules.

Notes Treated as Variable Rate Debt Instruments

The following discussion applies to floating-rate notes that are treated as variable rate debt instruments for U.S. federal income tax purposes ("VRDIs").

Interest on VRDIs That Provide for a Single Variable Rate. Stated interest on a VRDI that provides for a single variable rate (a "Single Rate VRDI") will be treated as QSI and will be taxable to you as ordinary interest income at the time it accrues or is received, in accordance with your method of tax accounting. If the stated principal amount of a Single Rate VRDI exceeds its issue price by an amount equal to or greater than a specified de minimis amount,

this excess will be treated as OID that you must include in income as it accrues, generally in accordance with the constant-yield method as described above under "—General—Original Issue Discount," The constant-yield accrual of OID on a VRDI is determined by substituting a fixed rate that reflects the value of the variable rate on the issue date (or, in certain cases, a fixed rate that reflects the yield that is reasonably expected for the VRDI) for each scheduled payment of the variable rate. A fixed rate payable for an initial period of one year or less followed by a variable rate where the variable rate on the issue date is intended to approximate the fixed rate (which will be presumed if the value of the variable rate on the issue date does not differ from the value of the fixed rate by more than 0.25%) will be treated as a single variable rate for the purposes of this and the next paragraph.

Interest on VRDIs That Provide for Multiple Rates. This discussion refers to VRDIs that provide for (i) multiple variable rates or (ii) one or more variable rates and a single fixed rate (other than a fixed rate payable for an initial period described in the preceding paragraph) (a "Multiple Rate VRDI"). Under applicable Treasury regulations, in order to determine the amount of QSI and OID (if any) in respect of Multiple Rate VRDIs, an equivalent fixed-rate debt instrument must be constructed. The equivalent fixed-rate debt instrument is constructed in the following manner: (i) first, if the Multiple Rate VRDI contains a fixed rate, that fixed rate is converted to a variable rate that preserves the fair market value of the note and (ii) second, each variable rate (including a variable rate determined under (i) above) is converted to a fixed rate substitute (which will generally be the value of that variable rate as of the issue date of the Multiple Rate VRDI) (the "equivalent fixed-rate debt instrument"). The rules discussed in "—General—Original Issue Discount" are then applied to the equivalent fixed-rate debt instrument to determine the amount, if any, of OID and the amount of QSI. You will be required to include any such OID in income for U.S. federal income tax purposes as it accrues, in accordance with a constant-yield method based on a compounding of interest, as described above under "—General—Original Issue Discount." QSI on a Multiple Rate VRDI will generally be taxable to you as ordinary interest income at the time it accrues or is received, in accordance with your method of tax accounting. If a Multiple Rate VRDI is not issued with OID, all stated interest on the Multiple Rate VRDI will be treated as QSI.

If the amount of interest you receive in a calendar year is greater than the interest assumed to be paid or accrued under the equivalent fixed-rate debt instrument, the excess is generally treated as additional QSI taxable to you as ordinary income. Otherwise, any difference will generally reduce the amount of QSI you are treated as receiving and will therefore reduce the amount of ordinary income you are required to take into income.

Taxable Disposition of a VRDI. Upon a taxable disposition of a VRDI, you generally will recognize capital gain or loss equal to the difference between the amount realized (other than amounts attributable to accrued but unpaid QSI, which will be treated as a payment of interest) and your tax basis in the VRDI. Your tax basis in a VRDI will equal its cost, increased by the amounts of OID (if any) you previously included in income with respect to the VRDI, and reduced by any payments you received other than QSI and any amortized premium. Such gain or loss generally will be long-term capital gain or loss if you held the VRDI for more than one year at the time of disposition, and short-term capital gain or loss otherwise.

Notes Treated as Contingent Payment Debt Instruments

The following discussion applies only to notes treated as contingent payment debt instruments for U.S. federal income tax purposes ("CPDIs").

Interest Accruals on the CPDIs. We are required to determine a "comparable yield" for each issuance of CPDIs. The comparable yield is the yield at which we could issue a fixed-rate debt instrument with terms similar to those of the CPDIs, including the level of subordination, term, timing of payments and general market conditions, but excluding any adjustments for the riskiness of the contingencies or the liquidity of the CPDIs. Solely for purposes of determining the amount of interest income that you will be required to accrue, we are also required to construct a "projected payment schedule" in respect of the CPDIs representing a payment or a series of payments the amount and timing of which would produce a yield to maturity on the CPDIs equal to the comparable yield.

We will determine the comparable yield for each issuance of CPDIs and will provide the information on how to obtain the comparable yield and the related projected payment schedule, in the relevant pricing supplement for the notes.

Neither the comparable yield nor the projected payment schedule constitutes a representation by us regarding the actual amounts that we will pay on the CPDIs.

For U.S. federal income tax purposes, you are required to use our determination of the comparable yield and projected payment schedule in determining interest accruals and adjustments in respect of the CPDIs, unless you timely disclose and justify the use of other estimates to the IRS. Regardless of your method of tax accounting, you will be required to accrue, as interest income, OID on the CPDIs at the comparable yield, adjusted upward or downward to reflect the difference, if any, between the actual and the projected payments on the CPDIs during the year (as described below).

You will be required for U.S. federal income tax purposes to accrue an amount of OID, for each accrual period prior to and including maturity or earlier taxable disposition of a CPDI, that equals the product of (i) the "adjusted issue price" of the CPDI (as defined below) as of the beginning of the accrual period, (ii) the comparable yield of the CPDI, adjusted for the length of the accrual period and (iii) the number of days during the accrual period that you held the CPDI divided by the number of days in the accrual period. The "adjusted issue price" of a CPDI is its issue price increased by any interest income you have previously accrued (determined without regard to adjustments due to differences between projected and actual payments) and decreased by the projected amounts of any payments previously made on the CPDI (without regard to actual amounts paid).

Adjustments to Interest Accruals on the CPDIs. In addition to interest accrued based upon the comparable yield as described above, you will be required to recognize interest income equal to the amount of any net positive adjustment (i.e., the excess of actual payments over projected payments) in respect of a CPDI for a taxable year. A net negative adjustment (i.e., the excess of projected payments over actual payments) in respect of a CPDI for a taxable year:

- will first reduce the amount of interest in respect of the CPDI that you would otherwise be required to include in income in the taxable year; and
- to the extent of any excess, will give rise to an ordinary loss, but only to the extent that the amount of all previous interest inclusions under the CPDI exceeds the total amount of the net negative adjustments treated as ordinary loss on the CPDI in prior taxable years.

A net negative adjustment is not treated as a miscellaneous itemized deduction (for which deductions would be unavailable or, beginning in 2026, available only to a limited extent). Any net negative adjustment in excess of the amounts described above may be carried forward to offset future interest income in respect of the CPDI or to reduce the amount realized on a taxable disposition of the CPDI.

Taxable Disposition of the CPDIs. Upon a taxable disposition of a CPDI, you generally will recognize taxable income or loss equal to the difference between the amount received and your tax basis in the CPDI. Your tax basis in the CPDI will equal its cost, increased by any interest income you have previously accrued (determined without regard to adjustments due to differences between projected and actual payments) and decreased by the projected amounts of any payments previously made on the CPDI (without regard to actual amounts paid). At maturity, you will be treated as receiving the projected amount for that date (reduced by any carryforward of a net negative adjustment), and any difference between the amount actually received and that projected amount will be treated as a positive or negative adjustment governed by the rules described above. You generally must treat any income realized on a taxable disposition of a CPDI as interest income and any loss as ordinary loss to the extent of previous interest inclusions (reduced by the total amount of net negative adjustments previously taken into account as ordinary losses), and the balance as capital loss, the deductibility of which is subject to limitations. Additionally, if you recognize a loss above certain thresholds, you may be required to file a disclosure statement with the IRS, as described below under "Reportable Transactions." You should consult your tax adviser regarding this reporting obligation.

Special Rules for Contingent Payments that Fix Early. Special rules may apply if all the remaining payments on a CPDI become fixed substantially contemporaneously. For this purpose, payments will be treated as fixed if the remaining contingencies with respect to them are remote or incidental. Under these rules, you would be required to account for the difference between the originally projected payments and the fixed payments in a reasonable manner over the period to which the difference relates. In addition, you would be required to make adjustments to, among

other things, your accrual periods and your tax basis in the CPDI. The character of any gain or loss on a taxable disposition of your CPDI also might be affected. If one or more (but not all) contingent payments on a CPDI became fixed more than six months prior to the relevant Payment Dates, you would be required to account for the difference between the originally projected payments and the fixed payments on a present value basis. You should consult your tax adviser regarding the application of these rules.

Notes Treated as Prepaid Financial Contracts that are Open Transactions

The following discussion applies to notes treated as prepaid financial contracts that are "open transactions" for U.S. federal income tax purposes.

Tax Treatment Prior to Taxable Disposition

A U.S. Holder should not be required to recognize income over the term of the notes prior to maturity, other than pursuant to an earlier taxable disposition of the notes.

However, if the payment at maturity becomes fixed (or subject to a fixed minimum amount that is approximately equal to or greater than the issue price) prior to maturity, the consequences are not entirely clear. A note might be treated as terminated and reissued for U.S. federal income tax purposes at such time, in which case you might be required to recognize gain (if any) in respect of the note. In addition, the timing and character of income you recognize in respect of the reissued note after that time could also be affected. You should consult your tax adviser regarding the treatment of the notes in such an event.

Taxable Disposition of the Notes

Upon a taxable disposition of a note, you should recognize gain or loss equal to the difference between the amount realized and your tax basis in the note. Your tax basis in a note should generally equal the amount you paid to acquire it. Subject to the discussions below under "—Possible Application of Section 1260 of the Code," "—Possible Higher Tax on Notes Linked to 'Collectibles,'" and "—Interest Rate-Linked Notes," this gain or loss should generally be long-term capital gain or loss if at the time of the taxable disposition you have held the note for more than one year, and short-term capital gain or loss otherwise. Long-term capital gains recognized by non-corporate U.S. Holders are generally subject to taxation at reduced rates. The deductibility of capital losses is subject to limitations.

If you receive shares of the Underlier(s) (and cash in lieu of any fractional shares) at maturity, subject to the discussion below under "—Possible Application of Section 1260 of the Code," you should not recognize gain or loss with respect to the shares received. Instead, you should have an aggregate tax basis in the shares received (including any fractional shares deemed received) equal to your basis in the notes. With respect to any cash received in lieu of a fractional share, you should recognize capital gain or loss in an amount equal to the difference between the amount of cash received in lieu of the fractional share and the portion of your tax basis in the notes that is allocable to the fractional share.

If you receive both cash and shares of the Underlier(s) at maturity, you should recognize gain or loss with respect to the cash received in an amount equal to the difference between the cash and the portion of your basis in the note that is allocated to the cash. Subject to the discussion below under "—Possible Application of Section 1260 of the Code," you should not recognize any gain or loss with respect to the shares received, and your basis in the shares should be equal to the portion of your basis in the note that is allocated to the shares. Although there is no direct authority governing the method by which you should allocate your basis in the note between the cash and shares received, it would be reasonable to allocate them according to their relative fair market values upon receipt.

Your holding period for any shares of the Underlier(s) received should generally start on the day after receipt.

Possible Application of Section 1260 of the Code

If a note is linked to an Underlier consisting of an interest in one of a specified list of entities, including an exchange-traded fund or other regulated investment company, a real estate investment trust, partnership or PFIC (a "Section 1260 Underlying Equity"), depending upon the specific terms of the note it is possible that an investment in

the note will be treated as a "constructive ownership transaction" within the meaning of Section 1260 of the Code. In that case, all or a portion of any long-term capital gain you would otherwise recognize in respect of your note would be recharacterized as ordinary income to the extent such gain exceeded the "net underlying long-term capital gain." In the case of notes with certain features, such as a payment at maturity based on a leverage factor, the amount of net underlying long-term capital gain may be unclear. Unless otherwise established by clear and convincing evidence, the amount of net underlying long-term capital gain is treated as zero. Any long-term capital gain recharacterized as ordinary income under Section 1260 would be treated as accruing at a constant rate over the period you held your notes, and you would be subject to an interest charge in respect of the deemed tax liability on the income treated as accruing in prior tax years. In addition, as discussed below under "—Possible Higher Tax on Notes Linked to 'Collectibles,'" if the notes are linked to an ownership interest in collectibles or an entity that holds collectibles, long-term capital gain that you would otherwise recognize in respect of your notes up to the amount of the net underlying long-term capital gain could, if you are an individual or other non-corporate investor, be subject to tax at the higher rates applicable to "collectibles" instead of the general rates that apply to long-term capital gain. Unless otherwise indicated in the applicable pricing supplement, due to the lack of governing authority under Section 1260, we do not expect that our counsel will be able to opine as to whether or how these rules will apply to the notes.

If you receive shares of the Underlier(s) at the maturity of a note that is treated as a constructive ownership transaction, you will be treated as disposing of the note at maturity for its fair market value in a taxable transaction for purposes of applying the constructive ownership rules to any gain that would be recognized on such deemed taxable disposition. The amount recognized and treated as ordinary income under this rule should generally give rise to an adjustment to any gain or loss subsequently recognized on a disposition of such shares.

Because the determination of whether an Underlier is a Section 1260 Underlying Equity generally depends on the issuer's status for U.S. federal income tax purposes (e.g., as a PFIC), it may not be readily apparent whether an Underlier is a Section 1260 Underlying Equity. Moreover, an Underlier that is an Index may include equities of a category that is subject to Section 1260 as well as other equity securities, in which case the potential application of Section 1260 to the relevant note may be unclear. We do not undertake to ascertain whether any specific equity securities (including an equity security in an Index) is a Section 1260 Underlying Equity. Accordingly, you should consult your tax adviser about the risk that Section 1260 will apply to the notes.

Possible Higher Tax on Notes Linked to "Collectibles"

Under current law, long-term capital gain recognized on a sale of "collectibles" (which includes, among others, metals) or an ownership interest in certain entities that hold collectibles is generally taxed at the maximum 28% rate applicable to collectibles. It is possible that long-term capital gain from a taxable disposition of certain notes linked to an Underlier that is a collectible or is one of certain entities holding collectibles would be subject to the rate applicable to collectibles, instead of the lower long-term capital gain rate. Prospective investors should consult their tax advisers regarding an investment in a note linked to a collectible or to an entity holding collectibles.

Interest Rate-Linked Notes

Because of the lack of authority addressing the tax treatment of financial instruments linked solely to interest rates (or a similar market measure), there is significant uncertainty regarding whether gain or loss recognized upon the maturity (or earlier retirement) of any such notes should be treated as capital gain or loss or as ordinary income or loss. This determination could have a significant effect on the tax consequences to you of owning a note. In particular, an ordinary loss recognized by an individual might be treated as a non-deductible "miscellaneous itemized deduction" and ordinary income recognized by an individual would not be eligible for the lower tax rates applicable to long-term capital gain. While our counsel believes it would be reasonable to treat any such gain or loss as capital gain or loss, in light of the significant uncertainty regarding this issue, you should consult your tax adviser regarding the character of this gain or loss.

Notes Treated as Prepaid Financial Contracts with Associated Coupons

The following discussion applies to notes treated for U.S. federal income tax purposes as prepaid financial contracts with one or more associated coupon payments.

The discussions under "—Notes Treated as Prepaid Financial Contracts that are Open Transactions," other than "—Notes Treated as Prepaid Financial Contracts that are Open Transactions—Tax Treatment Prior to Taxable Disposition" apply to the notes addressed in this section. Accordingly, you should review those discussions regarding the U.S. federal income tax consequences of the ownership and disposition of such notes.

Coupon Payments

The U.S. federal income tax treatment of coupon payments on the notes is unclear. The discussion herein generally assumes that the coupon payments on the notes are taxable as ordinary income to you at the time received or accrued in accordance with your regular method of tax accounting. However, if a different treatment applied, the timing and character of income arising from the coupon payments could differ. A different treatment could also affect your tax basis in the notes, and therefore the amount of gain or loss you recognize on a disposition of the notes. Except where stated otherwise, the discussion herein assumes that the coupon payments are taxable as ordinary income at the time received or accrued in accordance with your regular method of tax accounting.

If the payment at maturity on a note becomes fixed (or subject to a fixed minimum amount approximately equal to or greater than the issue price) prior to maturity, the consequences are not entirely clear. A note might be treated as terminated and reissued for U.S. federal income tax purposes at such time, in which case you might be required to recognize gain (if any) in respect of the note. In addition, the timing and character of income you recognize in respect of the note after that time could also be affected. You should consult your tax adviser regarding the treatment of the notes in such an event.

Notes Treated as Put Options and Deposits

The following discussion applies to notes treated as a put option (the "Put Option") written by you with respect to the Underlier(s), secured by a deposit equal to the issue price of the note (the "Deposit") for U.S. federal income tax purposes. This discussion generally assumes that the issue price of the note is equal to the amount due at maturity or early retirement of the note (excluding the final coupon payment on the note) if the final value of the Underlier(s) equals or exceeds its initial value.

Under this treatment:

- a portion of each coupon payment made with respect to the notes will be attributable to interest on the Deposit; and
- the remainder will represent option premium attributable to your grant of the Put Option ("Put Premium").

Coupon Payments

Subject to any discussion in the applicable pricing supplement, interest on the Deposits should generally be treated as ordinary interest income that is taxable to you at the time it accrues or is received in accordance with your method of tax accounting.

If the term of the notes is not more than a year, taking into account the latest possible date on which the notes could be repaid according to their terms, the special rules under "Notes Treated as Debt Instruments—Short-Term Notes" should apply to interest on the Deposits.

The Put Premium should not be taken into account until retirement (including an early redemption) or an earlier taxable disposition of the notes.

Taxable Disposition Prior to Retirement

Upon a taxable disposition of a note prior to retirement, you should apportion the amount realized between the Deposit and the Put Option based on their respective values on the date of the disposition. If the value of the Deposit on the date of the taxable disposition exceeds the amount realized on the taxable disposition of the note, you should be treated as having (i) sold or exchanged the Deposit for an amount equal to its value on that date and (ii) made a payment to the purchaser of the note equal to the amount of this excess in exchange for the purchaser's

assumption of the Put Option, in which case a corresponding amount should be added to the amount realized in respect of the Deposit.

You should recognize gain or loss with respect to the Deposit in an amount equal to the difference between (i) the amount realized that is apportioned to the Deposit (other than any amount attributable to accrued interest on the Deposit, which should be treated as a payment of interest) and (ii) your basis in the Deposit (*i.e.*, the price you paid to acquire the note). Such gain or loss should be long-term capital gain or loss if you have held the note for more than one year, and short-term capital gain or loss otherwise. See "—Notes Treated as Debt Instruments—Short-Term Notes" for special rules applicable to the Deposit if the term of the notes is no more than a year.

You should recognize gain or loss in respect of the Put Option in an amount equal to the total Put Premium you previously received, decreased by the amount deemed to be paid by you, or increased by the amount deemed to be paid to you, in exchange for the purchaser's assumption of the Put Option. This gain or loss should be short-term capital gain or loss.

Tax Treatment at Retirement

The coupon payment received upon retirement should be treated as described above under "Coupon Payments."

If a note is retired for its stated principal amount (without taking into account any coupon payment), the Put Option should be deemed to have expired unexercised, in which case, you should recognize short-term capital gain in an amount equal to the sum of all payments of Put Premium received, including the Put Premium received upon retirement.

At maturity, if you receive an amount of cash, not counting the final coupon payment, that is different from the stated principal amount of the note, the Put Option should be deemed to have been exercised and you should be deemed to have applied the Deposit toward the cash settlement of the Put Option. In that case, you should recognize short-term capital gain or loss with respect to the Put Option in an amount equal to the difference between (i) the sum of the total Put Premium received (including the Put Premium received at maturity) plus the cash you receive at maturity, excluding the final coupon payment, and (ii) the Deposit.

Receipt of Shares of the Underlier(s) at Maturity

If you receive shares of the Underlier(s) (and cash in lieu of any fractional share) at maturity, the Put Option will be deemed to have been exercised, and you should be deemed to have applied the Deposit toward the physical settlement of the Put Option. You should not recognize any income or gain in respect of the total Put Premium received (including the Put Premium received at maturity) and should not recognize any gain or loss with respect to the Deposit or the shares received. Assuming this treatment, you should have an aggregate tax basis in the physical delivery amount of the shares equal to the Deposit less the total Put Premium received over the term of the notes. Your holding period for any shares received should generally start on the day after receipt. With respect to any cash received in lieu of a fractional share, you should recognize short-term capital gain or loss in an amount equal to the difference between the amount of cash received in lieu of the fractional share and the pro rata portion of your aggregate tax basis that is allocable to the fractional share.

Interest Rate-Linked Notes

Notwithstanding the foregoing, if a note is linked solely to interest rates (or a similar market measure), there is significant uncertainty regarding whether gain or loss recognized with respect to the Put Option at maturity (or earlier retirement) should be treated as capital gain or loss or as ordinary income or loss. Please see the discussion above under "Notes Treated as Prepaid Financial Contracts that are Open Transactions—Interest Rate-Linked Notes." Accordingly, you should consult your tax adviser regarding the character of this gain or loss.

Tax Consequences to Non-U.S. Holders

This section applies only to Non-U.S. Holders. You are a "Non-U.S. Holder" if, for U.S. federal income tax purposes, you are a beneficial owner of a note that is:

- an individual who is classified as a nonresident alien;
- a foreign corporation; or
- a foreign trust or estate.

You are not a Non-U.S. Holder for purposes of this discussion if you are a beneficial owner of a note who is (i) an individual who is present in the United States for 183 days or more in the taxable year of disposition or (ii) a former citizen or resident of the United States and certain conditions apply. If you are or may become such a person during the period in which you hold a note, you should consult your tax adviser regarding the U.S. federal income tax consequences of an investment in the note.

As discussed below under "Possible Taxable Event," under certain circumstances, the notes could be subject to a "significant modification" and therefore deemed to be terminated and reissued for U.S. federal income tax purposes. In that event, depending on the facts and the time of the deemed reissuance, the reissued notes might be treated in a manner different from their original treatment for U.S. federal income tax purposes. As a result, you might be subject to withholding tax in respect of the reissued notes, or might be required to provide certification of your status as a non-U.S. person in order to avoid being subject to withholding. You should consult your tax adviser regarding the consequences of a significant modification of the notes.

The discussion below generally assumes that income and gain on the notes are not effectively connected with your conduct of a trade or business within the United States, except as discussed under "—Effectively Connected Income" below.

Notes Treated as Debt Instruments

Subject to the possible application of Section 897 of the Code (see "—FIRPTA" below) and the discussions below under "—Dividend Equivalents under Section 871(m) of the Code" and "FATCA," you generally should not be subject to U.S. federal withholding or income tax in respect of payments on or amounts you receive on a taxable disposition of a note, assuming that you provide an appropriate IRS Form W-8 to the applicable withholding agent certifying under penalties of perjury that you are not a U.S. person, and, in the case of coupon payments on a note, (i) you do not own, directly or by attribution, 10% or more of the total combined voting power of all classes of our stock entitled to vote; and (ii) you are not a controlled foreign corporation related, directly or indirectly, to us through stock ownership.

In the case of notes treated as Put Options and Deposits, please also see "—Notes Not Treated as Debt Instruments" below.

Notes Not Treated as Debt Instruments

The following discussion applies to notes not treated as debt instruments for U.S. federal income tax purposes, which for purposes of this discussion includes include notes treated as a combination of Put Option and a Deposit.

Coupon Payments on the Notes

Because significant aspects of the tax treatment of the notes are uncertain, persons having withholding responsibility in respect of the notes may treat a portion or all of each coupon payment on a note as subject to U.S. withholding tax, generally at a rate of 30% (or lower treaty rate). To the extent that we have withholding responsibility in respect of such notes, we would expect generally to treat the coupon payments as subject to U.S. withholding tax. In order to claim an exemption from, or a reduction in, the 30% withholding under an applicable treaty, you may need to comply with certification requirements to establish that you are not a U.S. person and are eligible for such an exemption or reduction under an applicable tax treaty. You should consult your tax adviser regarding the tax treatment of the notes, including the possibility of obtaining a refund of any amounts withheld and the certification requirement described above. We will not pay any additional amounts in respect of such withholding.

Taxable Disposition of the Notes

Subject to the possible application of Section 897 of the Code (see "—FIRPTA" below) and the discussions below under "—Dividend Equivalents under Section 871(m) of the Code" and "FATCA," you generally should not be subject to U.S. federal withholding or income tax in respect of payments on or amounts you receive on a taxable disposition of a note (other than amounts received in respect of any coupon payment, which will be treated as described above under "—Coupon Payments on the Notes"), assuming that you provide an appropriate IRS Form W-8 to the applicable withholding agent certifying under penalties of perjury that you are not a U.S. person.

Dividend Equivalents under Section 871(m) of the Code

Section 871(m) of the Code and the Treasury regulations thereunder ("Section 871(m)") impose a 30% (or lower treaty rate) withholding tax on "dividend equivalents" paid or deemed paid to Non-U.S. Holders with respect to certain financial instruments linked to U.S. equities ("Underlying Securities"), as defined under the applicable Treasury regulations, or indices that include Underlying Securities. Section 871(m) generally applies to "specified equity-linked instruments" ("Specified ELIs"), which are financial instruments that substantially replicate the economic performance of one or more Underlying Securities, as determined based on tests set forth in the applicable Treasury regulations and discussed further below. Section 871(m) provides certain exceptions to this withholding regime, in particular for instruments linked to certain broad-based indices that meet requirements set forth in the applicable Treasury regulations ("Qualified Indices") as well as exchange-traded funds that track such indices ("Qualified Index Securities").

Although the Section 871(m) regime became effective in 2017, the applicable Treasury regulations, as modified by an IRS notice, phase in the application of Section 871(m) as follows:

- For financial instruments issued prior to 2025, Section 871(m) will generally apply only to financial instruments that have a "delta" of one.

- For financial instruments issued in 2025 and thereafter, Section 871(m) will apply if either (i) the "delta" of the relevant financial instrument is at least 0.80, if it is a "simple" contract, or (ii) the financial instrument meets a "substantial equivalence" test, if it is a "complex" contract.

"Delta" for this purpose is generally defined as the ratio of the change in the fair market value of a financial instrument to a small change in the fair market value of the number of shares of the Underlying Security. The "substantial equivalence" test measures whether a complex contract tracks its "initial hedge" (shares of the Underlying Security that would fully hedge the contract) more closely than would a "benchmark" simple contract with a delta of 0.80.

The calculations are generally made at the "calculation date," which is the earlier of (i) the time of pricing of the note, i.e., when all material terms have been agreed on, and (ii) the issuance of the note. However, if the time of pricing is more than 14 calendar days before the issuance of the note, the calculation date is the date of the issuance of the note. In those circumstances, information regarding our final determinations for purposes of Section 871(m) may be available only after the time of pricing of the note. As a result, you should acquire such a note only if you are willing to accept the risk that the note is treated as a Specified ELI subject to withholding under Section 871(m).

If the terms of a note are subject to a significant modification (for example, upon an event discussed below under "Possible Taxable Event"), the note generally will be treated as reissued for this purpose and could become a Specified ELI at the time of the significant modification, depending on the application of the test in effect at that time to the note. If, pursuant to the terms of a note, an Underlying Security is added to (or substituted into) the composition of the note's Underlier after the issuance of the note, whether or not resulting in a significant modification, we may determine that the note is subject to withholding under Section 871(m) at that later time. Accordingly, prospective investors should acquire such a note with the understanding that withholding may apply to payments thereon.

If a note is a Specified ELI, withholding in respect of dividend equivalents will, depending on the issuer or applicable withholding agent's circumstances, generally be required either (i) on the underlying dividend payment date or (ii) when cash payments are made on the note or upon the date of maturity, lapse or other disposition of the

note by you, or possibly upon certain other events. Depending on the circumstances, we or the applicable withholding agent may withhold the required amounts from coupons or other payments on the note, from proceeds of the retirement or other disposition of the note, or from your other cash or property held by us or the withholding agent. If withholding applies, you should expect that we or the withholding agent will withhold at the applicable statutory rate.

The dividend equivalent amount will include the amount of any actual or, under certain circumstances, estimated dividend. If the dividend equivalent amount is based on the actual dividend, it will be equal to the product of: (i) in the case of a "simple" contract, the per-share dividend amount, the number of shares of an Underlying Security and the delta; or (ii) in the case of a complex contract, the per-share dividend amount and the initial hedge. The dividend equivalent amount for Specified ELIs issued prior to 2025 that have a delta of one will be calculated in the same manner as (i) above, using a delta of one. The per-share dividend amount will be the actual dividend (including any special dividends) paid with respect to a share of the Underlying Security. If the dividend equivalent amount is based on an estimated dividend, we will provide the information on how to obtain the estimated amounts in the relevant pricing supplement for the notes.

In the case of a note that provides for a coupon linked to dividend payments on an Underlying Security, it is possible that a withholding agent will withhold under Section 871(m) with respect to the notes in addition to any withholding tax imposed on any such coupon payments, in which case the application of Section 871(m) to the notes could significantly increase a Non-U.S. Holder's tax liability in respect of the notes. Non-U.S. Holders should consult their tax advisers regarding the possibility of additional withholding tax.

Depending on the terms of a note and whether or not it is issued prior to 2025, the pricing supplement may contain additional information relevant to Section 871(m), such as whether the note references a Qualified Index or Qualified Index Securities; whether it is a simple contract; the delta and the number of shares multiplied by delta (for a simple contract); whether the substantial equivalence test is met and the initial hedge (for a complex contract); and whether the changes to the composition of Underlier could possibly result in payments on the note becoming subject to withholding under Section 871(m).

Prospective purchasers of the notes should consult their tax advisers regarding the potential application of Section 871(m) to a particular note and, if withholding applies, whether they are eligible for a refund of any part of the withholding tax discussed above on the basis of an applicable U.S. income tax treaty, as well as the process for obtaining such a refund (which will generally require the filing of a U.S. federal income tax return). In some circumstances, it may not be possible for a Non-U.S. Holder to obtain the documentation necessary to support a refund claim under an applicable treaty. Our determination is binding on Non-U.S. Holders and withholding agents, but it is not binding on the IRS. The Section 871(m) regulations require complex calculations to be made with respect to notes linked to U.S. equities and their application to a specific issue of notes may be uncertain. Accordingly, even if we determine that certain notes are not Specified ELIs, the IRS could challenge our determination and assert that withholding is required in respect of those notes. Moreover, your consequences under Section 871(m) may depend on your particular circumstances. For example, if you enter into other transactions relating to an Underlying Security, you could be subject to withholding tax or income tax liability under Section 871(m) even if the notes are not Specified ELIs subject to Section 871(m) as a general matter. Non-U.S. Holders should consult their tax advisers regarding the application of Section 871(m) in their particular circumstances.

We will not be required to pay any additional amounts with respect to U.S. federal withholding taxes.

FIRPTA

Section 897 of the Code, commonly referred to as "FIRPTA," applies to certain interests in entities that beneficially own significant amounts of United States real property interests (each, a "USRPI"). As discussed above, we will not attempt to ascertain whether any Underlying Issuer should be treated as a USRPHC for purposes of Section 897 of the Code (including a non-corporate entity treated for relevant purposes of Section 897 of the Code as a USRPHC). If an Underlying Issuer were so treated, it is possible that, subject to the exceptions discussed in the following paragraph, a note could be treated as a USRPI, in which case any gain from the disposition of the note would generally be subject to U.S. federal income tax and would be required to be reported by the Non-U.S. Holder on a U.S. federal income tax return, generally in the same manner as if the Non-U.S. Holder were a U.S. Holder, and would in certain cases be subject to withholding in the amount of 15% of the gross proceeds of such disposition.

An exception to the FIRPTA rules applies in respect of interests in entities that have a regularly traded class of interests outstanding. Under this exception, a note that is not "regularly traded" on an established securities market generally should not be subject to the FIRPTA rules unless its fair market value upon acquisition exceeds 5% of the Underlying Issuer's regularly traded class of interests as specified in the applicable Treasury regulations. In the case of notes that are regularly traded, a holding of 5% or less of the outstanding notes of that class or series generally should not be subject to the FIRPTA rules. Certain attribution and aggregation rules apply, and prospective purchasers are urged to consult their tax advisers regarding whether their ownership interest in the notes will be subject to an exemption from the FIRPTA rules in light of their circumstances, including any other interest they might have in an Underlying Issuer.

Effectively Connected Income

If you are engaged in a U.S. trade or business, and if income or gain from the notes is effectively connected with the conduct of that trade or business, you generally will be subject to regular U.S. federal income tax with respect to that income or gain in the same manner as if you were a U.S. Holder, subject to the provisions of an applicable income tax treaty. In this event, if you are a corporation, you should also consider the potential application of a 30% (or lower treaty rate) branch profits tax. You would be required to provide an IRS Form W-8ECI to the applicable withholding agent to establish an exemption from withholding for amounts, otherwise subject to withholding, paid on a note. If this paragraph applies to you, you should consult your tax adviser with respect to other U.S. tax consequences of the ownership and disposition of the note, including the possible imposition of a 30% branch profits tax if you are a corporation.

Possible Taxable Event

A change to an Underlier (resulting from, for example, a reorganization event) could result in a significant modification of the affected notes. A change in the methodology by which an Underlier is calculated, a change in the components of an Underlier, a change in the timing or amount of payments on a note due to a market disruption event, the designation of a successor Underlier, or the designation of a substitute or successor rate or other similar circumstances resulting in a material change to an Underlier could also result in a significant modification of the affected notes. In particular, the modification of Underlier as the result of the active management of an Index underlying a note could result in a significant modification of such note. Additionally, in certain circumstances where our obligations under the notes are assumed by another entity, such substitution could result in a significant modification of the affected notes.

A significant modification would generally result in the notes being treated as terminated and reissued for U.S. federal income tax purposes. In that event, if you are a U.S. Holder, you might be required to recognize gain or loss (subject to possible recapitalization treatment or, in the case of loss, the possible application of the wash sale rules) with respect to the notes, and your holding period for your notes could be affected. Moreover, depending on the facts at the time of the significant modification, the reissued notes could be characterized for U.S. federal income tax purposes in a manner different from their original treatment, which could have a significant and potentially adverse effect on the timing and character of income you recognize with respect to the notes after the significant modification. In addition, a significant modification could result in adverse U.S. federal withholding tax consequences to a Non-U.S. Holder.

You should consult your tax adviser regarding the consequences of a significant modification of the notes. Except where stated otherwise, the discussion herein assumes that there has not been a significant modification of the notes.

Fungibility of Subsequent Issuances of the Notes

We may, without the consent of the holders of outstanding notes, issue additional notes with identical terms. Even if they are treated for non-tax purposes as part of the same series as the original notes, these additional notes may be treated as a separate issue for U.S. federal income tax purposes or otherwise be treated differently from the original notes.

In the case of notes treated as debt for U.S. federal income tax purposes, the additional notes may be considered to have been issued (in whole or in part) with OID even if the original notes had no OID, or the additional notes may

have a greater amount of OID than the original notes. These differences may affect the market value of the original notes if the additional notes are not otherwise distinguishable from the original notes.

Reportable Transactions

A taxpayer that participates in a "reportable transaction" is subject to information reporting requirements under Section 6011 of the Code. Reportable transactions include, among other things, certain transactions identified by the IRS as well as certain losses recognized in an amount that exceeds a specified threshold level.

In 2015, Treasury and the IRS released notices designating certain "basket options," "basket contracts" and substantially similar transactions as reportable transactions. The notices apply to specified transactions in which a taxpayer or its "designee" has, and exercises, discretion to change the assets or an algorithm underlying the transaction. If we, an Index Sponsor or calculation agent or other person were to exercise discretion under the terms of a note, or an Index underlying a note, and were treated as a holder's designee for these purposes, unless an exception applied certain holders of the relevant notes would be required to report certain information to the IRS, as set forth in the applicable Treasury regulations, or be subject to penalties. We might also be required to report information regarding the transaction to the IRS. You should consult your tax adviser regarding these rules.

Information Reporting and Backup Withholding

Payments on the notes as well as the proceeds of a taxable disposition (including retirement) of the notes may be subject to information reporting and, if you fail to provide certain identifying information (such as an accurate taxpayer identification number if you are a U.S. Holder) or meet certain other conditions, may also be subject to backup withholding at the rate specified in the Code. If you are a Non-U.S. Holder that provides the applicable withholding agent with the appropriate IRS Form W-8, you will generally establish an exemption from backup withholding. Amounts withheld under the backup withholding rules are not additional taxes and may be refunded or credited against your U.S. federal income tax liability, provided the relevant information is timely furnished to the IRS.

FATCA

Legislation commonly referred to as "FATCA" generally imposes a withholding tax of 30% on payments to certain non-U.S. entities (including financial intermediaries) with respect to certain financial instruments, unless various U.S. information reporting and due diligence requirements (that are in addition to, and potentially significantly more onerous than, the requirement to deliver an IRS Form W-8) have been satisfied. An intergovernmental agreement between the United States and the non-U.S. entity's jurisdiction may modify these requirements. This legislation generally applies to payments of U.S.-source "fixed or determinable annual or periodical" (FDAP) income, which includes, among other things, interest and certain dividend equivalents (as defined above) under Section 871(m). While existing Treasury regulations would also require withholding on payments of gross proceeds of the disposition (including upon retirement) of financial instruments that provide for U.S.-source interest or certain dividend equivalents, Treasury has indicated in subsequent proposed regulations its intent to eliminate this requirement. Treasury has stated that taxpayers may rely on these proposed regulations pending their finalization. If you are a Non-U.S. Holder, or a U.S. Holder holding notes through a non-U.S. intermediary, you should consult your tax adviser regarding the potential application of FATCA to the notes, including the availability of certain refunds or credits.

Notwithstanding anything to the contrary herein or in the applicable pricing supplement, we will not be required to pay any additional amounts with respect to U.S. federal withholding taxes.

BENEFIT PLAN INVESTOR CONSIDERATIONS

A fiduciary of a pension, profit-sharing or other employee benefit plan subject to ERISA, or an entity whose underlying assets include "plan assets" by reason of such plan's investment in the entity (collectively, "**Plans**") should consider the fiduciary standards of ERISA in the context of the Plan's particular circumstances before authorizing an investment in the notes. 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 Plan, and whether the investment would involve a prohibited transaction under Section 406 of ERISA or Section 4975 of the Code.

Section 406 of ERISA and Section 4975 of the Code prohibit Plans, as well as individual retirement accounts, Keogh plans and other arrangements subject to Section 4975 of the Code and entities whose underlying assets are considered to include "plan assets" of any such plan, account or arrangement (also "**Plans**"), from engaging in certain transactions involving "plan assets" with persons who are "parties in interest" under ERISA or "disqualified persons" under the Code (collectively, "**parties in interest**") with respect to the Plan. A violation of these prohibited transaction rules may result in civil penalties or other liabilities under ERISA and/or an excise tax under Section 4975 of the Code for those parties in interest that engage in a prohibited transaction, unless relief is available under an applicable statutory, regulatory or administrative exemption. In addition, fiduciaries of the Plan that engaged in such non-exempt prohibited transaction may be subject to penalties and liabilities under ERISA and the Code as well.

Because of our business, we and our current and future affiliates may be parties in interest with respect to many Plans. The acquisition, holding or disposition of the notes by a Plan with respect to which we or certain of our affiliates is or becomes a party in interest may constitute or result in a prohibited transaction under ERISA or Section 4975 of the Code, unless the notes are acquired pursuant to and in accordance with an applicable exemption. The U.S. Department of Labor has issued five prohibited transaction class exemptions, or "**PTCEs**," that may provide exemptive relief if required for direct or indirect prohibited transactions that may arise from the purchase or holding of the notes. These exemptions are:

- PTCE 84-14, an exemption for certain transactions determined or effected by independent qualified professional asset managers;
- PTCE 90-1, an exemption for certain transactions involving insurance company pooled separate accounts;
- PTCE 91-38, an exemption for certain transactions involving bank collective investment funds;
- PTCE 95-60, an exemption for transactions involving certain insurance company general accounts; and
- PTCE 96-23, an exemption for plan asset transactions managed by in-house asset managers.

In addition, ERISA Section 408(b)(17) and Section 4975(d)(20) of the Code provide statutory exemptive relief for certain arm's-length transactions with a person that is a party in interest solely by reason of providing services to Plans or being an affiliate of such a service provider. Under this exemption, the purchase and sale of the notes will not constitute a prohibited transaction under ERISA or Section 4975 of the Code, provided that neither the issuer of the notes 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 provided further that the Plan pays no more and receives no less than "adequate consideration" in connection with the transaction (the so-called "**service provider exemption**"). There can be no assurance that any of these statutory or class exemptions will be available with respect to transactions involving the notes.

Certain employee benefit plans and arrangements, including those that are governmental plans (as defined in section 3(32) of ERISA), certain church plans (as defined in Section 3(33) of ERISA) and non-U.S. plans (as described in Section 4(b)(4) of ERISA (collectively "**Non-ERISA Arrangements**") are not subject to the requirements of ERISA or Section 4975 of the Code but may be subject to similar provisions under applicable federal, state, local, non-U.S. or other laws, regulations or rules ("**Similar Laws**"). Fiduciaries of Non-ERISA

Arrangements should consider the foregoing issues in general terms as well as any further issues arising under any applicable Similar Laws before purchasing the notes.

Any purchaser or holder of the notes or any interest therein will be deemed to have represented (both on behalf of itself and any Plan) by its purchase and holding of the notes that either (i) it is not a Plan or Non-ERISA Arrangement and is not purchasing the notes on behalf of or with the assets of any Plan or Non-ERISA Arrangement or (ii) the purchase, holding and subsequent disposition of the notes will not constitute or result in a non-exempt prohibited transaction under ERISA or Section 4975 of the Code or a violation of any Similar Law.

Due to the complexity of these rules and the penalties that may be imposed upon persons involved in non-exempt prohibited transactions, it is important that fiduciaries or other persons considering purchasing the notes on behalf of or with the assets of any Plan or Non-ERISA Arrangement consult with their counsel regarding the potential consequences of any purchase, holding or disposition under ERISA, Section 4975 of the Code and/or Similar Laws, as applicable, and the availability of any exemptive relief.

The notes are contractual financial instruments. The financial exposure provided by the notes is not a substitute or proxy for, and is not intended as a substitute or proxy for, individualized investment management or advice for the benefit of any purchaser or holder of the notes. The notes have not been designed and will not be administered in a manner intended to reflect the individualized needs and objectives of any purchaser or holder of the notes.

Each purchaser or holder of any notes acknowledges and agrees that:

- the purchaser or holder or its fiduciary has made and shall make all investment decisions for the purchaser or holder and the purchaser or holder has not relied and shall not rely in any way upon us or any of our affiliates to act as a fiduciary or adviser of the purchaser or holder with respect to (i) the design and terms of the notes, (ii) the purchaser or holder's investment in the notes, (iii) the holding of the notes or (iv) the exercise of or failure to exercise any rights we or any of our affiliates, or the purchaser or holder, has under or with respect to the notes;

- we and our affiliates have acted and will act solely for our own account in connection with (i) all transactions relating to the notes and (ii) all hedging transactions in connection with our or our affiliates' obligations under the notes;

- any and all assets and positions relating to hedging transactions by us or any of our affiliates are assets and positions of those entities and are not assets and positions held for the benefit of the purchaser or holder;

- our interests and the interests of our affiliates are adverse to the interests of the purchaser or holder; and

- neither we nor any of our affiliates is a fiduciary or adviser of the purchaser or holder in connection with any such assets, positions or transactions, and any information that we or any of our affiliates may provide is not intended to be impartial investment advice.

Each purchaser and holder of the notes has exclusive responsibility for ensuring that its purchase and holding of the notes does not violate the fiduciary or prohibited transaction rules of ERISA or Section 4975 of the Code or provisions of any Similar Laws. The sale of any notes to any Plan or Non-ERISA Arrangement is in no respect a representation by us or any of our affiliates or representatives that such an investment is appropriate for, and meets all relevant legal requirements with respect to investments by Plans or Non-ERISA Arrangements generally or any particular Plan or Non-ERISA Arrangement. Neither this discussion nor anything provided in this prospectus is or is intended to be investment advice directed at any potential Plan or Non-ERISA Arrangement purchasers.

SUPPLEMENTAL PLAN OF DISTRIBUTION

With respect to each note to be issued, we will agree to sell to RBCCM and RBCCM will agree to purchase from us, the principal amount of the note specified, at the price specified under "Net proceeds to the issuer," in the relevant pricing supplement. RBCCM intends to resell each note it purchases at the original issue price specified in the relevant pricing supplement. In the future, RBCCM or one of our other 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.

In addition to the underwriting discount set forth on the cover page of the relevant pricing supplement, we or one of our affiliates may also pay an expected fee to a broker-dealer that is unaffiliated with us for providing certain electronic platform services with respect to the applicable offering.

Non-U.S. Selling Restrictions

The notes and the related offer to purchase notes and sale of notes under the terms and conditions provided in the relevant pricing supplement do not constitute a public offering in any non-U.S. jurisdiction. The notes are being made available only to individually identified investors pursuant to a private offering as permitted in the relevant jurisdiction. The notes are not, and will not be, registered with any securities exchange or registry located outside of the United States and have not been registered with any non-U.S. securities regulatory authority. The contents of this product supplement and the relevant pricing supplement have not been reviewed or approved by any non-U.S. securities regulatory authority. Any person who wishes to acquire the notes from outside the United States should seek advice or legal counsel as to the relevant requirements to acquire these notes.

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

Each of RBCCM and any other broker-dealer offering the notes have not offered, sold or otherwise made available and will not offer, sell or otherwise make available any of the notes, to any retail investor in the United Kingdom. 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 (8) of Article 2 of Regulation (EU) No 2017/565 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018 (the "EUWA"); or (b) a customer within the meaning of the provisions of the Financial Services and Markets Act 2000 (the "FSMA") and any rules or regulations made under the FSMA to implement Directive (EU) 2016/97, where that customer would not qualify as a professional client, as defined in point (8) of Article 2(1) of Regulation (EU) No 600/2014 as it forms part of domestic law by virtue of the EUWA; or (c) not a qualified investor as defined in Article 2 of Regulation (EU) (2017/1129) as it forms part of domestic law by virtue of the EUWA. Consequently, no key information document required by Regulation (EU) No 1286/2014 as it forms part of domestic law by virtue of the EUWA (the "UK PRIIPs Regulation") for offering or selling the notes or otherwise making them available to retail investors in the UK has been prepared and therefore offering or selling the notes or otherwise making them available to any retail investor in the UK may be unlawful under the UK PRIIPs Regulation.

