

**Pricing Supplement, amending and restating a pricing supplement dated November 6, 2019, to the Short Form Base Shelf Prospectus dated January 30, 2018,  
the Prospectus Supplement thereto dated January 30, 2018 and  
the Prospectus Supplement thereto dated January 30, 2018**

*No securities regulatory authority has expressed an opinion about these securities and it is an offence to claim otherwise.*

*This pricing supplement together with the short form base shelf prospectus dated January 30, 2018, the prospectus supplement dated January 30, 2018 and the prospectus supplement dated January 30, 2018, to which it relates, as amended or supplemented, and each document incorporated by reference into such prospectus, constitutes a public offering of these securities only in those jurisdictions where they may be lawfully offered for sale and therein only by persons permitted to sell such securities.*

*The securities to be issued hereunder have not been, and will not be, registered under the United States Securities Act of 1933, as amended and, subject to certain exceptions, may not be offered, sold or delivered, directly or indirectly, in the United States of America or for the account or benefit of U.S. persons.*

**November 26, 2019**



**Royal Bank of Canada  
Senior Note Program  
Unit Linked Securities  
Maximum \$20,000,000 (200,000 Debt Securities)  
RBC U.S. ETF Tactical Asset Allocation RoC Securities (CAD Hedged), Series 4, F-Class  
Due December 5, 2039  
Non-Principal Protected Securities**

Royal Bank of Canada (the “**Bank**”) is offering up to \$20,000,000 of RBC U.S. ETF Tactical Asset Allocation RoC Securities (CAD Hedged), Series 4, F-Class (the “**Debt Securities**”), designed to provide investors with exposure to the shares (each, an “**Underlying Security**” and together, the “**Underlying Securities**”) of the iShares<sup>®</sup> iBoxx \$ High Yield Corporate Bond ETF (the “**HYG ETF**”), the iShares<sup>®</sup> 7-10 Year Treasury Bond ETF (the “**IEF ETF**”), the iShares<sup>®</sup> 20+ Year Treasury Bond ETF (the “**TLT ETF**” and together with the HYG ETF and the IEF ETF, the “**Bond ETFs**”) or the Vanguard Total Stock Market ETF (the “**VTI ETF**” and together with the Bond ETFs, the “**ETFs**” and each, an “**ETF**”) (each issuer of an ETF, an “**Underlying Security Issuer**” and collectively, the “**Underlying Security Issuers**”), depending on the Closing Level (defined herein) of the ICE BofAML US High Yield Master II Option-Adjusted Spread (the “**Index**”) and the Closing Price (defined herein) of the Underlying Securities of the VTI ETF and the Total Return (defined herein) of the Underlying Securities of the TLT ETF relative to their respective Moving Averages (defined herein) on each weekly Allocation Date (defined herein) in accordance with the Strategy (defined herein), while at the same time providing a partial hedge of the potential currency risk between the Canadian dollar currency, in which the Debt Securities and all payments under the Debt Securities to holders of the Debt Securities are denominated, and the United States dollar currency in which the notional investments in the Portfolio (defined below) are denominated.

The goal of this strategy is to be exposed to the performance of the Underlying Securities of:

- the IEF ETF when the level of the Index is sufficiently high;
- the HYG ETF when the level of the Index is neither sufficiently high nor low and the high yield trends observed on the Index are contracting;
- the VTI ETF when the level of the Index is either (a) sufficiently low or (b) neither sufficiently high nor low and the high yield trends observed on the Index are expanding and, in each case, the trends observed on the VTI ETF are positive; and
- one of the TLT ETF or the IEF ETF when the level of the Index is either (a) sufficiently low or (b) neither sufficiently high nor low and the high yield trends observed on the Index are expanding and, in each case, the trends observed on the VTI ETF are negative.

Please see “Portfolio” and “The Strategy” below for further details.

The return of the Debt Securities will reflect the return over the term to maturity of the Debt Securities of a notional portfolio (the “**Portfolio**”), consisting of the Underlying Securities of one of the four ETFs, determined and reallocated on a weekly basis based on the Strategy.

Holders of the Debt Securities will be subject to United States withholding tax on dividend equivalent payments under Section 871(m) of the United States Internal Revenue Code, except for certain retirement, pension or employee benefit entities or arrangements. Please see “Certain United States Federal Income Tax Considerations” in Appendix B for further details.

**The Debt Securities are not fixed income securities and are not designed to be alternatives to fixed income or money market instruments. The Debt Securities are structured products that possess downside risk.**

The initial estimated value of the Debt Securities as of the date of this pricing supplement is \$99.85 per Debt Security, which is less than the price to the public and is not an indication of the actual profit to the Bank or its affiliates. This initial estimated value of the Debt Securities was calculated by deducting the upfront portion of the Note Program Amount (defined herein) from the Principal Amount (defined herein). The actual value of the Debt Securities at any time will reflect many factors, cannot be predicted with accuracy, and may be less than this amount. **The initial estimated value of the Debt Securities does not take into account the ongoing fees and expenses applicable during the term of the Debt Securities, including the ongoing annual component of the Note Program Amount, or any Canadian foreign tax credits or deductions which may be available to the Bank in respect of foreign withholding taxes which may apply to dividends and other distributions received by the Bank if the Bank were to hedge its obligations under the Debt Securities by acquiring the Underlying Securities.** We describe our determination of the initial estimated value in more detail below. See “Risk Factors” and “Preparation of Initial Estimated Value”.

At maturity, each holder of a Debt Security will receive an amount for such Debt Security equal to the Redemption Amount (defined herein). The Redemption Amount will be subject to a minimum payment of \$1.00 per Debt Security and will vary throughout the term with the Variable Return (defined herein), which may be positive or negative. The Variable Return reflects the deduction of the fees and expenses of the offering because it is calculated net of the Note Program Amount. See “Summary of Fees and Expenses”. The Variable Return will also be affected by the CAD/USD Foreign Exchange Rate (defined herein) and may also be affected by a number of other factors beyond the control of the Bank. As a result, the Redemption Amount will not be determinable before maturity. See “Risk Factors”. If the Value of the Portfolio (defined herein) decreases or does not increase sufficiently, holders may receive less than the amount they invested in the Debt Securities and could lose some or substantially all of their investment in the Debt Securities.

Holders will also receive partial repayments of the Principal Amount (the “**Partial Principal Repayments**” and each, a “**Partial Principal Repayment**”) calculated quarterly and payable no later than the fifth Business Day (defined in the program supplement) following the end of each calendar quarter during the term of the Debt Securities (each a “**Payment Date**”), other than the calendar quarter in which the Final Valuation Date (defined herein) falls, equal to the sum of (i) the amount of any dividends or other distributions (subject to certain adjustments, as described herein) paid by the Underlying Security Issuers on the Underlying Securities in the Portfolio (the “**Equity Distributions**”) during the immediately preceding calendar quarter, and (ii) provided that the NAV per Debt Security (defined herein) is greater than or equal to \$1.25 on the applicable Payment Date, \$0.25 per Debt Security (each, a “**Guaranteed Payment**” and collectively, the “**Guaranteed Payments**”). The maximum cumulative total of Partial Principal Repayments paid per Debt Security over the term of the Debt Securities is \$99.00. If the cumulative total of Partial Principal Repayments (including, for certainty, Guaranteed Payments) otherwise payable in a calendar quarter, together with all previous calendar quarters, would exceed \$99.00 per Debt Security, then an amount equal to the sum of (i) the Equity Distributions paid in such calendar quarter and (ii) provided that the NAV per Debt Security is greater than or equal to \$1.25 on the applicable Payment Date, a Guaranteed Payment will be payable as interest to the extent of any such excess no later than the fifth Business Day following the end of such calendar quarter during the term of the Debt Securities other than the calendar quarter in which the Final Valuation Date falls, which will be paid on the Maturity Date (defined herein). For certainty, no Guaranteed Payment will be included in a Partial Principal Repayment or interest payment if the NAV per Debt Security is less than \$1.25 on the applicable Payment Date. See “Partial Principal Repayments”.

The Portfolio is notional only, meaning that the assets in the Portfolio will be used solely as a reference to calculate the amount payable on the Debt Securities. Holders of Debt Securities do not have an ownership interest or other interest (including, without limitation, redemption rights (if any), voting rights or rights to receive dividends or other distributions) in the assets in the Portfolio and will only have a right against the Bank to be paid any amounts due under the Debt Securities. All actions (e.g., purchases, sales and liquidations, dividends and other distributions, etc.) taken in connection with the Portfolio are notional actions only.

The Debt Securities will provide a partial hedge of the potential currency risk between the Canadian dollar currency, in which the Debt Securities and all payments under the Debt Securities to holders of the Debt Securities are denominated, including payment of the Redemption Amount at maturity, and the United States dollar currency in which the notional investments in the Portfolio are denominated. In order to accomplish this hedge, on the last Business Day of the calendar month immediately prior to the Initial Valuation Date (defined herein) and on the last Business Day of each calendar quarter thereafter, there will be a notional hedging of the Portfolio value at that time through the entering into of a Currency Forward (defined herein) that will lock in the Canadian dollar value of the Net Value of the Portfolio (defined herein) when it is calculated on the Issue Date (defined herein) and when it is recalculated on the last day of each calendar quarter thereafter during the term of the Debt Securities at the then prevailing CAD/USD Foreign Exchange Rate. However, the amount of any change in the Net Value of the Portfolio between the Issue Date and the last Business Day of each calendar quarter thereafter, including the amount of any notional dividends or other distributions, and the full Value of the Portfolio between the Final Currency Forward Date (defined herein) and the Final Valuation Date will be exposed to fluctuations in the exchange rate between the Canadian dollar and the United States dollar over each applicable period. The Value of the Portfolio will be calculated by the Calculation

Agent (defined herein) in Canadian dollars converted using the Daily Exchange Rate (defined herein) for the day such calculation is made, provided that any calculations with respect to the Redemption Amount will be calculated based on the applicable CAD/USD Foreign Exchange Rate.