Filed Pursuant to Rule 424(b)(3)
Registration Statement No. 333-275898

Prospectus Supplement to Prospectus Dated December 20, 2023

Royal Bank of Canada

US$ 75,000,000,000

Senior Global Medium-Term Notes, Series J
Terms of Sale

Royal Bank of Canada may from time to time offer and sell notes, which we refer to as the "notes" in this prospectus supplement, with various terms, including the following:

- stated maturity of nine months or longer, except that indexed notes may have maturities of less than nine months
- fixed or floating interest rate, zero-coupon or issued with original issue discount; unless otherwise set forth in the applicable pricing supplement, a floating interest rate may be based on:
  - commercial paper rate
  - U.S. prime rate
  - SOFR Index
  - EURIBOR
  - Treasury rate
  - CMT rate
  - CMS rate
  - federal funds rate
- ranked as senior indebtedness of Royal Bank of Canada
- amount of principal and/or interest may be determined by reference to an index or formula
- book-entry form only through The Depository Trust Company
- redemption at the option of Royal Bank of Canada or the option of the holder
- interest on notes paid monthly, quarterly, semi-annually or annually
- unless otherwise set forth in the applicable pricing supplement, minimum denominations of $1,000 and integral multiples of $1,000 in excess thereof (except that non-U.S. investors may be subject to higher minimums)
- denominated in a currency other than U.S. dollars or in a composite currency
- settlement in immediately available funds

The final terms of each note will be included in a pricing supplement together with, in some cases, an applicable product prospectus supplement. We refer to pricing supplements and applicable product prospectus supplements, if any, as "pricing supplements." If we sell all of the notes through agents and in the form of fixed or floating rate notes, we expect to receive between $75,000,000,000 and $74,750,000,000 of the proceeds from the sale of the notes, after paying the agents' commissions of between $0 and $250,000,000. If we sell all of the notes through agents and in the form of indexed or other structured notes, we expect to receive between $74,500,000,000 and $72,500,000,000 of the proceeds from the sale of such notes, after paying the agents' commission of between $500,000,000 and $2,500,000,000. See "Supplemental Plan of Distribution" for additional information about the agents' commissions. The aggregate initial offering price of the notes is subject to reduction as a result of the sale by Royal Bank of Canada of other debt securities pursuant to another prospectus supplement to the accompanying prospectus.

See "Risk Factors" beginning on page S-3 to read about factors you should consider before investing in any notes.

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

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

Notes that are bail-inable notes (as defined herein) are subject to conversion in whole or in part – by means of a transaction or series of transactions and in one or more steps – into common shares of the Bank or any of its affiliates under subsection 39.2(2.3) of the Canada Deposit Insurance Corporation Act (the "CDIC Act") and to variation or extinguishment in consequence, and subject to the application of the laws of the Province of Ontario and the federal laws of Canada applicable therein in respect of the operation of the CDIC Act with respect to the bail-inable notes.

Royal Bank of Canada may sell the notes directly or through one or more agents or dealers, including the agents referred to under "Supplemental Plan of Distribution." The agents are not required to sell any particular amount of the notes.

Royal Bank of Canada may use this prospectus supplement in the initial sale of any notes. In addition, Royal Bank of Canada, RBC Capital Markets, LLC or certain other affiliates of Royal Bank of Canada (the "Market-Makers") may use this prospectus supplement and accompanying prospectus in market-making or other transactions in any note after its initial sale. A Market-Maker may engage in market-making transactions only in those jurisdictions in which it has all necessary governmental and regulatory authorizations for such activity. ***Unless Royal Bank of Canada or its agent informs the purchaser otherwise in the confirmation of sale or pricing supplement, this prospectus supplement and accompanying prospectus are being used in a market-making transaction.***

The date of this prospectus supplement is December 20, 2023.

TABLE OF CONTENTS

PROSPECTUS SUPPLEMENT

PROSPECTUS

ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus and, if applicable, a product prospectus supplement, provide you with a general description of the notes we may offer. Each time we sell notes we will provide a pricing supplement containing specific information about the terms of the notes being offered. Each pricing supplement may include a discussion of any risk factors or other special considerations that apply to those notes. The pricing supplement may also add, update or change the information in this prospectus supplement and any applicable product prospectus supplement. If there is any inconsistency between the information in this prospectus supplement or any applicable product prospectus supplement and any pricing supplement, you should rely on the information in that pricing supplement. In this prospectus supplement when we refer to this prospectus supplement we are also referring to any applicable product prospectus supplement unless the context otherwise requires.

RISK FACTORS SUMMARY

The following is only a summary of the principal risks that may materially adversely affect an investment in the notes. The following should be read in conjunction with the more complete discussion of the risk factors we face, which are set forth more fully in this prospectus supplement under the caption "Risk Factors" as well as the risks described under "Risk Factors" in the accompanying prospectus.

- An investment in the notes is subject to our credit risk.
- There may be no market through which the notes may be sold, and holders may not be able to sell the notes.
- The notes are structurally subordinated to the liabilities of our subsidiaries.
- The notes will be subject to risks, including non-payment in full or, in the case of bail-inable notes, conversion in whole or in part – by means of a transaction or series of transactions and in one or more steps – into common shares of the Bank or any of its affiliates, under Canadian bank resolution powers.
- The indenture will provide only limited acceleration and enforcement rights for the notes and includes other provisions intended to qualify bail-inable notes as TLAC.
- The circumstances surrounding a bail-in conversion are unpredictable and can be expected to have an adverse effect on the market price of bail-inable notes.
- The number of common shares to be issued in connection with, and the number of common shares that will be outstanding following, a bail-in conversion are unknown. It is also unknown whether the shares to be issued will be those of the Bank or one of its affiliates.
- By acquiring bail-inable notes, you are deemed to agree to be bound by a bail-in conversion and so will have no further rights in respect of bail-inable notes that are converted in a bail-in conversion other than those provided under the bail-in regime. Any potential compensation to be provided through the compensation process under the CDIC Act is unknown.
- Following a bail-in conversion, holders or beneficial owners that held bail-inable notes that have been converted will no longer have rights against the Bank as creditors.
- We may redeem bail-inable notes after the occurrence of a TLAC disqualification event.
- The return on indexed notes may be less than the return on notes with a similar term that are not indexed.
- Investors in indexed notes could lose their investment.
- The issuer of a security or currency that serves as an index could take actions that may adversely affect an indexed note.
- An indexed note may be linked to a volatile index, which could hurt the value of your investment.
- An index to which a note is linked could be changed or become unavailable.
- Pricing information about the property underlying a relevant index may not be available.
- We may engage in hedging activities that could adversely affect an indexed note.

- Information about indices will not be indicative of future performance.
- We may have conflicts of interest regarding an indexed note.
- Floating rates of interest are uncertain and could be 0.0%.
- Notes that bear interest at rates based on EURIBOR may be adversely affected by changes in our EURIBOR reporting practices or the method in which EURIBOR is determined or circumstances where EURIBOR is no longer determined or published.
- The Secured Overnight Financing Rate ("SOFR") is a relatively new reference rate and its composition and characteristics are not the same as the London Inter-Bank Offered Rate ("LIBOR").
- SOFR may be more volatile than other benchmark or market rates.
- Any failure of SOFR to gain market acceptance could adversely affect notes linked to SOFR.
- SOFR may be modified or discontinued and notes linked to SOFR may bear interest by reference to a rate other than SOFR, which could adversely affect the value of such notes.
- The interest rate on SOFR-linked notes may be based on a USD Compounded SOFR Index Rate and the SOFR Index, which is relatively new in the marketplace.
- USD Compounded SOFR Index Rate with respect to a particular interest period will only be capable of being determined near the end of the relevant interest period.
- Compounded SOFR for an interest period during the floating period may not reflect any subsequently published corrections to SOFR.
- An investment in a non-U.S. dollar note involves currency-related risks.
- Changes in currency exchange rates can be volatile and unpredictable.
- Government policy can adversely affect foreign currency exchange rates and an investment in a non-U.S. Dollar note.
- Information about exchange rates will not be indicative of future performance.
- Non-U.S. investors may be subject to certain additional risks.
- No assurance can be given as to the impact of any possible judicial decision or change to the laws of the Provinces of Ontario and Québec and the federal laws of Canada applicable therein or administrative practice after the date of this prospectus supplement and before the date on which the notes are issued.

RISK FACTORS

An investment in the notes is subject to the risks described below, as well as the risks described under "Risk Factors" in the accompanying prospectus. You should carefully consider whether the notes are suited to your particular circumstances. This prospectus supplement should be read together with the accompanying prospectus, any applicable product prospectus supplement and the relevant pricing supplement. The information in the accompanying prospectus is supplemented by, and to the extent inconsistent therewith replaced and superseded by, the information in this prospectus supplement, any applicable 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 prospectus supplement, the accompanying prospectus, any applicable product prospectus supplement and the relevant pricing supplement, before investing in the notes.

General Risks Relating to the Notes

An Investment in the Notes is Subject to Our Credit Risk

Any payment to be made on the notes depends on our ability to pay all amounts due on the notes on the interest payment dates, upon redemption and at maturity. Therefore, an investment in any of the notes issued under our medium-term note program is subject to our credit risk. The existence of a trading market for, and the market value of, any of the notes may be impacted by market perception of our creditworthiness. If market perception of our creditworthiness were to decline for any reason, the market value of your notes, and availability of the trading markets generally, may be adversely affected.

There May Be No Market through which the Notes May Be Sold, and Holders May Not Be Able to Sell the Notes

Unless otherwise specified in the relevant pricing supplement or any applicable product prospectus supplement, there may be no market through which the notes may be sold, and holders may not be able to sell the notes. This may affect the pricing of the notes in the secondary market, the transparency and availability of trading prices and the liquidity of the notes. 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 are able to 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.

The Notes are Structurally Subordinated to the Liabilities of Our Subsidiaries

If we become insolvent, our governing legislation provides that priorities among payments of our deposit liabilities and payments of all of our other liabilities (including payments in respect of the notes) are to be determined in accordance with the laws governing priorities and, where applicable, by the terms of the indebtedness and liabilities. Because we have subsidiaries, your right to participate in any distribution of the assets of our banking or non-banking subsidiaries, upon a subsidiary's dissolution, winding-up, liquidation or reorganization or otherwise, and thus your ability to benefit indirectly from such distribution, is subject to the prior claims of creditors of that subsidiary, except to the extent that we may be a creditor of that subsidiary and our claims are recognized. There are legal limitations on the extent to which some of our subsidiaries may extend credit, pay dividends or otherwise supply funds to, or engage in transactions with, us or some of our other subsidiaries. Accordingly, the notes will be structurally subordinated to all existing and future liabilities of our subsidiaries, and holders of notes should look only to the assets of the Bank and not those of our subsidiaries for payments on the notes.

The Notes will be Subject to Risks, Including Non-Payment in Full or, in the Case of Bail-Inable Notes, Conversion In Whole Or In Part – By Means of a Transaction or Series Of Transactions and in One or More Steps – Into Common Shares of the Bank or any of its Affiliates, Under Canadian Bank Resolution Powers

Under Canadian bank resolution powers, the Canada Deposit Insurance Corporation ("CDIC") may, in circumstances where the Bank has ceased, or is about to cease, to be viable, assume temporary control or ownership of the Bank and may be granted broad powers by one or more orders of the Governor in Council (Canada), each of which we refer to as an "Order," including the power to sell or dispose of all or a part of the assets of the Bank, and the power to carry out or cause the Bank to carry out a transaction or a series of transactions the purpose of which is to restructure the business of the Bank. As part of the Canadian bank resolution powers, certain provisions of and regulations under the Bank Act (Canada) (the "Bank Act"), the Canada Deposit Insurance Corporation Act (the "CDIC Act") and certain other Canadian federal statutes pertaining to banks provide for a bank recapitalization regime, which we refer to collectively as the "bail-in regime", for banks designated by the Superintendent of Financial Institutions (Canada) (the "Superintendent") as domestic systemically important banks, which include the Bank. We refer to those domestic systemically important banks as "D-SIBs." See "Description of Debt Securities — Canadian Bank Resolution Powers" in the accompanying prospectus for a description of the Canadian bank resolution powers, including the bail-in regime.

If the CDIC were to take action under the Canadian bank resolution powers with respect to the Bank, this could result in holders or beneficial owners of the notes being exposed to losses and, in the case of bail-inable notes, conversion of the notes in whole or in part – by means of a transaction or series of transactions and in one or more steps – into common shares of the Bank or any of its affiliates (which we refer to as a "bail-in conversion"). Subject to certain exceptions discussed in the accompanying prospectus under "Description of Debt Securities — Canadian Bank Resolution Powers," including for certain structured notes, senior debt issued on or after September 23, 2018, with an initial or amended term to maturity (including explicit or embedded options) greater than 400 days, that is unsecured or partially secured and that has been assigned a CUSIP or ISIN or similar identification number, is subject to bail-in conversion. We refer to notes that are subject to bail-in conversion as "bail-inable notes."

Upon a bail-in conversion, if your bail-inable notes or any portion thereof are converted into common shares of the Bank or any of its affiliates, you will be obligated to accept those common shares, even if you do not at the time consider the common shares to be an appropriate investment for you, and despite any change in the Bank or any of its affiliates, or the fact that the common shares may be issued by an affiliate of the Bank, or any disruption to or lack of a market for the common shares or disruption to capital markets generally.

As a result, you should consider the risk that you may lose all of your investment, including the principal amount plus any accrued interest, if the CDIC were to take action under the Canadian bank resolution powers, including the bail-in regime, and that any remaining outstanding notes, or common shares of the Bank or any of its affiliates into which bail-inable notes are converted, may be of little value at the time of a bail-in conversion and thereafter.

The Indenture will Provide Only Limited Acceleration and Enforcement Rights for the Notes and Includes Other Provisions Intended to Qualify Bail-Inable Notes as TLAC

In connection with the bail-in regime, the Office of the Superintendent of Financial Institutions' ("OSFI") guideline (the "TLAC Guideline") on Total Loss Absorbing Capacity ("TLAC") applies to and establishes standards for D-SIBs, including the Bank, effective September 23, 2018. Under the TLAC Guideline, the Bank is required to maintain a minimum capacity to absorb losses composed of unsecured external long-term debt that meets the prescribed criteria or regulatory capital instruments to support recapitalization in the event of a failure. Bail-inable notes and regulatory capital instruments that meet certain prescribed criteria, which are discussed in the accompanying prospectus under "Description of Debt Securities — Canadian Bank Resolution Powers," will constitute TLAC of the Bank.

In order to comply with the TLAC Guideline, our indenture under which the notes may be issued provides that, for any notes of a series issued on or after September 23, 2018 (including notes that are not subject to bail-in conversion), acceleration will only be permitted (i) if we default in the payment of the principal of, or interest on, any note of that series and, in each case, the default continues for a period of 30 business days, or (ii) certain bankruptcy, insolvency or reorganization events occur.

Holders and beneficial owners of bail-inable notes may only exercise, or direct the exercise of, the rights described in the accompanying prospectus under "Description of Debt Securities — Events of Default — Remedies If an Event of Default Occurs" where an Order has not been made under Canadian bank resolution powers pursuant to subsection 39.13(1) of the CDIC Act in respect of the Bank. Notwithstanding the exercise of those rights, bail-inable notes will continue to be subject to bail-in conversion until repaid in full.

The indenture also provides that holders or beneficial owners of bail-inable notes will not be entitled to exercise, or direct the exercise of, any set-off or netting rights with respect to bail-inable notes. In addition, where an amendment, modification or other variance that can be made to the indenture or the bail-inable notes as described in the accompanying prospectus under "Description of Debt Securities — Modification and Waiver of the Debt Securities" would affect the recognition of those bail-inable notes by the Superintendent as TLAC, that amendment, modification or variance will require the prior approval of the Superintendent.

The Circumstances Surrounding a Bail-In Conversion are Unpredictable and can be Expected to Have an Adverse Effect on the Market Price of Bail-Inable Notes

The decision as to whether the Bank has ceased, or is about to cease, to be viable is a subjective determination by the Superintendent that is outside the control of the Bank. Upon a bail-in conversion, the interests of depositors and holders of liabilities and securities of the Bank that are not converted will effectively all rank in priority to the portion of bail-inable notes that are converted. In addition, except as provided for under the compensation process, the rights of holders in respect of the bail-inable notes that have been converted will rank on parity with other holders of common shares of the Bank (or, as applicable, common shares of the affiliate whose common shares are issued on the bail-in conversion).

There is no limitation on the type of Order that may be made where it has been determined that the Bank has ceased, or is about to cease, to be viable. As a result, you may be exposed to losses through the use of Canadian bank resolution powers other than bail-in conversion or in liquidation. See "The Notes will be Subject to Risks, Including Non-Payment in Full or, in the Case of Bail-Inable Notes, Conversion In Whole Or In Part – By Means of a Transaction or Series Of Transactions and in One or More Steps – Into Common Shares of the Bank or any of its Affiliates, Under Canadian Bank Resolution Powers" above.

Because of the uncertainty regarding when and whether an Order will be made and the type of Order that may be made, it will be difficult to predict when, if at all, bail-inable notes could be converted into common shares of the Bank or any of its affiliates, and there is not likely to be any advance notice of an Order. As a result of this uncertainty, trading behavior in respect of the bail-inable notes may not follow trading behavior associated with convertible or exchangeable securities or, in circumstances where the Bank is trending towards ceasing to be viable, other senior debt. Any indication, whether real or perceived, that the Bank is trending towards ceasing to be viable can be expected to have an adverse effect on the market price of the bail-inable notes, whether or not the Bank has ceased, or is about to cease, to be viable. Therefore, in those circumstances, you may not be able to sell your bail-inable notes easily or at prices comparable to those of senior debt securities not subject to bail-in conversion.

The Number of Common Shares to be Issued in Connection with, and the Number of Common Shares that will be Outstanding Following, a Bail-In Conversion are Unknown. It is also Unknown Whether the Shares to be Issued will be Those of the Bank or One of its Affiliates

Under the bail-in regime there is no fixed and pre-determined contractual conversion ratio for the conversion of the bail-inable notes, or other shares or liabilities of the Bank that are subject to a bail-in conversion, into common shares of the Bank or any of its affiliates, nor are there specific requirements regarding whether liabilities subject to a bail-in conversion are converted into common shares of the Bank or any of its affiliates. CDIC determines the timing of the bail-in conversion, the portion of bail-inable shares and liabilities to be converted and the terms and conditions of the conversion, subject to parameters set out in the bail-in regime, which are discussed under "Description of Debt Securities — Canadian Bank Resolution Powers" in the accompanying prospectus.

As a result, it is not possible to anticipate the potential number of common shares of the Bank or its affiliates that would be issued in respect of any bail-inable note converted in a bail-in conversion, the aggregate number of such common shares that will be outstanding following the bail-in conversion, the effect of dilution on the common shares received from other issuances under or in connection with an Order or related actions in respect of the Bank or its affiliates or the value of any common shares you may receive for your converted bail-inable notes, which could be significantly less than the principal amount of those bail-inable notes. It is also not possible to anticipate whether shares of the Bank or shares of its affiliates would be issued in a bail-in conversion. There may be an illiquid market, or no market at all, in the common shares issued upon a bail-in conversion and you may not be able to sell those common shares at a price equal to the value of your converted bail-inable notes and as a result may suffer significant losses that may not be offset by compensation, if any, received as part of the compensation process. Fluctuations in exchange rates may exacerbate those losses.

By Acquiring Bail-Inable Notes, You are Deemed to Agree to be Bound by a Bail-In Conversion and so will have No Further Rights in respect of Bail-Inable Notes that are Converted in a Bail-In Conversion other than those Provided Under the Bail-In Regime. Any Potential Compensation to be Provided through the Compensation Process under the CDIC Act is Unknown

The CDIC Act provides for a compensation process for holders of bail-inable notes who immediately prior to the making of an Order, directly or through an intermediary, own bail-inable notes that are converted in a bail-in conversion. Given the considerations involved in determining the amount of compensation, if any, that a holder that held bail-inable notes may be entitled to following an Order, it is not possible to anticipate what, if any, compensation would be payable in such circumstances. By acquiring an interest in any bail-inable note, you are deemed to agree to be bound by a bail-in conversion and so will have no further rights in respect of your bail-inable notes to the extent those bail-inable notes are converted in a bail-in conversion, other than those provided under the bail-in regime. See “Description of Debt Securities — Canadian Bank Resolution Powers” in the accompanying prospectus for a description of the compensation process under the CDIC Act.

Following a Bail-In Conversion, Holders or Beneficial Owners that Held Bail-Inable Notes that have been Converted will No Longer have Rights Against the Bank as Creditors

Upon a bail-in conversion, the rights, terms and conditions of the portion of bail-inable notes that are converted, including with respect to priority and rights on liquidation, will no longer apply as the portion of converted bail-inable notes will have been converted on a full and permanent basis into common shares of the Bank or any of its affiliates ranking on parity with all other outstanding common shares of that entity. If a bail-in conversion occurs, then the interest of the depositors, other creditors and holders of liabilities of the Bank not bailed in as a result of the bail-in conversion will all rank in priority to those common shares.

Given the nature of the bail-in conversion, holders or beneficial owners of bail-inable notes that are converted will become holders or beneficial owners of common shares at a time when the Bank’s and potentially its affiliates’ financial condition has deteriorated. They may also become holders or beneficial owners of common shares at a time when the relevant entity may have received or may receive a capital injection or equivalent support with terms that may rank in priority to the common shares issued in a bail-in conversion with respect to payment of dividends, rights on liquidation or other terms although there is no certainty that any such capital injection or support will be forthcoming.

We May Redeem Bail-Inable Notes after the Occurrence of a TLAC Disqualification Event

If a TLAC Disqualification Event (as defined herein) is specified in the applicable pricing supplement, we may, at our option, with the prior approval of the Superintendent, redeem all but not less than all of the particular bail-inable notes prior to their stated maturity date after the occurrence of the TLAC Disqualification Event, at the time and at the redemption price or prices specified in that pricing supplement, together with unpaid interest accrued thereon to, but excluding, the date fixed for redemption. If we redeem bail-inable notes, you may not be able to reinvest the redemption proceeds in securities offering a comparable anticipated rate of return. Additionally, although the terms of the bail-inable notes are anticipated to be established to satisfy the TLAC criteria within the meaning of the TLAC Guideline to which the Bank is subject, it is possible that any bail-inable notes may not satisfy the criteria in future rulemakings or interpretations.

Risks Relating to Indexed Notes

We use the term "indexed notes" to mean notes whose value is linked to an underlying property or index. Indexed notes may present a high level of risk, and those who invest in indexed notes may lose their entire investment. Indexed notes are complex and involve risks not associated with an investment in ordinary debt securities. You should thoroughly review each of an indexed note's offering documents for a comprehensive description of the risks associated with the offering. In addition, the treatment of indexed notes for U.S. federal income tax purposes is often unclear due to the absence of any authority specifically addressing the issues presented by any particular indexed note. Thus, if you propose to invest in indexed notes, you should independently evaluate the federal income tax consequences of purchasing an indexed note that apply in your particular circumstances. You should read "Tax Consequences —United States Taxation" in the accompanying prospectus and "Certain Income Tax Consequences—United States Taxation" in this prospectus supplement, for a discussion of U.S. tax matters.

The Return on Indexed Notes May Be Less Than the Return on Notes With a Similar Term that Are Not Indexed

Certain indexed notes provide for the repayment of principal at maturity, subject to our credit risk. Depending on the terms of such an indexed note, as specified in the relevant pricing supplement, you may not receive any periodic interest payments or receive only very low payments on such indexed note. As a result, the overall return on such indexed note may be less, and possibly significantly less, than the amount you would have earned by investing the principal or other amount you invest in such indexed note in a non-indexed debt security that bears interest at a prevailing market fixed or floating rate. For indexed notes that do not provide for the repayment of principal at maturity, see "—Investors in Indexed Notes Could Lose Their Investment" below.

Investors in Indexed Notes Could Lose Their Investment

The amount of principal and/or interest payable on an indexed note and the cash value or physical settlement value of a physically settled note will be determined by reference to the price, value or level of one or more securities, currencies, commodities or other properties, any other financial, economic or other measure or instrument, including the occurrence or non-occurrence of any event or circumstance, and/or one or more indices or baskets of any of these items. We refer to each of these as an "index." The direction and magnitude of the change in the price, value or level of the relevant index will determine the amount of principal and/or interest payable on the indexed note, and the cash value or physical settlement value of a physically settled note. The terms of a particular indexed note may or may not provide for the return of a percentage of the face amount at maturity or a minimum interest rate. Thus, if you purchase an indexed note, you may lose all or a portion of the principal or other amount you invest and may receive no interest on your investment.

The Issuer of a Security or Currency That Serves as an Index Could Take Actions That May Adversely Affect an Indexed Note

The issuer of a security that serves as an index or part of an index for an indexed note will have no involvement in the offer and sale of the indexed note and no obligations to the holder of the indexed note. The issuer may take actions, such as a merger or sale of assets, without regard to the interests of the holder. Any of these actions could adversely affect the value of a note indexed to that security or to an index of which that security is a component.

If the index for an indexed note includes a non-U.S. dollar currency or other asset denominated in a non-U.S. dollar currency, the government that issues that currency will also have no involvement in the offer and sale of the indexed note and no obligations to the holder of the indexed note. That government may take actions that could adversely affect the value of the note. See "—Risks Relating to Notes Denominated or Payable in or Linked to a Non-U.S. Dollar Currency" below for more information about these kinds of government actions.

An Indexed Note May Be Linked to a Volatile Index, Which Could Hurt the Value of Your Investment

Some indices are highly volatile, which means that their value may change significantly, up or down, over a short period of time. The amount of principal and/or interest that can be expected to become payable on an indexed note may vary substantially from time to time. Because the amounts payable with respect to an indexed note are generally calculated based on the price, value or level of the relevant index on a specified date or over a limited period of time, volatility in the index increases the risk that the return on the indexed note may be adversely affected by a fluctuation in the level of the relevant index. The volatility of an index may be affected by political or economic events, including governmental actions, or by the activities of participants in the relevant markets. Any of these events or activities could adversely affect the value of an indexed note.

An Index to Which a Note is Linked Could Be Changed or Become Unavailable

Some indices compiled by us or our affiliates or third parties may consist of or refer to several or many different securities, commodities or currencies or other instruments or measures. The compiler of such an index typically reserves the right to alter the composition of the index and the manner in which the value or level of the index is calculated. An alteration may result in a decrease in the value of or return on an indexed note that is linked to the index. The indices for our indexed notes may include published indices of this kind or customized indices developed by us or our affiliates in connection with particular issues of indexed notes.

A published index may become unavailable, or a customized index may become impossible to calculate in the normal manner, due to events such as war, natural disasters, cessation of publication of the index or a suspension or disruption of trading in one or more securities, commodities or currencies or other instruments or measures on which the index is based. If an index becomes unavailable or impossible to calculate in the normal manner, the terms of a particular indexed note may allow us to delay determining the amount payable as principal or interest on an indexed note, or we may use an alternative method to determine the value of the unavailable index. Alternative methods of valuation are generally intended to produce a value similar to the value resulting from reference to the relevant index. However, it is unlikely that any alternative method of valuation we use will produce a value identical to the value that the actual index would have produced. If we use an alternative method of valuation for a note linked to an index of this kind, the value of the note, or the rate of return on it, may be lower than it otherwise would be.

Some indexed notes are linked to indices that are not commonly used or that have been developed only recently. The lack of trading history may make it difficult to anticipate the volatility or other risks associated with an indexed note of this kind. In addition, trading in these indices or their underlying stocks, commodities or currencies or other instruments or measures, or options or futures contracts on these stocks, commodities or currencies or other instruments or measures, may be limited, which could increase their volatility and decrease the value of the related indexed notes or the rates of return on them.

Pricing Information About the Property Underlying a Relevant Index May Not Be Available

Special risks may also be presented because of differences in time zones between the United States and the market for the property underlying the relevant index, such that the underlying property is traded on a foreign exchange that is not open when the trading market for the notes in the United States, if any, is open or where trading occurs in the underlying property during times when the trading market for the notes in the United States, if any, is closed. In such cases, holders of the notes may have to make investment decisions at a time when current pricing information regarding the property underlying the relevant index is not available.

We May Engage in Hedging Activities That Could Adversely Affect an Indexed Note

In order to hedge an exposure on a particular indexed note, we may, directly or through our affiliates or other agents, enter into transactions involving the securities, commodities or currencies or other instruments or measures that underlie the index for the note, or involving derivative instruments, such as swaps, options or futures, on the index or any of its component items. To the extent that we enter into hedging arrangements with a non-affiliate, including a non-affiliated agent, such non-affiliate may enter into similar transactions. Engaging in transactions of this kind could adversely affect the value of an indexed note. It is possible that we or a hedging counterparty could achieve substantial returns from our hedging transactions while the value of the indexed note may decline.

Information About Indices Will Not Be Indicative of Future Performance

If we issue an indexed note, we may include historical information about the relevant index in the relevant pricing supplement. Any information about indices that we may provide will be furnished as a matter of information only, and you should not regard the information as indicative of the range of, or trends in, fluctuations in the relevant index that may occur in the future.

We May Have Conflicts of Interest Regarding an Indexed Note

RBC Capital Markets, LLC and our other affiliates and unaffiliated agents may have conflicts of interest with respect to some indexed notes. RBC Capital Markets, LLC and our other affiliates and unaffiliated agents may engage in trading, including trading for hedging purposes, for their proprietary accounts or for other accounts under their management, in indexed notes and in the securities, commodities or currencies or other instruments or measures on which the index is based or in other derivative instruments related to the index or its component items. These trading activities could adversely affect the value of indexed notes. We and our affiliates and unaffiliated agents may also issue or underwrite securities or derivative instruments that are linked to the same index as one or more indexed notes. Introducing competing products into the marketplace in this manner could adversely affect the value of a particular indexed note.

RBC Capital Markets, LLC or another of our affiliates or an unaffiliated entity that provides us a hedge in respect of indexed notes may serve as calculation agent and/or exchange rate agent for the indexed notes and may have considerable discretion in calculating the amounts payable in respect of the notes. To the extent that RBC Capital Markets, LLC or another of our affiliates or such an unaffiliated entity sponsors, calculates or compiles a particular index, it may also have considerable discretion in performing the calculation or compilation of the index. For example, it may be permitted to change the methodology of the index or discontinue the publication of the index. Exercising discretion in this manner could adversely affect the value of an indexed note based on the index or the rate of return on the security.

Risks Relating to Floating Rate Notes

Floating Rates of Interest are Uncertain and Could be 0.0%

If your notes are floating rate notes or otherwise directly linked to a floating rate for some portion of the notes' term, no interest will accrue on the notes with respect to any interest period for which the applicable floating rate specified in the applicable pricing supplement is zero on the related interest rate reset date. Floating interest rates, by their very nature, fluctuate, and may be as low as 0.0%. Also, in certain economic environments, floating rates of interest may be less than fixed rates of interest for instruments with a similar credit quality and term. As a result, the return you receive on your notes may be less than a fixed rate security issued for a similar term by a comparable issuer.

Notes That Bear Interest at Rates Based on EURIBOR May Be Adversely Affected By Changes in Our EURIBOR Reporting Practices or the Method in Which EURIBOR is Determined or Circumstances Where EURIBOR is No Longer Determined or Published

The European Money Markets Institute (formerly Euribor-EBF) has continued in its role as administrator of EURIBOR but has also undertaken a number of reforms in relation to its governance and technical framework since January 2013 pursuant to recommendations by the European Securities and Markets Authority and the European Banking Authority.

It is not possible to predict any changes in the methods pursuant to which the EURIBOR rates are determined, or any other reforms to EURIBOR or any other relevant benchmarks that will be enacted in the European Union (the "EU") and elsewhere, each of which may adversely affect the trading market for securities based on EURIBOR or any other relevant benchmark, including any notes that bear interest at rates based on EURIBOR and may cause such benchmarks to perform differently than in the past, or cease to exist. In addition, any legal or regulatory changes made by the European Money Markets Institute, the European Commission or any other successor governance or oversight body, or future changes adopted by such body, in the method pursuant to which the EURIBOR or any other relevant benchmarks are determined may result in, among other things, a sudden or prolonged increase or decrease in the reported benchmark, a delay in the publication of any such benchmark rates, trigger changes in the rules or methodologies in certain benchmarks discouraging market participants from continuing to administer or to participate in certain benchmarks, and, in certain situations, could result in a benchmark rate no longer being determined and published. Accordingly, in respect of a note referencing EURIBOR or any other relevant benchmark, such proposals for reform and changes in applicable regulation could have a material adverse effect on the trading market for, the value of and return on such a note (including potential rates of interest thereon).

Risks Relating to SOFR

The Secured Overnight Financing Rate Is a Relatively New Reference Rate and its Composition and Characteristics Are Not the Same as the London Inter-Bank Offered Rate ("LIBOR")

On June 22, 2017, the Alternative Reference Rates Committee ("ARRC") convened by the Board of Governors of the Federal Reserve System and the Federal Reserve Bank of New York identified the Secured Overnight Financing Rate ("SOFR") as the rate that, in the consensus view of the ARRC, represented best practice for use in certain new U.S. dollar derivatives and other financial contracts. SOFR is a broad measure of the cost of borrowing cash overnight collateralized by U.S. Treasury securities, and has been published by the Federal Reserve Bank of New York since April 2018. The Federal Reserve Bank of New York has published historical indicative Secured Overnight Financing Rates from 2014. Investors should not rely on any historical changes or trends in SOFR as an indicator of future changes in SOFR (whether based on actual or indicative historical data). The future performance of SOFR cannot be predicted based on its past performance, and the level of SOFR during the term of the notes may bear little or no relation to the historical performance of SOFR.

The composition and characteristics of SOFR are not the same as those of LIBOR, and SOFR is fundamentally different from LIBOR for two key reasons. First, SOFR is a secured rate, while LIBOR is an unsecured rate. Second, SOFR is an overnight rate, while LIBOR is a forward-looking rate that represents interbank funding over different maturities (*e.g.*, three months). As a result, there can be no assurance that SOFR (including USD Compounded SOFR Index) will perform in the same way as LIBOR would have at any time, including, without limitation, as a result of changes in interest and yield rates in the market, market volatility or global or regional economic, financial, political, regulatory, judicial or other events.

SOFR May Be More Volatile than Other Benchmark or Market Rates

Since the initial publication of SOFR, daily changes in SOFR have, on occasion, been more volatile than daily changes in other benchmark or market rates during corresponding periods. Although changes in USD Compounded SOFR Index generally are not expected to be as volatile as changes in daily levels of SOFR, the return on and value of SOFR-linked notes may fluctuate more than floating rate securities that are linked to less volatile rates. In addition, the volatility of SOFR has reflected the underlying volatility of the overnight U.S. Treasury repo market. The Federal Reserve Bank of New York has at times conducted operations in the overnight U.S. Treasury repo market in order to help maintain the federal funds rate within a target range. There can be no assurance that the Federal Reserve Bank of New York will continue to conduct such operations in the future, and the duration and extent of any such operations is inherently uncertain. The effect of any such operations, or of the cessation of such operations to the extent they are commenced, is uncertain, could be materially adverse to investors in a note linked to the USD Compounded SOFR Index Rate or SOFR Index, and could adversely affect the price at which investors can sell SOFR-linked notes.

Any Failure of SOFR to Gain Market Acceptance Could Adversely Affect Notes Linked to SOFR

According to the ARRC, SOFR was developed for use in certain U.S. dollar derivatives and other financial contracts as an alternative to USD LIBOR in part because it is considered a good representation of general funding conditions in the overnight U.S. Treasury repurchase agreement market. However, as a rate based on transactions secured by U.S. Treasury securities, it does not measure bank-specific credit risk and, as a result, is less likely to correlate with the unsecured short-term funding costs of banks. This may mean that market participants would not consider SOFR a suitable replacement or successor for all of the purposes for which USD LIBOR historically has been used (including, without limitation, as a representation of the unsecured short-term funding costs of banks), which may, in turn, lessen market acceptance of SOFR.

Any failure of SOFR to gain market acceptance could adversely affect the return on and value of a note linked to SOFR and the price at which investors can sell such notes in the secondary market.

In addition, if SOFR does not prove to be widely used as a benchmark in securities that are similar or comparable to your SOFR-linked notes, the trading price of the notes may be lower than those of securities that are linked to rates that are more widely used. Similarly, market terms for floating-rate debt securities linked to SOFR may evolve over time, and trading prices of the notes may be lower than those of later-issued SOFR-based debt securities as a result. Investors in a note linked to SOFR may not be able to sell such notes at all or may not be able to sell such notes at prices that will provide them with a yield comparable to similar investments that have a developed secondary market, and may consequently suffer from increased pricing volatility and market risk.

SOFR May be Modified or Discontinued and Notes Linked to SOFR May Bear Interest by Reference to a Rate Other than SOFR, which Could Adversely Affect the Value of such Notes

SOFR is published by the Federal Reserve Bank of New York based on data received by it from sources other than us, and we have no control over its methods of calculation, publication schedule, rate revision practices or availability of SOFR at any time. There can be no guarantee, particularly given its relatively recent introduction, that SOFR will not be discontinued or fundamentally altered in a manner that is materially adverse to the interests of investors in notes linked to SOFR. If the manner in which SOFR is calculated is changed or, if applicable, if the manner in which the USD Compounded SOFR Index Rate or SOFR Index is calculated is changed, that change may result in a reduction in the amount of interest payable on notes linked to SOFR and the trading prices of such notes. In addition, the Federal Reserve Bank of New York may withdraw, modify, amend, suspend or discontinue the calculation or dissemination of SOFR data in its sole discretion and without notice and has no obligation to consider the interests of holders of SOFR-linked notes in calculating, withdrawing, modifying, amending, suspending or discontinuing SOFR. The interest rate for any interest period will not be adjusted for any modifications or amendments to SOFR or SOFR data that the Federal Reserve Bank of New York may publish after the interest rate for that interest period has been determined.

If we or our designee determines that a Benchmark Transition Event and its related Benchmark Replacement Date, each as defined in *Description of the Notes We May Offer—Interest Rates—SOFR Index Notes*, have occurred in respect of SOFR, then the interest rate on notes linked to SOFR will no longer be determined by reference to SOFR, but instead will be determined by reference to a different rate, plus a spread adjustment, which we refer to as a "Benchmark Replacement," as further described under the caption "*Description of the Notes We May Offer—Interest Rates—SOFR Index Notes*."

If a particular Benchmark Replacement, as defined in *Description of the Notes We May Offer—Interest Rates—SOFR Index Notes,* or Benchmark Replacement Adjustment, as defined in *Description of the Notes We May Offer—Interest Rates—SOFR Index Notes*, cannot be determined, then the next-available Benchmark Replacement or Benchmark Replacement Adjustment will apply. These replacement rates and adjustments may be selected, recommended or formulated by (i) the Relevant Governmental Body (as defined herein) (such as the ARRC), (ii) the International Swaps and Derivatives Association ("ISDA") or (iii) in certain circumstances, us or our designee. In addition, the terms of the notes may expressly authorize us or our designee to make Benchmark Replacement Conforming Changes, as defined in *Description of the Notes We May Offer—Interest Rates—SOFR Index Notes,* with respect to, among other things, interest periods, the timing and frequency of determining rates and making payments of interest and other administrative matters. The determination of a Benchmark Replacement, the calculation of the interest rate on the notes linked to SOFR by reference to a Benchmark Replacement (including the application of a Benchmark Replacement Adjustment), any implementation of Benchmark Replacement Conforming Changes and any other determinations, decisions or elections that may be made under the terms of such notes in connection with a Benchmark Transition Event, which may potentially be subjective, could adversely affect the value of such notes, the return on such notes and the price at which you can sell such notes.

In addition, (i) the composition and characteristics of the Benchmark Replacement will not be the same as those of SOFR, the Benchmark Replacement may not be the economic equivalent of SOFR, there can be no assurance that the Benchmark Replacement will perform in the same way as SOFR would have at any time and there is no guarantee that the Benchmark Replacement will be a comparable substitute for SOFR (each of which means that a Benchmark Transition Event could adversely affect the value of notes linked SOFR, the return on such notes and the price at which you can sell such notes), (ii) any failure of the Benchmark Replacement to gain market acceptance could adversely affect notes linked to SOFR, (iii) the Benchmark Replacement may have a very limited history and the future performance of the Benchmark Replacement may not be predicted based on historical performance, (iv) the secondary trading market for notes linked to the Benchmark Replacement may be limited and (v) the administrator of the Benchmark Replacement may make changes that could change the value of the Benchmark Replacement or discontinue the Benchmark Replacement and has no obligation to consider your interests in doing so.

The Interest Rate on SOFR-Linked Notes May Be Based on a USD Compounded SOFR Index Rate and the SOFR Index, Which is Relatively New in the Marketplace

For each interest period, the interest rate on floating-rate debt securities linked to SOFR may be based on USD Compounded SOFR Index Rate, which is calculated using the SOFR Index (as defined herein) published by the Federal Reserve Bank of New York according to the specific formula described under "*Description of the Notes We May Offer—Interests Rates—SOFR Index Notes*," rather than the SOFR rate published on or in respect of a particular date during such interest period or an arithmetic average of SOFR rates during such period. For this and other reasons, the interest rate on a note linked to the USD Compounded SOFR Index Rate or SOFR Index during any interest period will not be the same as the interest rate on other SOFR-linked investments that use an alternative basis to determine the applicable interest rate. Further, if the interest rate is based on USD Compounded SOFR Index Rate and the SOFR rate in respect of a particular date during an interest period is negative, its contribution to the SOFR Index will be less than one, resulting in a reduction to USD Compounded SOFR Index Rate used to calculate the interest payable on notes linked to the USD Compounded SOFR Index Rate on the interest payment date for such interest period.

Limited market precedent exists for securities that use SOFR as the interest rate and the method for calculating an interest rate based upon SOFR in those precedents varies. In addition, the Federal Reserve Bank of New York only began publishing the SOFR Index on March 2, 2020. Accordingly, the use of the SOFR Index or the specific formula for the USD Compounded SOFR Index Rate used in a note linked to the USD Compounded SOFR Index Rate may not be widely adopted by other market participants, if at all. If the market adopts a different calculation method, then the market value of notes linked to the USD Compounded SOFR Index Rate could be adversely affected.

USD Compounded SOFR Index Rate with Respect to a Particular Interest Period Will Only be Capable of Being Determined Near the End of the Relevant Interest Period

If the interest rate on your notes is based on USD Compounded SOFR Index Rate, the level of USD Compounded SOFR Index Rate applicable to a particular interest period, as defined below under "*Descriptions of the Notes We May Offer—Interest*," and, therefore, the amount of interest payable with respect to such interest period will be determined on the interest determination date, as defined below under "*Descriptions of the Notes We May Offer—Interest Rates—SOFR Index Notes*," for such interest period. Because each such date is near the end of such interest period, you will not know the amount of interest payable with respect to a particular interest period until shortly prior to the related interest payment date and it may be difficult for you to reliably estimate the amount of interest that will be payable on each such interest payment date. In addition, some investors may be unwilling or unable to trade notes linked to the USD Compounded SOFR Index Rate or SOFR Index without changes to their information technology systems, both of which could adversely impact the liquidity and trading price of notes linked to the USD Compounded SOFR Index Rate or SOFR Index.

Compounded SOFR for an Interest Period During a Floating Period May Not Reflect Any Subsequently Published Corrections to SOFR

The Federal Reserve Bank of New York publishes SOFR each U.S. Government Securities Business Day at approximately 8:00 a.m. (New York time) for trades made on the immediately preceding U.S. Government Securities Business Day. After publication, if (i) the Federal Reserve Bank of New York discovers errors in the transaction data or calculation process or additional transaction data becomes available and (ii) such errors or additional data would change the published SOFR by at least one basis point (0.01%), subject to change based on periodic review by the Federal Reserve Bank of New York, then the Federal Reserve Bank of New York will republish SOFR at approximately 2:30 p.m. (New York time) on that same day. The Federal Reserve Bank of New York will not revise published SOFR on any U.S. Government Securities Business Day after the original date of publication and, even if the Federal Reserve Bank of New York's policy changes to permit revisions to SOFR after the initial publication date, such changes would not be reflected in the Calculation Agent's determination of Compounded SOFR on a U.S. Government Securities Business Day under the Notes because such determination is made as of 3:00 p.m. (New York time) on each U.S. Government Securities Business Day without regard to any subsequently published revisions.

Risks Relating to Notes Denominated or Payable in or Linked to a Non-U.S. Dollar Currency

If you intend to invest in a non-U.S. dollar note—e.g., a note whose principal and/or interest is payable in a currency other than U.S. dollars or that may be settled by delivery of or reference to a non-U.S. dollar currency or property denominated in or otherwise linked to a non-U.S. dollar currency—you should consult your own financial and legal advisors as to the currency risks entailed by your investment. Notes of this kind may not be an appropriate investment for investors who are unsophisticated with respect to non-U.S. dollar currency transactions. The information in this prospectus supplement is directed primarily at investors who are U.S. residents. Investors who are not U.S. residents should consult their own financial and legal advisors about currency-related risks particular to their investments.

An Investment in a Non-U.S. Dollar Note Involves Currency-Related Risks

An investment in a non-U.S. dollar note entails significant risks that are not associated with a similar investment in a note that is payable solely in U.S. dollars and where settlement value is not otherwise based on a non-U.S. dollar currency. These risks include the possibility of significant changes in rates of exchange between the U.S. dollar and the various non-U.S. dollar currencies or composite currencies and the possibility of the imposition or modification of foreign exchange controls or other conditions by either the United States or non-U.S. governments. These risks generally depend on factors over which we have no control, such as economic and political events and the supply of and demand for the relevant currencies in the global markets.

Changes in Currency Exchange Rates Can Be Volatile and Unpredictable

Rates of exchange between the U.S. dollar and many other currencies have been highly volatile, and this volatility may continue and perhaps spread to other currencies in the future. Fluctuations in currency exchange rates could adversely affect an investment in a note denominated in, or where value is otherwise linked to, a specified currency other than U.S. dollars. Depreciation of the specified currency against the U.S. dollar could result in a decrease in the U.S. dollar-equivalent value of payments on the note, including the principal payable at maturity. That in turn could cause the market value of the note to fall. Depreciation of the specified currency against the U.S. dollar could result in a loss to the investor on a U.S. dollar basis.

In courts outside of New York, investors may not be able to obtain judgment in a specified currency other than U.S. dollars. For example, a judgment for money in an action based on a non-U.S. dollar note in many other U.S. federal or state courts ordinarily would be enforced in the United States only in U.S. dollars. The date used to determine the rate of conversion of the currency in which any particular note is denominated into U.S. dollars will depend upon various factors, including which court renders the judgment.

Government Policy Can Adversely Affect Foreign Currency Exchange Rates and an Investment in a Non-U.S. Dollar Note

Foreign currency exchange rates can either float or be fixed by sovereign governments. From time to time, governments use a variety of techniques, such as intervention by a country's central bank or imposition of regulatory controls or taxes, to affect the exchange rate of their currencies. Governments may also issue a new currency to replace an existing currency or alter the exchange rate or exchange characteristics by devaluation or revaluation of a currency. Thus, a special risk in purchasing non-U.S. dollar notes is that their yields or payouts could be significantly and unpredictably affected by governmental actions. Even in the absence of governmental action directly affecting currency exchange rates, political or economic developments in the country issuing the specified currency for a non-U.S. dollar note or elsewhere could lead to significant and sudden changes in the exchange rate between the U.S. dollar and the specified currency. These changes could affect the value of the note as participants in the global currency markets move to buy or sell the specified currency or U.S. dollars in reaction to these developments.

Governments have imposed from time to time and may in the future impose exchange controls or other conditions, including taxes, with respect to the exchange or transfer of a specified currency that could affect exchange rates as well as the availability of a specified currency for a note at its maturity or on any other payment date. In addition, the ability of a holder to move currency freely out of the country in which payment in the currency is received or to convert the currency at a freely determined market rate could be limited by governmental actions.

Information About Exchange Rates Will Not Be Indicative of Future Performance

If we issue a non-U.S. dollar note, we may include in the relevant pricing supplement a currency supplement that provides information about historical exchange rates for the relevant non-U.S. dollar currency or currencies. Any information about exchange rates that we may provide will be furnished as a matter of information only, and you should not regard the information as indicative of the range of, or trends in, fluctuations in currency exchange rates that may occur in the future. That rate will likely differ from the exchange rate used under the terms that apply to a particular note.

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

If we issue a U.S. dollar note and you are a non-U.S. investor who purchased such notes with a currency other than U.S. dollars, changes in rates of exchange may have an adverse effect on the value, price or income of your investment.

This prospectus supplement contains a general description of certain U.S. and Canadian tax consequences 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 notes and receiving payments of principal or other amounts under the notes.

Risks Relating to Changes in Canadian Law

No assurance can be given as to the impact of any possible judicial decision or change to the laws of the Provinces of Ontario and Québec and the federal laws of Canada applicable therein or administrative practice after the date of this prospectus supplement and before the date on which the notes are issued. Any such change could materially adversely impact the value of any notes affected by it. Such changes in law may include, but are not limited to, changes to the "bail-in" regime, described above, which may affect the rights of holders of securities issued by the Bank, including the notes.

USE OF PROCEEDS

Except as otherwise set forth in a pricing supplement, the net proceeds from the sale of any notes will be added to our general funds and will be used for general banking purposes.

DESCRIPTION OF THE NOTES WE MAY OFFER

You should carefully read the description of the terms and provisions of our debt securities and our senior indenture under "Description of Debt Securities" in the accompanying prospectus. That section, together with this prospectus supplement, the relevant pricing supplement and any applicable product prospectus supplement, summarizes all the material terms of our senior indenture, our form of subordinated indenture and your note, as applicable. They do not, however, describe every aspect of our senior indenture, our form of subordinated indenture and your note, as applicable. For example, in this section entitled "Description of the Notes We May Offer," the accompanying prospectus, the relevant pricing supplement and any applicable product prospectus supplement, we use terms that have been given special meanings in our senior indenture, but we describe the meanings of only the more important of those terms. The specific terms of any series of notes will be described in the relevant pricing supplement. As you read this section, please remember that the specific terms of your note as described in your pricing supplement will supplement and, if applicable, may modify or replace the general terms described in this section. If your pricing supplement is inconsistent with this prospectus supplement or the product prospectus supplement or the accompanying prospectus, your pricing supplement will control with regard to your note. Thus, the statements we make in this section may not apply to your note.

General

The notes will be issued under our senior indenture, dated as of October 23, 2003, between Royal Bank of Canada and The Bank of New York Mellon, as successor to the corporate trust business of JPMorgan Chase Bank, N.A., as trustee, as supplemented by a first supplemental indenture, dated as of July 21, 2006, by the second supplemental indenture, dated as of February 28, 2007, by the third supplemental indenture, dated as of September 7, 2018, by the fourth supplemental indenture, dated as of June 22, 2023, and by the fifth supplemental indenture, dated as of June 22, 2023, and as further amended from time to time, which we may refer to as the Indenture. The notes constitute a single series of debt securities of Royal Bank of Canada issued under the indenture. The term "debt securities," as used in this prospectus supplement, refers to all debt securities, including the notes, issued and issuable from time to time under the indenture. The indenture is subject to, and governed by, the Trust Indenture Act of 1939, as amended. The indenture is more fully described below in this section. Whenever we refer to specific provisions or defined terms in the indenture, those provisions or defined terms are incorporated in this prospectus supplement by reference. Section references used in this discussion are references to the indenture. Capitalized terms which are not otherwise defined shall have the meanings given to them in the indenture.

The notes will be limited to an aggregate initial offering price of US$75,000,000,000 or at our option if so specified in the relevant pricing supplement, the equivalent of this amount in any other currency or currency unit, and will be our direct, unsecured obligations. This aggregate initial offering price is subject to reduction as a result of the sale by us of other debt securities pursuant to another prospectus supplement to the accompanying prospectus. The notes will not constitute deposits insured under the Canada Deposit Insurance Corporation Act or by the United States Federal Deposit Insurance Corporation or any other Canadian or United States governmental agency or instrumentality.

We will offer the notes on a continuous basis through one or more agents listed in the section entitled "Supplemental Plan of Distribution" in this prospectus supplement. The indenture does not limit the aggregate principal amount of senior notes that we may issue. We may, from time to time, without the consent of the holders of the notes, provide for the issuance of notes or other debt securities under the indenture in addition to the US$75,000,000,000 aggregate initial offering price of notes noted on the cover of this prospectus supplement. Each note issued under this prospectus supplement will have a stated maturity that will be specified in the applicable pricing supplement and may be subject to redemption or repayment before its stated maturity. As a general matter, each note will mature nine months or more from its date of issue, except that indexed notes may have a maturity of less than nine months. Notes may be issued at significant discounts from their principal amount due on the stated maturity (or on any prior date on which the principal or an installment of principal of a note becomes due and payable, whether by the declaration of acceleration, call for redemption at our option, repayment at the option of the holder or otherwise), and some notes may not bear interest. We may from time to time, without the consent of the existing holders of the relevant notes, create and issue further notes having the same terms and conditions as such notes in all respects, except for the issue date, issue price and, if applicable, the first payment of interest thereon.

Unless we specify otherwise in the relevant pricing supplement, currency amounts in this prospectus supplement are expressed in U.S. dollars. Unless we specify otherwise in any note and pricing supplement, the notes will be denominated in U.S. dollars and payments of principal, premium, if any, and any interest on the notes will be made in U.S. dollars. If any note is to be denominated other than exclusively in U.S. dollars, or if the principal of, premium, if any, or any interest on the note is to be paid in one or more currencies (or currency units or in amounts determined by reference to an index or indices) other than that in which that note is denominated, additional information (including authorized denominations and related exchange rate information) will be provided in the relevant pricing supplement. Unless we specify otherwise in any pricing supplement, notes denominated in U.S. dollars will be issued in minimum denominations of $1,000 and integral multiples of $1,000 in excess thereof (except that non-U.S. investors may be subject to higher minimums).

Interest rates that we offer on the notes may differ depending upon, among other factors, the aggregate principal amount of notes purchased in any single transaction. Notes with different variable terms other than interest rates may also be offered concurrently to different investors. We may change interest rates or formulas and other terms of notes from time to time, but no change of terms will affect any note we have previously issued or as to which we have accepted an offer to purchase.

Each note will be issued as a book-entry note in fully registered form without coupons. Each note issued in book-entry form may be represented by a global note that we deposit with and register in the name of a financial institution or its nominee, which we select. The financial institution that we select for this purpose is called the depositary. Unless we specify otherwise in the applicable pricing supplement, The Depository Trust Company, New York, New York, will be the depositary for all notes in global form. Except as discussed in the accompanying prospectus under "Description of Debt Securities—Ownership and Book-Entry Issuance," owners of beneficial interests in book-entry notes will not be entitled to physical delivery of notes in certificated form. We will make payments of principal of, and premium, if any and interest, if any, on the notes through the applicable trustee to the depositary for the notes.

Legal Ownership

Street Name and Other Indirect Holders

Investors who hold their notes in accounts at brokers, banks or other financial institutions will generally not be recognized by us as legal holders of notes. This is called holding in street name. Instead, we would recognize only the bank or broker, or the financial institution the bank or broker uses to hold its notes. These intermediary banks, brokers and other financial institutions pass along principal, interest and other payments on the notes, either because they agree to do so in their customer agreements or because they are legally required to do so. If you hold your notes in street name, you should check with your own institution to find out:

- how it handles note payments and notices;
- whether it imposes fees or charges;
- how it would handle voting if it were ever required;
- whether and how you can instruct it to send you notes registered in your own name so you can be a direct holder as described below; and
- how it would pursue rights under the notes if there were a default or other event triggering the need for holders to act to protect their interests.

Direct Holders

Our obligations, as well as the obligations of the trustee and those of any third parties employed by us or the trustee, under the notes run only to persons who are registered as holders of notes. As noted above, we do not have obligations to you if you hold in street name or other indirect means, either because you choose to hold your notes in that manner or because the notes are issued in the form of global notes as described below. For example, once we make payment to the registered holder we have no further responsibility for the payment even if that holder is legally required to pass the payment along to you as a street name customer but does not do so.

Global Notes

A global note is a special type of indirectly held security, as described above under "—Street Name and Other Indirect Holders." If we choose to issue notes in the form of global notes, the ultimate beneficial owners of global notes can only be indirect holders. We require that the global note be registered in the name of a financial institution we select.

We also require that the notes included in the global note not be transferred to the name of any other direct holder except in the special circumstances described in the accompanying prospectus in the section "Description of Debt Securities—Ownership and Book-Entry Issuance." The financial institution that acts as the sole direct holder of the global note is called the depositary. Any person wishing to own a global note must do so indirectly by virtue of an account with a broker, bank or other financial institution, known as a "participant," that in turn has an account with the depositary. The pricing supplement indicates whether your series of notes will be issued only in the form of global notes.

Further details of legal ownership are discussed in the accompanying prospectus in the section "Ownership and Book-Entry Issuance."

In the remainder of this description, "you" or "holder" means direct holders and not street name or other indirect holders of notes. Indirect holders should read the previous subsection titled "—Street Name and Other Indirect Holders."

Types of Notes

We may issue the following three types of notes:

- *Fixed Rate Notes*. A note of this type will bear interest at a fixed rate described in the applicable pricing supplement. This type includes zero-coupon notes, which bear no interest and are instead issued at a price lower than the principal amount.
- *Floating Rate Notes*. A note of this type will bear interest at rates that are determined by reference to an interest rate formula. In some cases, the rates may also be adjusted by adding or subtracting a spread or multiplying by a spread multiplier and may be subject to a minimum rate or a maximum rate. The various interest rate formulas and these other features are described below under "—Interest Rates —Floating Rate Notes." If your note is a floating rate note, the formula and any adjustments that apply to the interest rate will be specified in your pricing supplement.
- *Indexed Notes*. A note of this type provides that the principal amount payable at its maturity, and/or the amount of interest payable on an interest payment date, will be determined by reference to:
    - one or more securities;
    - one or more currencies;
    - one or more commodities;
    - any other financial, economic or other measures or instruments, including the occurrence or non-occurrence of any event or circumstance; and/or
    - indices or baskets of any of these items.

If you are a holder of an indexed note, you may receive a principal amount at maturity that is greater than or less than the face amount of your note depending upon the value of the applicable index at maturity. That value may fluctuate over time. If you purchase an indexed note, your pricing supplement will include information about the relevant index and how amounts that are to become payable will be determined by reference to that index. In addition, your pricing supplement will specify whether your note will be exchangeable for, or payable in cash, securities of an issuer other than Royal Bank of Canada or other property. Before you purchase any indexed note, you should read carefully the section entitled "Risk Factors—Risks Relating to Indexed Notes" above.

Original Issue Discount Notes

A fixed rate note, a floating rate note or an indexed note may be an original issue discount note. A note of this type is issued at a price lower than its principal amount and provides that, upon redemption or acceleration of its maturity, an amount less than its principal amount will be payable. An original issue discount note may be a zero-coupon note. A note issued at a discount to its principal may, for U.S. federal income tax purposes, be considered an original issue discount note, regardless of the amount payable upon redemption or acceleration of maturity. See "Tax Consequences—United States Taxation—Original Issue Discount" in the accompanying prospectus for a brief description of the U.S. federal income tax consequences of owning an original issue discount note.

Information in the Pricing Supplement

Your pricing supplement will describe one or more of the following terms of your note:

- the stated maturity;
- the specified currency or currencies for principal and interest, if not U.S. dollars;
- the price at which we originally issue your note, expressed as a percentage of the principal amount, and the original issue date;
- whether or not your note is a bail-inable note;
- whether your note is a fixed rate note, a floating rate note or an indexed note;
- if your note is a fixed rate note, the yearly rate at which your note will bear interest, if any, and the interest payment dates;
- if your note is a floating rate note, the interest rate basis, which may be one of the eight interest rate bases described under "—Interest Rates—Floating Rate Notes" below; any applicable index currency or maturity, spread or spread multiplier or initial, maximum or minimum rate; and the interest reset, determination, calculation and payment dates, all of which we describe under "—Interest Rates—Floating Rate Notes" below;
- if your note is an indexed note, the principal amount, if any, we will pay you at maturity, the amount of interest, if any, we will pay you on an interest payment date or the formula we will use to calculate these amounts, if any, and whether your note will be exchangeable in cash, securities of an issuer other than Royal Bank of Canada or other property;
- if your note is an original issue discount note, the yield to maturity;
- if applicable, the circumstances under which your note may be redeemed at our option before the stated maturity, including any redemption commencement date, redemption price(s) and redemption period(s);

- if applicable, the circumstances under which you may demand repayment of your note before the stated maturity, including any repayment commencement date, repayment price(s) and repayment period(s);
- any special Canadian or United States federal income tax consequences of the purchase, ownership or disposition of a particular issuance of notes;
- the use of proceeds, if materially different than those discussed in this prospectus supplement; and
- any other terms of your note, which could be different from those described in this prospectus supplement.

Market-Making Transactions

If you purchase your note in a market-making transaction, you will receive information about the price you pay and your trade and settlement dates in a separate confirmation of sale. A market-making transaction is one in which an agent or other person resells a note that it has previously acquired from another holder. A market-making transaction in a particular note occurs after the original sale of the note.

If you purchase notes issued before September 23, 2018 in a market-making transaction, those notes will not be bail-inable notes, even though the applicable pricing supplement may not specify that your note is not a bail-inable note.

Redemption at the Option of Royal Bank of Canada; No Sinking Fund

If an initial redemption date is specified in the applicable pricing supplement, we may redeem the particular notes prior to their stated maturity date at our option on any date on or after that initial redemption date in whole or from time to time in part in increments of $1,000 or any other integral multiple of an authorized denomination specified in the applicable pricing supplement (provided that any remaining principal amount thereof shall be at least $1,000 or other minimum authorized denomination applicable thereto), at the redemption price or prices specified in that pricing supplement, together with unpaid interest accrued thereon to the date of redemption. Unless otherwise specified in the applicable pricing supplement, we must give written notice to registered holders of the particular notes to be redeemed at our option not more than 60 nor less than 30 calendar days prior to the date of redemption.

The notes will not be subject to, or entitled to the benefit of, any sinking fund.

Repayment at the Option of the Holder

If one or more optional repayment dates are specified in the applicable pricing supplement, registered holders of the particular notes may require us to repay those notes prior to their stated maturity date on any optional repayment date in whole or from time to time in part in increments of $1,000 or any other integral multiple of an authorized denomination specified in the applicable pricing supplement (provided that any remaining principal amount thereof shall be at least $1,000 or other minimum authorized denomination applicable thereto), at the repayment price or prices specified in that pricing supplement, together with unpaid interest accrued thereon to the date of repayment. A registered holder's exercise of the repayment option will be irrevocable.

For any note to be repaid, the applicable trustee must receive, at its corporate trust office in the Borough of Manhattan, The City of New York, not more than 60 nor less than 30 calendar days prior to the date of repayment, the particular notes to be repaid and, in the case of a book-entry note, repayment instructions from the applicable beneficial owner to the depositary and forwarded by the depositary. Only the depositary may exercise the repayment option in respect of global notes representing book-entry notes. Accordingly, beneficial owners of global notes that desire to have all or any portion of the book-entry notes represented thereby repaid must instruct the participant through which they own their interest to direct the depositary to exercise the repayment option on their behalf by forwarding the repayment instructions to the applicable trustee as aforesaid. In order to ensure that these instructions are received by the applicable trustee on a particular day, the applicable beneficial owner must so instruct the participant through which it owns its interest before that participant's deadline for accepting instructions for that day. Different firms may have different deadlines for accepting instructions from their customers. Accordingly, beneficial owners should consult their participants for the respective deadlines. In addition, at the time repayment instructions are given, each beneficial owner shall cause the participant through which it owns its interest to transfer the beneficial owner's interest in the global note representing the related book-entry notes, on the depositary's records, to the applicable trustee.

If applicable, we will comply with the requirements of Section 14(e) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and the rules promulgated thereunder, and any other securities laws or regulations in connection with any repayment of notes at the option of the registered holders thereof.

We may at any time purchase notes at any price or prices in the open market or otherwise. Notes so purchased by us may, at our discretion, be held, resold or surrendered to the applicable trustee for cancellation.

Interest

Each interest-bearing note will bear interest from its date of issue at the rate per annum, in the case of a fixed rate note, or pursuant to the interest rate formula, in the case of a floating rate note, in each case as specified in the applicable pricing supplement, until the principal thereof is paid. We will make interest payments in respect of fixed rate notes and floating rate notes in an amount equal to the interest accrued from and including the immediately preceding interest payment date in respect of which interest has been paid or from and including the date of issue, if no interest has been paid, to but excluding the applicable interest payment date, the maturity date or the redemption date, as the case may be (each, an "interest period").

Interest on fixed rate notes and floating rate notes will be payable in arrears on each interest payment date, on the maturity date and on any redemption date. The first payment of interest on any note originally issued between a regular record date and the related interest payment date will be made on the interest payment date immediately following the next succeeding record date to the registered holder on the next succeeding record date. The "regular record date" shall be the fifteenth calendar day, whether or not a "business day," immediately preceding the related interest payment date. "Business day" is defined below under "—Interest Rates—Special Rate Calculation Terms." For the purpose of determining the holder at the close of business on a regular record date when business is not being conducted, the close of business will mean 5:00 P.M., New York City time, on that day.

Interest Rates

This subsection describes the different kinds of interest rates that may apply to your note, if it bears interest.

Fixed Rate Notes

The relevant pricing supplement will specify the interest payment dates for a fixed rate note as well as the maturity date. Interest on fixed rate notes will be computed on the basis of a 360-day year consisting of twelve 30-day months or such other day count fraction set forth in the pricing supplement.

If any interest payment date, redemption date, repayment date or maturity date of a fixed rate note falls on a day that is not a business day, we will make the required payment of principal, premium, if any, and/or interest on the next succeeding business day, and no additional interest will accrue in respect of the payment made on that next succeeding business day.

Floating Rate Notes

In this subsection, we use several specialized terms relating to the manner in which floating interest rates are calculated. These terms appear in bold, italicized type the first time they appear, and we define these terms under "—Special Rate Calculation Terms" at the end of this subsection.

The following will apply to floating rate notes:

Interest Rate Basis. We currently expect to issue floating rate notes that bear interest at rates based on one or more of the following interest rate bases:

- commercial paper rate;
- U.S. prime rate;
- SOFR Index;
- EURIBOR;
- treasury rate;
- CMT rate;
- CMS rate; and/or
- federal funds rate.

We describe each of the interest rate bases in further detail below in this subsection. If you purchase a floating rate note, your pricing supplement will specify the interest rate basis that applies to your note. If your floating rate note has an interest rate basis other than those listed above, your pricing supplement will describe the applicable interest rate basis.

Calculation of Interest. Calculations relating to floating rate notes will be made by the calculation agent, an institution that we appoint as our agent for this purpose. That institution may include any affiliate of ours, such as RBC Capital Markets, LLC. The pricing supplement for a particular floating rate note will name the institution that we have appointed to act as the calculation agent for that note as of its original issue date. We may appoint a different institution to serve as calculation agent from time to time after the original issue date of the note without your consent and without notifying you of the change.

For each floating rate note, the calculation agent will determine, on the corresponding interest calculation date or on the interest determination date, as described below, the interest rate that takes effect on each interest reset date or in the case of a note for which the interest basis is SOFR or another backward looking rate, the interest rate for the applicable interest period. In addition, the calculation agent will calculate the amount of interest that has accrued during each interest period—that is, the period from and including the original issue date, or the last date to which interest has been paid or made available for payment, to but excluding the payment date. If the interest rate basis is not SOFR or another backward looking rate, for each interest period, the calculation agent will calculate the amount of accrued interest by multiplying the face or other specified amount of the floating rate note by an accrued interest factor for the interest period. This factor will equal the sum of the interest factors calculated for each day during the interest period. The interest factor for each day will be expressed as a decimal and will be calculated by dividing the interest rate, also expressed as a decimal, applicable to that day by 360 or by the actual number of days in the year, as specified in the relevant pricing supplement. If the interest rate basis is SOFR or another backward looking rate, for each interest period, the calculation agent will calculate the amount of accrued interest as being equal to the product of (i) the face or other specified amount of the floating rate note multiplied by (ii) the product of (a) the interest rate applicable to such interest period, multiplied by (b) the quotient of the actual number of calendar days in such interest period divided by 360.

If the interest rate basis is not SOFR or another backward looking rate, upon the request of the holder of any floating rate note, the calculation agent will provide for that note the interest rate then in effect—and, if determined, the interest rate that will become effective on the next interest reset date. If the interest basis is SOFR or another backward looking rate, upon the request of the holder of any floating rate note, the calculation agent will provide the interest rate most recently calculated for that note, which may not be the interest rate applicable to the current interest period. The calculation agent's determination of any interest rate, and its calculation of the amount of interest for any interest period, will be final and binding in the absence of manifest error.

All percentages resulting from any calculation relating to a note will be rounded upward or downward, as appropriate, to the next higher or lower one hundred-thousandth of a percentage point, *e.g.*, 9.876541% (or .09876541) being rounded down to 9.87654% (or .0987654) and 9.876545% (or .09876545) being rounded up to 9.87655% (or .0987655). All amounts used in or resulting from any calculation relating to a floating rate note will be rounded upward or downward, as appropriate, to the nearest cent, in the case of U.S. dollars, or to the nearest corresponding hundredth of a unit, in the case of a currency other than U.S. dollars, with one-half cent or one-half of a corresponding hundredth of a unit or more being rounded upward.

In determining the interest rate basis that applies to a floating rate note during a particular interest period, the calculation agent may obtain rate quotes from various banks or dealers active in the relevant market, as discussed below. Those reference banks and dealers may include the calculation agent itself and its affiliates, as well as any agent participating in the distribution of the relevant floating rate notes and its affiliates, and they may include our affiliates.

Initial Interest Rate. For any floating rate note, the interest rate in effect from the original issue date to the first interest reset date will be the initial interest rate. We will specify the initial interest rate or the manner in which it is determined in the relevant pricing supplement.

Spread or Spread Multiplier. In some cases, the interest rate basis for a floating rate note may be adjusted:

- by adding or subtracting a specified number of basis points, called the spread, with one basis point being 0.01%; or
- by multiplying the interest rate basis by a specified percentage, called the spread multiplier.

If you purchase a floating rate note, your pricing supplement will indicate whether a spread or spread multiplier will apply to your note and, if so, the amount of the spread or spread multiplier.

Maximum and Minimum Rates. The actual interest rate, after being adjusted by the spread or spread multiplier, may also be subject to either or both of the following limits:

- a maximum rate—*i.e.*, a specified upper limit that the actual interest rate in effect at any time may not exceed; and/or
- a minimum rate—*i.e.*, a specified lower limit that the actual interest rate in effect at any time may not fall below.

If you purchase a floating rate note, your pricing supplement will indicate whether a maximum rate and/or minimum rate will apply to your note and, if so, what those rates are.

Whether or not a maximum rate applies, the interest rate on a floating rate note will in no event be higher than the maximum rate permitted by New York law, as it may be modified by U.S. law of general application and the *Criminal Code* (Canada). Under current New York law, the maximum rate of interest, with some exceptions, for any loan in an amount less than $250,000 is 16% and for any loan in the amount of $250,000 or more but less than $2,500,000 is 25% per year on a simple interest basis. These limits do not apply to loans of $2,500,000 or more, except for the *Criminal Code* (Canada), which limits the rate to 60%.

The rest of this subsection describes how the interest rate and the interest payment dates will be determined, and how interest will be calculated, on a floating rate note.

Interest Reset Dates. The rate of interest on a floating rate note, other than a SOFR Index note or a floating rate note based on another backward looking rate, will be reset, by the calculation agent described below, daily, weekly, monthly, quarterly, semi-annually or annually. The date on which the interest rate resets and the reset rate becomes effective is called the interest reset date. Except as otherwise specified in the applicable pricing supplement, the interest reset date will be as follows:

- for floating rate notes that reset daily, each business day;
- for floating rate notes that reset weekly and are not treasury rate notes, the Wednesday of each week;
- for treasury rate notes that reset weekly, the Tuesday of each week;
- for floating rate notes that reset monthly, the third Wednesday of each month;
- for floating rate notes that reset quarterly, the third Wednesday of each of four months of each year as indicated in the relevant pricing supplement;
- for floating rate notes that reset semi-annually, the third Wednesday of each of two months of each year as indicated in the relevant pricing supplement; and
- for floating rate notes that reset annually, the third Wednesday of one month of each year as indicated in the relevant pricing supplement.

For a floating rate note other than a SOFR Index note or a floating rate note based on another backward looking rate, the interest rate in effect on any particular day will be the interest rate determined with respect to the latest interest reset date that occurs on or before that day. There are several exceptions, however, to the reset provisions described above. For example, for a SOFR Index note, the interest rate in effect on any particular day will be the interest rate determined with respect to the interest period in which that day occurs.

If any interest reset date for a floating rate note would otherwise be a day that is not a business day, the interest reset date will be postponed to the next day that is a business day. For a EURIBOR note, however, if that business day is in the next succeeding calendar month, the interest reset date will be the immediately preceding business day.

Interest Determination Dates. The interest rate that takes effect on an interest reset date (or, in the case of a SOFR Index note or a floating rate note based on another backward looking rate, the interest rate determined for the applicable interest period) will be determined by the calculation agent by reference to a particular date called an interest determination date. Except as otherwise indicated in the relevant pricing supplement:

- for commercial paper rate, federal funds rate and U.S. prime rate notes, the interest determination date relating to a particular interest reset date will be the business day preceding the interest reset date;
- for SOFR Index notes and floating rate notes based on other backward looking rates, the interest determination date relating to a particular interest period will be the second U.S. Government Securities Business Day prior to the applicable interest payment date (or, in the case of the final interest period, prior to the maturity date or if we elect to redeem in part or in full any series of notes, the redemption date for such notes);
- for EURIBOR notes, the interest determination date relating to a particular interest reset date will be the second ***euro business day*** preceding the interest reset date. We refer to an interest determination date for a EURIBOR note as a EURIBOR interest determination date;
- for treasury rate notes, the interest determination date relating to a particular interest reset date, which we refer to as a treasury interest determination date, will be the day of the week in which the interest reset date falls on which treasury bills—*i.e.*, direct obligations of the U.S. government—would normally be auctioned. Treasury bills are usually sold at auction the Monday of each week, unless that day is a legal holiday, in which case the auction is usually held on the following Tuesday, except that the auction may be held on the preceding Friday. If as the result of a legal holiday an auction is held the preceding Friday, that Friday will be the treasury interest determination date relating to the interest reset date occurring in the next succeeding week; and
- for CMT rate and CMS rate notes, the interest determination date relating to a particular interest reset date will be the second business day preceding the interest reset date.

The interest determination date pertaining to a floating rate note the interest rate of which is determined with reference to two or more interest rate bases (none of which is the SOFR Index) will be the latest business day which is at least two business days before the related interest reset date for the applicable floating rate note on which each interest rate basis is determinable. The interest determination date pertaining to a floating rate note the interest rate of which is determined with reference to two more interest rate bases (one of which is the SOFR Index) will be specified in the relevant pricing supplement.

Interest Calculation Dates. As described above, except for SOFR Index notes, the interest rate that takes effect on a particular interest reset date will be determined by reference to the corresponding interest determination date. Except for SOFR Index notes and EURIBOR notes, however, the determination of the rate will actually be made on a day no later than the corresponding interest calculation date. The interest calculation date will be the earlier of the following:

- the tenth calendar day after the interest determination date or, if that tenth calendar day is not a business day, the next succeeding business day; and
- the business day immediately preceding the interest payment date or the maturity, whichever is the day on which the next payment of interest will be due.

The calculation agent need not wait until the relevant interest calculation date to determine the interest rate if the rate information it needs to make the determination is available from the relevant sources sooner.

Interest Payment Dates. The interest payment dates for a floating rate note will depend on when the interest rate is reset and, unless we specify otherwise in the relevant pricing supplement, will be as follows:

- for floating rate notes that reset daily, weekly or monthly, the third Wednesday of each month;
- for floating rate notes that reset quarterly, the third Wednesday of the four months of each year specified in the relevant pricing supplement;
- for floating rate notes that reset semi-annually, the third Wednesday of the two months of each year specified in the relevant pricing supplement; or
- for floating rate notes that reset annually, the third Wednesday of the month specified in the relevant pricing supplement.

Regardless of these rules, if a note is originally issued after the regular record date and before the date that would otherwise be the first interest payment date, the first interest payment date will be the date that would otherwise be the second interest payment date.

In addition, the following special provision will apply to a floating rate note with regard to any interest payment date other than one that falls on the maturity. If the interest payment date would otherwise fall on a day that is not a business day, then the interest payment date will be the next day that is a business day. However, if the floating rate note is a SOFR Index note or EURIBOR note and the next business day falls in the next calendar month, then the interest payment date will be brought forward to the immediately preceding day that is a business day. If the maturity date of a floating rate note falls on a day that is not a business day, we will make the required payment of principal, premium, if any, and interest on the next succeeding business day, and no additional interest will accrue in respect of the payment made on that next succeeding business day.

As used in this prospectus supplement, "*U.S. Government Securities Business Day*" means any day except for a Saturday, a Sunday or a day on which the Securities Industry and Financial Markets Association recommends that the fixed income departments of its members be closed for the entire day for purposes of trading in U.S. government securities.

Calculation Agent. We have initially appointed RBC Capital Markets, LLC as our calculation agent for the notes. See "—Calculation of Interest" above for details regarding the role of the calculation agent.

Commercial Paper Rate Notes

If you purchase a commercial paper rate note, your note will bear interest at an interest rate equal to the commercial paper rate and adjusted by the spread or spread multiplier, if any, indicated in your pricing supplement.

The commercial paper rate will be the ***money market yield*** of the rate, for the relevant interest determination date, for commercial paper having the ***index maturity*** indicated in your pricing supplement, as published in ***H.15*** under the heading "Commercial Paper—Nonfinancial." If the commercial paper rate cannot be determined as described above, the following procedures will apply:

- If the rate described above does not appear in H.15 by 3:00 P.M., New York City time, on the relevant interest calculation date, unless the calculation is made earlier and the rate is available from that source at that time, then the commercial paper rate will be the rate, for the relevant interest determination date, for commercial paper having the index maturity specified in your pricing supplement, as published in any other recognized electronic source used for displaying that rate, under the heading "Commercial Paper—Nonfinancial."
- If the rate described above does not appear in H.15 or another recognized electronic source by 3:00 P.M., New York City time, on the relevant interest calculation date, unless the calculation is made earlier and the rate is available from one of those sources at that time, the commercial paper rate will be the money market yield of the arithmetic mean of the following offered rates for U.S. dollar commercial paper that has the relevant index maturity and is placed for an industrial issuer whose bond rating is "Aa," or the equivalent, from a nationally recognized rating agency: the rates offered as of 11:00 A.M., New York City time, on the relevant interest determination date, by three leading U.S. dollar commercial paper dealers in New York City selected by the calculation agent.
- If fewer than three dealers selected by the calculation agent are quoting as described above, the commercial paper rate for the new interest period will be the commercial paper rate in effect for the prior interest period. If the initial interest rate has been in effect for the prior interest period, however, it will remain in effect for the new interest period.

U.S. Prime Rate Notes

If you purchase a U.S. prime rate note, your note will bear interest at an interest rate equal to the U.S. prime rate and adjusted by the spread or spread multiplier, if any, indicated in your pricing supplement.

The U.S. prime rate will be the rate, for the relevant interest determination date, published in H.15 opposite the heading "Bank prime loan." If the U.S. prime rate cannot be determined as described above, the following procedures will apply:

- If the rate described above does not appear in H.15 by 3:00 P.M., New York City time, on the relevant interest calculation date, unless the calculation is made earlier and the rate is available from that source at that time, then the U.S. prime rate will be the rate, for the relevant interest determination date, as published in H.15 or another recognized electronic source used for the purpose of displaying that rate, under the heading "Bank prime loan."

- If the rate described above does not appear in H.15 or another recognized electronic source by 3:00 P.M., New York City time, on the relevant interest calculation date, unless the calculation is made earlier and the rate is available from one of those sources at that time, then the U.S. prime rate will be the arithmetic mean of the following rates as they appear on the ***Reuters screen US PRIME 1 page:*** the rate of interest publicly announced by each bank appearing on that page as that bank's prime rate or base lending rate, as of 11:00 A.M., New York City time, on the relevant interest determination date.
- If fewer than four of these rates appear on ***the Reuters screen US PRIME 1 page***, the U.S. prime rate will be the arithmetic mean of the prime rates or base lending rates, as of the close of business on the relevant interest determination date, of three major banks in New York City selected by the calculation agent. For this purpose, the calculation agent will use rates quoted on the basis of the actual number of days in the year divided by a 360-day year.
- If fewer than three banks selected by the calculation agent are quoting as described above, the U.S. prime rate for the new interest period will be the U.S. prime rate in effect for the prior interest period. If the initial interest rate has been in effect for the prior interest period, however, it will remain in effect for the new interest period.

SOFR Index Notes

If you purchase a SOFR Index note, your note will bear interest at an interest rate equal to the USD Compounded SOFR Index Rate, unless otherwise specified in your pricing supplement. In addition, when SOFR is the interest rate basis, the applicable SOFR rate will be adjusted by the spread or spread multiplier, if any, indicated in your pricing supplement. SOFR is published by the Federal Reserve Bank of New York and is intended to be a broad measure of the cost of borrowing cash overnight collateralized by U.S. Treasury securities. The SOFR Index is published by the Federal Reserve Bank of New York and measures the cumulative impact of compounding SOFR on a unit of investment over time, with the initial value set to 1.00000000 on April 2, 2018, the first value date of SOFR. The SOFR Index value reflects the effect of compounding SOFR each business day and allows the calculation of compounded SOFR averages over custom time periods. The Federal Reserve Bank of New York notes on its publication page for the SOFR Index that use of the SOFR Index is subject to important limitations, indemnification obligations and disclaimers, including that the Federal Reserve Bank of New York may alter the methods of calculation, publication schedule, rate revision practices or availability of the SOFR Index at any time without notice. Unless as otherwise specified in your pricing supplement, the USD Compounded SOFR Index Rate will be determined by the Calculation Agent in accordance with the following formula:

$$\left(\frac{SOFR\ Index_{End}}{SOFR\ Index_{Start}} - 1\right) x \frac{360}{d}$$

where:

"$SOFR\ Index_{Start}$ = For interest periods other than the initial interest period, the SOFR Index value on the preceding interest determination date (*i.e.*, the day that is two U.S. Government Securities Business Days preceding the first date of the relevant interest period), and, for the initial interest period, the SOFR Index value on the date that is two U.S. Government Securities Business Days before the first day of such initial interest period;

"$SOFR\ Index_{End}$ = The SOFR Index value on the interest determination date relating to the applicable interest payment date (or in the final interest period, relating to the maturity date or, if we elect to redeem in part or in full any series of notes, the redemption date for such notes) (*i.e.*, the day that is two U.S. Government Securities Business Days preceding the applicable interest payment date or, in the case of the final interest period, preceding the maturity date or, if we elect to redeem in part or in full any series of notes, the redemption date for such notes); and

"d" is the number of calendar days in the relevant Observation Period.

For purposes of determining the USD Compounded SOFR Index Rate, "SOFR Index" means, with respect to any U.S. Government Securities Business Day:

(1) the SOFR Index value as published by the SOFR Administrator as such index appears on the SOFR Administrator's Website at 3:00 p.m. (New York time) on such U.S. Government Securities Business Day (the "SOFR Index Determination Time"); provided that:

(2) if a SOFR Index value does not so appear as specified in (1) above at the SOFR Index Determination Time, then: (i) if a Benchmark Transition Event and its related Benchmark Replacement Date have not occurred with respect to SOFR, then the USD Compounded SOFR Index Rate shall be the rate determined pursuant to the "SOFR Index Unavailable" provisions described below; or (ii) if a Benchmark Transition Event and its related Benchmark Replacement Date have occurred with respect to SOFR, then the USD Compounded SOFR Index Rate shall be the rate determined pursuant to the "Effect of a Benchmark Transition Event" provisions described below.

Notwithstanding anything to the contrary in the documentation relating to any notes we may issue, if we or our designee determines on or prior to the relevant Reference Time that a Benchmark Transition Event and its related Benchmark Replacement Date (each as defined below) have occurred with respect to determining the then-current Benchmark, then the benchmark replacement provisions set forth will thereafter apply to all determinations of the rate of interest payable on the notes.

For the avoidance of doubt, in accordance with the benchmark replacement provisions, after a Benchmark Transition Event and its related Benchmark Replacement Date have occurred, the interest payable for each interest period will be an annual rate equal to the sum of the Benchmark Replacement (as defined below) and the applicable spread.

SOFR Index Unavailable Provisions. If a SOFR $\text{Index}_{\text{Start}}$ or SOFR $\text{Index}_{\text{End}}$ is not published on the associated interest determination date and a Benchmark Transition Event and its related Benchmark Replacement Date have not occurred with respect to SOFR, "USD Compounded SOFR Index Rate" means, for the applicable interest period for which such index is not available, the rate of return on a daily compounded interest investment calculated in accordance with the formula for SOFR Averages, and definitions required for such formula, published on the SOFR Administrator's Website at https://www.newyorkfed.org/markets/treasury-repo-reference-rates-information. For the purposes of this provision, references in the SOFR Averages compounding formula and related definitions to "calculation period" shall be replaced with "Observation Period" and the words "that is, 30-, 90-, or 180- calendar days" shall be removed. If the daily SOFR ("SOFR_i") does not so appear for any day "i" in the Observation Period, SOFR_i for such day "i" shall be SOFR published in respect of the first preceding U.S. Government Securities Business Day for which SOFR was published on the SOFR Administrator's Website.

Effect of Benchmark Transition Event.

(a) Benchmark Replacement. If we or our designee determines that a Benchmark Transition Event and its related Benchmark Replacement Date have occurred prior to the Reference Time (as defined herein) in respect of any determination of the Benchmark on any date, the Benchmark Replacement will replace the then-current Benchmark for all purposes relating to the Notes in respect of such determination on such date and all determinations on all subsequent dates.

(b) Benchmark Replacement Conforming Changes. In connection with the implementation of a Benchmark Replacement, we or our designee will have the right to make Benchmark Replacement Conforming Changes from time to time.

(c) Decisions and Determinations. Any determination, decision or election that may be made by our designee or us pursuant to the benchmark replacement provisions described herein, including any determination with respect to tenor, rate or adjustment or of the occurrence or non-occurrence of an event, circumstance or date and any decision to take or refrain from taking any action or any selection:

- will be conclusive and binding absent manifest error;
- if made by us, will be made in our sole discretion;
- if made by our designee, will be made after consultation with us, and the designee will not make any such determination, decision or election to which we object; and
- shall become effective without consent from any other party.

Any determination, decision or election pursuant to the benchmark replacement provisions not made by our designee will be made by us on the basis as described above. The designee shall have no liability for not making any such determination, decision or election. In addition, we may designate an entity (which may be our affiliate) to make any determination, decision or election that we have the right to make in connection with the benchmark replacement provisions set forth in this prospectus supplement.

Certain Defined Terms. As used in this section entitled "*—Interest Rates—SOFR Index Notes*":

"Benchmark" means, initially, USD Compounded SOFR Index Rate, as such term is defined above; provided that if we or our designee determine on or prior to the Reference Time that a Benchmark Transition Event and its related Benchmark Replacement Date have occurred with respect to USD Compounded SOFR Index Rate (or the published SOFR Index used in the calculation thereof) or the then-current Benchmark, then "Benchmark" means the applicable Benchmark Replacement.

"Benchmark Replacement" means the first alternative set forth in the order below that can be determined by us or our designee as of the Benchmark Replacement Date:

(1) the sum of: (a) an alternate rate of interest that has been selected or recommended by the Relevant Governmental Body as the replacement for the then-current Benchmark and (b) the Benchmark Replacement Adjustment;

(2) the sum of: (a) the ISDA Fallback Rate and (b) the Benchmark Replacement Adjustment; and

(3) provided that if (i) the Benchmark Replacement cannot be determined in accordance with clause (1) or (2) above as of the Benchmark Replacement Date or (ii) we or our designee shall have determined that the ISDA Fallback Rate determined in accordance with clause (2) above is not an industry-accepted rate of interest as a replacement for the then-current Benchmark for U.S. dollar-denominated floating rate notes at such time, then the Benchmark Replacement shall be the sum of: (a) the alternate rate of interest that has been selected by us or our designee as the replacement for the then-current Benchmark giving due consideration to any industry-accepted rate of interest as a replacement for the then-current Benchmark for U.S. dollar denominated floating rate notes at such time and (b) the Benchmark Replacement Adjustment.

"Benchmark Replacement Adjustment" means the first alternative set forth in the order below that can be determined by us or our designee as of the Benchmark Replacement Date:

(1) the spread adjustment (which may be a positive or negative value or zero), or method for calculating or determining such spread adjustment that has been selected or recommended by the Relevant Governmental Body for the applicable Unadjusted Benchmark Replacement;

(2) if the applicable Unadjusted Benchmark Replacement is equivalent to the ISDA Fallback Rate, then the ISDA Fallback Adjustment; and

(3) the spread adjustment (which may be a positive or negative value or zero) that has been selected by us or our designee giving due consideration to any industry-accepted spread adjustment, or method for calculating or determining such spread adjustment, for the replacement of the then-current Benchmark with the applicable Unadjusted Benchmark Replacement for U.S. dollar denominated floating rate notes at such time.

"Benchmark Replacement Conforming Changes" means, with respect to any Benchmark Replacement, any technical, administrative or operational changes (including changes to the definitions or interpretations of interest period, the timing and frequency of determining rates and making payments of interest, the rounding of amounts or tenors, and other administrative matters) that we or our designee decides may be appropriate to reflect the adoption of such Benchmark Replacement in a manner substantially consistent with market practice (or, if we or our designee decides that adoption of any portion of such market practice is not administratively feasible or if we or our designee determines that no market practice for use of the Benchmark Replacement exists, in such other manner as we or our designee determines is reasonably practicable).

"Benchmark Replacement Date" means the earliest to occur of the following events with respect to the then-current Benchmark (including the daily published component used in the calculation thereof):

(1) in the case of clause (1) or (2) of the definition of "Benchmark Transition Event," the later of (a) the date of the public statement or publication of information referenced therein and (b) the date on which the administrator of the Benchmark permanently or indefinitely ceases to provide the Benchmark (or such component); or

(2) in the case of clause (3) of the definition of "Benchmark Transition Event," the date of the public statement or publication of information referenced therein.

For the avoidance of doubt, if the event giving rise to the Benchmark Replacement Date occurs on the same day as, but earlier than, the Reference Time in respect of any determination, the Benchmark Replacement Date will be deemed to have occurred prior to the Reference Time for such determination.

"Benchmark Transition Event" means the occurrence of one or more of the following events with respect to the then-current Benchmark (including the daily published component used in the calculation thereof):

(1) a public statement or publication of information by or on behalf of the administrator of the Benchmark (or such component) announcing that such administrator has ceased or will cease to provide the Benchmark (or such component), permanently or indefinitely, provided that, at the time of such statement or publication, there is no successor administrator that will continue to provide the Benchmark (or such component);

(2) a public statement or publication of information by the regulatory supervisor for the administrator of the Benchmark (or such component), the central bank for the currency of the Benchmark (or such component), an insolvency official with jurisdiction over the administrator for the Benchmark (or such component), a resolution authority with jurisdiction over the administrator for the Benchmark (or such component) or a court or an entity with similar insolvency or resolution authority over the administrator for the Benchmark (or such component), which states that the administrator of the Benchmark (or such component) has ceased or will cease to provide the Benchmark (or such component) permanently or indefinitely, provided that, at the time of such statement or publication, there is no successor administrator that will continue to provide the Benchmark (or such component); or

(3) a public statement or publication of information by the regulatory supervisor for the administrator of the Benchmark announcing that the Benchmark is no longer representative.

"Corresponding Tenor" with respect to a Benchmark Replacement means a tenor (including overnight) having approximately the same length (disregarding business day adjustment) as the applicable tenor for the then-current Benchmark.

"ISDA Definitions" means the 2006 ISDA Definitions published by the International Swaps and Derivatives Association, Inc. or any successor thereto, as amended or supplemented from time to time, or any successor definitional booklet for interest rate derivatives published from time to time.

"ISDA Fallback Adjustment" means the spread adjustment (which may be a positive or negative value or zero) that would apply for derivatives transactions referencing the ISDA Definitions to be determined upon the occurrence of an index cessation event with respect to the Benchmark.

"ISDA Fallback Rate" means the rate that would apply for derivatives transactions referencing the ISDA Definitions to be effective upon the occurrence of an index cessation date with respect to the Benchmark for the applicable tenor excluding the applicable ISDA Fallback Adjustment.

"*Observation Period*" means, in respect of each interest period, the period from, and including, the date two U.S. Government Securities Business Days preceding the first date in such interest period to, but excluding, the date two U.S. Government Securities Business Days preceding the interest payment date for such interest period (or in the final interest period, preceding the maturity date or, if we elect to redeem in part or in full any series of notes, the redemption date for such notes).