The Debt Securities are described in this pricing supplement delivered together with our short form base shelf prospectus dated January 30, 2018 (the “**base shelf prospectus**”), the prospectus supplement establishing our Senior Note Program dated January 30, 2018 (the “**program supplement**”) and a prospectus supplement which generally describes equity, unit and debt linked securities that we may offer under our Senior Note Program dated January 30, 2018 (the “**product supplement**”).

**The Debt Securities will not constitute deposits insured under the *Canada Deposit Insurance Corporation Act*.**

**An investment in the Debt Securities involves risks. An investment in the Debt Securities is not the same as a direct investment in the Underlying Securities and investors have no rights with respect to the Underlying Securities, the ETFs, the securities comprising the Index or the securities comprising the Tracked Indices (defined herein). The Debt Securities are considered to be “specified derivatives” under applicable Canadian securities laws. If you purchase Debt Securities, you will be exposed to changes in the prices of the Underlying Securities and fluctuations in interest rates, among other factors. Price changes may be volatile and an investment in the Debt Securities may be considered to be speculative. Since the Debt Securities are not principal protected and the Principal Amount will be at risk, you could lose substantially all of your investment. See “Risk Factors”.**

Price: \$100 per Debt Security			
Minimum Subscription: \$5,000 (50 Debt Securities)			
	Price to public	Selling Commissions and Dealer’s fee <sup>(1)</sup>	Net proceeds to the Bank
Per Debt Security	\$100.00	\$0.15	\$99.85
Total <sup>(2)</sup>	\$20,000,000	\$30,000	\$19,970,000

(1) No sales commission will be paid in connection with this issuance of Debt Securities. An upfront note program amount of 0.15% of the Principal Amount of Debt Securities issued under this offering will be retained by the Bank. An agency fee will be paid out of the upfront portion of the Note Program Amount to Laurentian Bank Securities Inc. in an amount up to 0.15% of the Principal Amount of the Debt Securities issued under this offering for acting as independent agent.

(2) Reflects the maximum offering size of the Debt Securities. **There is no minimum amount of funds that must be raised under this offering. This means that the issuer could complete this offering after raising only a small proportion of the offering amount set out above.**

The Debt Securities are offered severally by RBC Dominion Securities Inc. (“**RBC DS**”) and Laurentian Bank Securities Inc. (collectively, the “**Dealers**”) as agents under a dealer agreement dated January 30, 2018, as amended or supplemented from time to time. **RBC DS is our wholly owned subsidiary. Consequently, we are a related and connected issuer of RBC DS within the meaning of applicable securities legislation.** See “Dealers” in this pricing supplement and “Plan of Distribution” in the program supplement.

The Debt Securities will not be listed on any stock exchange. Debt Securities may be resold using the Fundserv network at a price determined at the time of sale by the Calculation Agent, which price may be lower than the Principal Amount of such Debt Securities. There is no assurance that a secondary market for the Debt Securities will develop or be sustained. See “Secondary Market for Securities”, “Description of the Securities – Calculation Agent” and “Risk Factors” in the program supplement and “Secondary Market” in this pricing supplement.

#### **RBC Trademarks**

Lion & Globe symbol is a trademark of Royal Bank of Canada.

## Prospectus for Debt Securities

Debt Securities described in this pricing supplement will be issued under our Senior Note Program and will be unsecured, unsubordinated debt obligations. The Debt Securities are Senior Debt Securities (as defined in the base shelf prospectus referred to below) and are described in four separate documents: (1) the base shelf prospectus, (2) the program supplement, (3) the product supplement, and (4) this pricing supplement, all of which collectively constitute the “prospectus” for the Debt Securities. See “Prospectus for Securities” in the program supplement.

## Documents Incorporated by Reference

This pricing supplement is deemed to be incorporated by reference into the base shelf prospectus solely for the purpose of our Senior Note Program and the Debt Securities issued hereunder. Other documents are also incorporated or deemed to be incorporated by reference into the base shelf prospectus and reference should be made to the base shelf prospectus for full particulars.

## Marketing Materials

The version of the fact sheet for the Debt Securities that was filed with the securities commissions or similar regulatory authorities in each of the provinces and territories of Canada as “marketing materials” (as defined in National Instrument 41-101 – *General Prospectus Requirements*) on November 26, 2019 (the “**Amended Filing**”) is deemed to be incorporated by reference into the base shelf prospectus solely for the purpose of our Senior Note Program and the Debt Securities issued hereunder. Any version of marketing materials filed with the securities commission or similar regulatory authority in each of the provinces and territories of Canada in connection with this offering after the date hereof but prior to the termination of the distribution of the Debt Securities under this pricing supplement (including any amendments to, or an amended version of, the marketing materials) is deemed to be incorporated by reference herein and in the base shelf prospectus solely for the purpose of our Senior Note Program and the Debt Securities issued hereunder. Any such marketing materials are not part of this pricing supplement or the base shelf prospectus to the extent that the contents of the marketing materials have been modified or superseded by a statement contained in an amendment to this pricing supplement.

The version of the fact sheet for the Debt Securities that was filed with the securities commissions or similar regulatory authorities in each of the provinces and territories of Canada as marketing materials on November 6, 2019 (the “**Initial Filing**”) is not part of this pricing supplement or the base shelf prospectus to the extent that the contents of the Initial Filing have been modified or superseded by a statement contained in this pricing supplement. The Amended Filing modifies the Allocation Dates, Portfolio allocation periods and Portfolio allocations. Pursuant to Subsection 7 of Part 9A.3 – *Marketing Materials after a Receipt for a Final Base Shelf Prospectus* of National Instrument 44-102 – *Shelf Distributions*, the Bank prepared and filed the Amended Filing which was blacklined to the Initial Filing to show the modified statements, and the Amended Filing and blackline can be viewed under the Bank’s profile on [www.sedar.com](http://www.sedar.com).

## 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 harbour” 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 the base shelf prospectus and in the documents incorporated by reference therein, in the program supplement, in the product supplement, in this pricing supplement, in other filings with Canadian regulators or the United States Securities and Exchange Commission, in reports to shareholders and in other communications. Forward-looking statements in, or incorporated by reference in, this prospectus 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 section of our management’s discussion and analysis for the three and nine month periods ended or as at July 31, 2019 (the “**Q3 2019 Management’s Discussion and Analysis**”) and in the Economic, market and regulatory review and outlook section of our management’s discussion and analysis for the year ended October 31, 2018 (the “**2018 Management’s Discussion and Analysis**”) for Canadian, U.S., European and global economies, the regulatory environment in which we operate and the risk environment including our liquidity and funding risk, and includes our President and Chief Executive Officer’s statements. The forward-looking information contained in, or incorporated by reference in, this prospectus is 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 and strategic goals, and may not be appropriate for other purposes. Forward-looking statements are typically identified by words such as “believe”, “expect”, “foresee”, “forecast”, “anticipate”, “intend”, “estimate”, “goal”, “plan” and “project” and similar expressions of future or conditional verbs such as “will”, “may”, “should”, “could” or “would”.

By their very nature, forward-looking statements require us to make assumptions and are subject to inherent risks and uncertainties, 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 and that our financial performance objectives, vision and strategic goals will not be achieved. We caution readers not to place undue reliance on these 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: credit, market, liquidity and funding, insurance, operational, regulatory compliance, strategic, reputation, legal and regulatory environment, competitive and systemic risks and other risks discussed in the risk sections of the 2018 Management's Discussion and Analysis and the Risk management section of the Q3 2019 Management's Discussion and Analysis incorporated by reference herein; including global uncertainty, Canadian housing and household indebtedness, information technology and cyber risk, regulatory changes, digital disruption and innovation, data and third party related risks, climate change, the business and economic conditions in the geographic regions in which we operate, the effects of changes in government fiscal, monetary and other policies, tax risk and transparency, and environmental and social risk.

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 or the Debt Securities, investors and others should carefully consider the foregoing factors and other uncertainties and potential events. Material economic assumptions underlying the forward-looking statements contained in this prospectus 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 2018 Management's Discussion and Analysis, as updated by the Economic, market and regulatory review and outlook section of the Q3 2019 Management's Discussion and Analysis. 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 2018 Management's Discussion and Analysis and in the Risk management section of the Q3 2019 Management's Discussion and Analysis incorporated by reference in this prospectus.

**Royal Bank of Canada**  
**Senior Note Program**  
**Unit Linked Securities**  
**Maximum \$20,000,000 (200,000 Debt Securities)**  
**RBC U.S. ETF Tactical Asset Allocation RoC Securities (CAD Hedged), Series 4, F-Class**  
**Due December 5, 2039**  
**Non-Principal Protected Securities**

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

**Dealers:** RBC Dominion Securities Inc. (“**RBC DS**”) and Laurentian Bank Securities Inc.

Laurentian Bank Securities Inc., a dealer to which we are neither related nor connected, participated in the due diligence activities performed by the Dealers in respect of the offering, but did not participate in the structuring and pricing of the offering. See “Plan of Distribution” in the program supplement.