"Reference Time" with respect to any determination of the Benchmark means (1) if the Benchmark is USD Compounded SOFR Index Rate, the SOFR Index Determination Time, as such time is defined above, and (2) if the Benchmark is not USD Compounded SOFR Index Rate, the time determined by us or our designee in accordance with the Benchmark Replacement Conforming Changes.

"Relevant Governmental Body" means the Board of Governors of the Federal Reserve System and/or the Federal Reserve Bank of New York, or a committee officially endorsed or convened by the Board of Governors of the Federal Reserve System and/or the Federal Reserve Bank of New York or any successor thereto.

"*SOFR Administrator*" means the Federal Reserve Bank of New York (or a successor administrator of SOFR).

"*SOFR Administrator's Website*" means the website of the SOFR Administrator, currently at http://www.newyorkfed.org, or any successor source.

"Unadjusted Benchmark Replacement" means the Benchmark Replacement excluding the Benchmark Replacement Adjustment.

EURIBOR Notes

If you purchase a EURIBOR note, your note will bear interest at an interest rate equal to the interest rate for deposits in euro, designated as "EURIBOR" and sponsored jointly by the European Banking Federation and ACI—the Financial Market Association, or any company established by the joint sponsors for purposes of compiling and publishing that rate. In addition, when EURIBOR is the interest rate basis the EURIBOR base rate will be adjusted by the spread or spread multiplier, if any, specified in your pricing supplement. EURIBOR will be determined in the following manner:

- EURIBOR will be the offered rate for deposits in euros having the index maturity specified in your pricing supplement, beginning on the second euro business day after the relevant EURIBOR interest determination date, as that rate appears on **Reuters page EURIBOR01** as of 11:00 A.M., Brussels time, on the relevant EURIBOR interest determination date.
- If the rate described above does not appear on Reuters page EURIBOR01, EURIBOR will be determined on the basis of the rates, at approximately 11:00 A.M., Brussels time, on the relevant EURIBOR interest determination date, at which deposits of the following kind are offered to prime banks in the **euro-zone** interbank market by the principal euro-zone office of each of four major banks in that market selected by the calculation agent: euro deposits having the relevant index maturity, beginning on the relevant interest reset date, and in a representative amount. The calculation agent will request the principal euro-zone office of each of these banks to provide a quotation of its rate. If at least two quotations are provided, EURIBOR for the relevant EURIBOR interest determination date will be the arithmetic mean of the quotations.

- If fewer than two quotations are provided as described above, EURIBOR for the relevant EURIBOR interest determination date will be the arithmetic mean of the rates for loans of the following kind to leading euro-zone banks quoted, at approximately 11:00 A.M., Brussels time on that EURIBOR interest determination date, by three major banks in the euro-zone selected by the calculation agent: loans of euros having the relevant index maturity, beginning on the relevant interest reset date, and in a representative amount.
- If fewer than three banks selected by the calculation agent are quoting as described above, EURIBOR for the new interest period will be EURIBOR in effect for the prior interest period. If the initial interest rate has been in effect for the prior interest period, however, it will remain in effect for the new interest period.

Treasury Rate Notes

If you purchase a treasury rate note, your note will bear interest at an interest rate equal to the treasury rate and adjusted by the spread or spread multiplier, if any, indicated in your pricing supplement.

The treasury rate will be the rate for the auction, on the relevant treasury interest determination date, of treasury bills having the index maturity specified in your pricing supplement, as that rate appears on ***Reuters page USAUCTION 10*** or ***Reuters page USAUCTION11*** under the heading "INVEST RATE." If the treasury rate cannot be determined in this manner, the following procedures will apply:

- If the rate described above does not appear on either page by 3:00 P.M., New York City time, on the relevant interest calculation date, unless the calculation is made earlier and the rate is available from that source at that time, the treasury rate will be the ***bond equivalent yield*** of the rate, for the relevant interest determination date, for the type of treasury bill described above, as announced by the U.S. Department of the Treasury.
- If the auction rate described in the prior paragraph is not so announced by 3:00 P.M., New York City time, on the relevant interest calculation date, or if no such auction is held for the relevant week, then the treasury rate will be the bond equivalent yield of the rate, for the relevant treasury interest determination date and for treasury bills having the specified index maturity, as published in H.15 under the heading "U.S. government securities/Treasury bills (secondary market)."
- If the rate described in the prior paragraph does not appear in H.15 by 3:00 P.M., New York City time, on the relevant interest calculation date, unless the calculation is made earlier and the rate is available from one of those sources at that time, then the treasury rate will be the rate, for the relevant treasury interest determination date and for treasury bills having the specified index maturity, as published in H.15, or another recognized electronic source used for displaying that rate, under the heading "U.S. government securities/Treasury bills (secondary market)."
- If the rate described in the prior paragraph does not appear in H.15 or another recognized electronic source by 3:00 P.M., New York City time, on the relevant interest calculation date, unless the calculation is made earlier and the rate is available from one of those sources at that time, the treasury rate will be the ***bond equivalent yield*** of the arithmetic mean of the following secondary market bid rates for the issue of treasury bills with a remaining maturity closest to the specified index maturity: the rates bid as of approximately 3:30 P.M., New York City time, on the relevant treasury interest determination date, by three primary U.S. government securities dealers in New York City selected by the calculation agent.
- If fewer than three dealers selected by the calculation agent are quoting as described in the prior paragraph, the treasury rate in effect for the new interest period will be the treasury rate in effect for the prior interest period. If the initial interest rate has been in effect for the prior interest period, however, it will remain in effect for the new interest period.

CMT Rate Notes

If you purchase a CMT rate note, your note will bear interest at an interest rate equal to the CMT rate and adjusted by the spread or spread multiplier, if any, indicated in your pricing supplement.

The CMT rate will be the following rate as published in H.15 opposite the heading "Treasury constant maturities," as that rate is displayed on the ***designated CMT Reuters page*** under the heading ". . . Treasury Constant Maturities," under the column for the ***designated CMT index maturity***:

- if the designated CMT Reuters page is Reuters page FRBCMT, the rate for the relevant interest determination date; or
- if the designated CMT Reuters page is Reuters page FEDCMT, the weekly or monthly average, as specified in your pricing supplement, for the week that ends immediately before the week in which the relevant interest determination date falls, or for the month that ends immediately before the month in which the relevant interest determination date falls, as applicable.

If the CMT rate cannot be determined in this manner, the following procedures will apply:

- If the applicable rate described above is not displayed on the relevant designated CMT Reuters page at 3:00 P.M., New York City time, on the relevant interest determination date, unless the calculation is made earlier and the rate is available from that source at that time, then the CMT rate will be the applicable treasury constant maturity rate described above—*i.e.*, for the designated CMT index maturity and for the relevant interest determination—as published in H.15 opposite the caption "Treasury constant maturities."
- If the designated CMT Reuters page is FRBCMT and the applicable rate described above does not appear in H.15 by 3:00 P.M., New York City time, on the relevant interest determination date, unless the calculation is made earlier and the rate is available from one of those sources at that time, then the CMT rate will be the treasury constant maturity rate for the designated CMT index maturity and with reference to the relevant interest determination date, that:
  - is published by the Board of Governors of the Federal Reserve System, or the U.S. Department of the Treasury; and
  - is determined by the calculation agent to be comparable to the rate that would otherwise have been published in H.15.
- If the designated CMT Reuters page is FEDCMT and the applicable rate described above does not appear in H.15 by 3:00 P.M, New York City time, on the relevant interest determination date, unless the calculation is made earlier and the rate is available from that source at that time, the CMT rate will be the treasury constant maturity rate for the one-week or one-month rate, as applicable, for the designated CMT index maturity and with reference to the relevant interest determination date, that is otherwise announced by the Federal Reserve Bank of New York for the week or month, as applicable, immediately preceding that interest determination date.
- If the designated CMT Reuters page is FRBCMT the rate described in the second preceding paragraph does not appear by 3:00 P.M., New York City time, on the relevant interest determination date, unless the calculation is made earlier and the rate is available from one of those sources at that time, then the CMT rate will be the yield to maturity of the arithmetic mean of the following secondary market bid rates for the most recently issued treasury notes having an original maturity equal to the designated CMT index maturity and a remaining term to maturity of not less than the designated CMT index maturity minus one year, and in a representative amount: the bid rates, as of approximately 3:30 P.M., New York City time, on the relevant interest determination date, of three primary U.S. government securities dealers in New York City selected by the calculation agent. In selecting these bid rates, the calculation agent will request quotations from five of these primary dealers and will disregard the highest quotation—or, if there is equality, one of the highest—and the lowest quotation—or, if there is equality, one of the lowest. If fewer than five but more than two such offered rates are provided, the CMT rate will be based on the arithmetic mean of the bid prices provided, and neither the highest nor lowest of such quotations will be eliminated. Treasury notes are direct, non-callable, fixed rate obligations of the U.S. government.

- If the designated CMT Reuters screen page is FEDCMT and the Federal Reserve Bank of New York does not publish a one-week or one-month rate, as applicable, for U.S. Treasury securities on the relevant interest determination date, unless the calculation is made earlier and the rate is available from one of those sources at that time, then the CMT rate will be the yield to maturity of the arithmetic mean of the following secondary market offered rates for the most recently issued treasury notes having an original maturity of approximately the designated CMT index maturity and a remaining term to maturity of not less than the designated CMT index maturity minus one year, and in a representative amount: the offered rates, as of approximately 3:30 P.M., New York City time, on the relevant interest determination date, of three primary U.S. government securities dealers in New York City selected by the calculation agent. In selecting these offered rates, the calculation agent will request quotations from five of these primary dealers and will disregard the highest quotation — or, if there is equality, one of the highest — and the lowest quotation — or, if there is equality, one of the lowest. If fewer than five but more than two such offered rates are provided, the CMT rate will be based on the arithmetic mean of the bid prices provided, and neither the highest nor lowest of such quotations will be eliminated.
- If the calculation agent is unable to obtain three quotations of the kind described in the prior two paragraphs, the CMT rate will be the yield to maturity of the arithmetic mean of the following secondary market bid rates for treasury notes with an original maturity longer than the designated CMT index maturity, with a remaining term to maturity closest to the designated CMT index maturity and in a representative amount: the bid rates, as of approximately 3:30 P.M., New York City time, on the relevant interest determination date, of three primary U.S. government securities dealers in New York City selected by the calculation agent. In selecting these bid rates, the calculation agent will request quotations from five of these primary dealers and will disregard the highest quotation (or, if there is equality, one of the highest) and the lowest quotation (or, if there is equality, one of the lowest).
- If fewer than five but more than two of these primary dealers are quoting as described in the prior paragraph, then the CMT rate for the relevant interest determination date will be based on the arithmetic mean of the bid rates so obtained, and neither the highest nor the lowest of those quotations will be disregarded. If two treasury notes with an original maturity longer than the designated CMT index maturity have remaining terms to maturity that are equally close to the designated CMT index maturity, the calculation agent will obtain quotations for the treasury note with the shorter remaining term to maturity.
- If two or fewer primary dealers selected by the calculation agent are quoting as described above, the CMT rate in effect for the new interest period will be the CMT rate in effect for the prior interest period. If the initial interest rate has been in effect for the prior interest period, however, it will remain in effect for the new interest period.

CMS Rate Notes

If you purchase a CMS rate note, your note will bear interest at an interest rate equal to the CMS rate and adjusted by the spread or spread multiplier, if any, indicated in your pricing supplement.

The CMS rate will be the rate for U.S. dollar swaps with a maturity for a specified number of years, expressed as a percentage in the relevant pricing supplement, which appears on the ***Reuters page ISDAFIX1*** as of 11:00 a.m., New York City time, on the interest rate determination date.

- If the applicable rate described above does not appear by 11:00 a.m., New York City time, on the interest 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 at approximately 11:00 a.m., New York City time, on the interest determination date. For this purpose, the semi-annual swap rate means the mean of the bid and offered rates for the semi-annual fixed leg, calculated on a 30/360 day count basis, of a fixed-for-floating U.S. dollar interest rate swap transaction with a term equal to the index maturity designated in the relevant pricing supplement commencing on the reset date and in a representative amount with an acknowledged dealer of good credit in the swap market, where the floating leg, calculated on an Actual/360 day count basis, as such rate may be determined in accordance with the provisions set forth below under "— SOFR Index Notes" with an index 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 interest determination date will be the arithmetic mean of the quotations, eliminating the highest and lowest quotations or, in the event of equality, one of the highest and one of the lowest quotations.
- If fewer than three leading swap dealers selected by the calculation agent are quoting as described above, the CMS rate will remain the CMS rate in effect on that interest rate determination date or, if that interest rate determination date is the first reference rate determination date, the initial interest rate.

Federal Funds Rate Notes

If you purchase a federal funds rate note, your note will bear interest at an interest rate equal to the federal funds rate and adjusted by the spread or spread multiplier, if any, indicated in your pricing supplement.

The federal funds rate will be the rate for U.S. dollar federal funds as of the relevant interest determination date, as published in H.15 under the heading "Federal Funds (effective)," as that rate is displayed on ***Reuters page FEDFUNDS1*** under the heading "EFFECT." If the federal funds rate cannot be determined in this manner, the following procedures will apply:

- If the rate described above is not displayed on Reuters page FEDFUNDS1 by 3:00 P.M., New York City time, on the relevant interest calculation date, unless the calculation is made earlier and the rate is available from that source at that time, then the federal funds rate, as of the relevant interest determination date, will be the rate described above as published in H.15, or another recognized electronic source used for displaying that rate, under the heading "Federal Funds (Effective)."
- If the rate described above is not displayed on Reuters page FEDFUNDS1 and does not appear in H.15 or another recognized electronic source by 3:00 P.M., New York City time, on the relevant interest calculation date, unless the calculation is made earlier and the rate is available from one of those sources at that time, the federal funds rate will be the arithmetic mean of the rates for the last transaction in overnight, U.S. dollar federal funds arranged, before 9:00 A.M., New York City time, on the business day following the relevant interest determination date, by three leading brokers of U.S. dollar federal funds transactions in New York City selected by the calculation agent.
- If fewer than three brokers selected by the calculation agent are quoting as described above, the federal funds rate in effect for the new interest period will be the federal funds rate in effect for the prior interest period. If the initial interest rate has been in effect for the prior interest period, however, it will remain in effect for the new interest period.

Special Rate Calculation Terms

In this subsection entitled "—Interest Rates," we use several terms that have special meanings relevant to calculating floating interest rates. We define these terms as follows:

The term “bond equivalent yield” means a yield expressed as a percentage and calculated in accordance with the following formula:

$$\text{bond equivalent yield} = \frac{D \times N}{360 - (D \times M)} \times 100$$

where

“D” means the annual rate for treasury bills quoted on a bank discount basis and expressed as a decimal;

“N” means 365 or 366, as the case may be; and

“M” means the actual number of days in the applicable interest reset period.

The term “business day” means, for any note, a day that meets all the following applicable requirements:

- for all notes, is a Monday, Tuesday, Wednesday, Thursday or Friday that is neither a legal holiday nor a day on which banking institutions are authorized or required by law to close in New York City or Toronto, and, in the case of a floating rate note, London;
- if the note has a specified currency other than U.S. dollars or euros, is also a day on which banking institutions are not authorized or obligated by law, regulation or executive order to close in the applicable principal financial center; and
- if the note is a EURIBOR note or has a specified currency of euros, is also a euro business day.

The term “designated CMT index maturity” means the index maturity for a CMT rate note and will be the original period to maturity of a U.S. treasury security—either 1, 2, 3, 5, 7, 10, 20 or 30 years—specified in the applicable pricing supplement.

The term “designated CMT Reuters page” means the Reuters page mentioned in the relevant pricing supplement that displays treasury constant maturities as reported in H.15. If no Reuters page is so specified, then the applicable page will be Reuters page FEDCMT. If Reuters page FEDCMT applies but the relevant pricing supplement does not specify whether the weekly or monthly average applies, the weekly average will apply.

The term “euro business day” means any day on which the Trans-European Automated Real-Time Gross Settlement Express Transfer (TARGET2) System, or any successor system, is open for business.

The term “euro-zone” means, at any time, the region comprised of the member states of the European Economic and Monetary Union that, as of that time, have adopted a single currency in accordance with the Treaty on European Union of February 1992.

“H.15” means the daily update of H.15 available through the worldwide website of the Board of Governors of the Federal Reserve System, at http://www.federalreserve.gov/releases/h15, or any successor site or publication.

The term “index maturity” means, with respect to a floating rate note, the period to maturity of the instrument or obligation on which the interest rate formula is based, as specified in the applicable pricing supplement.

“London business day” means any day on which dealings in the relevant index currency are transacted in the London interbank market.

The term "money market yield" means a yield expressed as a percentage and calculated in accordance with the following formula:

$$\text{money market yield} = \frac{D \times 360}{360 - (D \times M)} \times 100$$

where

"D" means the annual rate for commercial paper quoted on a bank discount basis and expressed as a decimal; and

"M" means the actual number of days in the relevant interest reset period.

The term "principal financial center" means the capital city of the country to which an index currency relates (or the capital city of the country issuing the specified currency, as applicable), except that with respect to U.S. dollars, Australian dollars, Canadian dollars, South African rands and Swiss francs, the "principal financial center" means The City of New York, Sydney, Toronto, Johannesburg and Zurich, respectively, and with respect to euros the principal financial center means London.

The term "representative amount" means an amount that, in the calculation agent's judgment, is representative of a single transaction in the relevant market at the relevant time.

"Reuters screen US PRIME 1 page" means the display on the "US PRIME 1" page on the Reuters 3000 Xtra service, or any successor service, or any replacement page or pages on that service, for the purpose of displaying prime rates or base lending rates of major U.S. banks.

"Reuters page" means the display on the Reuters 3000 Xtra service, or any successor service, on the page or pages specified in this prospectus supplement or the relevant pricing supplement, or any replacement page or pages on that service.

If, when we use the terms designated CMT Reuters page, H.15, Reuters screen US PRIME 1 page, Reuters screen LIBOR Page or Reuters page, we refer to a particular heading or headings on any of those pages, those references include any successor or replacement heading or headings as determined by the calculation agent.

Special Provisions Related to Bail-inable Notes

The indenture provides for certain provisions applicable to bail-inable notes. The applicable pricing supplement will specify whether or not your note is a bail-inable note.

Agreement with Respect to the Exercise of Canadian Bail-in Powers

By its acquisition of an interest in any bail-inable note, each holder or beneficial owner of that note is deemed to (i) agree to be bound, in respect of the bail-inable notes, by the CDIC Act, including the conversion of the bail-inable notes, in whole or in part – by means of a transaction or series of transactions and in one or more steps – into common shares of the Bank or any of its affiliates under subsection 39.2(2.3) of the CDIC Act and the variation or extinguishment of the bail-inable notes in consequence, and by the application of the laws the Province of Ontario and the federal laws of Canada applicable therein in respect of the operation of the CDIC Act with respect to the bail-inable notes; (ii) attorn and submit to the jurisdiction of the courts in the Province of Ontario with respect to the CDIC Act and those laws; and (iii) acknowledge and agree that the terms referred to in clauses (i) and (ii) above are binding on that holder or beneficial owner despite any provisions in the indenture or the bail-inable notes, any other law that governs the bail-inable notes and any other agreement, arrangement or understanding between that holder or beneficial owner and the Bank with respect to the bail-inable notes.

Holders and beneficial owners of bail-inable notes will have no further rights in respect of their bail-inable notes to the extent those bail-inable notes are converted in a bail-in conversion, other than those provided under the bail-in regime, and by its acquisition of an interest in any bail-inable note, each holder or beneficial owner of that note is deemed to irrevocably consent to the principal amount of that note and any accrued and unpaid interest thereon being deemed paid in full by the Bank by the issuance of common shares of the Bank (or, if applicable, any of its affiliates) upon the occurrence of a bail-in conversion, which bail-in conversion will occur without any further action on the part of that holder or beneficial owner or the trustee; provided that, for the avoidance of doubt, this consent will not limit or otherwise affect any rights that holders or beneficial owners may have under the bail-in regime.

TLAC Disqualification Event Redemption

If a TLAC Disqualification Event (as defined below) is specified in the applicable pricing supplement, we may, at our option, with the prior approval of the Superintendent, redeem all but not less than all of the particular bail-inable notes prior to their stated maturity date after the occurrence of the TLAC Disqualification Event at the time and at the redemption price or prices specified in that pricing supplement, together with unpaid interest accrued thereon to, but excluding, the date fixed for redemption.

A "TLAC Disqualification Event" means OSFI has advised the Bank in writing that the bail-inable notes issued under the applicable pricing supplement will no longer be recognized in full as TLAC under the TLAC Guideline as interpreted by the Superintendent, provided that a TLAC Disqualification Event will not occur where the exclusion of those bail-inable notes from the Bank's TLAC requirements is due to the remaining maturity of those bail-inable notes being less than any period prescribed by any relevant eligibility criteria applicable as of the issue date of those bail-inable notes.

No Set-Off or Netting Rights

Holders and beneficial owners of bail-inable notes will not be entitled to exercise, or direct the exercise of, any set-off or netting rights with respect to their bail-inable notes.

Approval of Redemption, Repurchases and Defeasance; Amendments and Modifications

Where the redemption, repurchase or any defeasance or covenant defeasance with respect to bail-inable notes would result in the Bank not meeting the TLAC requirements applicable to it pursuant to the TLAC Guideline, that redemption, repurchase, defeasance or covenant defeasance will be subject to the prior approval of the Superintendent.

Where an amendment, modification or other variance that can be made to the indenture or the bail-inable notes as described in the accompanying prospectus under "Description of Debt Securities — Modification and Waiver of the Debt Securities" would affect the recognition of those bail-inable notes by the Superintendent as TLAC, that amendment, modification or variance will require the prior approval of the Superintendent.

Remedies If an Event of Default Occurs

Holders and beneficial owners of bail-inable notes may only exercise, or direct the exercise of, the rights described in the accompanying prospectus under "Description of Debt Securities — Events of Default — Remedies If an Event of Default Occurs" if the Governor in Council (Canada) has not made an order under Canadian bank resolution powers pursuant to subsection 39.13(1) of the CDIC Act in respect of the Bank. Notwithstanding the exercise of those rights, bail-inable notes will continue to be subject to bail-in conversion until repaid in full.

Subsequent Holders' Agreement

Each holder or beneficial owner of a bail-inable note that acquires an interest in the bail-inable note in the secondary market and any successors, assigns, heirs, executors, administrators, trustees in bankruptcy and legal representatives of any holder or beneficial owner is deemed to acknowledge, accept, agree to be bound by and consent to the same provisions specified herein to the same extent as the holders or beneficial owners that acquired an interest in the bail-inable notes upon their initial issuance, including, without limitation, with respect to the acknowledgement and agreement to be bound by and consent to the terms of the bail-inable notes related to the bail-in regime.

Governing Law; Submission to Jurisdiction

The indenture and the notes are governed by and construed in accordance with the laws of the State of New York, except that the provisions relating to the bail-in acknowledgment of holders and beneficial owners of bail-inable notes described in the first paragraph under "— Agreement with Respect to the Exercise of Canadian Bail-in Powers" above, are governed by and construed in accordance with the laws of the Province of Ontario and the federal laws of Canada applicable therein. By its acquisition of an interest in any bail-inable note, each holder or beneficial owner of that bail-inable note is deemed to attorn and submit to the jurisdiction of the courts in the Province of Ontario with respect to actions, suits and proceedings arising out of or relating to the operation of the CDIC Act and the laws of the Province of Ontario and the federal laws of Canada applicable therein in respect of the indenture and the bail-inable note.

Other Provisions; Addenda

Any provisions relating to the notes, including the determination of the interest rate basis, calculation of the interest rate applicable to a floating rate note, its interest payment dates, any redemption or repayment provisions, or any other term relating thereto, may be modified and/or supplemented by the terms as specified under "Other Provisions" on the face of the applicable notes or in an Addendum relating to the applicable notes, if so specified on the face of the applicable notes, and, in each case, in the relevant pricing supplement.

CERTAIN INCOME TAX CONSEQUENCES

United States Taxation

For a general overview of the tax consequences of owning debt securities that we offer, please see the discussion in the accompanying prospectus under "Tax Consequences—United States Taxation."

However, the tax consequences of any particular note depend on its terms, and the tax treatment of each note will be described in the applicable pricing supplement. Consequently, except to the extent the pricing supplement indicates otherwise, you should not rely on the general overview of tax consequences in the accompanying 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.

Canadian Taxation

In the opinion of our Canadian tax counsel, Norton Rose Fulbright Canada LLP, the following summary describes, as of the date hereof, the principal Canadian federal income tax consequences under the Income Tax Act (Canada) (the "Tax Act"), generally applicable to a holder of notes who acquires, as beneficial owner, notes in an initial offering or common shares of the Bank or an affiliate of the Bank on a bail-in conversion, and who, at all relevant times and for the purposes of the Tax Act: (i) deals at arm's length and is not affiliated with the Bank, and (ii) acquires and holds the notes and common shares as capital property and (ii) is entitled to receive all payments of interest and principal under the notes (a "noteholder"). Generally, the notes and common shares, as applicable, will constitute capital property to a noteholder provided that the noteholder does not hold the notes or common shares, as applicable, in the course of carrying on a business of buying and selling securities and does not acquire them as part of an adventure or concern in the nature of trade.

This summary is not applicable to a noteholder: (i) that is a "financial institution" as defined in the Tax Act for purposes of the "mark-to-market" rules; (ii) an interest in which is or for whom a note or common share would be a "tax shelter investment" as defined in the Tax Act; (iii) that is a "specified financial institution" (as defined in the Tax Act); (iv) that has elected to report its "Canadian tax results" in a currency other than the Canadian currency, (v) that has entered or will enter into, with respect to the notes or common shares, a "derivative forward agreement" as that term is defined in the Tax Act; or (vi) that carries or is deemed to carry on an insurance business in Canada and elsewhere. Such noteholders should consult their own tax advisors.

This summary is based upon the current provisions of the Tax Act and the regulations thereunder (the "Regulations"), all specific proposals to amend the Tax Act or such Regulations publicly announced by the federal Minister of Finance (Canada) prior to the date hereof (the "Proposals") and our understanding of the current administrative policies and assessing practices of the Canada Revenue Agency ("CRA") published in writing by it. This summary assumes that the Proposals will be enacted as currently proposed, but no assurance can be given that this will be the case. This summary is not exhaustive of all possible Canadian federal income tax considerations and, except for the Proposals, this summary does not take into account or anticipate any changes in the law or the administrative policies or assessing practices of the CRA, whether by judicial, regulatory, governmental or legislative action, nor does it take into account tax laws of any province or territory of Canada, or of any jurisdiction outside Canada.

This summary assumes that any affiliate of the Bank the shares of which are acquired by a noteholder pursuant to a bail-in conversion is a resident of Canada for purposes of the Tax Act.

This summary is of a general nature only and is not intended to be, nor should it be construed to be, legal or tax advice to any particular noteholder. Accordingly, prospective noteholders should consult their own tax advisors with respect to their particular circumstances. In addition, the tax consequences relevant to the holding or disposition of any particular note depends on its terms. To the extent such tax consequences are materially different than those described herein, the tax treatment of such particular note will be described in the applicable pricing supplement. You should consult with your own tax advisor concerning the consequences of investing in and holding any particular note you propose to purchase.

Currency

All amounts relating to the acquisition, holding or disposition of the notes must be converted into Canadian dollars based on the relevant exchange rate quoted by the Bank of Canada on the relevant day or such other rate or rates of exchange acceptable to the Ministry of Finance (Canada). A noteholder may realize a capital gain or capital loss by virtue of exchange rate fluctuations. The amount of interest required to be included in computing the noteholder's income for a taxation year will also be affected by fluctuations in the relevant exchange rate.

Noteholders Not Resident in Canada

An investor who is a Non-resident Holder as defined in the accompanying prospectus 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.

Noteholders Resident in Canada

The following discussion applies to a noteholder who, at all relevant times, for the purposes of the Tax Act and any applicable income tax treaty or convention, is or is deemed to be resident in Canada (a "Resident Holder").

Certain Resident Holders who might not otherwise be considered to hold their notes as capital property may, in certain circumstances, be entitled to have the notes, common shares, and all other "Canadian securities" (as defined in the Tax Act) owned by such Resident Holders, treated as capital property by making the irrevocable election permitted by subsection 39(4) of the Tax Act.

Interest

A Resident Holder that is a corporation, partnership, unit trust or a trust of which a corporation or partnership is a beneficiary will be required to include in computing its income for a taxation year the entire amount of any interest (or amount considered to be interest) on the notes that accrues or is deemed to accrue to it to the end of that taxation year or becomes receivable or is received by it before the end of that taxation year, to the extent that such amount was not included in computing the Resident Holder's income for a preceding taxation year.

Any other Resident Holder, including an individual (other than a trust described in the preceding paragraph), will be required to include in computing its income for a taxation year the amount of any interest (or amount considered to be interest) on the notes that is received or receivable by such Resident Holder in that year (depending on the method regularly followed by the Resident Holder in computing its income) to the extent that such amount was not included in computing the Resident Holder's income for a preceding taxation year. In addition, if at any time a note becomes an "investment contract" (as defined in the Tax Act) in relation to the Resident Holder, such Resident Holder will be required to include in computing income for a taxation year any interest that accrues to the Resident Holder on the note up to any "anniversary date" (as defined in the Tax Act) in that year to the extent such interest was not otherwise included in the Resident Holder's income for that or a preceding taxation year.

To the extent that the principal amount of a note exceeds the amount for which it was issued, the excess (the "Discount") may be required to be included in computing a Resident Holder's income either (i) in each taxation year in which all or a portion of such amount accrues or is deemed to accrue (in circumstances where the Discount is or is deemed to be interest); or (ii) in the taxation year in which the Discount is received or receivable by the Resident Holder. Resident Holders should consult their tax advisors as to the Canadian income tax treatment of the Discount.

In certain circumstances, provisions of the Tax Act require a holder of a "prescribed debt obligation" (as defined for the purposes of the Tax Act) to include in income for each taxation year the amount of any interest, bonus or premium receivable on the obligation over its term based on the maximum amount of interest, bonus or premium receivable on the obligation. Indexed Notes may be considered to be prescribed debt obligations to a Resident Holder. However, counsel understands that the CRA's current administrative practice is not to require any such accrual of interest on a prescribed debt obligation until such time as the return thereon becomes determinable. Counsel has been advised that the Bank anticipates that throughout each taxation year ending before the maturity date (or the date of earlier repayment in full) the return on the Indexed Notes generally will not be determinable. Where this is the case, on the basis of such understanding of the CRA's administrative practice, there should be no deemed accrual of interest on the Index Notes for taxation years (being calendar years) of a Resident Holder ending prior to their maturity date (or, if applicable, the date of their earlier repayment in full), except as described below under "Redemption or other Disposition of Notes" where an Indexed Note is transferred before such date.

Redemption or other Disposition of Notes

On a disposition or a deemed disposition of a note (including a redemption or a repayment at maturity), a Resident Holder will generally be required to include in computing its income for the taxation year in which the disposition or deemed disposition occurs all interest (or amount considered to be interest) that accrued or is deemed to accrue on the note from the date of the last interest payment to the date of disposition or deemed disposition, except to the extent that such interest has otherwise been included in the Resident Holder's income for that or a preceding taxation year.

A Resident Holder who disposes or is deemed to have disposed of a note (including on maturity of the notes, pursuant to a redemption, as a result of a bail-in conversion or other acquisition by us) should realize a capital gain (or a capital loss) to the extent that the proceeds of disposition, net of amounts included in income as interest and any reasonable costs of disposition, exceed (or are less than) the Resident Holder's adjusted cost base of the notes. Resident Holders who dispose of notes prior to the maturity date thereof, particularly those who dispose of notes shortly prior to the maturity date thereof, should consult their own tax advisors with respect to their particular circumstances.

With respect to an assignment or transfer of an Indexed Note by a Resident Holder (other than as a consequence of a repayment or redemption of the Indexed Note), the Resident Holder may be required to include in its income as accrued interest, an amount equal to the amount, if any, by which the price for which the Indexed Note was assigned or transferred exceeds the amount by which the price (converted to Canadian dollars using the exchange rate prevailing at the time of the assignment or transfer, if the Indexed Note is denominated in a currency other than Canadian dollars) for which the Indexed Note was issued exceeds the portion, if any, of the principal amount of the Indexed Note (converted to Canadian dollars using the exchange rate prevailing at the time of the assignment or transfer, if the Indexed Note is denominated in a currency other than Canadian dollars) that was repaid by the Bank on or before the time of the assignment or transfer. **Resident Holders who dispose of Indexed Notes other than as a consequence of the repayment or redemption of the Indexed Notes by the Bank should consult their tax advisors with respect to their particular circumstances**.

Dividends on Common Shares

A Resident Holder will be required to include in computing its income for a taxation year any taxable dividends received or deemed to be received on the Common Shares. In the case of a Resident Holder that is an individual (other than certain trusts), such dividend will be subject to the gross-up and dividend tax credit rules normally applicable under the Tax Act to taxable dividends received from taxable Canadian corporations. Taxable dividends received from a taxable Canadian corporation that are designated by the corporation as "eligible dividends" will be subject to an enhanced gross-up and tax credit regime in accordance with the rules in the Tax Act. There may be limitations on the ability of the Corporation to designate dividends as eligible dividends. In the case of a Resident Holder that is a corporation, the amount of any such taxable dividend that is included in its income for a taxation year will generally be deductible in computing its taxable income for that taxation year. In certain circumstances, subsection 55(2) of the Tax Act will treat a taxable dividend received or deemed to be received by a Resident Holder that is a corporation as proceeds of disposition or a capital gain. Resident Holders that are corporations should consult their own tax advisors having regard to their own circumstances.

Dispositions of Common Shares

A Resident Holder who disposes of, or is deemed for the purposes of the Tax Act to have disposed of, a common share acquired on a bail-in conversion will generally realize a capital gain (or capital loss) in the taxation year of the disposition equal to the amount by which the proceeds of disposition are greater (or are less) than the total of: (i) the adjusted cost base to the Resident Holder of the common share immediately before the disposition or deemed disposition, and (ii) any reasonable costs of disposition. The adjusted cost base to a Resident Holder of common shares acquired pursuant to a bail-in conversion will be determined by averaging the cost of such common shares with the adjusted cost base of all other common shares (if any) held by the Resident Holder as capital property at that time.

Treatment of Capital Gains and Losses

One-half of any capital gain realized will constitute a taxable capital gain that must be included in the calculation of the Resident Holder's income. One-half of any capital loss incurred will constitute an allowable capital loss that is deductible against taxable capital gains of the Resident Holder, subject to and in accordance with the provisions of the Tax Act.

If a Resident Holder is a corporation, any capital loss realized on a disposition or deemed disposition of common shares may, in certain circumstances, be reduced by the amount of any dividends which have been received or which are deemed to have been received on such common shares (or a share for which a common share has been substituted). Similar rules may apply where a Resident Holder that is a corporation is a member of a partnership or a beneficiary of a trust that owns common shares directly or indirectly through a partnership or a trust. Resident Holders to whom these rules may be relevant should consult their own tax advisors.

Other Taxes

A Resident Holder that is throughout the relevant taxation year a "Canadian controlled private corporation" (as defined in the Tax Act) or a "substantive CCPC" (pursuant to draft legislation released by the Department of Finance (Canada) on August 9, 2022), may be liable to pay an additional tax of 10 2/3% on its "aggregate investment income" (as defined in the Tax Act) for the year, including interest and taxable capital gains. Such additional tax may be refundable in certain circumstances. Resident Holders should consult their own tax advisors in this regard.

Interest, capital gains and taxable dividends received by a Resident Holder who is an individual (including certain trusts) may result in such Resident Holder being liable for alternative minimum tax under the Tax Act. Such resident Holders should consult their own tax advisors in this regard.

SUPPLEMENTAL PLAN OF DISTRIBUTION

We and RBC Capital Markets, LLC, ANZ Securities, Inc., Barclays Capital Inc., BNY Mellon Capital Markets, LLC, BofA Securities, Inc., Capital One Securities, Inc., Citigroup Global Markets Inc., Comerica Securities, Inc., Commonwealth Bank of Australia, DBS Bank Ltd., Desjardins Securities Inc., Deutsche Bank Securities Inc., Fifth Third Securities, Inc., Goldman Sachs & Co. LLC, HSBC Securities (USA) Inc., Huntington Securities, Inc., InspereX LLC, J.P. Morgan Securities LLC, KeyBanc Capital Markets Inc., Mizuho Securities USA LLC, Morgan Stanley & Co. LLC, MUFG Securities Americas Inc., nabSecurities, LLC, National Bank of Canada Financial Inc., Natixis Securities Americas LLC, Rabo Securities USA, Inc., Regions Securities LLC, Santander US Capital Markets LLC, SG Americas Securities, LLC, SMBC Nikko Securities America, Inc., Standard Chartered Bank, Truist Securities, Inc., UBS Financial Services Inc., UBS Securities LLC, U.S. Bancorp Investments, Inc., Wells Fargo Securities, LLC and Westpac Banking Corporation, as agents, have entered into a distribution agreement with respect to the notes. The agent or agents through whom the notes will be offered will be identified in the applicable pricing supplement. Subject to certain conditions, the agents have agreed to use their reasonable efforts to solicit purchases of the notes. We have the right to accept offers to purchase notes and may reject any proposed purchase of the notes. The agents may also reject any offer to purchase notes. We will pay the agents a commission on any notes sold through the agents. The commission is expected to range from 0% to 0.5% of the principal amount of the notes, depending on the stated maturity of the notes, for fixed rate and floating rate notes. The commission is expected to range from 1% to 5% of the principal amount of the notes for indexed and other structured notes, or in such other amount as may be agreed between the agents and Royal Bank of Canada.

We may also sell notes to the agents, who will purchase the notes as principal for their own accounts. In that case, the agent will purchase the notes at a price equal to the issue price specified in the applicable pricing supplement, less a discount to be agreed with us at the time of the offering.

The agents may resell any notes they purchase as principal to other brokers or dealers at a discount, which may include all or part of the discount the agents received from us. If all the notes are not sold at the initial offering price, the agents may change the offering price and the other selling terms.

We may also sell notes directly to investors. We will not pay commissions on notes we sell directly.

We have reserved the right to withdraw, cancel or modify the offer made by this prospectus supplement without notice and may reject orders in whole or in part whether placed directly with us or with an agent. No termination date has been established for the offering of the notes.

The agents, whether acting as agent or principal, may be deemed to be “underwriters” within the meaning of the Securities Act of 1933, as amended (the “Securities Act”). We have agreed to indemnify the agents against certain liabilities, including liabilities under the Securities Act, or to contribute to payments made in respect of those liabilities.

If the agents sell notes to dealers who resell to investors and the agents pay the dealers all or part of the discount or commission they receive from us, those dealers may also be deemed to be “underwriters” within the meaning of the Securities Act.

Unless otherwise indicated in any pricing supplement, payment of the purchase price of notes, other than notes denominated in a non-U.S. dollar currency, will be required to be made in funds immediately available in The City of New York. The notes will be the Same Day Funds Settlement System at DTC and, to the extent the secondary market trading in the notes is effected through the facilities of such depositary, such trades will be settled in immediately available funds.

We may appoint additional agents with respect to the notes. Any other agents will be named in the applicable pricing supplements and those agents will enter into the distribution agreement referred to above. The agents referred to above and any additional agents may engage in commercial banking and investment banking and other transactions with and perform services for Royal Bank of Canada and our affiliates in the ordinary course of business. RBC Capital Markets, LLC is an affiliate of the Royal Bank of Canada and may resell notes to or through another of our affiliates, as selling agent.

The notes are a new issue of securities, and there will be no established trading market for any note before its original issue date. We do not plan to list the notes on a securities exchange or quotation system. We have been advised by each of the agents named above that they may make a market in the notes offered through them. However, neither RBC Capital Markets, LLC nor any of our other affiliates nor any other agent named in your pricing supplement that makes a market is obligated to do so, and any of them may stop doing so at any time without notice. No assurance can be given as to the liquidity or trading market for the notes.

This prospectus supplement may be used by RBC Capital Markets, LLC and any other agent in connection with offers and sales of the notes in market-making transactions. In a market-making transaction, an agent or other person resells a note it acquires from other holders after the original offering and sale of the note. Resales of this kind may occur in the open market or may be privately negotiated, at prevailing market prices at the time of resale or at related or negotiated prices. In these transactions, such agent may act as principal or agent, including as agent for the counterparty in a transaction in which RBC Capital Markets, LLC or another agent acts as principal, or as agent for both counterparties in a transaction in which RBC Capital Markets, LLC does not act as principal. The agents may receive compensation in the form of discounts and commissions, including from both counterparties in some cases. Other affiliates of Royal Bank of Canada (in addition to RBC Capital Markets, LLC) and the Bank may also engage in transactions of this kind and may use this prospectus supplement for this purpose. The Bank and any of its affiliates may engage in market-making transactions only in those jurisdictions in which it has all necessary governmental and regulatory authorizations for such activity.

The aggregate initial offering price specified on the cover of this prospectus supplement relates to the initial offering of new notes we may issue on and after the date of this prospectus supplement. This amount does not include notes that may be resold in market-making transactions. The latter includes notes that we may issue going forward as well as notes we have previously issued.

Royal Bank of Canada does not expect to receive any proceeds from market-making transactions, except to the extent it is entitled to proceeds of its own sales of notes in such transactions. Royal Bank of Canada does not expect that any agent that engages in these transactions will pay any proceeds from its market-making resales to Royal Bank of Canada.

Information about the trade and settlement dates, as well as the purchase price, for a market-making transaction will be provided to the purchaser in a separate confirmation of sale.

Unless Royal Bank of Canada or an agent informs you in your confirmation of sale that your note is being purchased in its original offering and sale, you may assume that you are purchasing your note in a market-making transaction.

In this prospectus supplement, the term “this offering” means the initial offering of the notes made in connection with their original issuance. This term does not refer to any subsequent resales of notes in market-making transactions.

The agents may engage in over-allotment, stabilizing transactions, syndicate covering transactions and penalty bids in accordance with Regulation M under the Exchange Act. Over-allotment involves syndicate sales in excess of the offering size, which creates a syndicate short position. Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum. Syndicate covering transactions involve purchases of the notes in the open market after the distribution has been completed in order to cover syndicate short positions. Penalty bids permit reclaiming a selling concession from a syndicate member when the notes originally sold by such syndicate member are purchased in a syndicate covering transaction to cover syndicate short positions. Such stabilizing transactions, syndicate covering transactions and penalty bids may stabilize, maintain or otherwise affect the market price of the notes, which may be higher than it would otherwise be in the absence of such transactions. The agents are not required to engage in these activities and may end any of these activities at any time.

In addition to offering notes through the agents as discussed above, other medium-term notes that have terms substantially similar to the terms of the notes offered by this prospectus supplement may in the future be offered, concurrently with the offering of the notes, on a continuing basis by Royal Bank of Canada. Any of these notes sold pursuant to the distribution agreement or sold by Royal Bank of Canada directly to investors will reduce the aggregate amount of notes which may be offered by this prospectus supplement.

DOCUMENTS FILED AS PART OF THE REGISTRATION STATEMENT

In addition to the documents specified in the accompanying prospectus under "Documents Incorporated by Reference," the following documents were filed with the Securities and Exchange Commission and incorporated by reference as part of the registration statement to which this prospectus supplement relates (the "Registration Statement"): (i) the Distribution Agreement, dated December 20, 2023, between us and the agents, (ii) the Calculation Agency Agreement, dated as of December 20, 2023, between us and RBC Capital Markets, LLC, and (iii) the Exchange Rate Agency Agreement, dated as of December 20, 2023, between us and RBC Capital Markets, LLC. Such documents will not be incorporated by reference into this prospectus supplement or the accompanying prospectus. Additional exhibits to the Registration Statement to which this prospectus supplement relates may be subsequently filed in reports on Form 40-F or on Form 6-K that specifically state that such materials are incorporated by reference as exhibits in Part II of the Registration Statement.

No dealer, salesperson or other person has been authorized to give any information or to make any representation not contained in this prospectus supplement, the accompanying prospectus or any pricing supplement and, if given or made, such information or representation must not be relied upon as having been authorized by Royal Bank of Canada or the agents. This prospectus supplement, the accompanying prospectus and any pricing supplement do not constitute an offer to sell or a solicitation of an offer to buy any securities other than the securities described in the relevant pricing supplement nor do they constitute an offer to sell or a solicitation of an offer to buy the securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. The delivery of this prospectus supplement, the accompanying prospectus and any pricing supplement at any time does not imply that the information they contain is correct as of any time subsequent to their respective dates.

US$ 75,000,000,000

Royal Bank of Canada

Senior Global

Medium-Term Notes, Series J

December 20, 2023

Filed pursuant to Rule 424(b)(3)
Registration Statement No. 333-275898

ROYAL BANK OF CANADA

Senior Debt Securities

Subordinated Debt Securities

Common Shares

Warrants

First Preferred Shares

up to an aggregate initial offering price of U.S. $75 billion or the equivalent thereof in other currencies.

This prospectus describes some of the general terms that may apply to these securities and the general manner in which they may be offered. We will give you the specific prices and other terms of the securities we are offering in supplements to this prospectus. You should read this prospectus and the applicable supplement(s) carefully before you invest. We may sell the securities to or through one or more underwriters, dealers or agents. The names of the underwriters, dealers or agents will be set forth in supplements to this prospectus.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR DETERMINED THAT THIS PROSPECTUS IS TRUTHFUL OR COMPLETE. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

Prospective investors should be aware that the acquisition of the securities described herein may have tax consequences both in the United States and in Canada. Such consequences for investors who are resident in, or citizens of, the United States may not be described fully herein or in any applicable prospectus supplement.

The enforcement by investors of civil liabilities under United States federal securities laws may be affected adversely by the fact that Royal Bank of Canada is a Canadian bank, that many of its officers and directors are residents of Canada, that some or all of the underwriters or experts named in the Registration Statement may reside outside of the United States, and that all or a substantial portion of the assets of Royal Bank of Canada and said persons may be located outside the United States.

Our common shares trade under the symbol "RY" on the Toronto Stock Exchange and the New York Stock Exchange. The common shares may be offered pursuant to this prospectus solely in connection with an offering of subordinated debt securities that provide for the full and permanent conversion of such securities into common shares of Royal Bank of Canada upon the occurrence of certain trigger events relating to financial viability, as further described herein.

The securities described herein will not constitute deposits that are insured under the Canada Deposit Insurance Corporation Act or by the United States Federal Deposit Insurance Corporation.

Securities that are bail-inable debt securities (as defined herein) are subject to conversion in whole or in part – by means of a transaction or series of transactions and in one or more steps – into common shares of the Bank or any of its affiliates under subsection 39.2(2.3) of the Canada Deposit Insurance Corporation Act (the "CDIC Act") and to variation or extinguishment in consequence, and subject to the application of the laws of the Province of Ontario and the federal laws of Canada applicable therein in respect of the operation of the CDIC Act with respect to the bail-inable debt securities.

Investing in the securities described herein involves a number of risks. See "Risk Factors" on page 1 of this prospectus.

The date of this prospectus is December 20, 2023

TABLE OF CONTENTS

In this prospectus, unless the context otherwise indicates, the "Bank," "we," "us" or "our" means Royal Bank of Canada and its subsidiaries. In this prospectus and any prospectus supplement, currency amounts are stated in Canadian dollars ("$"), unless specified otherwise.

DOCUMENTS INCORPORATED BY REFERENCE

The Securities and Exchange Commission (the "SEC") allows us to "incorporate by reference" the information we file with it, which means we can disclose important information to you by referring you to those documents. Copies of the documents incorporated herein by reference may be obtained upon written or oral request without charge from Investor Relations, Royal Bank of Canada, 200 Bay Street – South Tower, 20th Floor, Toronto, Ontario, Canada M5J 2J5 (416-955-7808). The documents incorporated by reference are available over the Internet at https://www.sec.gov.

We incorporate by reference the documents listed below:

- Annual Report on Form 40-F for the fiscal year ended October 31, 2023 (the "2023 Annual Report").

In addition, we will incorporate by reference into this prospectus all documents that we file under Section 13(a), 13(c), 14 or 15(d) of the United States Securities Exchange Act of 1934, as amended (the "Exchange Act") and, to the extent, if any, we designate therein, reports on Form 6-K we furnish to the SEC after the date of this prospectus and prior to the termination of any offering contemplated in this prospectus.

Any statement contained in this prospectus or in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded, for purposes of this prospectus, to the extent that a statement contained herein or in any other subsequently filed or furnished document that also is or is deemed to be incorporated by reference herein modifies or supersedes such statement. The modifying or superseding statement need not state that it has modified or superseded a prior statement or include any other information set forth in the document that it modifies or supersedes. The making of a modifying or superseding statement shall not be deemed an admission for any purposes that the modified or superseded statement, when made, constituted a misrepresentation, an untrue statement of a material fact or an omission to state a material fact that is required to be stated or that is necessary to make a statement not misleading in light of the circumstances in which it was made. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

Upon a new Annual Report and the related annual financial statements being filed by us with, and, where required, accepted by, the SEC, the previous Annual Report shall be deemed no longer to be incorporated by reference into this prospectus for purposes of future offers and sales of securities hereunder.

All documents incorporated by reference, or to be incorporated by reference, have been filed with or furnished to, or will be filed with or furnished to, the SEC.

WHERE YOU CAN FIND MORE INFORMATION

In addition to our continuous disclosure obligations under the securities laws of the Provinces and Territories of Canada, we are subject to the information reporting requirements of the Exchange Act and in accordance therewith file reports and other information with the SEC. As the Bank is a "foreign private issuer" under the rules adopted under the Exchange Act, we are exempt from certain of the requirements of the Exchange Act, including the proxy and information provisions of Section 14 of the Exchange Act and the reporting and liability provisions applicable to officers, directors and significant shareholders under Section 16 of the Exchange Act. Under the multijurisdictional disclosure system adopted by the United States, reports and other information filed with the SEC may be prepared in accordance with the disclosure requirements of Canada, which requirements are different from those of the United States. Such reports and other information, when filed by us in accordance with such requirements, are available to the public on the website maintained by the SEC at https://www.sec.gov. Such documents, reports and information are also available on our website: https://www.rbc.com. Our common shares are listed on the Toronto Stock Exchange and the New York Stock Exchange, and reports and other information concerning us can be inspected at the offices of the New York Stock Exchange, 11 Wall Street, New York, New York 10005. All Internet references in this prospectus are inactive textual references and we do not incorporate website contents into this prospectus.

FURTHER INFORMATION

We have filed with the SEC a Registration Statement on Form F-3 under the United States Securities Act of 1933, as amended (the "Securities Act"), with respect to the securities offered with this prospectus. This prospectus is a part of that Registration Statement, and it does not contain all of the information set forth in the Registration Statement. You can access the Registration Statement together with its exhibits at the SEC's website at https://www.sec.gov or inspect these documents at the offices of the SEC in order to obtain more information about us and about the securities offered with this prospectus.

ABOUT THIS PROSPECTUS

This prospectus provides you with a general description of the securities we may offer. Each time we sell securities, we will provide a prospectus supplement containing specific information about the terms of the securities being offered thereunder. A prospectus supplement may include a discussion of any risk factors or other special considerations applicable to those securities or to us. A prospectus supplement may also add, update or change information in this prospectus. If there is any inconsistency between the information in this prospectus and the applicable prospectus supplement, you should rely on the information in the prospectus supplement. You should read both this prospectus and any applicable prospectus supplement together with additional information described under the heading "Where You Can Find More Information" above.

We may sell securities to underwriters who will sell the securities to the public on terms fixed at the time of sale. In addition, the securities may be sold by us directly or through dealers or agents designated from time to time. If we, directly or through agents, solicit offers to purchase the securities, we reserve the sole right to accept and, together with any agents, to reject, in whole or in part, any of those offers.

Any prospectus supplement will contain the names of the underwriters, dealers or agents, if any, together with the terms of the offering, the compensation of those underwriters and the net proceeds to us. Any underwriters, dealers or agents participating in the offering may be deemed "underwriters" within the meaning of the Securities Act.

We publish our consolidated financial statements in Canadian dollars. The Canadian dollar fluctuates in value compared to the U.S. dollar.

RISK FACTORS

Investment in these securities is subject to various risks including those risks inherent in investing in an issuer involved in conducting the business of a diversified financial institution. Before deciding whether to invest in any securities, you should carefully consider the risks described in the documents incorporated by reference in this prospectus (including subsequently filed documents incorporated by reference) and, if applicable, those described in a prospectus supplement, as the case may be, relating to a specific offering of securities. You should carefully consider the categories of risks identified and discussed in the risk sections of the Bank's management's discussion and analysis included in the 2023 Annual Report (the "2023 Management's Discussion and Analysis"), including those summarized under "Caution Regarding Forward-Looking Statements" beginning on page 2 of this prospectus as well as any risks described in subsequently filed documents incorporated by reference.

ROYAL BANK OF CANADA

Business

Royal Bank of Canada and its subsidiaries operate under the master brand name of RBC. We are a global financial institution with a purpose-driven, principles-led approach to delivering leading performance. Our success comes from the 94,000+ employees who leverage their imaginations and insights to bring our vision, values and strategy to life so we can help our clients thrive and communities prosper. As Canada's biggest bank and one of the largest in the world, based on market capitalization, we have a diversified business model with a focus on innovation and providing exceptional experiences to our more than 17 million clients in Canada, the U.S. and 27 other countries.

Our business segments are Personal & Commercial Banking, Wealth Management, Insurance and Capital Markets. Our business segments are supported by Corporate Support. Additional information about our business and each segment (including segment results) can be found under "Overview and outlook" beginning on page 23 and under "Business segment results" beginning on page 32 of the 2023 Management's Discussion and Analysis, which is incorporated by reference in this prospectus.

Our common shares trade under the symbol "RY" on the Toronto Stock Exchange and the New York Stock Exchange. Additional information about RBC can be found on our website at https://www.rbc.com. Additional information about RBC and its subsidiaries is included in documents incorporated by reference into this document. For more information, see the section entitled "Where You Can Find More Information".

We are a Schedule I bank under the *Bank Act* (Canada) (the "Bank Act"), which constitutes our charter. Our corporate headquarters are located at 200 Bay Street, Toronto, Ontario, Canada M5J 2J5 and our head office is located at 1 Place Ville Marie, Montréal, Québec, Canada H3C 3A9.

PRESENTATION OF FINANCIAL INFORMATION

We prepare our consolidated financial statements in accordance with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board.

CAUTION REGARDING FORWARD-LOOKING STATEMENTS

From time to time, we make written or oral forward-looking statements within the meaning of certain securities laws, including the "safe harbor" provisions of the *United States Private Securities Litigation Reform Act of 1995* and any applicable Canadian securities legislation. We may make forward-looking statements in this prospectus, in the documents incorporated by reference herein, in other filings with Canadian regulators or the SEC, in other reports to shareholders, and in other communications. In addition, our representatives may communicate forward-looking statements orally to analysts, investors, the media and others. Forward-looking statements in this prospectus and the documents incorporated by reference herein include, but are not limited to, statements relating to our financial performance objectives, vision and strategic goals, the economic, market, and regulatory review and outlook for Canadian, U.S., U.K., European and global economies, the regulatory environment in which we operate, the implementation of IFRS 17 Insurance Contracts, the expected closing of the transaction involving HSBC Bank Canada, including plans for the combination of our operations with HSBC Bank Canada and the financial, operational and capital impacts of the transaction, the expected closing of the transaction involving the U.K. branch of RBC Investor Services Trust and the RBC Investor Services business in Jersey, the expected impact of the Federal Deposit Insurance Corporation's special assessment, the Strategic priorities and Outlook sections for each of our business segments in our 2023 Management's Discussion and Analysis and the risk environment including our credit risk, market risk, liquidity and funding risk as well as the effectiveness of our risk monitoring, our climate and sustainability related beliefs, targets and goals (including our net zero and sustainable finance commitments) and related legal and regulatory developments, and includes statements made by our President and Chief Executive Officer and other members of management. The forward-looking statements contained in this document and the documents incorporated by reference herein represent the views of management and are presented for the purpose of assisting the holders of our securities and financial analysts in understanding our financial position and results of operations as at and for the periods ended on the dates presented, as well as our financial performance objectives, vision, strategic goals and priorities and anticipated financial performance, and may not be appropriate for other purposes. Forward-looking statements are typically identified by words such as "believe", "expect", "suggest", "seek", "foresee", "forecast", "schedule", "anticipate", "intend", "estimate", "goal", "commit", "target", "objective", "plan", "outlook", "timeline" and "project" and similar expressions of future or conditional verbs such as "will", "may", "might", "should", "could", "can" or "would" or negative or grammatical variations thereof.

By their very nature, forward-looking statements require us to make assumptions and are subject to inherent risks and uncertainties, both general and specific in nature, which give rise to the possibility that our predictions, forecasts, projections, expectations or conclusions will not prove to be accurate, that our assumptions may not be correct, that our financial performance, environmental & social or other objectives, vision and strategic goals will not be achieved, and that our actual results may differ materially from such predictions, forecasts, projections, expectations or conclusions. We caution readers not to place undue reliance on our forward-looking statements as a number of risk factors could cause our actual results to differ materially from the expectations expressed in such forward-looking statements. These factors – many of which are beyond our control and the effects of which can be difficult to predict – include, but are not limited to: credit, market, liquidity and funding, insurance, operational, regulatory compliance (which could lead to us being subject to various legal and regulatory proceedings, the potential outcome of which could include regulatory restrictions, penalties and fines), strategic, reputation, legal and regulatory environment, competitive, model, systemic risks and other risks discussed in the risk sections of our 2023 Annual Report, including business and economic conditions in the geographic regions in which we operate, Canadian housing and household indebtedness, information technology, cyber and third-party risks, geopolitical uncertainty, environmental and social risk (including climate change), digital disruption and innovation, privacy and data related risks, regulatory changes, culture and conduct risks, the effects of changes in government fiscal, monetary and other policies, tax risk and transparency, and our ability to anticipate and successfully manage risks arising from all of the foregoing factors. Additional factors that could cause actual results to differ materially from the expectations in such forward-looking statements can be found in the risk sections of our 2023 Management's Discussion and Analysis, as may be updated by the other filings made by us with the SEC that are incorporated by reference in this prospectus.

We caution that the foregoing list of risk factors is not exhaustive and other factors could also adversely affect our results. When relying on our forward-looking statements to make decisions with respect to us, investors and others should carefully consider the foregoing factors and other uncertainties and potential events, as well as the inherent uncertainty of forward-looking statements. Material economic assumptions underlying the forward-looking statements contained in this prospectus and the documents incorporated by reference herein are set out in the Economic, market and regulatory review and outlook section and for each business segment under the Strategic priorities and Outlook headings in our 2023 Annual Report, as such sections may be updated by the other filings made by us with the SEC that are incorporated by reference in this prospectus. Except as required by law, we do not undertake to update any forward-looking statement, whether written or oral, that may be made from time to time by us or on our behalf.

Additional information about these and other factors can be found in the risk sections of our 2023 Annual Report and the other filings made by us with the SEC that are incorporated by reference in this prospectus.

Information contained in or otherwise accessible through the websites mentioned in this prospectus does not form part of this prospectus and is not incorporated herein by reference. All references in this prospectus to websites are inactive textual references and are for your information only.

USE OF PROCEEDS

Except as otherwise set forth in a prospectus supplement, the net proceeds from the sale of securities will be added to our general funds and will be used for general banking purposes. In addition, except as otherwise set forth in a prospectus supplement or pricing supplement, the purpose of the sale of the subordinated debt securities will be to enlarge our capital base.

DESCRIPTION OF DEBT SECURITIES

We may issue senior or subordinated debt securities. Neither the senior debt securities nor the subordinated debt securities will be secured by any of our property or assets or the property or assets of any of our subsidiaries. Thus, by owning a debt security, you are one of our unsecured creditors. The subordinated debt securities we may issue include additional tier 1 capital securities ("AT1s"), of which limited recourse capital notes ("LRCNs") are a type. AT1s are subordinated debt securities that qualify for regulatory capital treatment as additional tier 1 capital.

The senior debt securities will be issued under our senior debt indenture, dated as of October 23, 2003, between Royal Bank of Canada and The Bank of New York Mellon, as successor to the corporate trust business of JPMorgan Chase Bank, N.A., as trustee, as supplemented by a first supplemental indenture, dated as of July 21, 2006, by a second supplemental indenture, dated as of February 28, 2007, by a third supplemental indenture, dated as of September 7, 2018, by a fourth supplemental indenture, dated as of June 22, 2023, and by a fifth supplemental indenture, dated as of June 22, 2023, and as further amended from time to time (collectively, the "senior debt indenture"), and will be unsubordinated obligations that rank equally with all of our other unsecured and unsubordinated debt, including deposit liabilities, other than certain governmental claims in accordance with applicable law.

The subordinated debt securities will be issued under our subordinated debt indenture, dated as of January 27, 2016, between Royal Bank of Canada and The Bank of New York Mellon, as trustee, as supplemented by a first supplemental indenture, dated as of January 27, 2016 and as further amended from time to time (collectively, the "subordinated debt indenture"), and will be subordinate in right of payment to all of our "senior indebtedness," as defined in the subordinated debt indenture. An issue of subordinated indebtedness may be further subordinated in accordance with its terms. LRCNs will be subordinate in right of payment to all of our "Higher Ranked Indebtedness," as defined below under "– Special Provisions Related to LRCNs". None of the indentures limit our ability to incur additional indebtedness.

In the event we become insolvent, our governing legislation provides that priorities among payments of our deposit liabilities (including payments in respect of the senior debt securities) and payments of all of our other liabilities (including payments in respect of the subordinated debt securities) are to be determined in accordance with the laws governing priorities and, where applicable, by the terms of the indebtedness and liabilities. Because we have subsidiaries, our right to participate in any distribution of the assets of our banking or non-banking subsidiaries, upon a subsidiary's dissolution, winding-up, liquidation or reorganization or otherwise, and thus your ability to benefit indirectly from such distribution, is subject to the prior claims of creditors of that subsidiary, except to the extent that we may be a creditor of that subsidiary and our claims are recognized. There are legal limitations on the extent to which some of our subsidiaries may extend credit, pay dividends or otherwise supply funds to, or engage in transactions with, us or some of our other subsidiaries. Accordingly, the debt securities will be structurally subordinated to all existing and future liabilities of our subsidiaries, and holders of debt securities should look only to our assets for payments on the debt securities.

Neither the senior debt securities nor the subordinated debt securities will constitute deposits insured under the Canada Deposit Insurance Corporation Act or by the United States Federal Deposit Insurance Corporation or any other Canadian or United States governmental agency or instrumentality.

When we refer to "debt securities" in this prospectus, we mean both the senior debt securities and the subordinated debt securities.

The Indentures

The senior debt securities will be governed by the senior debt indenture and the subordinated debt securities will be governed by the subordinated debt indenture. When we refer to the "indentures," we mean the senior debt indenture and the subordinated debt indenture, and when we refer to the "indenture," we mean the senior debt indenture or the subordinated debt indenture. When we refer to the "applicable supplemental indenture" in respect of a series of LRCNs, we mean the subordinated debt indenture, as supplemented by the supplemental indenture for such series of LRCNs. The senior debt indenture is a contract between us and The Bank of New York Mellon, as successor to the corporate trust business of JPMorgan Chase Bank, N.A., which acts as trustee. The subordinated debt indenture is a contract between us and The Bank of New York Mellon, which acts as trustee. The senior debt indenture and subordinated debt indenture are substantially identical, except for (i) the provisions relating to events of default, which are more limited in the subordinated debt indenture, (ii) the provisions relating to subordination, which are included only in the subordinated debt indenture, and (iii) the provisions relating to possible conversions or exchanges, which are only included in the senior debt indenture.

Reference to the indenture or the trustee, with respect to any debt securities, means the indenture under which those debt securities are issued and the trustee under that indenture.

The trustee has two main roles:

- The trustee can enforce the rights of holders against us if we default on our obligations under the terms of the indenture or the debt securities. There are some limitations on the extent to which the trustee acts on behalf of holders, described below under "— Events of Default — Remedies If an Event of Default Occurs".
- The trustee performs administrative duties for us, such as sending interest payments and notices to holders and transferring a holder's debt securities to a new buyer if a holder sells.

Governing Law. The indentures and their associated documents contain the full legal text of the matters described in this section. The indentures and the debt securities will be governed by New York law, except that the subordination provisions and provisions related to non-viability contingent capital automatic conversion in the subordinated debt indenture, certain provisions relating to the status of the senior debt securities under Canadian law and provisions relating to the bail-in acknowledgment of holders and beneficial owners of bail-inable debt securities in the senior debt indenture will be governed by the laws of the Province of Ontario and the laws of Canada applicable therein. A copy of each of the senior debt indenture, the supplements to the senior debt indenture, the subordinated debt indenture and the supplement to the subordinated debt indenture is an exhibit to our Registration Statement. See "Where You Can Find More Information" above for information on how to obtain a copy.

General

We may issue as many distinct series of debt securities under the senior debt indenture and the subordinated debt indenture as we wish. The provisions of the senior debt indenture and the subordinated debt indenture allow us not only to issue debt securities with terms different from those previously issued under the applicable indenture, but also to "re-open" a previous issue of a series of debt securities and issue additional debt securities of that series. We do not intend to re-open a previous issue of a series of debt securities where such re-opening would have the effect of making the relevant debt securities of such series subject to bail-in conversion (as defined under " — Special Provisions Related to Bail-inable Debt Securities"). We may issue senior debt securities or subordinated debt securities (other than LRCNs) in amounts that exceed the total amount specified on the cover of the relevant prospectus supplement or pricing supplement at any time without your consent and without notifying you. We intend that each supplemental indenture in respect of a series of LRCNs will provide that we may not re-open such series of LRCNs.

This section summarizes the material terms of the debt securities that are common to all series, although the prospectus supplement that describes the terms of each series of debt securities may also describe differences from the material terms summarized here.

Because this section is a summary, it does not describe every aspect of the debt securities. This summary is subject to and qualified in its entirety by reference to all the provisions of the indentures, including definitions of certain terms used in the indentures. In this summary, we describe the meaning of only some of the more important terms. For your convenience, we also include references in parentheses to certain sections of the indentures. Whenever we refer to particular sections or defined terms of the indentures in this prospectus or in the prospectus supplement, such sections or defined terms are incorporated by reference in this prospectus or in the prospectus supplement. You must look to the indentures for the most complete description of what we describe in summary form in this prospectus.

This summary is also subject to and qualified by reference to the description of the particular terms of your series described in the prospectus supplement. Those terms may vary from the terms described in this prospectus. The prospectus supplement relating to each series of debt securities will be attached to the front of this prospectus. There may also be a further prospectus supplement, known as a pricing supplement, which describes additional terms of debt securities.

We may issue the senior debt securities and subordinated debt securities (other than LRCNs) as original issue discount securities, which will be offered and sold at a substantial discount below their stated principal amount. (Senior and Subordinated Debt Indentures Section 101) The prospectus supplement relating to the original issue discount securities will describe U.S. federal income tax consequences and other special considerations applicable to them. The senior debt securities and subordinated debt securities (other than LRCNs) may be issued as indexed securities and the senior debt securities and subordinated debt securities may also be issued as securities denominated in foreign currencies or currency units, in each case, as described in more detail in the prospectus supplement relating to any of the particular senior debt securities or subordinated debt securities. The prospectus supplement relating to specific debt securities will also describe any special considerations and any material additional tax considerations applicable to such debt securities.

In addition, the specific financial, legal and other terms particular to a series of debt securities will be described in the prospectus supplement and, if applicable, a pricing supplement relating to the series. The prospectus supplement and/or, if applicable, the pricing supplement relating to a series of debt securities will describe the following terms of the series:

- the title of the series of debt securities;
- whether it is a series of senior debt securities or a series of subordinated debt securities, and if subordinated debt securities, whether such series will include Non-Viability Contingent Capital Provisions (as defined below under "Non-Viability Contingent Capital Provisions") or will be LRCNs;
- any limit on the aggregate principal amount of the series of debt securities;
- the person to whom interest on a debt security is payable, if other than the holder on the regular record date;
- the date or dates on which the series of debt securities will mature;
- the rate or rates, which may be fixed or variable per annum, at which the series of debt securities will bear interest, if any, and the date or dates from which that interest, if any, will accrue;
- the place or places where the principal of, premium, if any, and interest on the debt securities is payable;
- the terms, if any, on which any debt securities may or shall be converted into or exchanged at the option of the Bank or otherwise for shares or other securities of the Bank or another entity or other entities, into the cash value thereof or into any combination of the foregoing, any specific terms relating to the adjustment thereof and the period during which such securities may or shall be so converted or exchanged;
- the specific terms of any bail-inable debt securities (as defined below under "— Special Provisions Related to Bail-inable Debt Securities");
- the specific terms of any Non-Viability Contingent Capital Provisions (as defined below under "Non-Viability Contingent Capital Provisions");
- the specific terms of any limited recourse provisions for LRCNs;
- the dates on which interest, if any, on the series of debt securities will be payable and the regular record dates for the interest payment dates;
- any mandatory or optional sinking funds or similar provisions or provisions for redemption at our option or the option of the holder;
- the date, if any, after which, and the price or prices at which, the series of debt securities may, in accordance with any optional or mandatory redemption provisions, be redeemed and the other detailed terms and provisions of those optional or mandatory redemption provisions, if any;
- if other than denominations of $1,000 and any integral multiples thereof, the denominations in which the series of debt securities will be issuable;
- the currency of payment of principal, premium, if any, and interest on the series of debt securities;
- if the currency of payment for principal, premium, if any, and interest on the series of debt securities is subject to our election or that of a holder, the currency or currencies in which payment can be made and the period within which, and the terms and conditions upon which, the election can be made;

- any index, formula or other method used to determine the amount of payment of principal or premium, if any, and interest on the series of debt securities;
- the applicability of the provisions described under "— Defeasance" below;
- any event of default under the series of debt securities if different from those described under "— Events of Default" below;
- if the debt securities will be issued in bearer form, any special provisions relating to bearer securities;
- if the debt securities will be subordinated debt securities (other than LRCNs), the applicability of the definition of "subordinated indebtedness" under "— *Special Provisions Related to the Subordinated Debt Securities (other than LRCNs)*" below and any changes thereto with respect to the series of debt securities;
- if the debt securities will be LRCNs, the applicability of the provisions described under "— *Special Provisions Related to LRCNs*" below and any changes thereto with respect to the series of debt securities;
- if the series of debt securities will be issuable only in the form of a global security, the depositary or its nominee with respect to the series of debt securities and the circumstances under which the global security may be registered for transfer or exchange in the name of a person other than the depositary or the nominee; and
- any other special feature of the series of debt securities.

We will offer debt securities that are convertible or exchangeable into securities of another entity or other entities only under circumstances that do not require registration of the underlying securities under the Securities Act at the time we offer such debt securities.

Overview of Remainder of this Description

The remainder of this description summarizes:

- additional mechanics relevant to the debt securities under normal circumstances, such as how holders record the transfer of ownership and where we make payments;
- holders' rights in several special situations, such as if we merge with another company or if we want to change a term of the debt securities;
- subordination provisions in the subordinated debt indenture that may prohibit us from making payment on those debt securities;
- our right to release ourselves from all or some of our obligations under the debt securities and the indenture by a process called defeasance; and
- holders' rights if we default or experience other financial difficulties.

Form, Exchange and Transfer

Unless we specify otherwise in the prospectus supplement, the senior debt securities and subordinated debt securities (other than LRCNs) will be issued:

- only in fully-registered form;
- without interest coupons; and
- in denominations that are even multiples of $1,000. (Senior and Subordinated Debt Indentures Section 302)

Unless we specify otherwise in the prospectus supplement, the LRCNs will be issued:

- only in fully-registered form; and
- in minimum denominations of $200,000 and integral multiples of $1,000 in excess thereof.

If a debt security is issued as a registered global debt security, only the applicable depositary—*e.g.*, DTC, Euroclear, Clearstream or CDS, each as defined under "Ownership and Book-Entry Issuance" in this prospectus—will be entitled to transfer and exchange the debt security as described in this subsection because the depositary will be the sole registered holder of the debt security and is referred to below as the "holder". Those who own beneficial interests in a global security do so through participants in the depositary's securities clearance system, and the rights of these indirect owners will be governed by the applicable procedures of the depositary and its participants. We describe book-entry procedures under "Ownership and Book-Entry Issuance" in this prospectus.

Holders of securities issued in fully-registered form may have their debt securities broken into more debt securities of smaller denominations of not less than $1,000, or combined into fewer debt securities of larger denominations, as long as the total principal amount is not changed. (Senior and Subordinated Debt Indentures Section 305) This is called an exchange.

Holders may exchange or register the transfer of debt securities at the office of the trustee. Debt securities may be transferred by endorsement. Holders may also replace lost, stolen or mutilated debt securities at that office. The trustee has been appointed as our agent for registering debt securities in the names of holders and registering the transfer of debt securities. We may change this appointment to another entity or perform these tasks ourselves. The entity performing the role of maintaining the list of registered holders is called the security registrar. It also records transfers. (Senior and Subordinated Debt Indentures Section 305) The trustee may require an indemnity before replacing any debt securities.

Holders of senior debt securities and subordinated debt securities will not be required to pay a service charge to register the transfer or exchange of senior debt securities or subordinated debt securities, but such holders may be required to pay for any tax or other governmental charge associated with the exchange or transfer. The registration of a transfer or exchange will only be made if the security registrar is satisfied with your proof of ownership.

If we designate additional transfer agents, they will be named in the prospectus supplement. We may cancel the designation of any particular transfer agent. We may also approve a change in the office through which any transfer agent acts. (Senior and Subordinated Debt Indentures Section 1002)

If the senior debt securities or subordinated debt securities (other than LRCNs) are redeemable and we redeem less than all of the debt securities of a particular series, we may block the registration of transfer or exchange of such debt securities during the period beginning 15 days before the day we mail the notice of redemption and ending on the day of that mailing, in order to freeze the list of holders entitled to receive the mailing. We may also refuse to register transfers or exchanges of such debt securities selected for redemption, except that we will continue to permit registration of transfers and exchanges of the unredeemed portion of any such debt security being partially redeemed. (Senior and Subordinated Debt Indentures Section 305) The LRCNs may be redeemable according to the terms of the applicable supplemental indenture in respect of a series of LRCNs and applicable prospectus supplement.

Payment and Paying Agents

We will pay interest to the person listed in the trustee's records at the close of business on a particular day in advance of each due date for interest, even if that person no longer owns the debt security on the interest due date. That particular day, usually about two weeks in advance of the interest due date, is called the regular record date and will be stated in the prospectus supplement. (Senior and Subordinated Debt Indentures Section 307) Holders buying and selling debt securities must work out between them how to compensate for the fact that we will pay all the interest for an interest period to the one who is the registered holder on the regular record date. The most common manner is to adjust the sale price of the securities to fairly prorate interest between buyer and seller. This prorated interest amount is called accrued interest.

We will pay interest, principal and any other money due on the senior debt securities and the subordinated debt securities at the corporate trust office of the trustee in the City of New York. That office is currently located at 240 Greenwich Street—Floor 7E, New York, NY 10286. Holders must make arrangements to have their payments picked up at or wired from that office. We may also choose to pay interest by mailing checks.

Book-entry and other indirect holders should consult their banks, brokers or other financial institutions for information on how they will receive payments.

We may also arrange for additional payment offices and may cancel or change these offices, including our use of the trustee's corporate trust office. These offices are called paying agents. We may also choose to act as our own paying agent or choose one of our subsidiaries to do so. We must notify holders of changes in the paying agents for any particular series of debt securities. (Senior and Subordinated Debt Indentures Section 1002)

Conversion or Exchange of Senior Debt Securities

If and to the extent mentioned in the relevant prospectus supplement, any senior debt securities series may be optionally or mandatorily convertible or exchangeable for stock or other securities of the Bank or another entity or entities, into the cash value therefor or into any combination of the above, the specific terms on which any senior debt securities series may be so converted or exchanged will be described in the relevant prospectus supplement. These terms may include provisions for conversion or exchange, either mandatorily, at the holder's option or at our option, in which case the amount or number of securities the senior debt securities holders would receive would be calculated at the time and manner described in the relevant prospectus supplement. (Senior Debt Indenture Section 301)

Notices

We and the trustee will send notices regarding the debt securities only to registered holders, using their addresses as listed in the trustee's records. (Senior and Subordinated Debt Indentures Sections 101 and 106) With respect to who is a registered "holder" for this purpose, see "Ownership and Book-Entry Issuance".

Regardless of who acts as paying agent, all money paid by us to a paying agent that remains unclaimed at the end of two years after the amount is due to holders will be repaid to us. After that two-year period, holders may look to us for payment and not to the trustee or any other paying agent. (Senior and Subordinated Debt Indentures Section 1003)

Mergers and Similar Events

Under the indentures, we are generally permitted to consolidate or merge with another entity. We are also permitted to sell or lease substantially all of our assets to another entity, or to buy or lease substantially all of the assets of another entity. However, we may not take any of these actions unless all the following conditions are met:

- When we merge, amalgamate, consolidate or otherwise are combined with, or acquired by, another entity or sell or lease substantially all of our assets, the surviving, resulting or acquiring entity must be a properly organized entity and must be legally responsible for the debt securities, whether by agreement, operation of law or otherwise.
- The merger, amalgamation, consolidation, other combination, sale or lease of assets must not cause a default on the debt securities. A default for this purpose would include any event that would be an event of default if the requirements for giving us default notice or our default having to exist for a specific period of time were disregarded.

If the conditions described above are satisfied with respect to any series of debt securities, we will not need to obtain the approval of the holders of those debt securities in order to merge or consolidate or to sell our assets. Also, these conditions will apply only if we wish to merge or consolidate with another entity or sell substantially all of our assets to another entity. We will not need to satisfy these conditions if we enter into other types of transactions, including any transaction in which we acquire the stock or assets of another entity, any transaction that involves a change of control but in which we do not merge or consolidate and any transaction in which we sell less than substantially all of our assets. It is possible that this type of transaction may result in a reduction in our credit rating, reduce our operating results or impair our financial condition. Holders of our debt securities, however, will have no approval right with respect to any transaction of this type. (Senior and Subordinated Debt Indentures Section 801)

Modification and Waiver of the Debt Securities

There are four types of changes we can make to the indentures and the debt securities issued under the applicable indenture.

1. *Changes Requiring Approval of All Holders*. First, there are changes that cannot be made to the indenture or the debt securities without specific approval of each holder of a debt security affected in any material respect by the change under a particular debt indenture. The following is a list of those types of changes:

- change the stated maturity of the principal or reduce the interest on a debt security;
- reduce any amounts due on a debt security;
- reduce the amount of principal payable upon acceleration of the maturity of a debt security (including the amount payable on an original issue discount security) following a default;
- change the currency of payment on a debt security;
- change the place of payment for a debt security;
- impair a holder's right to sue for payment;
- only for the senior debt securities and subordinated debt securities (other than LRCNs), impair the holder's right to require repurchase on the original terms of those debt securities that provide a right of repurchase;
- reduce the percentage of holders of debt securities whose consent is needed to modify or amend the indenture;
- reduce the percentage of holders of debt securities whose consent is needed to waive compliance with certain provisions of the indenture or to waive certain defaults; or
- modify any other aspect of the provisions dealing with modification and waiver of the indenture. (Senior and Subordinated Debt Indentures Section 902)

2. *Changes Requiring a Majority Vote*. The second type of change to the indenture and the debt securities is the kind that requires a vote in favor of the change by holders of debt securities owning not less than a majority of the principal amount of the particular series affected. Most changes, including any change or elimination of any provision of the indenture and any modification of any right of the noteholders, require a majority vote. A smaller class of changes does not require a majority vote including clarifying changes and other changes that would not adversely affect in any material respect holders of the debt securities. (Senior and Subordinated Debt Indentures Section 901) We may also obtain a waiver of a past default from the holders of debt securities owning a majority of the principal amount of the particular series affected. However, we cannot obtain a waiver of a payment default or any other aspect of the indenture or the debt securities listed in the first category described above under "— Changes Requiring Approval of All Holders" unless we obtain the individual consent of each holder to the waiver. (Senior and Subordinated Debt Indentures Section 513)

3. *Changes Not Requiring Approval*. The third type of change to the indenture and the debt securities does not require any vote by holders of debt securities. This type is limited to clarifications and certain other changes that would not adversely affect in any material respect holders of the debt securities. (Senior and Subordinated Debt Indentures Section 901)

4. *Changes Requiring Approval of Affected Debt Security Holders*. We may also make changes or obtain waivers that do not adversely affect in any material respect a particular debt security, even if they affect other debt securities. In those cases, we do not need to obtain the approval of the holder of that debt security; we need only obtain any required approvals from the holders of the affected debt securities.

Modification of Bail-inable Debt Securities. Where an amendment, modification or other variance that can be made to the indenture or the bail-inable debt securities would affect the recognition of those bail-inable debt securities by the Superintendent of Financial Institutions (Canada) (the "Superintendent") as TLAC (as defined below under "— Canadian Bank Resolution Powers"), that amendment, modification or variance will require the prior approval of the Superintendent. (Senior and Subordinated Debt Indentures Section 907)

Modification of Subordination Provisions. We may not modify the subordination provisions of the subordinated debt indenture in a manner that would adversely affect in any material respect the outstanding subordinated debt securities of any one or more series without the consent of the holders of a majority of the principal amount of all affected series, voting together as one class. We may not modify the subordinated debt indenture or any terms of any outstanding subordinated debt securities in a manner that would affect the regulatory capital classification of the subordinated debt securities under the guidelines for capital adequacy requirements for banks in Canada without the consent of the Superintendent.

Further Details Concerning Voting. When taking a vote, we will use the following rules to decide how much principal amount to attribute to a debt security:

- For original issue discount securities, we will use the principal amount that would be due and payable on the voting date if the maturity of the debt securities were accelerated to that date because of a default.
- For debt securities whose principal amount is not known (for example, because it is based on an index), we will use a special rule for that debt security described in the prospectus supplement.
- For debt securities denominated in one or more non-U.S. currencies or currency units, we will use the U.S. dollar equivalent.

Debt securities will not be considered outstanding, and therefore not eligible to vote, if we have given a notice of redemption and deposited or set aside in trust for the holders money for the payment or redemption of the debt securities. Debt securities will also not be eligible to vote if they have been fully defeased as described below under "— Defeasance — Full Defeasance". (Senior and Subordinated Debt Indentures Section 1402)

We will generally be entitled to set any day as a record date for the purpose of determining the holders of outstanding debt securities that are entitled to vote or take other action under the indenture. In certain limited circumstances, the trustee will be entitled to set a record date for action by holders. If the trustee or we set a record date for a vote or other action to be taken by holders of a particular series, that vote or action may be taken only by persons who are holders of outstanding securities of that series on the record date. We or the trustee, as applicable, may shorten or lengthen this period from time to time. This period, however, may not extend beyond the 180th day after the record date for the action. (Senior and Subordinated Debt Indentures Sections 104 and 512)

Book-entry and other indirect holders should consult their banks, brokers or other financial institutions for information on how approval may be granted or denied if we seek to change the indenture or the debt securities or request a waiver.

Special Provisions Related to Bail-inable Debt Securities

The senior debt indenture provides for certain provisions applicable to bail-inable debt securities. The prospectus supplement and, if applicable, the relevant pricing supplement will describe the specific terms of bail-inable debt securities we may issue and specify whether or not your debt security is a bail-inable debt security.

Subject to certain exceptions discussed under "— Canadian Bank Resolution Powers," including for certain structured notes, senior debt of the Bank issued on or after September 23, 2018, with an initial or amended term to maturity (including explicit or embedded options) greater than 400 days, that is unsecured or partially secured and that has been assigned a CUSIP or ISIN or similar identification number, is subject to conversion in whole or in part – by means of a transaction or series of transactions and in one or more steps – into common shares of the Bank or any of its affiliates under the bail-in regime (as defined below under "— Canadian Bank Resolution Powers"), which we refer to as a "bail-in conversion". We refer to debt securities that are subject to bail-in conversion as "bail-inable debt securities."

By its acquisition of an interest in any bail-inable debt security, each holder or beneficial owner of that debt security is deemed to (i) agree to be bound, in respect of the bail-inable debt securities, by the CDIC Act, including the conversion of the bail-inable debt securities, in whole or in part – by means of a transaction or series of transactions and in one or more steps – into common shares of the Bank or any of its affiliates under subsection 39.2(2.3) of the CDIC Act and the variation or extinguishment of the bail-inable debt securities in consequence, and by the application of the laws of the Province of Ontario and the federal laws of Canada applicable therein in respect of the operation of the CDIC Act with respect to the bail-inable debt securities; (ii) attorn and submit to the jurisdiction of the courts in the Province of Ontario with respect to the CDIC Act and those laws; and (iii) acknowledge and agree that the terms referred to in clauses (i) and (ii) above, are binding on that holder or beneficial owner despite any provisions in the indenture or the bail-inable debt securities, any other law that governs the bail-inable debt securities and any other agreement, arrangement or understanding between that holder or beneficial owner and the Bank with respect to the bail-inable debt securities. (Senior Indenture Section 1601(a))

Holders and beneficial owners of bail-inable debt securities will have no further rights in respect of bail-inable debt securities that are converted upon a bail-in conversion other than those provided under the bail-in regime, and by its acquisition of an interest in any bail-inable debt security, each holder or beneficial owner of that debt security is deemed to irrevocably consent to the principal amount of that debt security and any accrued and unpaid interest thereon being deemed paid in full by the Bank by the issuance of common shares of the Bank (or, if applicable, any of its affiliates) upon the occurrence of a bail-in conversion, which bail-in conversion will occur without any further action on the part of that holder or beneficial owner or the trustee; provided that, for the avoidance of doubt, this consent will not limit or otherwise affect any rights that holders or beneficial owners may have under the bail-in regime. (Senior Indenture Section 1601(b))

Each holder or beneficial owner of a bail-inable debt security that acquires an interest in the bail-inable debt security in the secondary market and any successors, assigns, heirs, executors, administrators, trustees in bankruptcy and legal representatives of any holder or beneficial owner is deemed to acknowledge, accept, agree to be bound by and consent to the same provisions specified herein to the same extent as the holders or beneficial owners that acquired an interest in the bail-inable debt securities upon their initial issuance, including, without limitation, with respect to the acknowledgement and agreement to be bound by and consent to the terms of the bail-inable debt securities related to the bail-in regime. (Senior Indenture Article Seventeen)

Trustee and Trustee's Duties

The trustee will undertake certain procedures and seek certain remedies in the event of an event of default or a default. See "— Events of Default". However, by its acquisition of an interest in any bail-inable debt security, each holder or beneficial owner of that debt security is deemed to acknowledge and agree that the bail-in conversion will not give rise to a default or event of default for purposes of Section 315(b) (*Notice of Default*) and Section 315(c) (*Duties of the Trustee in Case of Default*) of the Trust Indenture Act of 1939 (the "Trust Indenture Act").

By its acquisition of an interest in any bail-inable debt security, each holder or beneficial owner of that debt security, to the extent permitted by the Trust Indenture Act, is deemed to waive any and all claims, in law and/or in equity, against the trustee, for, agrees not to initiate a suit against the trustee in respect of, and agrees that the trustee will not be liable for, any action that the trustee takes, or abstains from taking, in either case in accordance with the bail-in regime.

Additionally, by its acquisition of an interest in any bail-inable debt security, each holder or beneficial owner of that debt security is deemed to acknowledge and agree that, upon a bail-in conversion, or other action pursuant to the bail-in regime with respect to bail-inable debt securities,

- the trustee will not be required to take any further directions from holders of those bail-inable debt securities under Section 512 of the senior debt indenture, which section authorizes holders of a majority in aggregate outstanding principal amount of the debt securities to direct certain actions relating to the debt securities; and
- the indenture will not impose any duties upon the trustee whatsoever with respect to a bail-in conversion or such other action pursuant to the bail-in regime. (Senior Indenture Section 1601(c))

Notwithstanding the foregoing, if, following the completion of a bail-in conversion, the relevant bail-inable debt securities remain outstanding (for example, if not all bail-inable debt securities are converted), then the trustee's duties under the indenture will remain applicable with respect to those bail-inable debt securities following such completion to the extent that the Bank and the trustee will agree pursuant to a supplemental indenture or an amendment to the indenture; provided, however, that notwithstanding the bail-in conversion, there will at all times be a trustee for the bail-inable debt securities in accordance with the indenture, and the resignation and/or removal of the trustee, the appointment of a successor trustee and the rights of the trustee or any successor trustee will continue to be governed by the indenture, including to the extent no additional supplemental indenture or amendment to the indenture is agreed upon in the event the relevant bail-inable debt securities remain outstanding following the completion of the bail-in conversion. (Senior Indenture Section 1601(d))

DTC —Bail-in Conversion

Upon a bail-in conversion, we will provide a written notice to The Depository Trust Company ("DTC") and the holders of bail-inable debt securities through DTC as soon as practicable regarding such bail-in conversion. The Bank will also deliver a copy of such notice to the trustee for information purposes. (Senior Indenture Section 1601(e))

By its acquisition of an interest in any bail-inable debt security, each holder or beneficial owner of that debt security is deemed to have authorized, directed and requested DTC and any direct participant in DTC or other intermediary through which it holds such bail-inable debt security to take any and all necessary action, if required, to implement the bail-in conversion or other action pursuant to the bail-in regime with respect to the bail-inable debt security as it may be imposed on it, without any further action or direction on the part of that holder or beneficial owner, the trustee or the paying agent. (Senior Indenture Section 1601(d))

Special Provisions Related to the Subordinated Debt Securities (other than LRCNs)

The subordinated debt securities (other than LRCNs) issued under the subordinated debt indenture will be our direct unsecured obligations constituting subordinated indebtedness for the purpose of the Bank Act and will therefore rank subordinate to our deposits. Holders of subordinated debt securities (other than LRCNs) should recognize that contractual provisions in the subordinated debt indenture may prohibit us from making payments on these securities.

If we become insolvent or are wound-up, the subordinated debt securities (other than LRCNs) will rank equally and ratably with, or junior to, but not prior to, all other subordinated debt and subordinate in right of payment to the prior payment in full of (i) our indebtedness then outstanding, other than subordinated indebtedness, and (ii) all indebtedness to which our other subordinated indebtedness is subordinate in right of payment to the same extent as such other subordinated indebtedness. As of October 31, 2023, we had approximately $1,876 billion of senior indebtedness, including deposits, outstanding, which would rank ahead of the subordinated debt securities. The only outstanding subordinated indebtedness issued to date has been issued pursuant to:

- our trust indentures with Computershare Trust Company of Canada, dated October 1, 1984, June 6, 1986 and June 18, 2004, as supplemented from time to time;
- our amended and restated issue and paying agency agreement with Royal Bank of Canada, London branch, Fortis Banque Luxembourg S.A., ING Belgium S.A./N.V., Royal Bank of Canada (Suisse) and Royal Bank of Canada, Toronto branch, dated July 14, 2006, as supplemented from time to time;
- our trust indentures with Computershare Trust Company of Canada, dated as of July 28, 2020, November 2, 2020 and June 8, 2021, in respect of the issuances of three series of limited recourse capital notes, which are further subordinated to our subordinated indebtedness; and
- the subordinated debt indenture.

For these purposes, “indebtedness” at any time means:

(i) the deposit liabilities of the Bank at such time; and

(ii) all other liabilities and obligations of the Bank to third parties (other than fines or penalties which pursuant to the Bank Act are a last charge on the assets of the Bank in the case of insolvency of such bank and obligations to shareholders of such bank) which would entitle such third parties to participate in a distribution of the Bank’s assets in the event of the insolvency or winding-up of the Bank.

For these purposes, “subordinated indebtedness” at any time means:

(i) the liability of the Bank in respect of the principal of and premium, if any, and interest on its outstanding subordinated indebtedness outlined above;

(ii) any indebtedness which ranks equally with and not prior to the outstanding subordinated indebtedness, in right of payment in the event of the insolvency or winding-up of the Bank and which, pursuant to the terms of the instrument evidencing or creating the same, is expressed to be subordinate in right of payment to all indebtedness to which the outstanding subordinated indebtedness is subordinate in right of payment to at least the same extent as the outstanding subordinated indebtedness is subordinated thereto pursuant to the terms of the instrument evidencing or creating the same;

(iii) any indebtedness which ranks subordinate to and not equally with or prior to the outstanding subordinated indebtedness, in right of payment in the event of the insolvency or winding-up of the Bank and which, pursuant to the terms of the instrument evidencing or creating the same, is expressed to be subordinate in right of payment to all indebtedness to which the outstanding subordinated indebtedness is subordinate in right of payment to at least the same extent as the outstanding subordinated indebtedness is subordinate pursuant to the terms of the instrument evidencing or creating the same; and

(iv) the subordinated debt securities, which will rank equally or junior to the Bank’s outstanding subordinated indebtedness.