**Issue:** RBC U.S. ETF Tactical Asset Allocation RoC Securities (CAD Hedged), Series 4, F-Class due December 5, 2039 (the “**Debt Securities**”).

**Fundserv Code:** RBC8004

**Objective of the Debt Securities:**

The Debt Securities have been designed to provide investors with exposure to the shares (each, an “**Underlying Security**” and together, the “**Underlying Securities**”) of the iShares® iBoxx \$ High Yield Corporate Bond ETF (the “**HYG ETF**”), the iShares® 7-10 Year Treasury Bond ETF (the “**IEF ETF**”), the iShares® 20+ Year Treasury Bond ETF (the “**TLT ETF**” and together with the HYG ETF and the IEF ETF, the “**Bond ETFs**”) or the Vanguard Total Stock Market ETF (the “**VTI ETF**” and together with the Bond ETFs, the “**ETFs**” and each, an “**ETF**”) (each issuer of an ETF, an “**Underlying Security Issuer**” and collectively, the “**Underlying Security Issuers**”), depending on the Closing Level (defined below) of the ICE BofAML US High Yield Master II Option-Adjusted Spread (the “**Index**”) and the Closing Price (defined below) of the Underlying Securities of the VTI ETF and the Total Return (defined below) of the Underlying Securities of the TLT ETF relative to their respective Moving Averages (defined below) on each weekly Allocation Date (defined below) in accordance with the Strategy (defined below), while at the same time providing a partial hedge of the potential currency risk between the Canadian dollar currency, in which the Debt Securities and all payments under the Debt Securities to holders of the Debt Securities are denominated, and the United States dollar currency in which the notional investments in the Portfolio (defined below) are denominated.

The goal of this strategy is to be exposed to the performance of the Underlying Securities of:

- the IEF ETF when the level of the Index is sufficiently high;
- the HYG ETF when the level of the Index is neither sufficiently high nor low and the high yield trends observed on the Index are contracting;
- the VTI ETF when the level of the Index is either (a) sufficiently low or (b) neither sufficiently high nor low and the high yield trends observed on the Index are expanding and, in each case, the trends observed on the VTI ETF are positive; and
- one of the TLT ETF or the IEF ETF when the level of the Index is either (a) sufficiently low or (b) neither sufficiently high nor low and the high yield trends observed on the Index are expanding and, in each case, the trends observed on the VTI ETF are negative.

**Issue Price:** The Debt Securities will be issued at a price equal to their Principal Amount

(defined below).

<b>Minimum Investment:</b>	50 Debt Securities or \$5,000.
<b>Denomination:</b>	Debt Securities are issuable in denominations of \$100 (the “ <b>Principal Amount</b> ”) and in minimum increments of \$100.
<b>Issue Date:</b>	January 6, 2020 or such other date as may be agreed to by the Bank and the Dealers.
<b>Issue Size:</b>	The maximum issue size will be an aggregate amount of \$20,000,000.
<b>Initial Valuation Date:</b>	January 2, 2020.
<b>Final Valuation Date:</b>	December 1, 2039, being the third Exchange Day (defined in the product supplement) before the Maturity Date (defined below).
<b>Maturity Date:</b>	December 5, 2039 (approximately a 20-year term). See “Description of the Equity, Unit and Debt Linked Securities – Maturity Date and Amount Payable” in the product supplement.
<b>Principal at Risk Securities:</b>	All but 1% (subject to the Partial Principal Repayments (defined below)) of the Principal Amount of the Debt Securities is fully exposed. You could lose substantially all of your investment. See “Description of the Equity, Unit and Debt Linked Securities – Principal at Risk Securities” and “Risk Factors” in the product supplement.
<b>Return of Capital Securities:</b>	The Debt Securities are “RoC Securities”. See “Description of the Equity, Unit and Debt Linked Securities – Return of Capital Securities” in the product supplement.
<b>Portfolio:</b>	The notional portfolio (the “ <b>Portfolio</b> ”) will consist of the Underlying Securities of one of the four ETFs, determined and reallocated dynamically over the term of the Debt Securities on a weekly basis based on the Strategy.

On the Initial Valuation Date, an amount equal to \$99.85 per Debt Security (being equal to the Principal Amount per Debt Security less the \$0.15 upfront portion of the Note Program Amount (defined below)) will be notionally invested in the Portfolio.

The initial notional purchases of Underlying Securities for the Portfolio will be made on the Initial Valuation Date in United States dollars by converting \$99.85 per Debt Security from Canadian dollars to United States dollars at the CAD/USD Foreign Exchange Rate (defined below) on the immediately preceding day for which such rate is posted. Notional investments in the Portfolio will be denominated in United States dollars.

On the first Exchange Day following any Allocation Date on which the Strategy requires that the Portfolio be reallocated from the Underlying Securities of one ETF to the Underlying Securities of another ETF, the Underlying Securities to be removed will be notionally sold and the notional proceeds will be used to notionally purchase the Underlying Securities to be added to the Portfolio.

THE ALLOCATION OF THE PORTFOLIO AS BETWEEN THE UNDERLYING SECURITIES OF THE ETFs MAY CHANGE BETWEEN THE DATE OF THIS PRICING SUPPLEMENT AND THE ISSUE DATE BASED ON THE

APPLICATION OF THE STRATEGY ON THE ALLOCATION DATES THAT OCCUR FOLLOWING THE DATE OF THIS PRICING SUPPLEMENT AND PRIOR TO THE ISSUE DATE. SEE “THE STRATEGY”.

The composition of the Portfolio on the Issue Date will be published at [www.rbcnotes.com](http://www.rbcnotes.com).

Once selected for inclusion in the Portfolio, as determined by the Strategy, the Underlying Securities of the applicable ETF will remain in the Portfolio until the next Allocation Date on which such ETF is to be removed in accordance with the Strategy.

Debt Securities do not represent an interest in the Underlying Securities or in the component securities comprising the ETFs’ investment portfolios. The ETFs invest primarily in and holds the securities of the constituents of the Markit iBoxx<sup>®</sup> USD Liquid High Yield Index for the HYG ETF, the ICE U.S. Treasury 7-10 Year Bond Index for the IEF ETF, the ICE U.S. Treasury 20+ Year Bond Index for the TLT ETF and the CRSP US Total Market TR Index for the VTI ETF (each, a “**Tracked Index**” and together, the “**Tracked Indices**”). Holders of the Debt Securities will have no right or entitlement to the Underlying Securities, the ETFs or the securities comprising the Tracked Indices, including, without limitation, redemption rights (if any), voting rights or rights to receive dividends or other distributions paid on any of such securities (the indicative dividend yields on the Underlying Securities for the HYG ETF, IEF ETF, TLT ETF and VTI ETF as of November 1, 2019 were 4.992%, 1.799%, 2.097% and 1.797%, respectively, representing aggregate dividend yields of approximately 164.926%, 42.847%, 51.447% and 42.791%, respectively, compounded annually over the approximately twenty-year term, on the assumption that the dividend yields remain constant). There is no requirement for the Bank to hold any interest in the Underlying Securities or in the securities comprising the Tracked Indices.

This pricing supplement has been prepared for the sole purpose of assisting prospective investors in making an investment decision with respect to the Debt Securities. This pricing supplement relates only to the Debt Securities offered hereby and does not relate to the Underlying Securities, the ETFs, the Index and/or the Tracked Indices. The Bank and the Dealers have not verified the accuracy or completeness of any information pertaining to the ETFs, the Index or the Tracked Indices or determined whether there has been any omission by the managers of the ETFs, the sponsor of the Index (the “**Index Sponsor**”) or the Tracked Index Sponsors (defined in the product supplement) to disclose any facts, information or events which may have occurred prior to or subsequent to the date as of which any information has been furnished by the managers of the ETFs, the Index Sponsor or the Tracked Index Sponsors which may affect the significance or accuracy of such information. Neither the Bank nor any Dealer makes any representation that such publicly available documents or any other publicly available information regarding the ETFs, the Index, the Tracked Indices, the managers of the ETFs, the Index Sponsor or the Tracked Index Sponsors are accurate or complete. Prospective investors should independently investigate the ETFs, the Index, the Tracked Indices, the managers of the ETFs, the Index Sponsor and the Tracked Index Sponsors and decide whether an investment in the Debt Securities is appropriate. Neither the managers of the ETFs, the Index Sponsor nor the Tracked Index Sponsors have participated in the preparation of this pricing supplement and the Debt Securities are not in any way sponsored, endorsed, sold or promoted by the managers of the ETFs, the Index Sponsor or the Tracked Index Sponsors. See “Description of the Equity, Unit and Debt Linked Securities – Underlying Securities and Underlying Security Issuers” in the product supplement.

The decision to offer the Debt Securities pursuant to this supplement will have been taken independently of any decision by the Bank to purchase the Underlying Securities in the primary or secondary market. Except with respect to any hedging activities the Bank engages with respect to its obligations under the Debt Securities,



any decision by the Bank to purchase the Underlying Securities in the primary or in the secondary market will have been taken independently of the Bank's offering of the Debt Securities pursuant to this supplement. The employees responsible for our Senior Note Program are not privy to any information regarding either primary or secondary market purchases of the Underlying Securities made by the Bank in connection with any primary distribution made by the ETFs.

See "Description of the Equity, Unit and Debt Linked Securities – Underlying Securities and Underlying Security Issuers" in the product supplement. See Appendix A to this pricing supplement for summary information regarding the ETFs and the Index.