The subordination provisions of the subordinated debt indenture will be governed by the laws of the Province of Ontario and the federal laws of Canada applicable therein.

Special Provisions Related to LRCNs

Specific terms regarding limited recourse are relevant to the LRCNs and will be set out in the applicable supplemental indenture in respect of a series of LRCNs and further described in the prospectus supplement for such series.

In the event of a non-payment by the Bank of the principal amount of, interest on or redemption price for a series of LRCNs when due, the sole remedy of holders of such series of LRCNs shall be the delivery of the assets held by Computershare Trust Company of Canada, as trustee (the “Limited Recourse Trustee”) of Leo LRCN Limited Recourse Trust (the “Limited Recourse Trust”) from time to time (“Limited Recourse Trust Assets”) in respect of such series of LRCNs. The Limited Recourse Trust is a trust established under the laws of Manitoba, governed by an amended and restated declaration of trust dated as of July 28, 2020 (as may be further amended or restated from time to time, the “Limited Recourse Trust Declaration”) between the Bank, as settlor and beneficiary, and the Limited Recourse Trustee.

The Limited Recourse Trust’s objective is to acquire and hold the Limited Recourse Trust Assets in accordance with the terms of the Limited Recourse Trust Declaration. The Limited Recourse Trustee may hold trust assets in respect of more than one series of LRCNs of the Bank, in which case the Limited Recourse Trustee will hold the trust assets for each such series of LRCNs separate from the trust assets for any other series of such LRCNs and shall deliver such trust assets only in respect of the relevant series of LRCNs. The Limited Recourse Trust Assets in respect of a series of LRCNs may comprise of (i) first preferred shares of the Bank issued in connection with the issuance of such series of LRCNs (the “LRCN Preferred Shares”), (ii) common shares of the Bank issued upon a Non-Viability Trigger Event pursuant to the Non-Viability Contingent Capital Provisions applicable to such LRCN Preferred Shares, (iii) cash from the redemption of such LRCN Preferred Shares, or (iv) any combination thereof, depending on the circumstances.

If a Recourse Event occurs, the Bank will, no later than one business day after the occurrence of such Recourse Event, notify the Limited Recourse Trustee of the occurrence of such Recourse Event. "Recourse Event" in respect of a series of LRCNs means any of the following: (i) there is non-payment by the Bank of the principal amount of such series of LRCNs, together with any accrued and unpaid interest, on the maturity date, (ii) a Failed Coupon Payment Date occurs in respect of such series of LRCNs, (iii) in connection with the redemption of such series of LRCNs, on the redemption date for such redemption, the Bank does not pay the applicable redemption price in cash, (iv) the occurrence of an event of default in respect of such series of LRCNs, or (v) the occurrence of a Non-Viability Trigger Event. "Failed Coupon Payment Date" means the fifth business day immediately following an interest payment date upon which the Bank does not pay interest on a series of LRCNs and has not cured such non-payment by subsequently paying such interest prior to such fifth business day.

Any amendment or supplement to the Limited Recourse Trust Declaration for the purpose of adding any provisions to or changing in any manner or eliminating any of the provisions of the Limited Recourse Trust Declaration (other than with respect to certain immaterial matters) requires the prior consent of the holders of a series of LRCNs in accordance with the terms of the applicable supplemental indenture in respect of such series of LRCNs and the holders of any other series of LRCNs in accordance with the terms of the supplemental indentures under which they are issued.

By acquiring any LRCN, each holder irrevocably acknowledges and agrees with, and for the benefit of, the Bank and the trustee that the delivery of the applicable Limited Recourse Trust Assets to a holder of the LRCNs shall exhaust all remedies of such holder under the LRCNs including in connection with any event of default. All claims of a holder of the LRCNs against the Bank shall be extinguished upon receipt by such holder of the applicable Limited Recourse Trust Assets. If the Bank does not deliver, or fails to cause the Limited Recourse Trustee to deliver, the applicable Limited Recourse Trust Assets to a holder of the LRCNs, the sole remedy of such holder for any claims against the Bank shall be recourse to the applicable Limited Recourse Trust Assets. The delivery of the applicable Limited Recourse Trust Assets to the holders of the LRCNs shall be deemed to be in full satisfaction of the LRCNs and shall extinguish all claims of such holder against the Bank. In case of any shortfall resulting from the value of the applicable Limited Recourse Trust Assets being less than the principal amount of and any accrued and unpaid interest on the applicable series of LRCNs, all losses arising from such shortfall shall be borne by the holders of such series of LRCNs.

The LRCNs will be our direct unsecured obligations constituting subordinated indebtedness for the purpose of the Bank Act and will therefore rank subordinate to our deposits. If we become insolvent or are wound-up (prior to the occurrence of a Non-Viability Trigger Event (as defined below under "– Non-Viability Contingent Capital Provisions")), the LRCNs will rank: (a) subordinate in right of payment to the prior payment in full of all our Higher Ranked Indebtedness (including certain Subordinated Indebtedness) and (b) in right of payment equally with and not prior to our Junior Subordinated Indebtedness (other than Junior Subordinated Indebtedness which by its terms ranks subordinate to the LRCNs), in each case from time to time outstanding, and will be subordinate in right of payment to the claims of our depositors and other unsubordinated creditors, provided that in any such case and in case of the Bank's non-payment of the principal amount of, interest on or redemption price for the LRCNs when due, the sole remedy of the holders of the LRCNs shall be the delivery of the applicable Limited Recourse Trust Assets for such series of LRCNs. Upon the occurrence of a Recourse Event, including a Non-Viability Trigger Event or if we become insolvent or bankrupt or subject to the provisions of the *Winding-up and Restructuring Act* (Canada) (which will be an event of default under the applicable supplemental indenture in respect of a series of LRCNs and as described in the applicable prospectus supplement), the recourse of each holder of LRCNs will be limited to such holder's proportionate share of the applicable Limited Recourse Trust Assets for such series of LRCNs and the delivery of the applicable Limited Recourse Trust Assets to holders of the LRCNs will exhaust all remedies of such holders including in connection with any such event. Accordingly, as a result of the limited recourse feature described in this registration statement, the ranking of the LRCNs will not be relevant during insolvency proceedings or wind-up of the Bank. See "– Special Provisions Related to LRCNs". If the Limited Recourse Trust Assets that are delivered to holders of the LRCNs under such circumstances comprise LRCN Preferred Shares or common shares of the Bank, such LRCN Preferred Shares or common shares of the Bank will rank on parity with all other first preferred shares or common shares of the Bank, as applicable.

As of October 31, 2023, we had approximately $1,887 billion of Higher Ranked Indebtedness, including deposits, outstanding which would rank ahead of LRCNs.

For these purposes,

(i) "Higher Ranked Indebtedness" means Indebtedness of the Bank then outstanding (including all Subordinated Indebtedness of the Bank then outstanding other than Junior Subordinated Indebtedness).

(ii) "Indebtedness" at any time means the deposit liabilities of the Bank at such time; and all other liabilities and obligations of the Bank to third parties (other than fines or penalties which pursuant to the Bank Act are a last charge on the assets of the Bank in the case of insolvency of the Bank and obligations to shareholders of the Bank, as such) which would entitle such third parties to participate in a distribution of the Bank's assets in the event of the insolvency or winding-up of the Bank.

(iii) "Junior Subordinated Indebtedness" means Indebtedness which by its terms ranks equally in right of payment with, or is subordinate to, the LRCNs.

(iv) "Subordinated Indebtedness" at any time means the Bank's subordinated indebtedness within the meaning of the Bank Act.

The subordination provisions and provisions related to non-viability contingent capital automatic conversion of the applicable supplemental indenture in respect of a series of LRCNs will be governed by the laws of the Province of Ontario and the federal laws of Canada applicable therein.

Defeasance

Unless otherwise specified in the applicable prospectus supplement, the following discussion of full defeasance and covenant defeasance will be applicable to each series of senior debt securities and subordinated debt securities (other than LRCNs) that is denominated in U.S. dollars and has a fixed rate of interest and will apply to other series of such debt securities if we so specify in the prospectus supplement. Any defeasance or covenant defeasance with respect to bail-inable debt securities that would result in the Bank not meeting the TLAC requirements applicable to it pursuant to the TLAC Guideline (as defined under "—Canadian Bank Resolution Powers") will be subject to the prior approval of the Superintendent. (Senior and Subordinated Debt Indentures Sections 1401, 1404)

Full Defeasance. If there is a change in U.S. federal tax law, as described below, we can legally release ourselves from any payment or other obligations on the debt securities, called full defeasance, if we put in place the following other arrangements for holders to be repaid:

- We must deposit in trust for the benefit of all holders of the debt securities (other than LRCNs) a combination of money and notes or bonds of the U.S. government or a U.S. government agency or U.S. government-sponsored entity (the obligations of which are backed by the full faith and credit of the U.S. government) that will generate enough cash to make interest, principal and any other payments on the debt securities (other than LRCNs) on their various due dates.
- There must be a change in current U.S. federal tax law or an Internal Revenue Service ("IRS") ruling that lets us make the above deposit without causing the beneficial owners to be taxed on the debt securities (other than LRCNs) any differently than if we did not make the deposit and just repaid the debt securities ourselves. (Under current federal tax law, the deposit and our legal release from the obligations pursuant to the debt securities (other than LRCNs) would be treated as though we took back your debt securities (other than LRCNs) and gave you your share of the cash and notes or bonds deposited in trust. In that event, you could recognize gain or loss on the debt securities (other than LRCNs) you give back to us.)
- We must deliver to the trustee a legal opinion of our counsel confirming the tax-law change described above and that the beneficial owners of the debt securities (other than LRCNs) will not recognize income, gain or loss for federal income tax purposes as a result of such deposit, defeasance and discharge and will be subject to federal income tax on the same amounts and in the same manner and at the same times as would be the case if such deposit, defeasance and discharge had not occurred. (Senior and Subordinated Debt Indentures Sections 1402 and 1404)
- In the case of the subordinated debt securities (other than LRCNs), the following requirement must also be met:
    - No event or condition may exist that, under the provisions described under "— Subordination Provisions" above, would prevent us from making payments of principal, premium or interest on those subordinated debt securities (other than LRCNs) on the date of the deposit referred to above or during the 90 days after that date.

If we ever did accomplish full defeasance, as described above, you would have to rely solely on the trust deposit for repayment on the debt securities (other than LRCNs). You could not look to us for repayment in the event of any shortfall. Subject to the foregoing conditions, and notwithstanding that a full defeasance may be authorized pursuant to the subordinated debt indenture in respect of a series of subordinated debt securities (other than LRCNs), the Bank will not take such action in respect of a series of subordinated debt securities (other than LRCNs) until at least the fifth anniversary of the date of issuance of such series.

Covenant Defeasance. Even without a change in current U.S. federal tax law, we can make the same type of deposit as described above, and we will be released from the restrictive covenants under the debt securities that may be described in the prospectus supplement. This is called covenant defeasance. In that event, you would lose the protection of these covenants but would gain the protection of having money and U.S. government or U.S. government agency notes or bonds set aside in trust to repay the debt securities. In order to achieve covenant defeasance, we must do the following:

- We must deposit in trust for the benefit of all holders of the debt securities a combination of money and notes or bonds of the U.S. government or a U.S. government agency or U.S. government sponsored entity (the obligations of which are backed by the full faith and credit of the U.S. government) that will generate enough cash to make interest, principal and any other payments on the debt securities on their various due dates.
- We must deliver to the trustee a legal opinion of our counsel confirming that the beneficial owners of the debt securities will not recognize income, gain or loss for federal income tax purposes as a result of such deposit and covenant defeasance and will be subject to federal income tax on the same amounts and in the same manner and at the same times as would be the case if such deposit and covenant defeasance had not occurred.

If we accomplish covenant defeasance, certain provisions of the indenture and the debt securities would no longer apply:

- Covenants applicable to the series of debt securities and described in the prospectus supplement.
- Any events of default relating to breach of those covenants.

If we accomplish covenant defeasance, you can still look to us for repayment of the debt securities if there were a shortfall in the trust deposit. In fact, if one of the remaining events of default occurs (such as a bankruptcy) and the debt securities become immediately due and payable, there may be such a shortfall. (Senior and Subordinated Debt Indentures Sections 1403 and 1404)

Events of Default

You will have special rights if an event of default occurs and is not cured, as described later in this subsection.

Under the Senior and Subordinated Debt Indentures

What is an Event of Default? Under the senior debt indenture, for senior debt securities of a series issued on or after September 23, 2018, “event of default” means any of the following:

1. We default in the payment of the principal of, or interest on, any note of that series and, in each case, the default continues for a period of 30 business days;

2. We become insolvent or bankrupt or subject to the provisions of the *Winding-Up and Restructuring Act* (Canada), we go into liquidation either voluntarily or under an order of a court of competent jurisdiction, or we otherwise acknowledge our insolvency; or

3. Any other event of default described in an applicable supplement occurs. (Senior Indenture Section 501)

An event of default regarding one series of debt securities will not cause an event of default regarding any other series of debt securities. For purposes of this section "— Events of Default," with respect to debt securities issued on or after September 23, 2018, "series" refers to debt securities having identical terms, except as to issue date, principal amount and, if applicable, the date from which interest begins to accrue.

Notwithstanding the foregoing, if you purchase debt securities (other than LRCNs) issued before September 23, 2018, or debt securities (other than LRCNs) that are part of a series created before the date of this prospectus, "event of default" means any of the following:

- We do not pay the principal of or any premium on a debt security.
- We do not pay interest on a debt security within 30 days of its due date.
- We become insolvent or bankrupt or subject to the provisions of the *Winding-Up and Restructuring Act* (Canada), we go into liquidation either voluntarily or under an order of a court of competent jurisdiction, or we otherwise acknowledge our insolvency.
- Any other event of default described in the prospectus supplement occurs. (Senior and Subordinated Debt Indentures Section 501)

A bail-in conversion will not constitute a default or an event of default under the senior debt indenture.

Under the subordinated debt indenture, the term "Event of Default" means any of the following:

- We become insolvent or bankrupt or subject to the provisions of the *Winding-Up and Restructuring Act* (Canada), we go into liquidation either voluntarily or under an order of a court of competent jurisdiction, or we otherwise acknowledge our insolvency.
- Any other event of default described in the prospectus supplement occurs. (Subordinated Debt Indenture Section 501)

A non-viability contingent capital automatic conversion or a bail-in conversion will not constitute a default or an event of default under any subordinated debt indenture.

Remedies If an Event of Default Occurs. Unless otherwise described in a prospectus supplement, if an Event of Default occurs, the trustee will have special duties. In that situation, the trustee will be obligated to use its rights and powers under the indentures, and to use the same degree of care and skill in doing so that a prudent person would use in that situation in conducting his or her own affairs. If an Event of Default has occurred and has not been cured, the trustee or the holders of at least 25% in principal amount of the debt securities of the affected series may declare the entire principal amount of all the debt securities of that series (or, in the case of original issue discount securities, the portion of the principal amount that is specified in the terms of the affected debt security) to be due and immediately payable. This is called a declaration of acceleration of maturity. However, a declaration of acceleration of maturity may be cancelled, but only before a judgment or decree based on the acceleration has been obtained, by the holders of at least a majority in principal amount of the debt securities of the affected series. If you are the holder of a subordinated debt security, the principal amount of the subordinated debt security will not be paid and may not be required to be paid at any time prior to the relevant maturity date, except in the event of our insolvency or winding-up. (Subordinated Debt Indenture Section 502)

Holders or beneficial owners of bail-inable debt securities may only exercise, or direct the exercise of, the rights described in this section if the Governor in Council (Canada) has not made an order under Canadian bank resolution powers pursuant to subsection 39.13(1) of the CDIC Act in respect of the Bank. Notwithstanding the exercise of those rights, bail-inable debt securities will continue to be subject to bail-in conversion until repaid in full. (Senior Debt Indenture Section 502)

You should read carefully the prospectus supplement relating to any series of debt securities which are original issue discount securities for the particular provisions relating to acceleration of the maturity of a portion of the principal amount of original issue discount securities upon the occurrence of an event of default and its continuation.

Except in cases of default in which the trustee has the special duties described above, the trustee is not required to take any action under the indenture at the request of any holders unless the holders offer the trustee reasonable protection from expenses and liability called an indemnity. (Senior and Subordinated Debt Indentures Section 603) If reasonable indemnity is provided, the holders of a majority in principal amount of the outstanding securities of the relevant series may direct the time, method and place of conducting any lawsuit or other formal legal action seeking any remedy available to the trustee. These majority holders may also direct the trustee in performing any other action under the applicable indenture with respect to the debt securities of that series. (Senior and Subordinated Debt Indentures Section 512)

Before you bypass the trustee and bring your own lawsuit or other formal legal action or take other steps to enforce your rights or protect your interests relating to the debt securities, the following must occur:

- the holder of the debt security must give the trustee written notice that an event of default has occurred and remains uncured;
- the holders of 25% in principal amount of all outstanding securities of the relevant series must make a written request that the trustee take action because of the default, and must offer reasonable indemnity to the trustee against the cost and other liabilities of taking that action; and
- the trustee must have not taken action for 90 days after receipt of the above notice and offer of indemnity. (Senior and Subordinated Debt Indentures Section 507)

However, you are entitled at any time to bring a lawsuit for the payment of money due on your debt security on or after its due date. (Senior and Subordinated Debt Indentures Section 508)

Book-entry and other indirect holders should consult their banks, brokers or other financial institutions for information on how to give notice or direction to or make a request of the trustee and to make or cancel a declaration of acceleration.

We will give to the trustee every year a written statement of certain of our officers certifying that to their knowledge we are in compliance with the applicable indenture and the debt securities issued under it, or else specifying any default. (Senior and Subordinated Debt Indentures Section 1004)

Under the Supplemental Indentures for LRCNs

Under the applicable supplemental indenture in respect of a series of LRCNs there will be an event of default only if we become insolvent or bankrupt or subject to the provisions of the *Winding-Up and Restructuring Act* (Canada), if we go into liquidation either voluntarily or under an order of a court of competent jurisdiction, or if we otherwise acknowledge our insolvency. We will refer to such an event under the applicable supplemental indenture as an "event of default". For certainty, none of (i) the non-payment of principal or interest on the LRCNs, (ii) the non-performance of any other covenant of the Bank in the applicable supplemental indenture or (iii) the occurrence of a Non-Viability Trigger Event (as defined below under "– Non-Viability Contingent Capital Provisions") shall constitute an event of default under the applicable supplemental indenture.

The occurrence of an event of default will be a Recourse Event for which the sole remedy of holders of the LRCNs shall be delivery of the applicable Limited Recourse Trust Assets to the holders of the LRCNs. See "– Special Provisions Related to LRCNs". The applicable supplemental indenture will provide that, notwithstanding any other provision of the applicable supplemental indenture, the delivery of the applicable Limited Recourse Trust Assets to holders of the LRCNs will exhaust all remedies of such holders including in connection with any event of default.

There will be no right of acceleration in the event of a non-payment of principal or interest on a series of LRCNs or a failure or breach in the performance of any other covenant of the Bank under the applicable supplemental indenture for such series of LRCNs, although legal action could be brought to enforce such covenant, provided that, in the case of non-payment of principal or interest, the sole remedy for any such claims against the Bank shall be recourse to the applicable Limited Recourse Trust Assets. See "– Special Provisions Related to LRCNs".

Holders of a majority of the outstanding principal amount of the LRCNs then outstanding under the applicable supplemental indenture may, by resolution, direct and control the actions of the trustee or of any holder of LRCNs who brings an action after the failure of the trustee to act in any proceedings against the Bank. The trustee must, within 30 days of becoming aware of an event of default, give notice to the holders of the LRCNs unless the trustee reasonably determines that the withholding of notice of a continuing default is in the best interests of the holders.

A resolution or order for winding-up the Bank, with a view to its consolidation, amalgamation or merger with another entity or the transfer of its assets as an entirety to another entity, will not entitle a holder of LRCNs to demand payment of principal prior to maturity.

The Trustee

Unless otherwise provided in a prospectus supplement, The Bank of New York Mellon, as successor to the corporate trust business of JPMorgan Chase Bank, N.A., serves as the trustee for our senior debt securities and our subordinated debt securities, and will serve as the trustee for the warrants issued under our warrant indenture. Consequently, if an actual or potential event of default occurs with respect to any of these securities, the trustee may be considered to have a conflicting interest for purposes of the Trust Indenture Act. In that case, the trustee may be required to resign under one or more of the indentures, and we would be required to appoint a successor trustee. For this purpose, a "potential" event of default means an event that would be an event of default if the requirements for giving us default notice or for the default having to exist for a specific period of time were disregarded. From time to time, we and our affiliates have conducted commercial banking, financial and other transactions with The Bank of New York Mellon and its respective affiliates for which fees have been paid in the ordinary course of business. We may conduct these types of transactions with each other in the future and receive fees for services performed.

Canadian Bank Resolution Powers

General

Under Canadian bank resolution powers, the Canada Deposit Insurance Corporation ("CDIC") may, in circumstances where the Bank has ceased, or is about to cease, to be viable or in certain other circumstances, assume temporary control or ownership of the Bank and may be granted broad powers by one or more Orders (as defined below), including the power to sell or dispose of all or a part of the assets of the Bank, and the power to carry out or cause the Bank to carry out a transaction or a series of transactions the purpose of which is to restructure the business of the Bank. As part of the Canadian bank resolution powers, certain provisions of and regulations under the Bank Act, the CDIC Act and certain other Canadian federal statutes pertaining to banks, which we refer to collectively as the "bail-in regime," provide for a bank recapitalization regime for banks designated by the Superintendent as "domestic systemically important banks," or "D-SIBs," which include the Bank.

The expressed objectives of the bail-in regime include reducing government and taxpayer exposure in the unlikely event of a failure of a D-SIB, reducing the likelihood of such a failure by increasing market discipline and reinforcing that bank shareholders and creditors are responsible for the D-SIBs' risks and not taxpayers, and preserving financial stability by empowering the CDIC to quickly restore a failed D-SIB to viability and allow it to remain open and operating, even where the D-SIB has experienced severe losses.

Under the CDIC Act, in circumstances where the Superintendent is of the opinion that (a) the Bank has ceased, or is about to cease, to be viable and viability cannot be restored or preserved by exercise of the Superintendent's powers under the Bank Act, or (b) circumstances exist in respect of the Bank that would allow the Superintendent to take control of the Bank and, if such control were taken, grounds would exist for the making of a winding-up order in respect of the Bank, the Superintendent, after providing the Bank with a reasonable opportunity to make representations, is required to provide a report to CDIC. Following receipt of the Superintendent's report, CDIC may request the Minister of Finance for Canada (the "Minister of Finance") to recommend that the Governor in Council (Canada) make an Order and, if the Minister of Finance is of the opinion that it is in the public interest to do so, the Minister of Finance may recommend that the Governor in Council (Canada) make, and on that recommendation, the Governor in Council (Canada) may make, one or more of the following orders (each, an "Order"):

- vesting in CDIC, the shares and subordinated debt of the Bank specified in the Order, which we refer to as a "vesting order";
- appointing CDIC as receiver in respect of the Bank, which we refer to as a "receivership order";
- if a receivership order has been made, directing the Minister of Finance to incorporate a federal institution designated in the Order as a bridge institution wholly owned by CDIC and specifying the date and time as of which the Bank's deposit liabilities are assumed, which we refer to as a "bridge bank order"; or
- if a vesting order or receivership order has been made, directing CDIC to carry out a conversion, by converting or causing the Bank to convert, in whole or in part – by means of a transaction or series of transactions and in one or more steps – the shares and liabilities of the Bank that are subject to the bail-in regime into common shares of the Bank or any of its affiliates, which we refer to as a "conversion order".

Following a vesting order or receivership order, CDIC will assume temporary control or ownership of the Bank and will be granted broad powers under that Order, including the power to sell or dispose of all or a part of the assets of the Bank, and the power to carry out or cause the Bank to carry out a transaction or a series of transactions the purpose of which is to restructure the business of the Bank.

Under a bridge bank order, CDIC has the power to transfer the Bank's insured deposit liabilities and certain assets and other liabilities of the Bank to a bridge institution. Upon the exercise of that power, any assets and liabilities of the Bank that are not transferred to the bridge institution would remain with the Bank, which would then be wound up. In such a scenario, any liabilities of the Bank, including any outstanding debt securities (whether or not such debt securities are bail-inable debt securities), that are not assumed by the bridge institution could receive only partial or no repayment in the ensuing wind-up of the Bank.

Upon the making of a conversion order, prescribed shares and liabilities under the bail-in regime that are subject to that conversion order will, to the extent converted, be converted into common shares of the Bank or any of its affiliates, as determined by CDIC. Subject to certain exceptions discussed below, senior debt issued on or after September 23, 2018, with an initial or amended term to maturity (including explicit or embedded options) greater than 400 days, that is unsecured or partially secured and that has been assigned a CUSIP or ISIN or similar identification number are subject to a bail-in conversion. Shares, other than common shares, and subordinated debt of the Bank are also subject to a bail-in conversion, unless they are non-viability contingent capital.

Shares and liabilities issued before September 23, 2018 are not subject to a bail-in conversion unless, in the case of any such liability, including any debt securities, the terms of that liability are amended to increase the principal amount or to extend the term to maturity on or after September 23, 2018, and that liability, as amended, meets the requirements to be subject to a bail-in conversion. Covered bonds, certain derivatives and certain structured notes (as such term is used under the bail-in regime) are expressly excluded from a bail-in conversion. To the extent that any debt securities constitute structured notes (as such term is used under the bail-in regime) they will not be bail-inable debt securities. As a result, claims of some creditors whose claims would otherwise rank equally with those of the holders holding bail-inable debt securities would be excluded from a bail-in conversion. The terms and conditions of the bail-in conversion will be determined by CDIC in accordance with and subject to certain requirements discussed below.

Bail-in Conversion

Under the bail-in regime there is no fixed and pre-determined contractual conversion ratio for the conversion of the bail-inable debt securities, or other shares or liabilities of the Bank that are subject to a bail-in conversion, into common shares of the Bank or any of its affiliates nor are there specific requirements regarding whether liabilities subject to a bail-in conversion are converted into common shares of the Bank or any of its affiliates. CDIC determines the timing of the bail-in conversion, the portion of bail-inable shares and liabilities to be converted and the terms and conditions of the conversion, subject to parameters set out in the bail-in regime. Those parameters include that:

- in carrying out a bail-in conversion, CDIC must take into consideration the requirement in the Bank Act for banks to maintain adequate capital;
- CDIC must use its best efforts to ensure that shares and liabilities subject to a bail-in conversion are only converted after all subordinate ranking shares and liabilities that are subject to a bail-in conversion and any subordinate non-viability contingent capital instruments have been previously converted or are converted at the same time;
- CDIC must use its best efforts to ensure that the converted part of the liquidation entitlement of a share subject to a bail-in conversion, or the converted part of the principal amount and accrued and unpaid interest of a liability subject to a bail-in conversion, is converted on a pro rata basis for all shares or liabilities subject to a bail-in conversion of equal rank that are converted during the same restructuring period;
- holders of shares and liabilities that are subject to a bail-in conversion must receive a greater number of common shares per dollar of the converted part of the liquidation entitlement of their shares, or the converted part of the principal amount and accrued and unpaid interest of their liabilities, than holders of any subordinate shares or liabilities subject to a bail-in conversion that are converted during the same restructuring period or of any subordinate non-viability contingent capital that is converted during the same restructuring period;
- holders of shares or liabilities subject to a bail-in conversion of equal rank that are converted during the same restructuring period must receive the same number of common shares per dollar of the converted part of the liquidation entitlement of their shares or the converted part of the principal amount and accrued and unpaid interest of their liabilities; and
- holders of shares or liabilities subject to a bail-in conversion must receive, if any non-viability contingent capital of equal rank to the shares or liabilities is converted during the same restructuring period, a number of common shares per dollar of the converted part of the liquidation entitlement of their shares, or the converted part of the principal amount and accrued and unpaid interest of their liabilities, that is equal to the largest number of common shares received by any holder of the non-viability contingent capital per dollar of that capital.

Compensation Regime

The CDIC Act provides for a compensation process for holders of bail-inable debt securities who immediately prior to the making of an Order, directly or through an intermediary, own bail-inable debt securities that are converted in a bail-in conversion. While this process applies to successors of those holders it does not apply to assignees or transferees of the holder following the making of the Order and does not apply if the amounts owing under the relevant bail-inable debt securities are paid in full.

Under the compensation process, the compensation to which such holders are entitled is the difference, to the extent it is positive, between the estimated liquidation value and the estimated resolution value of the relevant bail-inable debt securities. The liquidation value is the estimated value the bail-inable holders would have received if an order under the *Winding-up and Restructuring Act* (Canada) had been made in respect of the Bank, as if no Order had been made and without taking into consideration any assistance, financial or otherwise, that is or may be provided to the Bank, directly or indirectly, by CDIC, the Bank of Canada, the Government of Canada or a province of Canada, after any order to wind up the Bank has been made.

The resolution value in respect of relevant bail-inable debt securities is the aggregate estimated value of the following: (a) the relevant bail-inable debt securities, if they are not held by CDIC and they are not converted, after the making of an Order, into common shares under a bail-in conversion; (b) common shares that are the result of a bail-in conversion after the making of an Order; (c) any dividend or interest payments made, after the making of the Order, with respect to the relevant bail-inable debt securities to any person other than CDIC; and (d) any other cash, securities or other rights or interests that are received or to be received with respect to the relevant bail-inable debt securities as a direct or indirect result of the making of the Order and any actions taken in furtherance of the Order, including from CDIC, the Bank, the liquidator of the Bank, if the Bank is wound up, the liquidator of a CDIC subsidiary incorporated or acquired by order of the Governor in Council (Canada) for the purposes of facilitating the acquisition, management or disposal of real property or other assets of the Bank that CDIC may acquire as the result of its operations that is liquidated or the liquidator of a bridge institution if the bridge institution is wound up.

In connection with the compensation process, CDIC is required to estimate the liquidation value and the resolution value in respect of the portion of converted bail-inable debt securities and is required to consider the difference between the estimated day on which the liquidation value would be received and the estimated day on which the resolution value is, or would be, received.

CDIC must, within a reasonable period following a bail-in conversion, make an offer of compensation by notice to the relevant holders that held bail-inable debt securities equal to, or in value estimated to be equal to, the amount of compensation to which such holders are entitled or provide a notice stating that such holders are not entitled to any compensation. In either case, such notice is required to include certain prescribed information, including important information regarding the rights of such holders to seek to object and have the compensation to which they are entitled determined by an assessor (a Canadian Federal Court judge) where holders of liabilities representing at least 10% of the principal amount and accrued and unpaid interest of the liabilities of the same class object to the offer or absence of compensation. The period for objecting is limited (45 days following the day on which a summary of the notice is published in the *Canada Gazette*) and failure by holders holding a sufficient principal amount plus accrued and unpaid interest of affected bail-inable debt securities to object within the prescribed period will result in the loss of any ability to object to the offered compensation or absence of compensation, as applicable. CDIC will pay the relevant holders the offered compensation within 135 days after the date on which a summary of the notice is published in the *Canada Gazette* if the offer of compensation is accepted, the holder does not notify CDIC of acceptance or objection to the offer or if the holder objects to the offer but the 10% threshold described above is not met within the aforementioned 45-day period.

Where an assessor is appointed, the assessor could determine a different amount of compensation payable, which could either be higher or lower than the original amount. The assessor is required to provide holders, whose compensation it determines, notice of its determination. The assessor's determination is final and there are no further opportunities for review or appeal. CDIC will pay the relevant holders the compensation amount determined by the assessor within 90 days of the assessor's notice.

By its acquisition of an interest in any bail-inable debt securities, each holder or beneficial owner of that debt security is deemed to be bound by a bail-in conversion and so will have no further rights in respect of bail-inable debt securities that are converted in a bail-in conversion than those provided under the bail-in regime.

A similar compensation process to the one set out above applies, in certain circumstances, where as a result of CDIC's exercise of bank resolution powers, notes are assigned to an entity which is then wound-up.

TLAC Guidelines

In connection with the bail-in regime, the OSFI guideline (the "TLAC Guideline") on Total Loss Absorbing Capacity ("TLAC") applies to and establishes standards for D-SIBs, including the Bank, effective September 23, 2018. Under the TLAC Guideline, the Bank is required to maintain an amount of unsecured external long-term debt that meets the prescribed criteria or regulatory capital instruments to support recapitalization in the event of a failure. Bail-inable debt securities and regulatory capital instruments that meet the prescribed criteria will constitute TLAC of the Bank.

In order to comply with the TLAC Guideline, our indenture provides for terms and conditions for the bail-inable debt securities necessary to meet the prescribed criteria and qualify at their issuance as TLAC instruments of the Bank under the TLAC Guideline. Those criteria include the following:

- the Bank cannot directly or indirectly have provided financing to any person for the express purpose of investing in the bail-inable debt securities;
- the bail-inable debt security is not subject to set-off or netting rights;
- the bail-inable debt security must not provide rights to accelerate repayment of principal or interest payments outside of bankruptcy, insolvency, wind-up or liquidation, except that events of default relating to the non-payment of scheduled principal and/or interest payments will be permitted where they are subject to a cure period of no less than 30 business days and clearly disclose to investors that: (i) acceleration is only permitted where an Order has not been made in respect of the Bank; and (ii) notwithstanding any acceleration, the instrument continues to be subject to a bail-in conversion prior to its repayment;
- the bail-inable debt security may be redeemed or purchased for cancellation only at the initiative of the Bank and, where the redemption or purchase would lead to a breach of the Bank's TLAC requirements, that redemption or purchase would be subject to the prior approval of the Superintendent;
- the bail-inable debt security does not have credit-sensitive dividend or coupon features that are reset periodically based in whole or in part on the Bank's credit standing; and
- where an amendment or variance of the bail-inable debt security's terms and conditions would affect its recognition as TLAC, that amendment or variance will only be permitted with the prior approval of the Superintendent.

DESCRIPTION OF COMMON SHARES

Set forth below is a summary of the material terms of the Bank's common shares and certain provisions of the Bank Act and the Bank's by-laws as they relate to the Bank's common shares. The following summary is not complete and is qualified in its entirety by the Bank Act, the Bank's by-laws and the actual terms and conditions of such shares.

Authorized Share Capital

The Bank's authorized share capital consists of an unlimited number of common shares without nominal or par value and an unlimited number of first preferred shares without nominal or par value, as described in *Description of First Preferred Shares*, and second preferred shares without nominal or par value, issuable in series. The first preferred shares may be issued for a maximum aggregate consideration of C$30 billion of first preferred shares outstanding. The second preferred shares may be issued for a maximum aggregate consideration of C$5 billion. As of October 31, 2023, the Bank had issued and outstanding 1,402,372,572 common shares and issued and outstanding 106,765,385 first preferred shares. There are no second preferred shares currently outstanding.

Voting, Dividend and Winding Up Rights of Holders of Common Shares

The holders of the Bank's common shares are entitled to vote at all meetings of shareholders, except meetings at which only holders of a specified class, other than common shares, or series of shares are entitled to vote. The holders of common shares are entitled to receive dividends as and when declared by the board of directors, subject to the preference of the preferred shares. After payment to the holders of the preferred shares of the amount or amounts to which they may be entitled, and after payment of all outstanding debts, the holders of the common shares will be entitled to receive any remaining property upon liquidation, dissolution or winding-up of the Bank.

Limitations Affecting Holders of Common Shares

The Bank Act contains restrictions (which are subject to any orders that may be issued by the Governor in Council (Canada)) on the issue, transfer, acquisition, beneficial ownership and voting of all shares of a chartered bank. The following is a summary of such restrictions.

Subject to certain exceptions contained in the Bank Act, no person may be a major shareholder of a bank having equity of $12 billion or more (which includes the Bank). A person is a major shareholder if:

(a) the aggregate of the shares of any class of voting shares of the bank beneficially owned by that person, by entities controlled by that person and by any person associated or acting jointly or in concert with that person is more than 20% of that class of voting shares, or

(b) the aggregate of shares of any class of non-voting shares of the bank beneficially owned by that person, by entities controlled by that person and by any person associated or acting jointly or in concert with that person is more than 30% of that class of non-voting shares.

Additionally, no person may have a significant interest in any class of shares of a bank (including the Bank) unless the person first receives the approval of the Minister of Finance of Canada. For purposes of the Bank Act, a person has a significant interest in a class of shares of a bank where the aggregate of any shares of the class beneficially owned by that person, by entities controlled by that person and by any person associated or acting jointly or in concert with that person exceeds 10% of all of the outstanding shares of that class of shares of such bank.

In addition, the Bank Act prohibits a bank from purchasing or redeeming any of its shares or paying any dividends if there are reasonable grounds for believing the bank is, or the payment would cause the bank to be, in contravention of the Bank Act requirement to maintain, in relation to its operations, adequate capital and appropriate forms of liquidity and to comply with any regulations or directions of the Superintendent of Financial Institutions (Canada) in relation thereto.

Subject to any orders that may be issued by the Governor in Council (Canada), the Bank Act also prohibits the registration of a transfer or issue of any shares of a Canadian bank to any government or governmental agency of Canada or any province of Canada, or to any government of any foreign country, or any political subdivision, or agency of any foreign country. Under the Bank Act, the Bank cannot redeem or purchase any shares for cancellation unless the prior consent of the Superintendent has been obtained.

Amendments to the Rights, Privileges, Restrictions and Conditions of Common Shares

Under the Bank Act, the rights of holders of the Bank's shares can be changed by the board of directors of the Bank by making, amending or repealing the by-laws of the Bank. The board of directors of the Bank must submit such a by-law, or amendment to or repeal of a by-law, to the shareholders of the Bank in accordance with the procedures of the Bank Act and the by-laws of the Bank, and the shareholders must approve the by-law, amendment to or repeal of the by-law, by special resolution to be effective. Under the Bank Act, a special resolution is a resolution passed by not less than two-thirds of the votes cast by or on behalf of the shareholders who voted in respect of that resolution or signed by all the shareholders entitled to vote on that resolution. In some circumstances, the Bank Act mandates that holders of shares of a class or a series are entitled to vote separately as a class or series on a proposal to amend the by-laws of the Bank.

DESCRIPTION OF FIRST PREFERRED SHARES

Set forth below is a summary of the material terms of the Bank's first preferred shares and certain provisions of the Bank Act and the Bank's by-laws as they relate to the Bank's first preferred shares. The following summary is not complete and is qualified in its entirety by the Bank Act, the Bank's by-laws and the actual terms and conditions of such shares.

The following is a general description of the first preferred shares. The first preferred shares are being registered solely in connection with the registration of LRCNs, which provide for the delivery of first preferred shares of the Bank in certain limited circumstances detailed in "– Special Provisions Related to LRCNs." The particulars of any series of first preferred shares offered and the extent to which the general terms described below may apply to such first preferred shares will be described in a prospectus supplement or, if applicable, a pricing supplement. Since the terms of a series of first preferred shares may differ from the general information provided in this prospectus, you should rely on the information in the applicable prospectus supplement or pricing supplement where it differs from information in this prospectus.

The Bank's authorized share capital consists of an unlimited number of common shares without nominal or par value and an unlimited number of first preferred shares and second preferred shares without nominal or par value, issuable in series. The first preferred shares may be issued for a maximum aggregate consideration of C$30 billion of first preferred shares outstanding. The second preferred shares may be issued for a maximum aggregate consideration of C$5 billion. As of October 31, 2023, the Bank had issued and outstanding 1,402,372,572 common shares and issued and outstanding 106,765,385 first preferred shares and other equity instruments. There are no second preferred shares currently outstanding.

We may issue first preferred shares from time to time, in one or more series with such series rights, privileges, restrictions and conditions as our board of directors may determine by resolution, subject to the Bank Act and to the Bank's by-laws. The specific terms and conditions of any series of first preferred shares that we issue under this prospectus will be described in one or more prospectus supplements or pricing supplements, as applicable, and may include the designation of the particular series, the aggregate amount, the number of shares offered, the issue price, the dividend rate, the dividend payment dates, any terms for redemption at our option or the holder's option, any exchange or conversion terms and any other specific terms.

The first preferred shares of each series rank pari passu with the first preferred shares of every other series and outstanding first preferred shares (including any first preferred shares issued hereunder if a trigger event has not occurred as contemplated under the specific Non-Viability Contingent Capital Provisions (as defined below under "Non-Viability Contingent Capital Provisions") applicable to such first preferred shares) are entitled to preference over the second preferred shares and common shares of the Bank and over any other shares ranking junior to the first preferred shares with respect to the payment of dividends and in the distribution of property in the event of our liquidation, dissolution or winding-up.

The holders of the first preferred shares are not entitled to any voting rights except as provided below or by law. The Non-Cumulative First Preferred Shares, Series C-2 have certain limited voting rights as described in the Annual Information Form, filed as Exhibit 1 to the 2023 Annual Report.

Pursuant to our by-laws, we may not, without the prior approval of the holders of the first preferred shares as a class (in addition to such approvals as may be required by the Bank Act or any other legal requirement), (i) create or issue any shares ranking in priority to the first preferred shares, or (ii) create or issue any additional series of first preferred shares or any shares ranking pari passu with the first preferred shares unless at the date of such creation or issuance all cumulative dividends up to and including the dividend payment for the last completed period for which such cumulative dividends are payable have been declared and paid or set apart for payment in respect of each series of cumulative first preferred shares then issued and outstanding, and any declared and unpaid non-cumulative dividends have been paid or set apart for payment in respect of each series of non- cumulative first preferred shares then issued and outstanding. Currently, there are no outstanding first preferred shares which carry the right to cumulative dividends.

No amendment may be made to the rights, privileges, restrictions or conditions of the first preferred shares as a class without the approval of the holders of first preferred shares voting separately as a class.

The approval of all amendments to the provisions attaching to the first preferred shares as a class and any other approval to be given by the holders of the first preferred shares may be given in writing by the holders of not less than all of the outstanding first preferred shares or by a resolution carried by the affirmative vote of not less than 66⅔% of the votes cast at a meeting of holders of first preferred shares at which a quorum of the outstanding first preferred shares is represented. A quorum at any meeting of holders of first preferred shares is 51% of the shares entitled to vote at such meeting, except that at a reconvened meeting following a meeting that was adjourned due to lack of quorum there is no quorum requirement.

Our obligations under the warrants will not be secured by any of our property or assets or the property or assets of our subsidiaries. Thus, by owning a warrant, you are one of our unsecured creditors.

The warrants will be issued under a warrant indenture, dated as of October 19, 2018, between Royal Bank of Canada and The Bank of New York Mellon, as trustee, as it may be amended from time to time (collectively, the "warrant indenture"), described below. The warrants will be unsubordinated obligations that rank equally with all of our other unsecured and unsubordinated debt, including deposit liabilities, other than certain governmental claims in accordance with applicable law.

In the event we become insolvent, our governing legislation provides that priorities among payments of our deposit liabilities (including payments in respect of the warrants) and payments of all of our other liabilities are to be determined in accordance with the laws governing priorities and, where applicable, by the terms of the indebtedness and liabilities. Because we have subsidiaries, our right to participate in any distribution of the assets of our banking or non-banking subsidiaries, upon a subsidiary's dissolution, winding-up, liquidation or reorganization or otherwise, and thus your ability to benefit indirectly from such distribution, is subject to the prior claims of creditors of that subsidiary, except to the extent that we may be a creditor of that subsidiary and our claims are recognized. There are legal limitations on the extent to which some of our subsidiaries may extend credit, pay dividends or otherwise supply funds to, or engage in transactions with, us or some of our other subsidiaries. Accordingly, the warrants will be structurally subordinated to all existing and future liabilities of our subsidiaries, and holders of the warrants should look only to our assets for payments on those securities.

The warrants will not constitute deposits insured under the Canada Deposit Insurance Corporation Act or by the United States Federal Deposit Insurance Corporation or any other Canadian or United States governmental agency or instrumentality.

The Warrant Indenture

The warrants will be governed by the warrant indenture.

The trustee has two main roles:

- The trustee can enforce the rights of holders against us if we default on our obligations under the terms of the warrant indenture or the warrants. There are some limitations on the extent to which the trustee acts on behalf of holders, described below under "—Events of Default—Remedies If an Event of Default Occurs".
- The trustee performs administrative duties for us, such as sending payments and notices to holders and transferring a holder's warrants to a new buyer if a holder sells.

Governing Law. The warrant indenture and its associated documents contain the full legal text of the matters described in this section. The warrant indenture and the warrants will be governed by New York law, except that certain provisions relating to the status of the warrants under Canadian law in the warrant indenture will be governed by the laws of the Province of Ontario and the laws of Canada applicable therein. A copy of the form of the warrant indenture is an exhibit to our Registration Statement. See "Where You Can Find More Information" above for information on how to obtain a copy.

The Underlying Assets

We may issue warrants, on terms to be determined at the time of sale, for the purchase or sale of, or whose cash value is determined by reference to the performance, level or value of, one or more of the following:

- the securities of one or more issuers other than us or our affiliates, which may include one or more common stocks, or the shares of one or more exchange traded funds;
- one or more indices;
- one or more currencies;
- any other financial, economic or other measure or instrument; or
- a basket of any of the items described above. (Indenture Section 101)

We refer to each property described above as an "underlying asset."

We may satisfy our obligations, if any, and the holder of a warrant may satisfy its obligations, if any, with respect to any warrants by delivering:

- the cash value of the underlying asset; or
- the cash value of the warrants determined by reference to the performance, level or value of the underlying asset.

The applicable prospectus supplement or pricing supplement will describe what we may deliver to satisfy our obligations, if any, and what the holder of a warrant may deliver to satisfy its obligations, if any, with respect to any warrants.

General

We may issue as many distinct series of warrants under the warrant indenture as we wish. The provisions of the warrant indenture allow us not only to issue warrants with terms different from those previously issued under that indenture, but also to "re-open" a previous issue of a series of warrants and issue additional warrants of that series. We may issue warrants in amounts that exceed the total amount specified on the cover of the prospectus supplement relating to warrants you have acquired at any time without your consent and without notifying you.

This section summarizes the material terms of the warrants that are common to all series, although the prospectus supplement that describes the terms of each series of warrants may also describe differences from the material terms summarized here.

Because this section is a summary, it does not describe every aspect of the warrants. This summary is subject to and qualified in its entirety by reference to all the provisions of the warrant indenture, including definitions of certain terms used in the warrant indenture. In this summary, we describe the meaning of only some of the more important terms. For your convenience, we also include references in parentheses to certain sections of the warrant indenture. Whenever we refer to particular sections or defined terms of the warrant indenture in this prospectus or in the prospectus supplement, such sections or defined terms are incorporated by reference here or in the prospectus supplement. You must look to the warrant indenture for the most complete description of what we describe in summary form in this prospectus.