#### **The Strategy:**

The Underlying Securities to be notionally included in the Portfolio at any time over the term of the Debt Securities will be selected using the investment strategy described below (the "**Strategy**").

On the last Exchange Day of the week immediately preceding the Issue Date, and on the last Exchange Day of each week thereafter (each, an "**Allocation Date**"), the Strategy will (i) track the Closing Level, (ii) compare the Closing Price of the Underlying Securities of the VTI ETF on such Allocation Date to its Moving Average, and (iii) compare the Total Return of the Underlying Securities of the TLT ETF on such Allocation Date to its Moving Average, to determine the Portfolio allocation for the following period.

On each Allocation Date, the Strategy will determine the Portfolio for the period from and including the second Exchange Day following such Allocation Date to and including the first Exchange Day following the next Allocation Date in the following manner:

(i) if the Index has a Closing Level above 830, the Portfolio will be allocated to the Underlying Securities of the IEF ETF;

(ii) if the Index has a Closing Level between 485 and 830 (inclusive), the Portfolio will be allocated to the Underlying Securities of the:

(a) HYG ETF if the Index had a Closing Level above 830 on the most recent previous Allocation Date on which the Closing Level was not between 485 and 830 (inclusive);

(b) IEF ETF if (1) the Index had a Closing Level below 485 on the most recent previous Allocation Date on which the Closing Level was not between 485 and 830 (inclusive), (2) the Closing Price of the Underlying Securities of the VTI ETF is less than or equal to its Moving Average and (3) the Total Return of the Underlying Securities of the TLT ETF is less than or equal to its Moving Average;

(c) TLT ETF if (1) the Index had a Closing Level below 485 on the most recent previous Allocation Date on which the Closing Level was not between 485 and 830 (inclusive), (2) the Closing Price of the Underlying Securities of the VTI ETF is less than or equal to its Moving Average and (3) the Total Return of the Underlying Securities of the TLT ETF is greater than its Moving Average; or

(d) VTI ETF if (1) the Index had a Closing Level below 485 on the most recent previous Allocation Date on which the Closing Level was not between 485 and 830 (inclusive) and (2) the Closing Price of the Underlying Securities of the VTI ETF is greater than its Moving Average;

(iii) if the Index has a Closing Level below 485, the Portfolio will be allocated to the Underlying Securities of the:

(a) IEF ETF if (1) the Closing Price of the Underlying Securities of the VTI ETF is less than or equal to its Moving Average and (2) the Total Return of the Underlying Securities of the TLT ETF is less than or equal to its Moving Average;

- (b) TLT ETF if (1) the Closing Price of the Underlying Securities of the VTI ETF is less than or equal to its Moving Average and (2) the Total Return of the Underlying Securities of the TLT ETF is greater than its Moving Average; or
- (c) VTI ETF if the Closing Price of the Underlying Securities of the VTI ETF is greater than its Moving Average.

Every notional purchase and sale of an Underlying Security on any day will be made at a price equal to its Closing Price on such day.

The “**Closing Level**”, on any date, is the daily official closing level of the Index quoted on <https://fred.stlouisfed.org/series/BAMLH0A0HYM2> for such date, as determined by the Calculation Agent.

“**Closing Price**” means, in respect of an Underlying Security on any Exchange Day, the official closing price for that Underlying Security as announced by the Exchange (defined in the product supplement) on such Exchange Day, provided that, if on or after the Issue Date the Exchange changes the time of day at which such official closing price is determined or fails to announce such official closing price, the Calculation Agent may thereafter deem the Closing Price to be the price of that Underlying Security as of the time of day used by the Exchange to determine the official closing price prior to such change or failure to announce. On any day other than an Exchange Day, the Closing Price shall be the official closing price for that Underlying Security as announced by the Exchange on the immediately preceding Exchange Day.

“**Moving Average**” means, (i) in respect of the VTI ETF on any Allocation Date, the average Closing Prices of the Underlying Securities of the VTI ETF over the 200 Exchange Days including and immediately preceding such Allocation Date, and (ii) in respect of the TLT ETF on any Allocation Date, the average Total Return of the Underlying Securities of the TLT ETF over the 200 Exchange Days including and immediately preceding such Allocation Date.

“**Total Return**” means, in respect of an Underlying Security of the TLT ETF on any Exchange Day, an amount equal to the product of (A) multiplied by (B), where (A) is a fraction, the numerator of which is the sum of the Closing Price of the Underlying Securities of the TLT ETF on such Exchange Day plus the amount of any Equity Distributions paid by the Underlying Security Issuer on an Underlying Security of the TLT ETF on such Exchange Day and the denominator of which is the Closing Price of that Underlying Security on the immediately preceding Exchange Day, and (B) is the Total Return of an Underlying Security of the TLT ETF on the immediately preceding Exchange Day, without taking into account this item (B) for the first Exchange Day following the listing of the Underlying Securities of the TLT ETF.

The allocation of the Portfolio as between the Underlying Securities of the ETFs, the current Closing Level and the Total Return of the Underlying Securities of the TLT ETF will be published at [www.rbcnotes.com](http://www.rbcnotes.com).

In certain special circumstances, it may be necessary for the Calculation Agent to make adjustments to the Portfolio. See “Extraordinary Events”.

#### **Partial Principal Repayments:**

Holders will receive partial repayments in Canadian dollars of the Principal Amount (the “**Partial Principal Repayments**” and each, a “**Partial Principal Repayment**”) on each Payment Date (defined below) equal to the sum of (i) the amount of Equity Distributions (defined below), subject to certain adjustments as described below, paid during the immediately preceding calendar quarter (the “**Partial Principal Repayment Period**”), and (ii) provided that the NAV per Debt Security (defined

below) is greater than or equal to \$1.25 on the applicable Payment Date, \$0.25 per Debt Security (each, a “**Guaranteed Payment**” and collectively, the “**Guaranteed Payments**”). The maximum cumulative total of Partial Principal Repayments (including, for certainty, Guaranteed Payments) paid per Debt Security over the term of the Debt Securities is \$99.00. For certainty, no Guaranteed Payment will be included in a Partial Principal Repayment if the NAV per Debt Security is less than \$1.25 on the applicable Payment Date.

The Partial Principal Repayments will be calculated and payable quarterly no later than the fifth Business Day (defined in the program supplement) following the end of each Partial Principal Repayment Period (each a “**Payment Date**”) during the term of the Debt Securities other than the final Partial Principal Repayment Period prior to maturity.

The Partial Principal Repayment paid on each Payment Date, calculated without taking into account the Guaranteed Payment, will be notionally satisfied by the Equity Distributions (defined below), subject to certain adjustments as described below, paid during the corresponding Partial Principal Repayment Period, including any non-cash dividends or other distributions, which will be converted into their notional cash value, as determined by the Calculation Agent acting in good faith. The Equity Distributions will be converted to Canadian dollars at the CAD/USD Foreign Exchange Rate (defined below) for the last day of such calendar quarter in which such Equity Distributions are paid by the Underlying Security Issuers.

The Guaranteed Payments will be notionally satisfied by liquidating a number of Underlying Securities included in the Portfolio on the first Business Day of the next calendar quarter at a price equal to the applicable Closing Price on the first Exchange Day of the month, thereby reducing the number of Underlying Securities in the Portfolio and therefore the NAV per Debt Security, the Variable Return (defined below) and the Redemption Amount (defined below).

Notwithstanding the foregoing, if in any calendar quarter the cumulative total of Partial Principal Repayments (including, for certainty, Guaranteed Payments) otherwise payable in that and all previous calendar quarters would exceed \$99.00 per Debt Security, then in that and all subsequent calendar quarters no Partial Principal Repayments shall be made on the Debt Securities and interest (“**Pre-Maturity Interest**”) shall accrue on the Outstanding Principal Amount (defined below) of each such Debt Security equal to the sum of (i) the amount of Equity Distributions received on the Portfolio in the corresponding Partial Principal Repayment Period, converted to Canadian dollars at the applicable CAD/USD Foreign Exchange Rate on the last Business Day of such quarter, and (ii) provided that the NAV per Debt Security is greater than or equal to \$1.25 on the applicable Payment Date, the Guaranteed Payment for such quarter. Any Pre-Maturity Interest which so accrues in a calendar quarter shall be paid no later than the fifth Business Day following the end of each calendar quarter during the term of the Debt Securities, other than the calendar quarter in which the Final Valuation Date falls. For certainty, no Guaranteed Payment will be included in a payment of Pre-Maturity Interest if the NAV per Debt Security is less than \$1.25 on the applicable Payment Date.

The amount of any Equity Distributions shall be calculated net of a percentage reduction for withholding taxes that generally would be imposed by jurisdictions other than the United States and Canada on dividends paid to a resident of Canada on Underlying Securities of Underlying Security Issuers which are neither “United States Persons” as defined for United States withholding tax purposes nor Underlying Security Issuers which are resident in Canada (“**Non-U.S. Issuers**”), based on the Portfolio allocation. Such percentage reduction is generally expected to result in a reduction of 15% for Equity Distributions associated with dividends paid on Underlying Securities of Non-U.S. Issuers.

In addition, the Bank will withhold from each VTI Equity Distribution (defined below) (each, a “**Subject Payment**”) and remit to the Internal Revenue Service an amount equal to the product of (x) the rate of United States withholding generally applicable to each Canadian holder of Underlying Securities on dividends and (y) the Subject Payment (such amount, the “**IRS Remittance**”). Upon a sale of the Debt Security, a Non-United States Holder (defined in Appendix B) is deemed to receive any dividend equivalent amount that has accrued on the Debt Security up until the date of sale. The Bank will also withhold and remit to the Internal Revenue Service tax on such amounts. In the case of a Canadian resident investor that is generally subject to United States withholding at a rate of 15% on United States source dividends, this would result in the Subject Payment being reduced by the IRS Remittance. In the case of an RRSP, RRIF or DPSP which is not subject to United States withholding, the Bank will generally not withhold an amount for the IRS Remittance from the Subject Payment treated for such withholding tax purposes as being in respect of such RRSP, RRIF or DPSP. The Subject Payments would remain subject to the possible reductions described below in connection with the Reference Hedge. Please see Appendix B below for more information.

Although there is some uncertainty, the Bank intends to treat the Debt Securities as referencing in part “qualified indices” for purposes of the U.S. federal income tax provisions addressing “dividend equivalent” payments under Section 871(m) of the U.S. Internal Revenue Code of 1986, as amended. The portion of the Partial Principal Repayments and Pre-Maturity Interest that is not treated as referencing a “qualified index” will be subject to U.S. federal withholding tax on any “dividend equivalent” amount and the Bank or the applicable withholding agent will be entitled to withhold U.S. federal taxes without being required to pay any additional amounts with respect to amounts so withheld.

“**Equity Distributions**” means any dividends or other distributions paid by the Underlying Security Issuers on the Underlying Securities notionally included in the Portfolio, including, for certainty, VTI Equity Distributions.

“**VTI Equity Distributions**” means any Equity Distributions paid by the Underlying Security Issuer on the Underlying Securities of the VTI ETF.

The Bank may, but is not obligated to, hedge its obligations under the Debt Securities. If and to the extent that United States withholding taxes would become payable in respect of dividend equivalent payments made to the Reference Holder (defined in Appendix B) under the Reference Hedge (defined in Appendix B), the applicable Subject Payments will be reduced by a percentage generally equal to the rate of United States withholding tax (currently 15%) that would be payable (for the corresponding period) in respect of payments to the Reference Holder under the Reference Hedge (with a resulting reduction in the amount of the Variable Return). The reduced amount will be converted to Canadian dollars at the applicable CAD/USD Foreign Exchange Rate to determine the amount of the applicable Subject Payments. See “Certain United States Federal Income Tax Considerations” in Appendix B for a more detailed discussion of this risk.

For purposes of the above calculations, in determining the attributes of the Reference Hedge, the Calculation Agent shall, in its judgment, acting reasonably, seek to minimize adverse tax consequences to the Reference Holder. The Bank will disclose the amount of any notional United States (or other) withholding taxes in respect of payments under the Reference Hedge at [www.rbnotes.com](http://www.rbnotes.com).

Other than the Partial Principal Repayments and any Pre-Maturity Interest, no other payment on the Debt Securities will be payable by the Bank during the term of the Debt Securities.

**Outstanding Principal Amount:** The “**Outstanding Principal Amount**” on each \$100 Principal Amount per Debt Security at any particular time will be equal to: (i) \$100 minus (ii) the sum of all the

Partial Principal Repayments (before deducting withholding tax, if any) made on the Debt Security at or prior to the particular time.

**Variable Return:**

The “**Variable Return**” on each \$100 Principal Amount per Debt Security will be calculated by the Calculation Agent on the Final Valuation Date and will be equal to: (i) the NAV per Debt Security (defined below) minus (ii) the Outstanding Principal Amount in respect of such Debt Security. The Variable Return may be positive or negative.

**Valuation of the Debt Securities:**

The value of the Portfolio for the Debt Securities (the “**Value of the Portfolio**”) on any Business Day will be calculated by the Calculation Agent and will be equal to the product obtained by multiplying the Closing Price of the Underlying Securities notionally included in the Portfolio at such time by the number of such Underlying Securities, plus, without duplication, (i) any cash not yet notionally invested, (ii) the value of any notionally outstanding Currency Forward (defined below), (iii) on the Final Valuation Date and any of the Exchange Days between the Final Currency Forward Date (defined below) and the Final Valuation Date, the final Settlement Amount (defined below), if any, and (iv) an amount (the “**Final Distribution Amount**”) equal to any Equity Distributions (or the cash value of non-cash Equity Distributions, as determined by the Calculation Agent acting in good faith), net of a percentage reduction for withholding taxes on any Subject Payments described under “Partial Principal Repayments” above, that have not yet been used to notionally satisfy any portion of a Partial Principal Repayment or Pre-Maturity Interest, as applicable, at such time, expressed in Canadian dollars converted using the Daily Exchange Rate (defined below) for the day such calculation is made, provided that any calculations with respect to the Redemption Amount will be calculated based on the applicable CAD/USD Foreign Exchange Rate.

The net value of the Portfolio for the Debt Securities (the “**Net Value of the Portfolio**”) on any Business Day will be calculated by the Calculation Agent and will be the Value of the Portfolio less the ongoing portion of the Note Program Amount, as adjusted as referred to at “Partial Currency Hedge” below.

The upfront portion of the Note Program Amount will be satisfied on the Initial Valuation Date from the proceeds of the offering, thereby reducing the number of Underlying Securities that would have been otherwise notionally included initially in the Portfolio and therefore the initial NAV per Debt Security, the Variable Return and the Redemption Amount. The ongoing annual component of the Note Program Amount will be calculated based on the Value of the Portfolio and will accrue daily and be satisfied quarterly in arrears by liquidating a number of Underlying Securities notionally held in the Portfolio, thereby reducing the number of Underlying Securities notionally included in the Portfolio and therefore the NAV per Debt Security, the Variable Return and the Redemption Amount.

The NAV per Debt Security for the Debt Securities (the “**NAV per Debt Security**”) on any Business Day will be equal to the Net Value of the Portfolio divided by the number of Debt Securities outstanding on such Business Day and will be expressed in Canadian dollars.

99.85% of the Principal Amount of the Debt Securities will be converted into United States dollars on the Initial Valuation Date at the CAD/USD Foreign Exchange Rate for the immediately preceding day for which such rate is posted, and then will be notionally invested in the Portfolio on the Initial Valuation Date. The NAV per Debt Security will be approximately \$99.85 on the Issue Date and will take into account the Note Program Amount.

Notional investments in the Portfolio will be denominated in United States dollars.

The NAV per Debt Security will fluctuate throughout the term with the Net Value of the Portfolio, which will be affected by the Daily Exchange Rate, and may also be affected by a number of other factors beyond the control of the Bank. As a result, the Redemption Amount will not be determinable before the Maturity Date. See “Risk Factors”. The Calculation Agent may suspend the determination of the NAV per Debt Security during the existence of any state of affairs that makes those determinations impossible, impractical or prejudicial to holders of the Debt Securities.

“**Daily Exchange Rate**” means the exchange rate as provided by Reuters daily, using the Reuters Instrument Code “CAD=”.

**Payment at Maturity:**

At maturity, each holder of a Debt Security will receive a payment in Canadian dollars equal to the Redemption Amount. The “**Redemption Amount**” on each \$100 Principal Amount per Debt Security will be equal to the greater of: (i) the Outstanding Principal Amount of such Debt Security, plus the Variable Return (which may be positive or negative); and (ii) \$1.00.

**Partial Currency Hedge:**

The Debt Securities will provide a partial hedge of the potential currency risk between the Canadian dollar currency in which the Debt Securities and all payments under the Debt Securities, including payment of the Redemption Amount at maturity, are denominated, and the United States dollar currency in which the Underlying Securities are denominated, through the notional use of the currency hedge described below.

On the last Business Day of the calendar month immediately prior to the Initial Valuation Date (the “**Initial Currency Forward Date**”) and on the last Business Day of each calendar quarter thereafter, the Calculation Agent will assume that the Portfolio is partially hedged through a notional cash-settled three-month forward contract (the “**Currency Forward**”) to purchase a number of Canadian dollars in respect of the United States dollar equivalent of the Net Value of the Portfolio on such date (adjusted as described below), as determined by the Calculation Agent, acting in good faith. The rate applicable to any Currency Forward will be equal to the Reference Rate (defined below) on such date.

The “**Reference Rate**” on any date with respect to any Currency Forward will be equal to the market rate quoted to the Calculation Agent by a provider of currency forwards on such date, which market rate is typically similar to (but not precisely the same as) the market rate posted by the Bloomberg composite quotation system on such date. Such market rate will be (a) quoted by a provider that is independent of the Calculation Agent or (b) the best rate among rates quoted by four providers (which may include an affiliate of the Calculation Agent but will include at least three providers that are independent of the Calculation Agent).

If the Initial Currency Forward Date is not the last Business Day of a calendar quarter, the initial Currency Forward shall have (a) a term equal to the period of time between the Initial Currency Forward Date and the last Business Day of the next calendar quarter (the “**Initial Currency Forward Period**”), and (b) a rate equal to the Reference Rate on such date for a period equal to the Initial Currency Forward Period (i.e. if the Initial Currency Forward Period is two months, the 2-month forward rate).

If the Final Valuation Date is not the last Business Day of a calendar quarter, the final Currency Forward shall have (a) a term equal to the period of time (the “**Final Currency Forward Period**”) between the last Business Day of the most recently completed calendar quarter prior to the Final Valuation Date and the last Business Day of the calendar month immediately prior to the Final Valuation Date (the “**Final Currency Forward Date**”), and (b) a rate equal to the Reference Rate on such last Business Day of the most recently completed calendar quarter prior to the

Final Valuation Date for a period equal to the Final Currency Forward Period (i.e. if the Final Currency Forward Period is two months, the 2-month forward rate).