This summary is also subject to and qualified by reference to the description of the particular terms of your series of warrants described in the prospectus supplement. Those terms may vary from the terms described in this prospectus. The prospectus supplement relating to each series of warrants will be attached to the front of this prospectus. There may also be a further prospectus supplement, known as a pricing supplement, which describes additional terms of warrants you are offered.

In addition, the specific financial, legal and other terms particular to a series of warrants will be described in the prospectus supplement and, if applicable, a pricing supplement relating to the series. The prospectus supplement and, if applicable, the pricing supplement relating to a series of warrants will describe the following terms of the series:

- the title of the series of warrants;
- any limit on the aggregate number of the series of warrants;
- the date on which the right to exercise the warrants will begin and the date on which that right will expire or, if you may not continuously exercise the warrants throughout that period, the specific date or dates on which you may exercise the warrants;

- whether the warrants are put warrants or call warrants, whether you or we will have the right to exercise the warrants and any conditions or restrictions on the exercise of the warrants;
- the specific underlying asset, and the amount or the method for determining the amount of the underlying asset, purchasable or saleable upon exercise of each warrant;
- the price at which and the currency with which the underlying asset may be purchased or sold upon the exercise of each warrant, or the method of determining that price;
- the method of exercising the warrants;
- the date or dates on which the series of warrants will expire;
- the place or places where the payments on the warrants are payable;
- the terms, if any, on which any securities may or shall be converted into or exchanged at the option of the Bank or otherwise for shares or other securities, into the cash value thereof or into any combination of the foregoing, any specific terms relating to the adjustment thereof and the period during which such securities may or shall be so converted or exchanged;
- any provisions for redemption of the warrants at our option or the option of the holder;
- the date, if any, after which, and the price or prices at which, the series of warrants may, in accordance with any optional or mandatory redemption provisions, be redeemed and the other detailed terms and provisions of those optional or mandatory redemption provisions, if any;
- if other than denominations of 100 warrants and any integral multiples thereof, the denominations in which the series of warrants will be issuable;
- the currency of payment on the series of warrants;
- if the currency of payment for any payments on the series of warrants is subject to our election or that of a holder, the currency or currencies in which payment can be made and the period within which, and the terms and conditions upon which, the election can be made;
- any index, formula or other method used to determine the amount of any payment on the series of warrants;
- any event of default under the series of warrants if different from those described under "—Events of Default" below;
- if the warrants will be issued in bearer form, any special provisions relating to bearer securities;
- if the series of warrants will be issuable only in the form of a global security, the depositary or its nominee with respect to the series of warrants and the circumstances under which the global security may be registered for transfer or exchange in the name of a person other than the depositary or the nominee; and
- any other special feature of the series of warrants.

Unless we specify otherwise in any warrant, prospectus supplement or, if applicable, pricing supplement relating to the series, the payments on the warrants will be made in U.S. dollars. If any amounts on the warrant are to be paid in one or more currencies (or currency units) other than U.S. dollars, additional information (including related exchange rate information) will be provided in the relevant prospectus supplement or pricing supplement.

We will offer warrants that are convertible or exchangeable into securities of another entity or other entities only under circumstances that do not require registration of the underlying securities under the Securities Act at the time we offer such warrants.

Expiration Date and Payment or Settlement Date

The term "expiration date" with respect to any warrant means the date on which the right to exercise the warrant expires. (Indenture Section 101)

The term "payment or settlement date" with respect to any warrant means the date when any money with respect to that warrant becomes payable upon exercise or redemption of that warrant in accordance with its terms. (Indenture Section 101)

Overview of Remainder of this Description

The remainder of this description summarizes:

- additional mechanics relevant to the warrants under normal circumstances, such as how holders record the transfer of ownership and where we make payments;
- holders' rights in several special situations, such as if we merge with another company or if we want to change a term of the warrants; and
- holders' rights if we default or experience other financial difficulties.

Form, Exchange and Transfer

Unless we specify otherwise in the prospectus supplement, the warrants will be issued:

- as book-entry warrants;
- only in fully-registered form;
- without interest coupons; and
- in denominations that are even multiples of 100 warrants. (Indenture Section 302)

If a warrant is issued as a registered global warrant, only the depositary that we select—*e.g.*, DTC, Euroclear, Clearstream and CDS, each as defined under "Ownership and Book-Entry Issuance" in this prospectus—will be entitled to transfer and exchange the warrant as described in this subsection, because the depositary will be the sole registered holder of the warrant and is referred to below as the "holder". Unless we specify otherwise in the prospectus supplement or pricing supplement, if applicable, The Depository Trust Company, New York, New York, will be the depositary for all warrants in global form. Those who own beneficial interests in a global security do so through participants in the depositary's securities clearance system, and the rights of these indirect owners will be governed by the applicable procedures of the depositary and its participants. We describe book-entry procedures under "Ownership and Book-Entry Issuance" in this prospectus.

Holders of securities issued in fully-registered form may have their warrants broken into more warrants of smaller denominations of not less than 100 warrants, or combined into fewer warrants of larger denominations, as long as the total amount of warrants is not changed. (Indenture Section 305) This is called an exchange.

Holders may exchange or register the transfer of warrants at the office of the trustee. Warrants may be transferred by endorsement. Holders may also replace lost, stolen or mutilated warrants at that office. The trustee has been appointed as our agent for registering warrants in the names of holders and registering the transfer of warrants. We may change this appointment to another entity or perform these tasks ourselves. The entity performing the role of maintaining the list of registered holders is called the security registrar. It also records transfers. (Indenture Section 305) The trustee may require an indemnity before replacing any warrants.

Holders will not be required to pay a service charge to register the transfer or exchange of warrants, but holders may be required to pay for any tax or other governmental charge associated with the exchange or transfer. The registration of a transfer or exchange will only be made if the security registrar is satisfied with your proof of ownership.

If we designate additional transfer agents, they will be named in the prospectus supplement. We may cancel the designation of any particular transfer agent. We may also approve a change in the office through which any transfer agent acts. (Indenture Section 1002)

If the warrants are redeemable and we redeem less than all of the warrants of a particular series, we may block the registration of transfer or exchange of warrants during the period beginning 15 days before the day we mail the notice of redemption and ending on the day of that mailing, in order to freeze the list of holders entitled to receive the mailing. We may also refuse to register transfers or exchanges of warrants selected for redemption, except that we will continue to permit registration of transfers and exchanges of the unredeemed portion of any warrant being partially redeemed. (Indenture Section 305)

Payment and Paying Agents

We will pay amounts due on the warrants at the corporate trust office of the trustee in the City of New York. That office is currently located at 240 Greenwich Street—Floor 7E, New York, NY 10286. Holders must make arrangements to have their payments picked up at or wired from that office.

Book-entry and other indirect holders should consult their banks, brokers or other financial institutions for information on how they will receive payments.

We may also arrange for additional payment offices and may cancel or change these offices, including our use of the trustee's corporate trust office. These offices are called paying agents. We may also choose to act as our own paying agent or choose one of our subsidiaries to do so. We must notify holders of changes in the paying agents for any particular series of warrants. (Indenture Section 1002)

Notices

We and the trustee will send notices regarding the warrants only to registered holders, using their addresses as listed in the trustee's records. (Indenture Sections 101 and 106) With respect to who is a registered "holder" for this purpose, see "Ownership and Book-Entry Issuance".

Regardless of who acts as paying agent, all money paid by us to a paying agent that remains unclaimed at the end of two years after the amount is due to holders will be repaid to us. After that two-year period, holders may look to us for payment and not to the trustee or any other paying agent. (Indenture Section 1003)

Mergers and Similar Events

Under the warrant indenture, we are generally permitted to consolidate or merge with another entity. We are also permitted to sell or lease substantially all of our assets to another entity, or to buy or lease substantially all of the assets of another entity. However, we may not take any of these actions unless all the following conditions are met:

- When we merge, amalgamate, consolidate or otherwise are combined with, or acquired by, another entity or sell or lease substantially all of our assets, the surviving, resulting or acquiring entity must be a properly organized entity and must be legally responsible for the warrants, whether by agreement, operation of law or otherwise.
- The merger, amalgamation, consolidation, other combination, sale or lease of assets must not cause a default on the warrants. A default for this purpose would include any event that would be an event of default if the requirements for giving us default notice or our default having to exist for a specific period of time were disregarded.

If the conditions described above are satisfied with respect to any series of warrants, we will not need to obtain the approval of the holders of those warrants in order to merge or consolidate or to sell our assets. Also, these conditions will apply only if we wish to merge or consolidate with another entity or sell substantially all of our assets to another entity. We will not need to satisfy these conditions if we enter into other types of transactions, including any transaction in which we acquire the stock or assets of another entity, any transaction that involves a change of control but in which we do not merge or consolidate and any transaction in which we sell less than substantially all of our assets. It is possible that this type of transaction may result in a reduction in our credit rating, may reduce our operating results or may impair our financial condition. Holders of our warrants, however, will have no approval right with respect to any transaction of this type.

Modification and Waiver of the Warrants

There are four types of changes we can make to the warrant indenture and the warrants issued thereunder.

1. *Changes Requiring Approval of All Holders*. First, there are changes that cannot be made to the warrant indenture or the warrants without specific approval of each holder of a warrant affected in any material respect by the change. The following is a list of those types of changes:

- change the payment dates of a warrant;
- change the exercise price of a warrant;
- reduce any amounts due on a warrant;
- shorten the period of time during which a warrant may be exercised;
- reduce the amount of the payment payable upon acceleration of the maturity of a warrant following a default;
- change the currency of payment on a warrant;
- change the place of payment for a warrant;
- impair a holder's right to sue for payment;
- impair the holder's right to require repurchase on the original terms of those warrants that provide a right of repurchase;
- reduce the percentage of holders of warrants whose consent is needed to modify or amend the warrant indenture;
- reduce the percentage of holders of warrants whose consent is needed to waive compliance with certain provisions of the warrant indenture or to waive certain defaults; or
- modify any other aspect of the provisions dealing with modification and waiver of the warrant indenture. (Indenture Section 902)

2. *Changes Requiring a Majority Vote*. The second type of change to the warrant indenture and the warrants is the kind that requires a vote in favor of the change by holders of warrants owning not less than a majority of the warrants of the particular series affected. Most changes, including any change or elimination of any provision of the warrant indenture and any modification of any right of the holders of warrants, require a majority vote. A smaller class of changes does not require a majority vote including clarifying changes and other changes that would not adversely affect in any material respect holders of the warrants. (Indenture Section 901) We may also obtain a waiver of a past default from the holders of warrants owning a majority of the warrants of the particular series affected. However, we cannot obtain a waiver of a payment default or any other aspect of the warrant indenture or the warrants listed in the first category described above under "—Changes Requiring Approval of All Holders" unless we obtain the individual consent of each holder to the waiver. (Indenture Section 513)

3. *Changes Not Requiring Approval*. The third type of change to the warrant indenture and the warrants does not require any vote by holders of warrants. This type is limited to clarifications and certain other changes that would not adversely affect in any material respect holders of the warrants, including changes made to conform the warrant indenture or the warrants of any series to any provision described under "Description of Warrants" in this prospectus, as may be supplemented by the prospectus supplement, and/or, if applicable, the pricing supplement relating to an offering of such series of warrants. (Indenture Section 901)

4. We may also make changes or obtain waivers that do not adversely affect in any material respect a particular warrant, even if they affect other warrants. In those cases, we do not need to obtain the approval of the holder of that warrant; we need only obtain any required approvals from the holders of the affected warrants.

5. *Further Details Concerning Voting*.

Warrants will not be considered outstanding, and therefore not eligible to vote, if we have given a notice of redemption and deposited or set aside in trust for the holders money for the payment, or redemption or settlement of the warrants.

We will generally be entitled to set any day as a record date for the purpose of determining the holders of outstanding warrants that are entitled to vote or take other action under the warrant indenture. In certain limited circumstances, the trustee will be entitled to set a record date for action by holders. If the trustee or we set a record date for a vote or other action to be taken by holders of a particular series, that vote or action may be taken only by persons who are holders of outstanding warrants of that series on the record date. We or the trustee, as applicable, may shorten or lengthen this period from time to time. This period, however, may not extend beyond the 180th day after the record date for the action. (Indenture Sections 104 and 512)

Book-entry and other indirect holders should consult their banks, brokers or other financial institutions for information on how approval may be granted or denied if we seek to change the warrant indenture or the warrants or request a waiver.

Events of Default

You will have special rights if an event of default occurs and is not cured, as described later in this subsection.

What is an Event of Default?

Under the warrant indenture, the term "Event of Default" means any of the following:

- We do not pay any payment due on a warrant.
- We become insolvent or bankrupt or subject to the provisions of the *Winding-Up and Restructuring Act* (Canada), we go into liquidation either voluntarily or under an order of a court of competent jurisdiction, or we otherwise acknowledge our insolvency.
- Any other event of default described in the prospectus supplement occurs. (Indenture Section 501)

Remedies If an Event of Default Occurs.

The trustee is not required to take any action under the warrant indenture at the request of any holders unless the holders offer the trustee reasonable protection from expenses and liability called an indemnity. (Indenture Section 603) If reasonable indemnity is provided, the holders of a majority of the outstanding warrants of the relevant series may direct the time, method and place of conducting any lawsuit or other formal legal action seeking any remedy available to the trustee. These majority holders may also direct the trustee in performing any other action under the warrant indenture with respect to the warrants of that series. (Indenture Section 512)

Before you bypass the trustee and bring your own lawsuit or other formal legal action or take other steps to enforce your rights or protect your interests relating to the warrants, the following must occur:

- the holder of the warrant must give the trustee written notice that an event of default has occurred and remains uncured;
- the holders of 25% of all outstanding warrants of the relevant series must make a written request that the trustee take action because of the default, and must offer reasonable indemnity to the trustee against the cost and other liabilities of taking that action; and
- the trustee must have not taken action for 90 days after receipt of the above notice and offer of indemnity. (Indenture Section 507)

However, you are entitled at any time to bring a lawsuit for the payment of money due on your warrant on or after its due date. (Indenture Section 508)

Book-entry and other indirect holders should consult their banks, brokers or other financial institutions for information on how to give notice or direction to or make a request of the trustee and to make or cancel a declaration of acceleration.

We will give to the trustee every year a written statement of certain of our officers certifying that to their knowledge we are in compliance with the warrant indenture and the warrants issued under it, or else specifying any default. (Indenture Section 1004)

Legal Ownership

Street Name and Other Indirect Holders

Investors who hold their warrants in accounts at brokers, banks or other financial institutions will generally not be recognized by us as legal holders of warrants. This is called holding in street name. Instead, we would recognize only the bank or broker, or the financial institution the bank or broker uses to hold its warrants. These intermediary banks, brokers and other financial institutions pass along payments on the warrants, either because they agree to do so in their customer agreements or because they are legally required to do so. If you hold your warrants in street name, you should check with your own institution to find out:

- how it handles warrant payments and notices;
- whether it imposes fees or charges;
- whether and how you can instruct it to send you warrants registered in your own name so you can be a direct holder as described below; and
- how it would pursue rights under the warrants if there were a default or other event triggering the need for holders to protect their interests.

Direct Holders

Our obligations, as well as the obligations of the trustee and those of any third parties employed by us or the trustee, under the warrants run only to persons who are registered as holders of warrants. As noted above, we do not have obligations to you if you hold in street name or other indirect means, either because you choose to hold your warrants in that manner or because the warrants are issued in the form of global warrants as described below. For example, once we make payment to the registered holder we have no further responsibility for the payment even if that holder is legally required to pass the payment along to you as a street name customer but does not do so.

Market-Making Transactions

If you purchase your warrant in a market-making transaction, you will receive information about the price you pay and your trade and settlement dates in a separate confirmation of sale. A market-making transaction is one in which an agent or other person resells a warrant that it has previously acquired from another holder. A market-making transaction in a particular warrant occurs after the original sale of the warrant.

NON-VIABILITY CONTINGENT CAPITAL PROVISIONS

In accordance with capital adequacy requirements adopted by the Office of the Superintendent of Financial Institutions Canada ("OSFI"), in order to qualify as regulatory capital, non-common tier 1 and tier 2 capital instruments issued after January 1, 2013, including certain subordinated debt securities and first preferred shares (including LRCN Preferred Shares), must include terms providing for the full and permanent conversion of such securities into common shares of the Bank upon the occurrence of a "Non-Viability Trigger Event" ("Non-Viability Contingent Capital Provisions").

"Non-Viability Trigger Event" has the meaning set out in the OSFI Guideline for Capital Adequacy Requirements (CAR), Chapter 2 – Definition of Capital, effective November 2023, as such term may be amended or superseded by OSFI from time to time, which term currently provides that each of the following constitutes a Non-Viability Trigger Event:

- the Superintendent publicly announces that the Bank has been advised, in writing, that the Superintendent is of the opinion that the Bank has ceased, or is about to cease, to be viable and that, after the conversion or write-off, as applicable, of all contingent instruments issued by the Bank and taking into account any other factors or circumstances that are considered relevant or appropriate, it is reasonably likely that the viability of the Bank will be restored or maintained; or
- a federal or provincial government in Canada publicly announces that the Bank has accepted or agreed to accept a capital injection, or equivalent support, from the federal government or any provincial government or political subdivision or agent or agency thereof without which the Bank would have been determined by the Superintendent to be non-viable.

The specific terms of any Non-Viability Contingent Capital Provisions for any subordinated debt securities or first preferred shares (including LRCN Preferred Shares) that we issue under this prospectus will be described in one or more prospectus supplements relating to such securities. If subordinated debt securities issued under the subordinated debt indenture or first preferred shares (including LRCN Preferred Shares) are converted into common shares in accordance with Non-Viability Contingent Capital Provisions, the rights, terms and conditions of such securities, including with respect to priority and rights on liquidation, will no longer be relevant as all such securities will have been converted on a full and permanent basis into common shares ranking on parity with all other outstanding common shares of the Bank. The Non-Viability Contingent Capital Provisions do not apply to senior debt securities, common shares or warrants offered under this prospectus.

The Non-Viability Contingent Capital Provisions included in any instrument governing subordinated debt securities or first preferred shares (including LRCN Preferred Shares), if any, will be governed by the laws of the Province of Ontario and the federal laws of Canada applicable therein.

OWNERSHIP AND BOOK-ENTRY ISSUANCE

In this section, we describe special considerations that will apply to registered securities issued in global *i.e.*, book-entry, form. First we describe the difference between registered ownership and indirect ownership of registered securities. Then we describe special provisions that apply to global securities.

Who is the Registered Owner of a Security?

Unless otherwise provided in a prospectus supplement, each debt security, warrant, common share and preferred share will be represented either by a certificate issued in definitive form to a particular investor or by one or more global securities representing securities. We refer to those who have securities registered in their own names, on the books that we or the trustee maintain for this purpose, as the "registered holders" of those securities. Subject to limited exceptions, we and the trustee are entitled to treat the registered holder of a security as the person exclusively entitled to vote, to receive notices, to receive any interest or other payment in respect of the security and to exercise all the rights and powers as an owner of the security. We refer to those who own beneficial interests in securities that are not registered in their own names as indirect owners of those securities. As we discuss below, indirect owners are not registered holders, and investors in securities issued in book-entry form or in street name will be indirect owners.

Book-Entry Owners

Unless otherwise noted in your prospectus supplement, we will issue each security in book-entry form only. This means securities will be represented by one or more global securities registered in the name of a financial institution that holds them as depositary on behalf of other financial institutions that participate in the depositary's book-entry system. These participating institutions, in turn, hold beneficial interests in the securities on behalf of themselves or their customers.

Under each indenture (and the Bank Act in the case of subordinated indebtedness), subject to limited exceptions, only the person in whose name a security is registered is recognized as the holder of that security. Consequently, for securities issued in global form, we will recognize only the depositary as the holder of the securities and we will make all payments on the securities, including deliveries of any property other than cash, to the depositary. The depositary passes along the payments it receives to its participants, which in turn pass the payments along to their customers who are the beneficial owners. The depositary and its participants do so under agreements they have made with one another or with their customers; they are not obligated to do so under the terms of the securities.

As a result, investors will not own securities directly. Instead, they will own beneficial interests in a global security, through a bank, broker or other financial institution that participates in the depositary's book-entry system or holds an interest through a participant. As long as the securities are issued in global form, investors will be indirect owners, and not registered holders, of the securities.

Street Name Owners

We may terminate an existing global security or issue securities initially in non-global form. In these cases, investors may choose to hold their securities in their own names or in street name. Securities held by an investor in street name would be registered in the name of a bank, broker or other financial institution that the investor chooses, and the investor would hold only a beneficial interest in those securities through an account he or she maintains at that institution.

For securities held in street name, we will, subject to limited exceptions, recognize only the intermediary banks, brokers and other financial institutions in whose names the securities are registered as the holders of those securities, and we will make all payments on those securities, including deliveries of any property other than cash, to them. These institutions pass along the payments they receive to their customers who are the beneficial owners, but only because they agree to do so in their customer agreements or because they are legally required to do so. Investors who hold securities in street name will be indirect owners, not registered holders, of those securities.

Registered Holders

Subject to limited exceptions, our obligations, as well as the obligations of the trustee under any indenture and the obligations, if any, of any other third parties employed by us, run only to the registered holders of the securities. We do not have obligations to investors who hold beneficial interests in global securities, in street name or by any other indirect means. This will be the case whether an investor chooses to be an indirect owner of a security or has no choice because we are issuing the securities only in global form.

For example, once we make a payment or give a notice to the registered holder, we have no further responsibility for that payment or notice even if that holder is required, under agreements with depositary participants or customers or by law, to pass it along to the indirect owners but does not do so. Similarly, if we want to obtain the approval of the holders for any purpose — for example, to amend the indenture for a series of debt securities or to relieve us of the consequences of a default or of our obligation to comply with a particular provision of an indenture — we would seek the approval only from the registered holders, and not the indirect owners, of the relevant securities. Whether and how the registered holders contact the indirect owners is up to the registered holders.

When we refer to "you" in this prospectus, we mean all purchasers of the securities being offered by this prospectus, whether they are the registered holders or only indirect owners of those securities. When we refer to "your securities" in this prospectus, we mean the securities in which you will hold a direct or indirect interest.

Special Considerations for Indirect Owners

If you hold securities through a bank, broker or other financial institution, either in book-entry form or in street name, you should check with your own institution to find out:

- how it handles securities payments and notices;
- whether it imposes fees or charges;
- how it would handle a request for the holders' consent, if ever required;
- how it would exercise rights under the securities if there were a default or other event triggering the need for holders to act to protect their interests; and
- if the securities are in book-entry form, how the depositary's rules and procedures will affect these matters.

What is a Global Security?

Unless otherwise noted in the applicable prospectus supplement, we will issue each security in book-entry form only. Each security issued in book-entry form will be represented by a global security that we deposit with and register in the name of one or more financial institutions or clearing systems, or their nominees, which we select. A financial institution or clearing system that we select for any security for this purpose is called the "depositary" for that security. A security will usually have only one depositary but it may have more. Each series of securities will have one or more of the following as the depositaries:

- DTC;
- Euroclear System, which is known as "Euroclear";
- Clearstream Banking, *société anonyme*, Luxembourg, which is known as "Clearstream";
- CDS Clearing and Depository Services Inc., which is known as "CDS"; and
- any other clearing system or financial institution named in the prospectus supplement.

The depositaries named above may also be participants in one another's systems. Thus, for example, if DTC is the depositary for a global security, investors may hold beneficial interests in that security through Euroclear, Clearstream or CDS, as DTC participants. The depositary or depositaries for your securities will be named in your prospectus supplement; if none is named, the depositary will be DTC.

A global security may represent one or any other number of individual securities. Generally, all securities represented by the same global security will have the same terms. We may, however, issue a global security that represents multiple securities of the same kind, such as debt securities, that have different terms and are issued at different times. We call this kind of global security a master global security. Your prospectus supplement will not indicate whether your securities are represented by a master global security.

A global security may not be transferred to or registered in the name of anyone other than the depositary or its nominee, unless special termination situations arise. We describe those situations below under "— Holder's Option to Obtain a Non-Global Security; Special Situations When a Global Security Will Be Terminated". As a result of these arrangements, the depositary, or its nominee, will be the sole registered owner and holder of all securities represented by a global security, and investors will be permitted to own only indirect interests in a global security. Indirect interests must be held by means of an account with a broker, bank or other financial institution that in turn has an account with the depositary or with another institution that does. Thus, an investor whose security is represented by a global security will not be a holder of the security, but only an indirect owner of an interest in the global security.

If the prospectus supplement for a particular security indicates that the security will be issued in global form only, then the security will be represented by a global security at all times unless and until the global security is terminated. We describe the situations in which this can occur below under "— Holder's Option to Obtain a Non-Global Security; Special Situations When a Global Security Will Be Terminated". If termination occurs, we may issue the securities through another book-entry clearing system or decide that the securities may no longer be held through any book-entry clearing system.

Special Considerations for Global Securities

As an indirect owner, an investor's rights relating to a global security will be governed by the account rules of the depositary and those of the investor's bank, broker, financial institution or other intermediary through which it holds its interest (*e.g.*, Euroclear, Clearstream or CDS, if DTC is the depositary), as well as general laws relating to securities transfers. We do not recognize this type of investor or any intermediary as a holder of securities and instead deal only with the depositary that holds the global security.

If securities are issued only in the form of a global security, an investor should be aware of the following:

- an investor cannot cause the securities to be registered in his or her own name, and cannot obtain non-global certificates for his or her interest in the securities, except in the special situations we describe below;
- an investor will be an indirect holder and must look to his or her own bank, broker or other financial institution for payments on the securities and protection of his or her legal rights relating to the securities, as we describe above under "— Who Is the Registered Owner of a Security?";
- an investor may not be able to sell interests in the securities to some insurance companies and other institutions that are required by law to own their securities in non-book-entry form;
- an investor may not be able to pledge his or her interest in a global security in circumstances in which certificates representing the securities must be delivered to the lender or other beneficiary of the pledge in order for the pledge to be effective;
- the depositary's policies will govern payments, deliveries, transfers, exchanges, notices and other matters relating to an investor's interest in a global security, and those policies may change from time to time. We and the trustee will have no responsibility for any aspect of the depositary's policies, actions or records of ownership interests in a global security. We and the trustee also do not supervise the depositary in any way;
- the depositary may require that those who purchase and sell interests in a global security within its book-entry system use immediately available funds and your bank, broker or other financial institution may require you to do so as well; and

- financial institutions that participate in the depositary's book-entry system and through which an investor holds its interest in the global securities, directly or indirectly, may also have their own policies affecting payments, deliveries, transfers, exchanges, notices and other matters relating to the securities, and those policies may change from time to time. For example, if you hold an interest in a global security through Euroclear, Clearstream or CDS, when DTC is the depositary, Euroclear, Clearstream or CDS, as applicable, may require those who purchase and sell interests in that security through them to use immediately available funds and comply with other policies and procedures, including deadlines for giving instructions as to transactions that are to be effected on a particular day. There may be more than one financial intermediary in the chain of ownership for an investor. We do not monitor and are not responsible for the policies or actions or records of ownership interests of any of those intermediaries.

Holder's Option to obtain a Non-Global Security; Special Situations When a Global Security Will Be Terminated

If we issue any series of securities in book-entry form but we choose to give the beneficial owners of that series the right to obtain non-global securities, any beneficial owner entitled to obtain non-global securities may do so by following the applicable procedures of the depositary, any transfer agent or registrar for that series and that owner's bank, broker or other financial institution through which that owner holds its beneficial interest in the securities. If you are entitled to request a non-global certificate and wish to do so, you will need to allow sufficient lead time to enable us or our agent to prepare the requested certificate.

In addition, in a few special situations described below, a global security will be terminated and interests in it will be exchanged for certificates in non-global form representing the securities it represented. After that exchange, the choice of whether to hold the securities directly or in street name will be up to the investor. Investors must consult their own banks, brokers or other financial institutions to find out how to have their interests in a global security transferred on termination to their own names, so that they will be holders. We have described the rights of holders and street name investors above under "— Who Is the Registered Owner of a Security?".

The special situations for termination of a global security are as follows:

- if the depositary notifies us that it is unwilling, unable or no longer qualified to continue as depositary for that global security and we do not appoint another institution to act as depositary within 60 days;
- if we notify the trustee that we wish to terminate that global security; or
- if an event of default has occurred with regard to these debt securities and has not been cured or waived.

DTC's current rules provide that it would notify its participants of a request by us to terminate a global security, but will withdraw beneficial interests from the global security only at the request of each DTC participant.

If a global security is terminated, only the depositary, and neither we nor the trustee for any debt securities is responsible for deciding the names of the institutions in whose names the securities represented by the global security will be registered and, therefore, who will be the registered holders of those securities.

Considerations Relating to DTC

DTC has informed us as follows:

DTC is a limited-purpose trust company organized under the New York Banking Law, a "banking organization" within the meaning of the New York Banking Law, a member of the Federal Reserve System, a "clearing corporation" within the meaning of the New York Uniform Commercial Code and a "clearing agency" registered pursuant to the provisions of Section 17A of the Exchange Act. DTC holds securities that DTC participants deposit with DTC. DTC also facilitates the post-trade settlement among DTC participants of sales and other securities transactions in deposited securities, through electronic, computerized book-entry transfers and pledges between DTC participants' accounts. This eliminates the need for physical movement of securities certificates. DTC participants include both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, clearing corporations, and certain other organizations. DTC is a wholly owned subsidiary of The Depository Trust & Clearing Corporation ("DTCC"). DTCC is the holding company for DTC, National Securities Clearing Corporation and Fixed Income Clearing Corporation, all of which are registered clearing agencies. DTCC is owned by the users of its regulated subsidiaries. Access to the DTC system is also available to others, such as both U.S. and non-U.S. brokers and dealers, banks, trust companies and clearing corporations that clear through or maintain a custodial relationship with a DTC participant, either directly or indirectly. The rules applicable to DTC and DTC participants are on file with the SEC.

Purchases of securities within the DTC system must be made by or through DTC participants, which will receive a credit for the securities on DTC's records. The ownership interest of each actual acquirer of new securities is in turn to be recorded on the direct and indirect participants' records. Beneficial owners will not receive written confirmation from DTC of their purchase. Beneficial owners are, however, expected to receive written confirmations providing details of the transaction, as well as periodic statements of their holdings, from the direct or indirect participant through which the beneficial owner entered into the transaction. Transfers of ownership interests in the securities are to be accomplished by entries made on the books of direct and indirect participants acting on behalf of beneficial owners. Beneficial owners will not receive certificates representing their ownership interests in securities, except in the event that use of the book-entry system for the securities is discontinued.

To facilitate subsequent transfers, the securities deposited by direct participants with DTC will be registered in the name of DTC's partnership nominee, Cede & Co., or such other name as may be requested by an authorized representative of DTC. The deposit of securities with DTC and their registration in the name of Cede & Co. or such other nominee will not effect any change in beneficial ownership. DTC has no knowledge of the actual beneficial owners of the securities; DTC's records reflect only the identity of the direct participants to whose accounts the securities are credited, which may or may not be the beneficial owners. The participants are responsible for keeping account of their holdings on behalf of their customers.

Conveyance of notices and other communications by DTC to its direct participants, by its direct participants to indirect participants, and by its direct and indirect participants to beneficial owners of the securities will be governed by arrangements among them, respectively, subject to any statutory or regulatory requirements as may be in effect from time to time.

Redemption notices will be sent to DTC. If less than all of the securities are being redeemed, DTC will determine the amount of the interest of each direct participant to be redeemed in accordance with its then current procedures.

Neither DTC nor Cede & Co. (nor any other DTC nominee) will consent or vote with respect to securities unless authorized by a direct participant in accordance with DTC's procedures. Under its usual procedures, DTC mails an omnibus proxy to the issuer as soon as possible after the record date. The omnibus proxy assigns Cede & Co.'s consenting or voting rights to those direct participants to whose accounts such securities are credited on the record date (identified in a listing attached to the omnibus proxy).

Distribution payments on the securities will be made to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC. DTC's usual practice is to credit direct participants' accounts upon DTC's receipt of funds and corresponding detail information from the issuer or agent on the relevant payment date in accordance with their respective holdings shown on DTC's records. Payments by DTC participants to beneficial owners will be governed by standing instructions and customary practices and will be the responsibility of such participants and not of DTC, the agent or the issuer, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment of distributions to Cede & Co. (or other nominee as may be requested by an authorized representative of DTC) is the responsibility of the issuer or agent, disbursements of such payments to direct participants are the responsibility of DTC, and disbursements of such payments to the beneficial owners are the responsibility of direct and indirect participants.

DTC may discontinue providing its services as depository with respect to the securities at any time by giving reasonable notice to the issuer or agent. Under such circumstances, in the event that a successor depository is not obtained, security certificates are required to be printed and delivered.

The Bank may decide to discontinue use of the system of book-entry-only transfers through DTC (or a successor securities depository). In that event, security certificates will be printed and delivered to DTC.

The information in this section concerning DTC and DTC's book-entry system has been obtained from sources that we believe to be reliable, but we take no responsibility for the accuracy thereof.

Considerations Relating to Euroclear and Clearstream

Euroclear and Clearstream are securities clearing systems in Europe. Both systems clear and settle securities transactions between their participants through electronic, book-entry delivery of securities against payment.

Euroclear and Clearstream may be depositaries for a global security. In addition, if DTC is the depositary for a global security, Euroclear and Clearstream may hold interests in the global security as participants in DTC.

As long as any global security is held by Euroclear or Clearstream, as depositary, you may hold an interest in the global security only through an organization that participates, directly or indirectly, in Euroclear or Clearstream. If Euroclear or Clearstream is the depositary for a global security and there is no depositary in the United States, you will not be able to hold interests in that global security through any securities clearance system in the United States.

Payments, deliveries, transfers, exchanges, notices and other matters relating to the securities made through Euroclear or Clearstream must comply with the rules and procedures of those systems. Those clearing systems could change their rules and procedures at any time. We have no control over those systems or their participants, and we take no responsibility for their activities. Transactions between participants in Euroclear or Clearstream, on the one hand, and participants in DTC, on the other hand, when DTC is the depositary, would also be subject to DTC's rules and procedures.

Special Timing Considerations Relating to Transactions in Euroclear and Clearstream. Investors will be able to make and receive through Euroclear and Clearstream payments, deliveries, transfers, exchanges, notices and other transactions involving any securities held through those clearing systems only on days when those systems are open for business. These clearing systems may not be open for business on days when banks, brokers and other institutions are open for business in the United States.

In addition, because of time-zone differences, U.S. investors who hold their interests in the securities through these clearing systems and wish to transfer their interests, or to receive or make a payment or delivery or exercise any other right with respect to their interests, on a particular day may find that the transaction will not be effected until the next business day in Luxembourg or Brussels, as applicable. Thus, investors who wish to exercise rights that expire on a particular day may need to act before the expiration date. In addition, investors who hold their interests through both DTC and Euroclear or Clearstream may need to make special arrangements to finance any purchases or sales of their interests between the U.S. and European clearing systems, and those transactions may settle later than would be the case for transactions within one clearing system.

Considerations Relating to CDS

The information concerning CDS has been taken from, or is based upon, publicly available documents. CDS is Canada's national securities clearing and depository services organization. Functioning as a service utility for the Canadian financial community, CDS provides a variety of computer automated services for financial institutions and investment dealers active in Canadian and international capital markets. CDS participants ("CDS Participants") include banks, investment dealers and trust companies, and may include underwriters which participate in the distribution of the securities. Indirect access to CDS is available to other organizations that clear through or maintain a custodial relationship with a CDS Participant. Payments, deliveries, transfers, exchanges, notices and other actions relating to the securities made through CDS may only be processed through CDS Participants and must be completed in accordance with existing CDS rules and procedures. CDS operates in Montreal, Toronto, Calgary and Vancouver to centralize securities clearing functions through a central securities depository.

CDS is wholly owned by The Canadian Depositary for Securities Limited, a private corporation owned by TMX Group Limited, a reporting issuer in Canada. CDS is the clearing house for equity trading on both the Toronto and Montreal stock exchanges and also clears a substantial volume of "over-the-counter" trading in equities and bonds.

CDS may be a depositary for a global security. In addition, if DTC is the depositary for a global security, CDS may, on behalf of CDS Participants, hold an interest in the global security.

As long as any global security is held by CDS, as depositary, you may hold an interest in the global security only through an organization that participates, directly or indirectly, in CDS. If CDS is the depositary for a global security and there is no depositary in the United States, you will not be able to hold interests in that global security through any securities clearance system in the United States.

CDS could change its rules and procedures at any time. We have no control over CDS or its participants, and we take no responsibility for its activities. Transactions between participants in CDS, on the one hand, and participants in DTC, on the other hand, when DTC is the depositary, would also be subject to DTC's rules and procedures.

TAX CONSEQUENCES

UNITED STATES TAXATION

This section describes the material United States federal income tax consequences of owning and disposing of debt securities that we will offer. However, this section is only applicable to debt securities that are not subject to Non-Viability Contingent Capital Provisions of the type discussed above under "Non-Viability Contingent Capital Provisions." The tax treatment of debt securities that are subject to such a provision will be discussed in the applicable prospectus supplement or pricing supplement. In addition, this section does not discuss the tax treatment of owning and disposing of AT1s, including LRCNs. The tax characterization of AT1s, including LRCNs and the tax consequences of holding AT1s, including LRCNs will be discussed in the applicable prospectus supplement or pricing supplement.

This section is the opinion of Sullivan & Cromwell LLP, our United States federal income tax counsel. It applies to you only if you acquire debt securities in an offering and you hold debt securities as capital assets for tax purposes. This section does not address the tax consequences of owning or disposing of common shares, first preferred shares, warrants, or debt securities that are issued in bearer form. In addition, this section does not apply to persons other than U.S. holders (as defined below). The ownership of debt securities that pay interest from sources within the United States may give rise to material United States federal income tax consequences to persons other than U.S. holders. If a particular offering of debt securities is expected to pay interest from sources within the United States, the applicable supplement will specify that fact and may discuss the material United States federal income tax consequences to persons other than U.S. holders of owning such debt securities. This section addresses only United States federal income taxation and does not discuss all of the tax consequences that may be relevant to you in light of your individual circumstances, including foreign, state or local tax consequences, and tax consequences arising under the Medicare contribution tax on net investment income or the alternative minimum tax. This section does not apply to you if you are a member of a special class of holders subject to special rules, including:

- a dealer in securities or currencies;
- a trader in securities that elects to use a mark-to-market method of accounting for your securities holdings;
- a tax-exempt organization;
- a life insurance company;
- a person that owns debt securities that are a hedge or that are hedged against interest rate or currency risks;
- a person that holds debt securities as part of a straddle or conversion transaction;
- a person that purchases or sells debt securities as part of a wash sale for tax purposes;
- a person whose functional currency is not the U.S. dollar; or
- a bank.

This section is based on the Internal Revenue Code of 1986, as amended (the "Internal Revenue Code"), its legislative history, existing and proposed regulations, published rulings and court decisions, as well as on the income tax treaty between the United States of America and Canada. These laws are subject to change, possibly on a retroactive basis.

If a partnership holds the debt securities, the United States federal income tax treatment of a partner will generally depend on the status of the partner and the tax treatment of the partnership. A partner in a partnership holding the debt securities should consult its tax advisor with regard to the United States federal income tax treatment of an investment in the debt securities.

You are urged to consult your own tax advisor regarding the United States federal, state and local and other tax consequences of owning and disposing of debt securities offered under the prospectus in your particular circumstances.

This section describes the material United States federal income tax consequences of owning and disposing of debt securities to a U.S. holder. You are a U.S. holder if you are a beneficial owner of debt securities and you are:

- a citizen or resident of the United States;
- a domestic corporation, or other entity taxable as a corporation for United States federal income tax purposes, created or organized in or under the laws of the United States or of any subdivision thereof;
- an estate whose income is subject to United States federal income tax regardless of its source; or
- a trust if a United States court can exercise primary supervision over the trust's administration and one or more United States persons are authorized to control all substantial decisions of the trust.

This section deals only with debt securities that are due to mature 30 years or less from the date on which they are issued. The United States federal income tax consequences of owning and disposing of debt securities with a term of more than 30 years will be discussed in the applicable supplement and will not, unless otherwise specified in the applicable supplement, be taxed in accordance with the discussion in this section.

Classification of Debt Securities

All of the debt securities other than the bail-inable debt securities will be classified as debt instruments for United States federal income tax purposes, and the bail-inable debt securities should be classified as debt instruments for United States federal income tax purposes. The discussion herein assumes that the debt securities will be so treated.

Payments of Interest

Except as described below in the case of interest on a discount debt security that is not qualified stated interest, each as defined below under "— Original Issue Discount — General," you will be taxed on any interest on your debt securities, whether payable in U.S. dollars or a foreign currency, including a composite currency or basket of currencies other than U.S. dollars, as ordinary income at the time you receive the interest or when it accrues, depending on your method of accounting for United States tax purposes.

Unless the applicable supplement states otherwise, debt securities will, for United States federal income tax purposes, be accounted for as being issued by the Bank or one of its non-U.S. affiliates, rather than by a U.S. branch or subsidiary. Assuming this treatment is respected, interest paid by us on such debt securities and original issue discount, if any, included in income with respect to such debt securities (as described below under "— Original Issue Discount") will generally be income from sources outside the United States, subject to the rules regarding the foreign tax credit allowable to a U.S. holder. Under the foreign tax credit rules, interest and original issue discount included in income from sources outside the United States will generally be "passive" income for purposes of computing the foreign tax credit. If, on the contrary, a particular offering of debt securities is expected to pay interest from sources within the United States, the applicable supplement will state that fact. Interest from sources within the United States is not foreign source income for purposes of computing the foreign tax credit.

Cash Basis Taxpayers. If you are a taxpayer that uses the cash receipts and disbursements method of accounting for tax purposes and you receive an interest payment that is denominated in, or determined by reference to, a foreign currency, you would recognize income equal to the U.S. dollar value of the interest payment, based on the exchange rate in effect on the date of receipt, regardless of whether you actually convert the payment into U.S. dollars.

Accrual Basis Taxpayers. If you are a taxpayer that uses an accrual method of accounting for tax purposes, you may determine the amount of income that you recognize with respect to an interest payment denominated in, or determined by reference to, a foreign currency by using one of two methods. Under the first method, you would determine the amount of income accrued based on the average exchange rate in effect during the interest accrual period or, with respect to an accrual period that spans two taxable years, that part of the period within the taxable year.

If you elect the second method, you would determine the amount of income accrued on the basis of the exchange rate in effect on the last day of the accrual period, or, in the case of an accrual period that spans two taxable years, the exchange rate in effect on the last day of the part of the period within the taxable year. Additionally, under this second method, if you receive a payment of interest within five business days of the last day of your accrual period or taxable year, you may instead translate the interest accrued into U.S. dollars at the exchange rate in effect on the day that you actually receive the interest payment. If you elect the second method, it would apply to all foreign currency debt instruments that you hold at the beginning of the first taxable year to which the election applies and to all foreign currency debt instruments that you subsequently acquire. You may not revoke this election without the consent of the IRS.

When you actually receive an interest payment, including a payment attributable to accrued but unpaid interest upon the sale or retirement of your debt security, denominated in, or determined by reference to, a foreign currency for which you accrued an amount of income, you will recognize ordinary income or loss measured by the difference, if any, between the exchange rate that you used to accrue interest income and the exchange rate in effect on the date of receipt, regardless of whether you actually convert the payment into U.S. dollars.

Original Issue Discount

General. If you own a debt security, other than a debt security with a term of one year or less, it would be treated as a discount debt security issued at an original issue discount ("OID") if the amount by which the debt security's stated redemption price at maturity exceeds its issue price equals or is more than a *de minimis* amount. Generally, a debt security's issue price will be the first price at which a substantial amount of debt securities included in the issue of which the debt security is a part is sold to persons other than bond houses, brokers, or similar persons or organizations acting in the capacity of underwriters, placement agents, or wholesalers. A debt security's stated redemption price at maturity is the total of all payments provided by the debt security that are not payments of qualified stated interest. Generally, an interest payment on a debt security is qualified stated interest if it is one of a series of stated interest payments on a debt security that are unconditionally payable in cash or property, other than debt instruments of the Bank, at least annually at a single fixed rate, with certain exceptions for lower rates paid during some periods, applied to the outstanding principal amount of the debt security. There are special rules for variable rate debt securities that are discussed under "— Variable Rate Debt Securities".

In general, your debt security is not a discount debt security if the amount by which its stated redemption price at maturity exceeds its issue price is less than the *de minimis* amount of 1/4 of 1 percent of its stated redemption price at maturity multiplied by the number of complete years to its maturity. Your debt security will have *de minimis* original issue discount if the amount of the excess is less than the *de minimis* amount. If your debt security has *de minimis* original issue discount, you would include the *de minimis* amount in income as stated principal payments are made on the debt security, unless you make the election described below under "— Election to Treat All Interest as Original Issue Discount". You can determine the includible amount with respect to each such payment by multiplying the total amount of your debt security's *de minimis* original issue discount by a fraction equal to:

- the amount of the principal payment made

divided by:

- the stated principal amount of the debt security.

Generally, if your discount debt security matures more than one year from its date of issue, you would include OID in income before you receive cash attributable to that income. The amount of OID that you would include in income is calculated using a constant-yield method, and generally you would include increasingly greater amounts of OID in income over the life of your debt security. More specifically, you can calculate the amount of OID that you would include in income by adding the daily portions of OID with respect to your discount debt security for each day during the taxable year or portion of the taxable year that you hold your discount debt security. You can determine the daily portion by allocating to each day in any accrual period a pro rata portion of the OID allocable to that accrual period. You may select an accrual period of any length with respect to your discount debt security and you may vary the length of each accrual period over the term of your discount debt security. However, no accrual period may be longer than one year and each scheduled payment of interest or principal on the discount debt security must occur on either the first or final day of an accrual period.

You can determine the amount of OID allocable to an accrual period by:

- multiplying your discount debt security's adjusted issue price at the beginning of the accrual period by your debt security's yield to maturity; and then
- subtracting from this figure the sum of the payments of qualified stated interest on your debt security allocable to the accrual period.

You must determine the discount debt security's yield to maturity on the basis of compounding at the close of each accrual period and adjusting for the length of each accrual period. Further, you determine your discount debt security's adjusted issue price at the beginning of any accrual period by:

- adding your discount debt security's issue price and any accrued OID for each prior accrual period; and then
- subtracting any payments previously made on your discount debt security that were not qualified stated interest payments.