On the last Business Day of each calendar quarter following the Issue Date (other than the calendar quarter that includes the Final Valuation Date), the Net Value of the Portfolio, calculated by the Calculation Agent using the CAD/USD Foreign Exchange Rate on such date, will be adjusted as follows:

(i) if a Settlement Amount is notionally payable to the seller of United States dollars under the Currency Forward, such amount, as converted to United States dollars at the CAD/USD Foreign Exchange Rate on the last Business Day of such quarter, will be used to notionally acquire Underlying Securities for the Portfolio on the Business Day immediately following the last Business Day of such quarter. Any Underlying Securities will be notionally acquired at their Closing Prices on the Exchange Day immediately following the last Exchange Day of such quarter; and

(ii) if a Settlement Amount is notionally payable to the purchaser of United States dollars under the Currency Forward, Underlying Securities equal in value to such amount, as converted to United States dollars at the CAD/USD Foreign Exchange Rate on the last Business Day of such quarter, will be notionally sold from the Portfolio. Such Underlying Securities will be notionally sold on the Business Day immediately following the last Business Day of such quarter. Any Underlying Securities will be notionally sold at their Closing Prices on the Exchange Day immediately following the last Exchange Day of such quarter.

**“CAD/USD Foreign Exchange Rate”** means the WM/Reuters intraday spot exchange rate between the Canadian dollar and the United States dollar produced by Reuters and published as the 4 p.m. ET rate. The Bank will publish the applicable CAD/USD Foreign Exchange Rates at [www.rbcnotes.com](http://www.rbcnotes.com).

**“Settlement Amount”** means, on any date, the notional amount that would be payable to the seller or the purchaser of United States dollars as a result of the notional settlement of the Currency Forward. Such Settlement Amount is based on the difference between the exchange rate set by the Currency Forward and the CAD/USD Foreign Exchange Rate on the last Business Day of the calendar quarter (or, where applicable, the Final Currency Forward Date). The Settlement Amount may be positive or negative: if it is positive, such Settlement Amount would be payable to the seller of United States dollars, and if it is negative, such Settlement Amount would be payable to the purchaser of United States dollars.

The amount of any change in the Net Value of the Portfolio (i) between the Issue Date and the last Business Day of the calendar quarter in which the Issue Date occurs (the **“Initial Period”**), and (ii) during any three-month period spanning between the last Business Day of consecutive calendar quarters, beginning with the last Business Day of the Initial Period, including the United States dollar amount of any Equity Distributions which will be used to satisfy a portion of the Partial Principal Repayments or paid to the holders as a portion of the Pre-Maturity Interest, will, in each case, be exposed to fluctuations in the exchange rate between the Canadian dollar and the United States dollar over each such period.

The amount of any change in the full Value of the Portfolio between the Final Currency Forward Date and the Final Valuation Date will be exposed to fluctuations in the exchange rate between the Canadian dollar and the United States dollar over that period.

See “Net Value of the Portfolio Calculation Examples” in Appendix C for hypothetical examples of the calculation of the Net Value of the Portfolio on the last

day of each calendar quarter.

**Publication of NAV:**

To assist investors in determining whether they wish to sell their Debt Securities prior to maturity, the Bank will publish the most recent net bid price of the Debt Securities (being primarily based on the NAV per Debt Security but which could also be influenced by a number of other factors), if any, and the daily NAV per Debt Security at [www.rbcnotes.com](http://www.rbcnotes.com).

**Issuer Credit Rating:**

Moody's:	Aa2
Standard & Poor's:	AA-
DBRS:	AA

The Debt Securities themselves have not been and will not be rated. See "Description of the Securities – Ratings" in the program supplement and "Risk Factors" in this pricing supplement.

**Extraordinary Events:**

**Extraordinary Events**

Determination of the NAV per Debt Security may be postponed, or the Bank can accelerate determination of the NAV per Debt Security and repay the Debt Securities in full prior to their maturity, in certain circumstances. If an Extraordinary Event occurs then the Calculation Agent may, but is not required to, make such adjustments to any payment or other term of the Debt Securities as it determines to be appropriate, acting in good faith, to account for the economic effect of such event on the Debt Securities and determine the effective date of any such adjustment, provided that any such adjustments are not designed to increase or decrease the performance of the Debt Securities. See "Description of the Securities – Special Circumstances" in the program supplement and "Description of the Equity, Unit and Debt Linked Securities – Extraordinary Events" in the product supplement. In the event that the NAV per Debt Security (as published by the Bank) falls to \$20.00 or less, the Bank may declare that an Extraordinary Event has occurred and the Calculation Agent generally will, among other things, cease to assume thereafter that the Portfolio is notionally partially hedged through Currency Forwards, commencing on the Exchange Day following such declaration. In addition, for purposes of the Debt Securities, an "Extraordinary Event" will be deemed to have occurred at any time that United States withholding taxes would be payable in respect of payments to the Reference Holder under the Reference Hedge. For the purposes of determining the Actualized Fair Value (defined in the product supplement) per Debt Security upon the occurrence of an Extraordinary Event, in addition to the specific factors described in the product supplement and any other factors that are relevant in the circumstances, the Calculation Agent will determine such Actualized Fair Value per Debt Security on the basis of the then Outstanding Principal Amount.

**Summary of Fees and Expenses:**

**Commission and Agency Fees Payable to the Dealers**

No sales commission will be paid in connection with this issuance of the Debt Securities. An agency fee will be paid to Laurentian Bank Securities Inc. out of the upfront portion of the Note Program Amount referred to below in an amount up to 0.15% of the Principal Amount of the Debt Securities issued under this offering for acting as independent agent. The NAV per Debt Security on the Issue Date will be approximately \$99.85, which will indirectly reflect the satisfaction of the upfront portion of the Note Program Amount (including the agency fee up to 0.15%). The upfront portion of the Note Program Amount (including the agency fee up to 0.15%) will be indirectly borne by holders of the Debt Securities. There are no fees directly payable by a holder of Debt Securities.

**Note Program Amount**



As an allowance for the management of the Debt Securities, the Bank will be entitled to and will retain an upfront note program amount of 0.15% of the Principal Amount of the Debt Securities issued under this offering. An agency fee will be paid out of the upfront portion of the Note Program Amount to Laurentian Bank Securities Inc. in an amount up to 0.15% of the Principal Amount of the Debt Securities issued under this offering for acting as independent agent. The NAV per Debt Security on the Issue Date will indirectly reflect the satisfaction of the 0.15% upfront portion of the Note Program Amount. In addition, as an allowance for the ongoing management of the Debt Securities, the Bank will be entitled to an ongoing annual amount of 0.60% of the Value of the Portfolio. The upfront amount and the ongoing annual amount are referred to as the “**Note Program Amount**”. The ongoing annual component of the Note Program Amount will be calculated daily and satisfied quarterly in arrears, therefore reducing the NAV per Debt Security, the Variable Return and the Redemption Amount.

The Note Program Amount is an amount retained by the Bank to compensate it for creating and issuing the Debt Securities, maintaining the Strategy and the Portfolio, allowing for profit (which may or may not be realized) and costs relating to the Debt Securities (which may or may not include any costs of hedging its obligations thereunder).

The upfront portion of the Note Program Amount results in the initial estimated value of the Debt Securities on the Issue Date being less than their public offering price.

#### **Service Fees**

No annual service fee or trailing commission will be paid to sales representatives of qualified selling members in respect of Debt Securities held by their clients.

#### **General**

The entitlement of the Bank to the ongoing annual portion of the Note Program Amount will accrue daily and be satisfied quarterly in arrears by liquidating a number of Underlying Securities notionally held in the Portfolio, thereby reducing the number of Underlying Securities notionally included in the Portfolio and therefore reducing the Value of the Portfolio. The number of Underlying Securities initially notionally purchased will take into account the 0.15% upfront portion of the Note Program Amount (including the agency fee of up to 0.15%). The Bank will not receive any other amount or seek reimbursement of any other expense. All other expenses of the offering (other than the Note Program Amount, including the agency fee, described above) will be borne by the Bank.

#### **Dollar Value of Fees**

Assuming that an investor purchases Debt Securities with an aggregate Principal Amount of \$100, the Value of the Portfolio increases at a constant rate of 5% *per annum* and no Extraordinary Event occurs during the term of the Debt Securities, the Note Program Amount will reduce the return that otherwise would have been earned by an investor by a cumulative total of \$0.61 after one year, \$1.92 after three years, \$3.35 after five years and \$19.08 as of the Maturity Date (approximately twenty years). All dollar amounts are rounded to the nearest whole cent. In this scenario, the payment at maturity would be \$239.79 (equivalent to an annually compounded rate of return of 4.489%).

The above-noted dollar values and the Value of the Portfolio are used for illustration purposes only. These calculations and the assumption of the Value of the Portfolio growth rates are not estimates or forecasts of the Value of the Portfolio, and therefore the ongoing annual component of the Note Program Amount on an annual

basis, respectively. The actual performance of the Debt Securities and, consequently, the expenses indirectly borne by investors, may vary.

In order for the payment at maturity to exceed the Principal Amount of the Debt Securities, the return generated by the Portfolio from the Issue Date to the Maturity Date, after being converted into Canadian dollars at the CAD/USD Foreign Exchange Rate for the Final Valuation Date, will have to exceed the Note Program Amount.

**Fees Affecting Closing Price of Underlying Securities:**

The Closing Prices will be net of the fees and expenses charged by or assumed by the ETFs, which will therefore be indirectly assumed by holders of the Debt Securities. Such fees and expenses include annual management fees payable by the ETFs to their trustees and/or investment advisors and other operating expenses of the ETFs. See the disclosures of the fees and expenses in the ETFs' continuous disclosure materials (which are not incorporated by reference herein).

For the years ended April 26, 2019 (for the VTI ETF) and June 28, 2019 (for the Bond ETFs), the management expense ratios, which include the management fee payable by each ETF to Vanguard or BlackRock Fund Advisors, respectively, and/or its affiliates for acting as trustee and/or manager of the ETFs, represented annual rates of 0.03%, 0.49%, 0.15% and 0.15% for the VTI ETF, HYG ETF, IEF ETF and TLT ETF, respectively, of such fund's average daily net asset value during the year.

**Eligibility for Investment:**

Eligible for RRSPs, RRIFs, RESPs, RDSPs, DPSPs and TFSA's. See "Eligibility for Investment" in Appendix B, including the summary of the "prohibited investment" rule.

**Risk Factors:**

You should carefully consider all the information set out in this prospectus for any Debt Securities in which you are considering investing. In particular, you should evaluate the risks described under "Risk Factors" in each of the base shelf prospectus and the product supplement, as well as the risks described below. The return on the Debt Securities is unknown and subject to many variables, including interest rate fluctuations and changes in the Value of the Portfolio. You should independently determine, with your own advisors, whether an investment in the Debt Securities is suitable for you having regard to your own investment objectives and expectations.

*Exposure to Market Volatility*

The Strategy may not require a reallocation of the Portfolio to the Underlying Securities of a Bond ETF even if there is market volatility, or the Strategy may not require a reallocation prior to periods of market volatility, as the allocation of the Portfolio is based on the trends observed on the Index and the Closing Price of the Underlying Securities of the VTI ETF and the Total Return of the Underlying Securities of the TLT ETF relative to their respective Moving Averages on the most recent Allocation Date. As the Strategy will not be able to reallocate the Portfolio following an Allocation Date until after the next Allocation Date, holders of the Debt Securities will be exposed to any market volatility until after the next Allocation Date. In addition, to the extent that the Portfolio is reallocated, the applicable Underlying Securities will be notionally sold. Accordingly, any notional losses on the Underlying Securities of an ETF notionally sold at such time would be crystallized as a result of the reallocation of the Portfolio on an Allocation Date, which could negatively impact the return on the Debt Securities.

*Exposure to Foreign Investments May be Subject to Additional Risks*

Underlying Securities that are, or comprise, or that seek to replicate or correspond to

the performance of, foreign securities, foreign interest rates, and foreign securities markets, may be more volatile than Canadian securities, interest rates and securities markets. Direct or indirect government intervention to stabilize foreign markets may affect trading prices, rates and volumes in those markets. There may be less publicly-available information about foreign issuers than there is about Canadian issuers subject to the reporting requirements of the Canadian securities regulators, and foreign issuers are subject to accounting, auditing and financial reporting standards and requirements that may be different from those applicable to Canadian reporting issuers.

#### *Equity Distributions May Be Reduced*

If and to the extent that United States withholding tax would become payable in respect of dividend equivalent payments made to the Reference Holder under the Reference Hedge, the applicable Subject Payments will be reduced by a percentage generally equal to the rate of United States withholding tax (currently 15%) that would be payable (for the corresponding period) in respect of payments to the Reference Holder under the Reference Hedge (with a resulting reduction in the amount of the Variable Return). Under certain circumstances, payments under the Reference Hedge may be subject to United States withholding tax, in which case the applicable Subject Payments would be reduced by such rate of United States withholding.

By way of illustration, assume that the Portfolio is allocated to the Underlying Securities of the VTI ETF, that US\$0.50 in dividends were paid by the Underlying Security Issuer on the Underlying Securities of the VTI ETF notionally included in the Portfolio during a calendar quarter prior to the calendar quarter in which the Final Valuation Date falls and that, without taking into account any withholding taxes, the Subject Payments for such calendar quarter would otherwise be US\$0.50, converted to Canadian dollars using the applicable CAD/USD Foreign Exchange Rate (as described at “Partial Principal Repayments” above). If payments to the Reference Holder under the Reference Hedge were subject to United States withholding tax at a rate of 15%, the Subject Payments for such calendar quarter would be reduced by an amount equal to US\$0.075 (i.e., US\$0.50 multiplied by 15%) to US\$0.425 converted to Canadian dollars using the applicable CAD/USD Foreign Exchange Rate (as described at “Partial Principal Repayments” above). The Subject Payments as so reduced would in turn be subject to United States withholding tax on the basis that they are “dividend equivalent payments”. If the Subject Payments as so reduced were subject to United States withholding tax at a rate of 15%, the Subject Payments for such calendar quarter net of such withholding tax would be further reduced by an amount equal to US\$0.06375 (i.e., US\$0.425 multiplied by 15%) to US\$0.36125 converted to Canadian dollars using the applicable CAD/USD Foreign Exchange Rate (as described at “Partial Principal Repayments” above). In addition, proceeds from the sale of Debt Securities may also be subject to United States withholding tax. See Appendix B under “Certain United States Federal Income Tax Considerations”.

The Bank will disclose the amount of any notional United States (or other) withholding taxes in respect of payments under the Reference Hedge at [www.rbcnotes.com](http://www.rbcnotes.com). See “Certain United States Federal Income Tax Considerations” in Appendix B for a more detailed discussion of the risk.

#### *Return may be Limited to Bond ETF Returns*

The return, if any, on the Debt Securities, may be limited to the returns on the Underlying Securities of the Bond ETFs, which could be limited. There can be no assurance that the Portfolio will be composed of the Underlying Securities of the VTI ETF at any point over the term of the Debt Securities. As the allocation of the Portfolio is based on the trends observed on the Index and on the Closing Price of the Underlying Securities of the VTI ETF and the Total Return of the Underlying

Securities of the TLT ETF relative to their respective Moving Averages on the most recent Allocation Date, the Strategy could result in the Portfolio being composed of the Underlying Securities of the Bond ETFs over all or a part of the term of the Debt Securities. The Portfolio may perform poorly or systematically underperform the Underlying Securities of the VTI ETF for a period of time if the Portfolio is composed of the Underlying Securities of the Bond ETFs during periods of strong equity market performance.

#### *Uncertain Return Until Maturity*

The return, if any, on the Debt Securities will be uncertain until maturity. Whether there is a return on the Debt Securities will depend on the price performance of the Portfolio and the aggregate amount of the Partial Principal Repayments and Pre-Maturity Interest, if any. There can be no assurance that the Debt Securities will generate a positive return or that the objectives of the Debt Securities will be achieved. Depending on the price performance of the Portfolio and the amount, if any, of the Pre-Maturity Interest, holders of the Debt Securities may not be repaid the amount they invested in the Debt Securities (subject to the Partial Principal Repayments and other than \$1.00 per Debt Security). Historical price performances of the Index and the Underlying Securities should not be considered as indications of the future price performances of the Index and the Underlying Securities, respectively. Investors should understand that the risk involved in this type of investment is greater than that normally associated with other types of investments.

#### *Guaranteed Payments Reduce Redemption Amount and May not be Made*

The Underlying Securities in the Portfolio will be notionally liquidated to satisfy the Guaranteed Payments; consequently, the Guaranteed Payments will reduce the Redemption Amount. In addition, a Guaranteed Payment will not be made on the Debt Securities if the NAV per Debt Security is less than \$1.25 on the applicable Payment Date.

#### *The Amounts of Partial Principal Repayments and Pre-Maturity Interest Payments are Uncertain*

The amounts of the Partial Principal Repayments and the Pre-Maturity Interest payments are uncertain. Whether Partial Principal Repayments or Pre-Maturity Interest payments are made will depend on the Equity Distributions and the NAV per Debt Security. There can be no assurance that the Underlying Security Issuers will continue to pay Equity Distributions in the future. Historical Equity Distributions should not be considered as an indication of the future Equity Distributions. Furthermore, no Guaranteed Payment will be included in a Partial Principal Repayment or payment of Pre-Maturity Interest if the NAV per Debt Security is less than \$1.25 on the applicable Payment Date.

#### *Currency Risk*

The Debt Securities are denominated in Canadian dollars and all payments under the Debt Securities to holders of the Debt Securities, including payment of the Redemption Amount at maturity, will be made in Canadian dollars. Notional investments in the Portfolio will be denominated in United States dollars.

The effect of the partial currency hedge described above is that a depreciation of the United States dollar versus the Canadian dollar will positively affect the Net Value of the Portfolio at the applicable quarter end, and an appreciation of the United States dollar versus the Canadian dollar will negatively affect the Net Value of the Portfolio at the applicable quarter end. Partial Principal Repayments or any Pre-Maturity Interest are not affected by the partial currency hedge, as they are each

calculated based on the applicable CAD/USD Foreign Exchange Rate.

Although the Debt Securities will provide a partial hedge, except as described under “Extraordinary Events” above, of the potential currency risk between the Canadian dollar and the United States dollar, the amount of any change in the Net Value of the Portfolio between the Issue Date and the last Business Day of each calendar quarter thereafter, including the amount of any notional dividends or other distributions and the full Value of the Portfolio between the Final Currency Forward Date and the Final Valuation Date, will be exposed to fluctuations in the exchange rate between the Canadian dollar and the United States dollar over that period. The Value of the Portfolio will be calculated by the Calculation Agent in Canadian dollars converted using the Daily Exchange Rate for the day such calculation is made, provided that any currency conversion calculations with respect to the Redemption Amount will be calculated based on the applicable CAD/USD Foreign Exchange Rate, in each case affected by the partial currency hedge. As a result, there will be currency risk, and performance of the Debt Securities and the Underlying Securities may be affected by currency fluctuations and volatility.