If an interval between payments of qualified stated interest on your discount debt security contains more than one accrual period, then, when you determine the amount of OID allocable to an accrual period, you would allocate the amount of qualified stated interest payable at the end of the interval, including any qualified stated interest that is payable on the first day of the accrual period immediately following the interval, pro rata to each accrual period in the interval based on their relative lengths. In addition, you would increase the adjusted issue price at the beginning of each accrual period in the interval by the amount of any qualified stated interest that has accrued prior to the first day of the accrual period but that is not payable until the end of the interval. You may compute the amount of OID allocable to an initial short accrual period by using any reasonable method if all other accrual periods, other than a final short accrual period, are of equal length.

The amount of OID allocable to the final accrual period is equal to the difference between:

- the amount payable at the maturity of your debt security, other than any payment of qualified stated interest; and
- your debt security's adjusted issue price as of the beginning of the final accrual period.

Acquisition Premium. If you purchase your debt security for an amount that is less than or equal to the sum of all amounts, other than qualified stated interest, payable on your debt security after the purchase date but is greater than the amount of your debt security's adjusted issue price, as determined above under "— General," the excess is acquisition premium. If you do not make the election described below under "— Election to Treat All Interest as Original Issue Discount," then you would reduce the daily portions of OID by a fraction equal to:

- the excess of your adjusted basis in the debt security immediately after purchase over the adjusted issue price of the debt security

divided by:

- the excess of the sum of all amounts payable, other than qualified stated interest, on the debt security after the purchase date over the debt security's adjusted issue price.

Pre-Issuance Accrued Interest. An election may be made to decrease the issue price of your debt security by the amount of pre-issuance accrued interest if:

- a portion of the initial purchase price of your debt security is attributable to pre-issuance accrued interest;
- the first stated interest payment on your debt security is to be made within one year of your debt security's issue date; and
- the payment would equal or exceed the amount of pre-issuance accrued interest.

If this election is made, a portion of the first stated interest payment will be treated as a return of the excluded pre-issuance accrued interest and not as an amount payable on your debt security.

Debt Securities Subject to Contingencies, Including Optional Redemption. Your debt security is subject to a contingency if it provides for an alternative payment schedule or schedules applicable upon the occurrence of a contingency or contingencies, other than a remote or incidental contingency, whether such contingency relates to payments of interest or of principal. In such a case, you would determine the yield and maturity of your debt security by assuming that the payments would be made according to the payment schedule most likely to occur if:

- the timing and amounts of the payments that comprise each payment schedule are known as of the issue date; and
- one of such schedules is significantly more likely than not to occur.

If there is no single payment schedule that is significantly more likely than not to occur, other than because of a mandatory sinking fund, you would include income on your debt security in accordance with the general rules that govern contingent payment obligations. These rules will be discussed in the applicable supplement.

Notwithstanding the general rules for determining yield and maturity, if your debt security is subject to contingencies, and either you or we have an unconditional option or options that, if exercised, would require payments to be made on the debt security under an alternative payment schedule or schedules, then:

- in the case of an option or options that we may exercise, we would be deemed to exercise or not exercise an option or combination of options in the manner that minimizes the yield on your debt security; and
- in the case of an option or options that you may exercise, you would be deemed to exercise or not exercise an option or combination of options in the manner that maximizes the yield on your debt security.

If both you and we hold options described in the preceding sentence, those rules would apply to each option in the order in which they may be exercised. You would determine the yield on your debt security for the purposes of those calculations by using any date on which your debt security may be redeemed or repurchased as the maturity date and the amount payable on such date in accordance with the terms of your debt security as the principal amount payable at maturity.

If a contingency, including the exercise of an option, actually occurs or does not occur contrary to an assumption made according to the above rules, then, except to the extent that a portion of your debt security is repaid as a result of this change in circumstances and solely to determine the amount and accrual of OID, you would redetermine the yield and maturity of your debt security by treating your debt security as having been retired and reissued on the date of the change in circumstances for an amount equal to your debt security's adjusted issue price on that date.

Election to Treat All Interest as Original Issue Discount. You may elect to include in gross income all interest that accrues on your debt security using the constant-yield method described above under "— General," with the modifications described below. For purposes of this election, interest will include stated interest, OID, *de minimis* original issue discount, market discount, *de minimis* market discount and unstated interest, as adjusted by any amortizable bond premium, described below under "— Debt Securities Purchased at a Premium," or acquisition premium.

If you make this election for your debt security, then, when you apply the constant-yield method:

- the issue price of your debt security would equal your cost;
- the issue date of your debt security would be the date you acquired it; and
- no payments on your debt security would be treated as payments of qualified stated interest.

Generally, this election will apply only to the debt security for which you make it; however, if the debt security has amortizable bond premium, you would be deemed to have made an election to apply amortizable bond premium against interest for all debt instruments with amortizable bond premium, other than debt instruments the interest on which is excludible from gross income, that you hold as of the beginning of the taxable year to which the election applies or any taxable year thereafter. Additionally, if you make this election for a market discount note, you would be treated as having made the election discussed below under "— Market Discount" to include market discount in income currently over the life of all debt instruments having market discount that you acquire on or after the first day of the first taxable year to which the election applies. You may not revoke any election to apply the constant-yield method to all interest on a debt security or the deemed elections with respect to amortizable bond premium or market discount debt securities without the consent of the IRS.

Variable Rate Debt Securities. Your debt security would be a variable rate debt security if:

- your debt security's issue price does not exceed the total noncontingent principal payments by more than the lesser of:
  - 0.015 multiplied by the product of the total noncontingent principal payments and the number of complete years to maturity from the issue date; or
  - 15 percent of the total noncontingent principal payments; and
- your debt security provides for stated interest, compounded or paid at least annually, only at:
  - one or more qualified floating rates;
  - a single fixed rate and one or more qualified floating rates;
  - a single objective rate; or
  - a single fixed rate and a single objective rate that is a qualified inverse floating rate; and
- the value of the rate on any date during the term of your debt security 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.

Your debt security would have a variable rate that is a qualified floating rate if:

- 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 your debt security is denominated; or
- the rate is equal to such a rate either:
  - multiplied by a fixed multiple that is greater than 0.65 but not more than 1.35; or
  - multiplied by a fixed multiple greater than 0.65 but not more than 1.35, increased or decreased by a fixed rate.

If your debt security provides for two or more qualified floating rates that are within 0.25 percentage points of each other on the issue date or can reasonably be expected to have approximately the same values throughout the term of the debt security, the qualified floating rates together constitute a single qualified floating rate.

Your debt security would not have a qualified floating rate, however, if the rate is subject to certain restrictions (including caps, floors, governors, or other similar restrictions), unless such restrictions are fixed throughout the term of the debt security or are not reasonably expected to significantly affect the yield on the debt security, as the case may be.

Your debt security would have a variable rate that is a single objective rate if:

- the rate is not a qualified floating rate; and
- the rate is determined using a single, fixed formula that is based on objective financial or economic information that is not within the control of or unique to the circumstances of the Bank or a related party.

Your debt security would not have a variable rate that is an objective rate, however, if it is reasonably expected that the average value of the rate during the first half of your debt security's term would be either significantly less than or significantly greater than the average value of the rate during the final half of your debt security's term.

An objective rate as described above is a qualified inverse floating rate if:

- the rate is equal to a fixed rate minus a qualified floating rate; and
- the variations in the rate can reasonably be expected to inversely reflect contemporaneous variations in the cost of newly borrowed funds.

Your debt security would also have a single qualified floating rate or an objective rate if interest on your debt security is stated at a fixed rate for an initial period of one year or less followed by either a qualified floating rate or an objective rate for a subsequent period, and either:

- the fixed rate and the qualified floating rate or objective rate have values on the issue date of the debt security that do not differ by more than 0.25 percentage points; or
- the value of the qualified floating rate or objective rate is intended to approximate the fixed rate.

In general, if your variable rate debt security provides for stated interest at a single qualified floating rate or objective rate, or one of those rates after a single fixed rate for an initial period provided certain requirements are satisfied, all stated interest on your debt security is qualified stated interest. In this case, the amount of OID, if any, is determined by using, in the case of a qualified floating rate or qualified inverse floating rate, the value as of the issue date of the qualified floating rate or qualified inverse floating rate, or, for any other objective rate, a fixed rate that reflects the yield reasonably expected for your debt security.

If your variable rate debt security does not provide for stated interest at a single qualified floating rate or a single objective rate, and also does not provide for interest payable at a fixed rate other than a single fixed rate for an initial period, you generally would determine the interest and OID accruals on your debt security by:

- determining a fixed rate substitute for each variable rate provided under your variable rate debt security;
- constructing the equivalent fixed rate debt instrument, using the fixed rate substitute described above;
- determining the amount of qualified stated interest and OID with respect to the equivalent fixed rate debt instrument; and
- adjusting for actual variable rates during the applicable accrual period.

When you determine the fixed rate substitute for each variable rate provided under the variable rate debt security, you generally will use the value of each variable rate as of the issue date or, for an objective rate that is not a qualified inverse floating rate, a rate that reflects the reasonably expected yield on your debt security.

If your variable rate debt security provides for stated interest either at one or more qualified floating rates or at a qualified inverse floating rate and also provides for stated interest at a single fixed rate other than at a single fixed rate for an initial period, you generally would determine interest and OID accruals by using the method described in the previous paragraph. However, your variable rate debt security would be treated, for purposes of the first three steps of the determination, as if your debt security had provided for a qualified floating rate, or a qualified inverse floating rate, rather than the fixed rate. The qualified floating rate, or qualified inverse floating rate, that replaces the fixed rate must be such that the fair market value of your variable rate debt security as of the issue date approximates the fair market value of an otherwise identical debt instrument that provides for the qualified floating rate, or qualified inverse floating rate, rather than the fixed rate.

Short-Term Debt Securities. In general, if you are an individual or other cash basis U.S. holder of a short-term debt security, you are not required to accrue OID for United States federal income tax purposes unless you elect to do so (although it is possible that you may be required to include any stated interest in income as you receive it). If you are an accrual basis taxpayer, a taxpayer in a special class, including, but not limited to, a regulated investment company, common trust fund, or a certain type of pass-through entity, or a cash basis taxpayer who so elects, you would be required to accrue OID on short-term debt securities on either a straight-line basis or under the constant-yield method, based on daily compounding. If you are not required and do not elect to include OID in income currently, any gain you realize on the sale or retirement of your short-term debt security would be ordinary income to the extent of the accrued OID, which will be determined on a straight-line basis unless you make an election to accrue the OID under the constant-yield method, through the date of sale or retirement. However, if you are not required and do not elect to accrue OID on your short-term debt securities, you would be required to defer deductions for interest on borrowings allocable to your short-term debt securities in an amount not exceeding the deferred income until the deferred income is realized.

When you determine the amount of OID subject to these rules, you must include all interest payments on your short-term debt security, including stated interest, in your short-term debt security's stated redemption price at maturity.

Foreign Currency Discount Notes. If your discount note is denominated in, or determined by reference to, a foreign currency, you would determine OID for any accrual period on your discount note in the foreign currency and then translate the amount of OID into U.S. dollars in the same manner as stated interest accrued by an accrual basis U.S. holder, as described under "— U.S. Holders — Payments of Interest". You may recognize ordinary income or loss when you receive an amount attributable to OID in connection with a payment of interest or the sale or retirement of your note.

Market Discount

You would be treated as if you purchased your debt security, other than a short-term debt security, at a market discount, and your debt security will be a market discount debt security if:

- you purchase your debt security for less than its issue price as determined above under "— Original Issue Discount — General"; and
- the difference between the debt security's stated redemption price at maturity or, in the case of a discount debt security, the debt security's revised issue price (i.e., the issue price increased by the amount of accrued OID), and the price you paid for your debt security is equal to or greater than 1/4 of 1 percent of your debt security's stated redemption price at maturity multiplied by the number of complete years to the debt security's maturity. To determine the revised issue price of your debt security for these purposes, you generally add any OID that has accrued on your debt security to its issue price.

If your debt security's stated redemption price at maturity or, in the case of a discount debt security, its revised issue price, exceeds the price you paid for the debt security by less than 1/4 of 1 percent of your debt security's stated redemption price at maturity multiplied by the number of complete years to the debt security's maturity, the excess constitutes *de minimis* market discount, and the rules discussed below are not applicable to you.

You must treat any gain you recognize on the maturity or disposition of your market discount debt security as ordinary income to the extent of the accrued market discount on your debt security. Alternatively, you may elect to include market discount in income currently over the life of your debt security. If you make this election, it would apply to all debt instruments with market discount that you acquire on or after the first day of the first taxable year to which the election applies. You may not revoke this election without the consent of the IRS. If you own a market discount debt security and do not make this election, you would generally be required to defer deductions for interest on borrowings allocable to your debt security in an amount not exceeding the accrued market discount on your debt security until the maturity or disposition of your debt security.

If you own a market discount debt security, the market discount would accrue on a straight-line basis unless an election is made to accrue market discount using a constant-yield method. If you make this election, it would apply only to the debt security with respect to which it is made and you may not revoke it. You would, however, not include accrued market discount in income unless you elect to do so as described above.

Debt Securities Purchased at a Premium

If you purchase your debt security for an amount that is in excess of its principal amount (or, in the case of a discount debt security, in excess of its stated redemption price at maturity), you may elect to treat the excess as amortizable bond premium. If you make this election, you would reduce the amount required to be included in your income each accrual period with respect to interest on your debt security by the amount of amortizable bond premium allocable to that accrual period, based on a constant yield method.

If the amortizable bond premium allocable to an accrual period exceeds your interest income from your debt security for such accrual period, such excess is first allowed as a deduction to the extent of interest included in your income in respect of the debt security in previous accrual periods and is then carried forward to your next accrual period. If the amortizable bond premium allocable and carried forward to the accrual period in which your debt security is sold, retired or otherwise disposed of exceeds your interest income for such accrual period, you would be allowed an ordinary deduction equal to such excess.

If your debt security is denominated in, or determined by reference to, a foreign currency, you would compute your amortizable bond premium in units of the foreign currency and your amortizable bond premium would reduce your interest income in units of the foreign currency. Gain or loss recognized that is attributable to changes in exchange rates between the time your amortized bond premium offsets interest income and the time of the acquisition of your debt security is generally taxable as ordinary income or loss.

If you make an election to amortize bond premium, it would apply to all debt instruments, other than debt instruments the interest on which is excludible from gross income, that you hold at the beginning of the first taxable year to which the election applies or that you thereafter acquire, and you may not revoke it without the consent of the IRS. See also "— Original Issue Discount — Election to Treat All Interest as Original Issue Discount".

Purchase, Sale and Retirement of the Debt Securities

Your tax basis in your debt security will generally be the U.S. dollar cost, as defined below, of your debt security adjusted by:

- adding any OID or market discount previously included in income with respect to your debt security; and then
- subtracting any payments on your debt security that are not qualified stated interest payments and any amortizable bond premium applied to reduce interest on your debt security.

If you purchase your debt security with foreign currency, the U.S. dollar cost of your debt security will generally be the U.S. dollar value of the purchase price on the date of purchase. However, if you are a cash basis taxpayer, or an accrual basis taxpayer if you so elect, and your debt security is traded on an established securities market, as defined in the applicable Treasury regulations, the U.S. dollar cost of your debt security would be the U.S. dollar value of the purchase price on the settlement date of your purchase.

You will generally recognize gain or loss on the sale or retirement of your debt security equal to the difference between the amount you realize on the sale or retirement, excluding any amounts attributable to accrued but unpaid interest (which will be treated as interest payments), and your adjusted tax basis in your debt security. If your debt security is sold or retired for an amount in foreign currency, the amount you realize would be the U.S. dollar value of such amount on the date the debt security is disposed of or retired, except that in the case of a debt security that is traded on an established securities market, as defined in the applicable Treasury regulations, a cash basis taxpayer, or an accrual basis taxpayer that so elects, would determine the amount realized based on the U.S. dollar value of the foreign currency on the settlement date of the sale or retirement.

You will recognize capital gain or loss when you sell or retire your debt security, except to the extent:

- described above under "— Original Issue Discount — Short-Term Debt Securities" or "— Market Discount"; or
- attributable to changes in exchange rates as described below.

Capital gain of a noncorporate U.S. holder is generally taxed at preferential rates where the property is held for more than one year.

You must treat any portion of the gain or loss that you recognize on the sale or retirement of a debt security as ordinary income or loss to the extent attributable to changes in exchange rates. However, you take exchange gain or loss into account only to the extent of the total gain or loss you realize on the transaction.

Exchange of Amounts in Other than U.S. Dollars

If you receive foreign currency as interest on your debt security or on the sale or retirement of your debt security, your tax basis in such foreign currency would equal its U.S. dollar value when the interest is received or at the time of the sale or retirement. If you purchase foreign currency, you generally would have a tax basis equal to the U.S. dollar value of such foreign currency on the date of your purchase. If you sell or dispose of foreign currency, including if you use it to purchase debt securities or exchange them for U.S. dollars, any gain or loss recognized generally would be ordinary income or loss.

Indexed Debt Securities and Exchangeable Debt Securities

The applicable supplement will discuss any special United States federal income tax rules with respect to indexed notes, other debt securities that are subject to the rules governing contingent payment obligations and debt securities exchangeable for stock or securities of the Bank or another entity or entities, into the cash value therefor or into any combination of the above.

Treasury Regulations Requiring Disclosure of Reportable Transactions

Treasury regulations require United States taxpayers to report certain transactions that give rise to a loss in excess of certain thresholds (a "Reportable Transaction"). Under these regulations, if the debt securities are denominated in a foreign currency, a U.S. holder (or a U.S. alien holder that holds the debt securities in connection with a U.S. trade or business) that recognizes a loss with respect to the debt securities that is characterized as an ordinary loss due to changes in currency exchange rates (under any of the rules discussed above) would be required to report the loss on IRS Form 8886 (Reportable Transaction Statement) if the loss exceeds the thresholds set forth in the regulations. For individuals and trusts, this loss threshold is $50,000 in any single taxable year. For other types of taxpayers and other types of losses, the thresholds are higher. You should consult with your tax advisor regarding any tax filing and reporting obligations that may apply in connection with acquiring, owning and disposing of debt securities.

Information With Respect to Foreign Financial Assets

A U.S. holder who, during any taxable year, holds any interest in "specified foreign financial assets" with an aggregate value in excess of $50,000 (and in some circumstances, a higher threshold) may be required to file an information report with respect to such assets with his or her tax returns. "Specified foreign financial assets" may include financial accounts maintained by foreign financial institutions, as well as any of the following, but only if they are held for investment and not held in accounts maintained by financial institutions: (i) stocks and securities issued by non-United States persons, (ii) financial instruments and contracts that have non-United States issuers or counterparties, and (iii) interests in foreign entities. Holders are urged to consult their tax advisors regarding the application of this reporting requirement to their ownership of the debt securities.

Information Reporting and Backup Withholding

In general, if you are a noncorporate U.S. holder, the Bank and other payors are required to report to the IRS all payments of principal, any premium and interest on your debt security within the United States. Information reporting may also apply in respect of the accrual of OID on a discount debt security. In addition, the Bank and other payors are required to report to the IRS any payment of proceeds of the sale of your debt security before maturity within the United States. Additionally, backup withholding may apply to such payments, including payments of OID, if you fail to provide an accurate taxpayer identification number, or (in the case of interest payments) you are notified by the IRS that you have failed to report all interest and dividends required to be shown on your federal income tax returns.

In general, payment of the proceeds from the sale of debt securities effected at a foreign office of a broker will not be subject to information reporting or backup withholding. However, a sale effected at a foreign office of a broker could be subject to information reporting in the same manner as a sale within the United States (and in certain cases may be subject to backup withholding as well) if (i) the broker has certain connections to the United States, (ii) the proceeds or confirmation are sent to the United States or (iii) the sale has certain other specified connections with the United States. In addition, certain foreign brokers may be required to report the amount of gross proceeds from the sale or other disposition of debt securities under FATCA (as defined below) if you are, or are presumed to be, a United States person.

Backup withholding is not an additional tax. You generally may obtain a refund of any amounts withheld under the backup withholding rules that exceed your income tax liability by filing a refund claim with the IRS.

Information With Respect to FATCA

Sections 1471 through 1474 of the Internal Revenue Code of 1986, as amended (commonly referred to as "FATCA"), impose a new reporting regime and potentially a 30% withholding tax with respect to certain payments to (i) any non-U.S. financial institution (a "foreign financial institution," or "FFI" (as defined by FATCA)) that is receiving a payment on an investor's behalf that does not become a "Participating FFI" by entering into an agreement with the IRS to provide the IRS with certain information in respect of its account holders and investors or is not otherwise exempt from or in deemed compliance with FATCA and (ii) in certain instances, an investor who does not provide information sufficient to determine whether the investor is a U.S. person or in the case of certain non-financial non-exempt entities does not provide information sufficient to determine whether the investor has substantial U.S. owners. The Bank is classified as an FFI. The Bank anticipates that any debt securities issued in global form will be held by FFIs that are not non-Participating FFIs, but there is no guarantee that a custodian or broker through which an investor holds a debt security will not be a non-Participating FFI.

The new withholding regime is now in effect for payments from sources within the United States and will apply to "foreign passthru payments" (a term not yet defined) made no earlier than the date that is two years after the date on which final U.S. Treasury regulations defining the term "foreign passthru payment" are published in the U.S. Federal Register. This withholding would only apply to payments in respect of any debt securities that are issued on or after the date that is six months after the date on which final U.S. Treasury regulations defining the term "foreign passthru payment" are published in the U.S. Federal Register. If a debt security is issued on or after such date, the application of FATCA to such debt security will be disclosed in the applicable pricing supplement.

The United States and a number of other jurisdictions, including Canada, have entered into intergovernmental agreements to facilitate the implementation of FATCA (each, an "IGA"). These rules generally limit instances when FATCA withholding is required. Nevertheless, these IGAs currently contain no rules regarding the withholding, if any, that may be required on foreign passthru payments.

FATCA is particularly complex, and its application is uncertain at this time. The above description is based in part on regulations, official guidance and IGAs, all of which are subject to amendment or further interpretation by one or more governments or governmental agencies. Prospective investors should consult their tax advisors on how these rules may apply to the Bank and to payments they may receive in connection with the Securities.

CANADIAN TAXATION

In the opinion of Norton Rose Fulbright Canada LLP, Canadian tax counsel to the Bank, the following summary describes the principal Canadian federal income tax considerations generally applicable to a holder of senior debt securities or subordinated debt securities (other than AT1s, including LRCNs) (collectively, "debt securities") or warrants who acquires, as beneficial owner, debt securities or warrants, as applicable in the original offering or common shares of the Bank or any affiliate of the Bank on a conversion of debt securities, including on a bail-in conversion or Non-Viability Trigger Event, and who, at all relevant times, for the purposes of the application of the Income Tax Act (Canada) (the "Tax Act"): (i) is not resident and is not deemed to be resident in Canada; (ii) deals at arm's length with the Bank, any issuer of common shares, and any transferee resident (or deemed to be resident) in Canada to whom the holder disposes of debt securities; (iii) does not use or hold debt securities, warrants or common shares in or in the course of carrying on a business in Canada; (iv) is entitled to receive all payments (including any interest and principal) on the debt securities as beneficial owner; (v) is not a "specified non-resident shareholder" of the Bank for purposes of the Tax Act or a non-resident person not dealing at arm's length with a "specified shareholder" (within the meaning of subsection 18(5) of the Tax Act) of the Bank; and (vi) is not an insurer that carries on an insurance business in Canada and elsewhere (a "Non-resident Holder"). The tax characterization of AT1s, including LRCNs, and the tax consequences of holding AT1s, including LRCNs, will be discussed in the applicable prospectus supplement or pricing supplement.

This summary also assumes that a Non-resident Holder: (i) is not an entity in respect of which the Bank or any transferee resident (or deemed to be resident) in Canada to whom the Non-Resident Holder disposes of, loans or otherwise transfers debt securities or warrants is a "specified entity", and is not a "specified entity" in respect of such transferee (in each case for purposes of proposed amendments released by the Department of Finance (Canada) on April 29, 2022) (the "Hybrid Mismatch Proposals")"; and (ii) does not dispose of debt securities or warrants, under, or in connection with, a "structured arrangement" (as defined in the Hybrid Mismatch Proposals). The Hybrid Mismatch Proposals are in consultation form, are highly complex, and there remains significant uncertainty as to their interpretation and application. There can be no assurance that the Hybrid Mismatch Proposals will be enacted in their current form, or at all.

This summary is based upon the provisions of the Tax Act and the regulations thereunder (the "Regulations") in force on the date hereof and an understanding of the current published administrative practices and assessing policies of the Canada Revenue Agency. This summary takes into account all specific proposals to amend the Tax Act and Regulations publicly announced by or on behalf of the Minister of Finance (Canada) prior to the date hereof (the "Proposed Amendments") and assumes that all Proposed Amendments will be enacted in the form proposed. However, no assurances can be given that the Proposed Amendments will be enacted as proposed, or at all. This summary does not otherwise take into account or anticipate any changes in law or administrative or assessing practice, whether by legislative, regulatory, administrative or judicial action, nor does it take into account provincial, territorial or foreign income tax legislation. Subsequent developments could have a material effect on the following description.

This summary is of a general nature only and is not intended to be legal or tax advice to any particular holder and no representation is made with respect to the Canadian federal income tax consequences to any particular holder. This summary is not exhaustive of all Canadian federal income tax considerations. Accordingly, prospective investors should consult their own tax advisors with respect to their particular circumstances.

It is the intention of the Bank that the terms and conditions of any debt security or warrant, and in particular, any underlying security of such debt security or warrant, will not cause the debt security or warrant, as applicable to be "taxable Canadian property" (within the meaning of the Tax Act).

Canadian federal income tax considerations applicable to debt securities or warrants may be described particularly, when such debt securities or warrants are offered, in the applicable supplement related thereto. In the event the Canadian federal income tax considerations are described in such supplement, the following description will be superseded by the description in the supplement to the extent indicated therein.

In general, for the purpose of the Tax Act, all amounts not otherwise expressed in Canadian dollars must be converted into Canadian dollars based on the rate as quoted by the Bank of Canada for the applicable day or such other rate of exchange that is acceptable to the Minister of National Revenue (Canada).

Debt Securities

Interest paid or credited or deemed to be paid or credited by the Bank on a debt security (including amounts on account of, or in lieu of, or in satisfaction of interest, any amount paid at maturity in excess of the principal amount and interest deemed to be paid on a debt security in certain cases involving the assignment or other transfer of a debt security to a resident or deemed resident of Canada) to a Non-resident Holder will not be subject to Canadian non-resident withholding tax unless all or any portion of such interest (other than on a "prescribed obligation" described below) is contingent or dependent on the use of or production from property in Canada or is computed by reference to revenue, profit, cash flow, commodity price or any other similar criterion or by reference to dividends paid or payable to shareholders of any class or series of shares of the capital stock of a corporation ("Participating Debt Interest"). A "prescribed obligation" is a debt obligation the terms or conditions of which provide for an adjustment to an amount payable in respect of the obligation for a period during which the obligation was outstanding which adjustment is determined by reference to a change in the purchasing power of money (an "indexed debt obligation") and no amount payable in respect thereof, other than an amount determined by reference to a change in the purchasing power of money, is contingent or dependent upon the use of or production from property in Canada or is computed by reference to any of the criteria described in the definition of Participating Debt Interest.

In the event that a debt security the interest (or deemed interest) payable on which is not exempt from Canadian withholding tax is redeemed, cancelled or purchased by the Bank or any other person resident or deemed to be resident in Canada from a Non-resident Holder or is otherwise assigned or transferred by a Non-resident Holder to a person resident or deemed to be resident in Canada for an amount which exceeds, generally, the issue price thereof, the excess may be deemed to be interest and may, together with any interest that has accrued or has been deemed to have accrued on the debt security to that time, be subject to non-resident withholding tax. Such excess will not be subject to withholding tax if the debt security is considered to be an "excluded obligation" for purposes of the Tax Act. A debt security that: (i) is not an indexed debt obligation; (ii) was issued for an amount not less than 97 per cent. of the principal amount (as defined in the Tax Act) of the debt security, and (iii) the yield from which, expressed in terms of an annual rate (determined in accordance with the Tax Act) on the amount for which the debt security was issued does not exceed 4/3 of the interest stipulated to be payable on the debt security, expressed in terms of an annual rate on the outstanding principal amount from time to time, will be an excluded obligation for this purpose.

In the event a debt security held by a Non-resident Holder is converted to common shares on a conversion, including on a bail-in conversion or Non-Viability Trigger Event, the amount, if any, by which the fair market value of the common shares received on the conversion exceeds the sum of: (i) price for which the debt security was issued, and (ii) any amount that is paid in respect of accrued and unpaid interest owing on the debt security at the time of conversion (the "Conversion Interest") (the difference referred to as the "Excess Amount"), may be deemed to be interest paid to the Non-resident Holder. There is a risk that the Excess Amount (if any) and the Conversion Interest could be characterized as Participating Debt Interest and therefore subject to Canadian non-resident withholding tax unless certain exceptions apply. No advance tax ruling has been sought or obtained from CRA and Non-resident Holders of debt securities should consult their own tax advisors in this regard.

If applicable, the normal rate of Canadian non-resident withholding tax is 25%, but such rate may be reduced under the terms of an applicable income tax treaty.

Generally, there are no other taxes on income (including taxable capital gains) payable by a Non-resident Holder on interest, discount, or premium on a debt security or on the proceeds received by a Non-resident Holder on the disposition of a debt security including a redemption, payment on maturity, conversion (including a bail-in conversion or Non-Viability Trigger Event), cancellation or purchase.

Common Shares

Dividends paid or credited, or deemed under the Tax Act to be paid or credited, on common shares of the Bank or of any affiliate of the Bank that is a Canadian resident corporation to a Non-resident Holder will generally be subject to Canadian non-resident withholding tax at the rate of 25% on the gross amount of such dividends unless the rate is reduced under the provisions of an applicable income tax treaty or convention between Canada and the country of residence of the Non-resident Holder.

A Non-resident Holder will not be subject to tax under the Tax Act in respect of any capital gain realized on a disposition or deemed disposition of a common share unless the common share is or is deemed to be "taxable Canadian property" of the Non-resident Holder for the purposes of the Tax Act and the Non-resident Holder is not entitled to an exemption under an applicable income tax convention between Canada and the country in which the Non-resident Holder is resident.

Warrants

Warrants should be considered to be derivative contracts for Canadian federal income tax purposes. The following summary is based on such characterization. It is possible that the CRA or a court may determine that the warrants should be treated other than as described in the preceding sentence, in which case the treatment of the warrants for purposes of the Tax Act may be different than as described below.

A Non-Resident Holder will not be subject to tax (including withholding tax) under the Tax Act in respect the acquisition, holding or disposition (including a sale or exercise) of a warrant.

PLAN OF DISTRIBUTION

We may sell all or part of the debt securities at any time after effectiveness of the Registration Statement of which this prospectus forms a part in one or more of the following ways from time to time:

- through underwriters or dealers;
- through agents; or
- directly to one or more purchasers.

The offered securities may be distributed periodically in one or more transactions at:

- a fixed price or prices, which may be changed;
- market prices prevailing at the time of sale;
- prices related to the prevailing market prices; or
- negotiated prices.

The prospectus supplement will include:

- the initial public offering price;
- the names of any underwriters, dealers or agents;
- the purchase price of the securities;
- our proceeds from the sale of the securities;
- any underwriting discounts or agency fees and other underwriters' or agents' compensation;
- any discounts or concessions allowed or reallowed or paid to dealers;
- the place and time of delivery of the securities; and
- any securities exchange on which the securities may be listed.

If underwriters are used in the sale, they will buy the securities for their own account. The underwriters may then resell the securities in one or more transactions, at any time or times at a fixed public offering price or at varying prices. The underwriters may change from time to time any fixed public offering price and any discounts or commissions allowed or re-allowed or paid to dealers. If dealers are utilized in the sale of the securities, we will sell the securities to the dealers as principals. The dealers may then resell the securities to the public at varying prices to be determined by such dealers.

In connection with the offering of securities, we may grant to the underwriters an option to purchase additional securities to cover over-allotments, if any, at the initial public offering price (with an additional underwriting commission), as may be set forth in the prospectus supplement for such securities. If we grant any over-allotment option, the terms of the option will be set forth in the prospectus supplement for the securities.

This prospectus may be delivered by underwriters and dealers in connection with short sales undertaken to hedge exposures under commitments to acquire our securities to be issued on a delayed or contingent basis.

Underwriters, dealers and agents that participate in the distribution of the securities may be underwriters as defined in the Securities Act. Any discounts or commissions that we pay them and any profit they receive when they resell the securities may be treated as underwriting discounts and commissions under that Act. We may have agreements with underwriters, dealers and agents to indemnify them against certain civil liabilities, including liabilities under the Securities Act, to contribute with respect to payments which they may be required to make in respect of such liabilities and to reimburse them for certain expenses.

Each series of offered securities will be a new issue of securities and will have no established trading market. Securities may or may not be listed on a national or foreign securities exchange or automated quotation system. Any underwriters or agents to whom securities are sold for public offering or sale may make, but are not required to make, a market in the securities, and the underwriters or agents may discontinue making a market in the securities at any time without notice. No assurance can be given as to the liquidity or the existence of trading markets for any securities.

Any underwriters utilized may engage in stabilizing transactions and syndicate covering transactions in accordance with Rule 104 of Regulation M under the Exchange Act. Stabilizing transactions permit bids to purchase the offered securities or any underlying security so long as the stabilizing bids do not exceed a specified maximum. Syndicate covering transactions involve purchases of securities in the open market after the distribution has been completed in order to cover syndicate short positions. Such stabilizing transactions and syndicate covering transactions may cause the price of the offered securities to be higher than would be the case in the absence of such transactions.

Under Rule 15c6-1 of the Exchange Act, trades in the secondary market generally are required to settle in two business days, unless the parties to any such trade expressly agree otherwise. The prospectus supplement or pricing supplement may provide that the original issue date for a series of securities may be more than two scheduled business days after the trade date for the securities. Accordingly, in such a case, if you wish to trade the securities on any date prior to the second business day before the original issue date for the securities, you will be required, by virtue of the fact that the securities initially are expected to settle in more than two scheduled business days after the trade date for the securities, to make alternative settlement arrangements to prevent a failed settlement. In February 2023, Rule 15c6-1 was amended to require trades in the secondary market to settle in one business day, unless the parties to any such trade expressly agree otherwise, effective May 28, 2024. Therefore, for any securities offered under this prospectus on or after the May 28, 2024 effective date, the same process described in this paragraph will apply and purchasers who wish to trade such securities at any time prior to the first business day before the original issue date will be required to make alternative settlement arrangements to prevent a failed settlement.

While the senior debt securities are exempted from the prospectus requirement under the securities laws of each province or territory of Canada, the subordinated debt securities and warrants are not exempt and have not been and will not be qualified for any non-exempt distribution under such laws. Any sales of subordinated debt securities and warrants in Canada will be made only with our prior consent and only in compliance with the securities laws of Canada or any province or territory thereof.

Market-Making Resales by the Bank and its Affiliates

This prospectus may be used by the Bank, RBC Capital Markets, LLC or certain other of the Bank's affiliates (the "Market-Makers") in connection with offers and sales of the notes in market-making transactions. A Market-Maker may engage in market-making transactions only in those jurisdictions in which it has all necessary governmental and regulatory authorizations for such activity. In a market-making transaction, a Market-Maker may resell a security it acquires from other holders, after the original offering and sale of the security. Resales of this kind may occur in the open market or may be privately negotiated, at prevailing market prices at the time of resale or at related or negotiated prices. In these transactions, a Market-Maker may act as principal or agent, including as agent for the counterparty in a transaction in which the Market-Maker acts as principal, or as agent for both counterparties in a transaction in which the Market-Maker does not act as principal. The Market-Makers may receive compensation in the form of discounts or commissions, including from both counterparties in some cases.

The notes to be sold in market-making transactions include notes to be issued after the date of this prospectus, as well as notes previously issued.

The Bank does not expect to receive any proceeds from market-making transactions, except to the extent the Bank is entitled to the proceeds of sales of notes made by it in such transactions. The Bank does not expect that the Market-Makers will pay any proceeds from their market-making resales to it.

Information about the trade and settlement dates, as well as the purchase price, for a market-making transaction will be provided to the purchaser in a separate confirmation of sale.

Unless we or an agent informs you in your confirmation of sale that your notes are being purchased in their original offering and sale, you should assume that you are purchasing your notes in a market-making transaction.

Conflicts of Interest

Some of the underwriters, dealers and agents and their affiliates have engaged in, and may in the future engage in, investment banking and other commercial dealings in the ordinary course of business with us or our affiliates. They have received, or may in the future receive, customary fees and commissions for these transactions.

In addition, in the ordinary course of their business activities, the underwriters, dealers and agents and their affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers. Such investments and securities activities may involve securities and/or instruments of ours or our affiliates. If any of the underwriters, dealers and agents or their affiliates have a lending relationship with us, certain of those underwriters, dealers and agents or their affiliates routinely hedge, and certain other of those underwriters, dealers and agents or their affiliates may hedge, their credit exposure to us consistent with their customary risk management policies. Typically, such underwriters, dealers and agents and their affiliates would hedge such exposure by entering into transactions which consist of either the purchase of credit default swaps or the creation of short positions in our securities, including potentially the notes offered hereby. Any such credit default swaps or short positions could adversely affect future trading prices of the notes offered hereby. The underwriters, dealers and agents and their affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or financial instruments and may hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

Our affiliate, RBC Capital Markets, LLC, may participate in the distribution of the securities as an underwriter, dealer or agent. Any offering of securities in which RBC Capital Markets, LLC participates will be conducted in compliance with the applicable requirements of FINRA Rule 5121, a rule of the Financial Industry Regulatory Authority, Inc. (“FINRA”). RBC Capital Markets, LLC will not participate in the distribution of an offering of securities that do not have a bona fide public market within the meaning of Rule 5121 and are not investment grade rated within the meaning of Rule 5121 or securities in the same series that have equal rights and obligations as investment grade rated securities unless either (1) each member firm responsible for managing the public offering does not have a conflict of interest within the meaning of Rule 5121, is not an affiliate of any member that does have a conflict of interest, and meets the requirements of Rule 5121 with respect to disciplinary history or (2) a qualified independent underwriter has participated in the preparation of the prospectus supplement or other offering document for the offering of securities and has exercised the usual standards of due diligence with respect thereto. Neither RBC Capital Markets, LLC nor any other FINRA member participating in an offering of these securities that has a conflict of interest will confirm initial sales to any discretionary accounts over which it has authority without the prior specific written approval of the customer.

BENEFIT PLAN INVESTOR CONSIDERATIONS

A fiduciary of a pension, profit-sharing or other employee benefit plan subject to the Employee Retirement Income Security Act of 1974, as amended ("ERISA"), or an entity whose underlying assets include "plan assets" by reason of such plan's investment in the entity (collectively, "Plans") should consider the fiduciary standards of ERISA in the context of the Plan's particular circumstances before authorizing an investment in the securities offered hereby. 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 Plan, and whether the investment would involve a prohibited transaction under Section 406 of ERISA or Section 4975 of the Internal Revenue Code.

Section 406 of ERISA and Section 4975 of the Internal Revenue Code prohibit Plans, as well as individual retirement accounts, Keogh plans and other arrangements subject to Section 4975 of the Internal Revenue Code and entities whose underlying assets are considered to include "plan assets" of any such plan, account or arrangement (also "Plans"), from engaging in certain transactions involving "plan assets" with persons who are "parties in interest" under ERISA or "disqualified persons" under the Internal Revenue Code (collectively, "parties in interest") with respect to the Plan. A violation of these prohibited transaction rules may result in civil penalties or other liabilities under ERISA and/or an excise tax under Section 4975 of the Internal Revenue Code for those parties in interest that engage in a prohibited transaction, unless relief is available under an applicable statutory, regulatory or administrative exemption.

Because of our business, we and our current and future affiliates may be parties in interest with respect to many Plans. The acquisition, holding or, if applicable, exchange of the securities offered hereby by a Plan with respect to which we or certain of our affiliates is or becomes a party in interest may constitute or result in a prohibited transaction under ERISA or Section 4975 of the Internal Revenue Code, unless those securities offered hereby are acquired pursuant to and in accordance with an applicable exemption. The U.S. Department of Labor has issued five prohibited transaction class exemptions, or "PTCEs," that may provide exemptive relief if required for direct or indirect prohibited transactions that may arise from the purchase or holding of the securities offered hereby. These exemptions are:

- PTCE 84-14, an exemption for certain transactions determined or effected by independent qualified professional asset managers;
- PTCE 90-1, an exemption for certain transactions involving insurance company pooled separate accounts;
- PTCE 91-38, an exemption for certain transactions involving bank collective investment funds;
- PTCE 95-60, an exemption for transactions involving certain insurance company general accounts; and
- PTCE 96-23, an exemption for plan asset transactions managed by in-house asset managers.

In addition, ERISA Section 408(b)(17) and Section 4975(d)(20) of the Internal Revenue Code provide statutory exemptive relief for certain arm's-length transactions with a person that is a party in interest solely by reason of providing services to Plans or being an affiliate of such a service provider. Under this exemption, the purchase and sale of the securities offered hereby will not constitute a prohibited transaction under ERISA or Section 4975 of the Internal Revenue Code, provided that neither the issuer of the securities offered hereby 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 provided further that the Plan pays no more and receives no less than "adequate consideration" in connection with the transaction (the "service provider exemption"). Any Plan fiduciary considering reliance on the service provider exemption or any other exemption is encouraged to consult with counsel regarding its availability. There can be no assurance that all of the conditions of any such exemptions will be satisfied with respect to transactions involving the securities offered hereby.

Certain employee benefit plans and arrangements, including those that are governmental plans (as defined in section 3(32) of ERISA), certain church plans (as defined in Section 3(33) of ERISA) and non-U.S. plans (as described in Section 4(b)(4) of ERISA (collectively "non-ERISA arrangements") are not subject to the requirements of ERISA or Section 4975 of the Internal Revenue Code but may be subject to similar provisions under applicable federal, state, local, non-U.S. or other laws, regulations or rules ("similar laws").

Any purchaser or holder of the securities offered hereby or any interest therein will be deemed to have represented (both on behalf of itself and any Plan) by its purchase and holding of the securities offered hereby that either (1) it is not a Plan and is not purchasing those securities offered hereby on behalf of or with "plan assets" of any Plan or (2) the purchase, holding and subsequent disposition of the securities offered hereby will not constitute or result in a non-exempt prohibited transaction under ERISA or the Internal Revenue Code. In addition, any purchaser or holder of the securities offered hereby or any interest therein which is, or is purchasing the securities offered hereby on behalf of or with assets of, a non-ERISA arrangement will be deemed to have represented by its purchase and holding of the securities offered hereby that its purchase, holding and subsequent disposition of the securities offered hereby will not violate the provisions of any similar law.

Due to the complexity of these rules and the penalties that may be imposed upon persons involved in non-exempt prohibited transactions, it is important that fiduciaries or other persons considering purchasing the securities offered hereby on behalf of or with the assets of any Plan or non-ERISA arrangement consult with their counsel regarding the potential consequences of any purchase, holding or exchange under ERISA, Section 4975 of the Internal Revenue Code and/or similar laws, as applicable, and the availability of any exemptive relief.

Each purchaser and holder of the securities offered hereby has exclusive responsibility for ensuring that its purchase and holding of the securities offered hereby does not violate the fiduciary or prohibited transaction rules of ERISA or the Internal Revenue Code or provisions of any similar laws. The sale of any securities offered hereby to any Plan or non-ERISA arrangement is in no respect a representation by us or any of our affiliates or representatives that such an investment is appropriate for, and meets all relevant legal requirements with respect to investments by Plans or non-ERISA arrangements generally or any particular Plan or non-ERISA arrangement. Neither this discussion nor anything provided in this prospectus is or is intended to be investment advice directed at any potential Plan or non-ERISA arrangement purchasers.

LIMITATIONS ON ENFORCEMENT OF U.S. LAWS AGAINST THE BANK, OUR MANAGEMENT AND OTHERS

We are a Canadian chartered bank. Many of our directors and executive officers, including many of the persons who signed the Registration Statement on Form F-3, of which this prospectus is a part, and some of the experts named in this document, reside outside the United States, and a substantial portion of our assets and all or a substantial portion of the assets of such persons are located outside the United States. As a result, it may be difficult for you to effect service of process within the United States upon such persons to enforce against them judgments of the courts of the United States predicated upon, among other things, the civil liability provisions of the federal securities laws of the United States. In addition, it may be difficult for you to enforce, in original actions brought in courts in jurisdictions located outside the United States, among other things, civil liabilities predicated upon such securities laws.

We have been advised by our Canadian counsel, Norton Rose Fulbright Canada LLP, that a judgment of a United States court predicated solely upon civil liability under such laws would probably be enforceable in Canada if the United States court in which the judgment was obtained has a basis for jurisdiction in the matter that was recognized by a Canadian court for such purposes. We have also been advised by such counsel, however, that there is substantial doubt whether an original action could be brought successfully in Canada predicated solely upon such civil liabilities.

VALIDITY OF SECURITIES

The validity of the debt securities and the warrants will be passed upon by Sullivan & Cromwell LLP, New York, New York, as to matters of New York law. The validity of senior debt securities, subordinated debt securities (other than LRCNs) and warrants will be passed upon by Norton Rose Fulbright Canada LLP, Toronto, Ontario, as to matters of Canadian law and applicable matters of Ontario and Québec law. The validity of the common shares and first preferred shares (other than LRCN Preferred Shares) will be passed upon by Norton Rose Fulbright Canada LLP, Toronto, Ontario. The validity of the LRCNs and LRCN Preferred Shares will be passed upon by Osler, Hoskin & Harcourt LLP, Toronto, Ontario, as to matters of Canadian law and applicable matters of Ontario and Quebec law. Davis Polk & Wardwell LLP, New York, New York will issue an opinion as to certain legal matters for the agents.

EXPERTS

The consolidated financial statements and management's assessment of the effectiveness of internal control over financial reporting (which is included in Management's Report on Internal Control over Financial Reporting) incorporated in this prospectus by reference to the Annual Report on Form 40-F for the year ended October 31, 2023 have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION

The estimated expenses in connection with the offerings hereunder, other than underwriting discounts and commissions, are as follows (in U.S. dollars):

Registration Statement filing fee	$ 9,622,743.36
Trustees' fees and expenses	$ 2,000,000
Legal fees and expenses	$ 15,198,000
Accounting fees and expenses	$ 500,000
Printing costs	$ 700,000
Miscellaneous	$ 700,000
Total	$28,720,743.36


RBC