#### *Credit Rating*

The Debt Securities have not been and will not be rated. There can be no assurance that any rating agency would be willing to assign a rating to the Debt Securities, or that if the Debt Securities were rated, they would have the same rating as any other unsubordinated indebtedness of the Bank that is rated.

#### *Tax Treatment Different from Investing in Underlying Securities*

Prospective investors should note that the tax treatment resulting from exposure to the Portfolio through an investment in the Debt Securities is different than, and may be either advantageous or disadvantageous relative to, the tax treatment resulting from exposure to the Portfolio through a direct holding of the Underlying Securities in the Portfolio. Accordingly, investors should discuss with their investment and tax advisors the advantages and disadvantages in their particular circumstances of holding the Debt Securities as compared to holding the Underlying Securities. In particular, a prospective investor in the Debt Securities should note that:

- If the Underlying Securities were held by an investor directly, the investor would receive taxable dividends or other distributions. If the investor obtains exposure to the Underlying Securities through an investment in the Debt Securities, the investor will receive Partial Principal Repayments equal to the sum of any Equity Distributions and Guaranteed Payments, each subject to certain adjustments, as described above, the latter of which will be satisfied by notionally selling Underlying Securities from the Portfolio, as described above, which amounts should not be included in the investor’s income when received by the investor (but which would have the effect of increasing the Variable Return which would be realized on maturity of the Debt Securities).
- If the Underlying Securities were held by an investor directly as capital property, any gain on a disposition of the Underlying Securities by the investor would ordinarily be taxed as a capital gain. If the investor obtains exposure to the Underlying Securities through an investment in the Debt Securities, any gain on the disposition of the Debt Securities will be taxed as ordinary income, including any gain resulting from the reduction in the Principal Amount as a consequence of the prior Partial Principal Repayments.
- If the Underlying Securities in the Portfolio were held directly as capital property, a Resident Holder (defined below) typically would be entitled to a foreign tax credit in respect of any withholding taxes applicable to dividends or other distributions received on such securities. If exposure to the Portfolio instead is obtained through an investment in the Debt Securities, a Resident Holder may not be entitled to a foreign tax credit for any United States withholding taxes which are required to be withheld from Subject Payments

given that the Partial Principal Repayments will not qualify as income from a United States source and will not be entitled to a foreign tax credit for any reduction in calculating the VTI Equity Distributions used to satisfy the corresponding portion of the Partial Principal Repayments in respect of foreign withholding tax.

*Investing in the Debt Securities is Different than Investing Directly in the Underlying Securities*

If an investor were to purchase Underlying Securities directly in accordance with the Strategy, the investor may earn a different return than it would if it invested in the Debt Securities. In particular, the Note Program Amount would not apply to such direct investments. However, an investor purchasing the Underlying Securities directly would likely incur transaction fees (such as commissions). In addition, the Strategy involves a weekly Portfolio allocation to the Underlying Securities of one of the four ETFs. An investor that wishes to replicate the Strategy by investing directly in the Underlying Securities would be required to purchase and sell Underlying Securities from time to time in accordance with the Strategy in the secondary market in order to replicate the Strategy.

Generally, the Debt Securities may only be purchased and sold through dealers and other firms that facilitate purchase and related settlement using the Fundserv network. However, there is no assurance that a secondary market for the Debt Securities will develop or be sustained. See “Secondary Market”. In contrast, the Underlying Securities are traded on an Exchange and, as such, may be more liquid than the Debt Securities.

Holders of the Debt Securities do not have an ownership interest or other interest in the assets in the Portfolio. See “Portfolio”.

In addition, the tax implications associated with holding the Debt Securities as compared to holding the Underlying Securities directly would be different. See “- Tax Treatment Different from Investing in Underlying Securities” above.

*The Initial Estimated Value of the Debt Securities Is Less than the Price to the Public and May not Reflect the Secondary Market Price, if any, of the Debt Securities*

The initial estimated value set forth on the cover page of this pricing supplement does not represent a minimum price at which the Bank, RBC DS or any of our affiliates would be willing to purchase the Debt Securities in any secondary market (if any exists) at any time. In addition, the initial estimated value of the Debt Securities does not take into account the ongoing fees and expenses applicable during the term of the Debt Securities, including the ongoing annual component of the Note Program Amount, or any Canadian foreign tax credits or deductions which may be available to the Bank in respect of foreign withholding taxes which may apply to dividends and other distributions received by the Bank if the Bank were to hedge its obligations under the Debt Securities by acquiring the Underlying Securities. If you attempt to sell the Debt Securities prior to maturity, their market value may be lower than the initial estimated value and price you paid for them. This is due to, among other things, changes in the prices of the Underlying Securities and the Note Program Amount. These factors, together with various market and economic factors over the term of the Debt Securities, could reduce the price at which you may be able to sell the Debt Securities in any secondary market and will affect the value of the Debt Securities in complex and unpredictable ways. Even if there is no change in market conditions or any other relevant factors, the price, if any, at which you may be able to sell your Debt Securities prior to maturity may be less than your original purchase price. The Debt Securities are not designed to be short-term trading instruments. Accordingly, you should be able and willing to hold your Debt Securities to maturity.

**Preparation of Initial Estimated Value:**

The initial estimated value of the Debt Securities was calculated by deducting the upfront portion of the Note Program Amount from the Principal Amount. The initial estimated value of the Debt Securities does not take into account the ongoing fees and expenses applicable during the term of the Debt Securities, including the ongoing annual component of the Note Program Amount, or any Canadian foreign tax credits or deductions which may be available to the Bank in respect of foreign withholding taxes which may apply to dividends and other distributions received by the Bank if the Bank were to hedge its obligations under the Debt Securities by acquiring the Underlying Securities. The difference between the Principal Amount and the upfront portion of the Note Program Amount will be notionally invested in the Portfolio on the Initial Valuation Date. See “Portfolio” above. The Note Program Amount is an amount retained by the Bank to compensate it for creating and issuing the Debt Securities, maintaining the Strategy and the Portfolio, allowing for profit (which may or may not be realized) and costs relating to the Debt Securities (which may or may not include any costs of hedging its obligations thereunder). The deduction of the upfront portion of the Note Program Amount from the Principal Amount results in the initial estimated value of the Debt Securities on the Issue Date being less than their public offering price. See “Risk Factors – The Initial Estimated Value of the Debt Securities Is Less than the Price to the Public and May not Reflect the Secondary Market Price, if any, of the Debt Securities” above.

The Bank has adopted written policies and procedures for determining the fair value of Debt Securities issued by it pursuant to the Senior Note Program. These policies and procedures include: (a) methodologies used for valuing each type of component embedded in such Debt Securities; (b) the methods by which the Bank will review and test valuations to assess the quality of the prices obtained as well as the general functioning of the valuation process; and (c) how to deal with conflicts of interest.

**Suitability for Investment:**

You should consult with your advisors regarding the suitability of an investment in the Debt Securities. The Debt Securities may be suitable for:

- investors seeking an investment product linked to the Underlying Securities of the ETFs based on the trends observed on the Index and the Closing Price of the Underlying Securities of the VTI ETF and the Total Return of the Underlying Securities of the TLT ETF relative to their respective Moving Averages on the most recent Allocation Date
- investors who believe that the Strategy will protect them from market volatility by allocating the Portfolio to the Underlying Securities of one of the Bond ETFs based on the trends observed on the Index and the Closing Price of the Underlying Securities of the VTI ETF and the Total Return of the Underlying Securities of the TLT ETF relative to their respective Moving Averages on the most recent Allocation Date
- investors who are willing and can afford to risk substantially all of the principal amount of their investment
- investors looking for the potential to earn an enhanced return over fixed rate investments and who are prepared to assume the risks associated with an investment that will be linked to the price performance of Underlying Securities determined by the Strategy
- investors with an investment horizon equal to the term to maturity of the Debt Securities who are prepared to hold the Debt Securities until maturity
- investors seeking the possibility of receiving all or part of their capital over the term of the Debt Securities as a return of capital
- investors looking for an investment product with the Portfolio composed of Underlying Securities denominated in United States dollars and who are prepared to assume the risk (other than the risk associated with a portion of any fluctuations in currency between the beginning and the end of each calendar quarter during the term of the Debt Securities, which will be hedged by the partial currency hedge) that the CAD/USD Foreign Exchange Rate may

negatively affect their return

**Book-entry Only Securities:** The Debt Securities will be Fundserv Securities (defined in the program supplement) and will be issued through the “book-entry-only system”. See “Description of the Securities – Global Securities” and “– Legal Ownership” in the program supplement.

If the Debt Securities are issued in fully registered and certificated form in the circumstances described in the program supplement under “Description of the Securities – Legal Ownership – Book-Entry-Only Fundserv Securities”, any Partial Principal Repayments or Pre-Maturity Interest will be paid by the Bank to the registered holder.

**Listing:** The Debt Securities will not be listed on any stock exchange. See “Risk Factors” in the product supplement.

**Secondary Market:** Debt Securities may be purchased through dealers and other firms that facilitate purchase and related settlement using the Fundserv network. Debt Securities may be resold using the Fundserv network at a sale price equal to the closing price posted on Fundserv as of the close of business on the Exchange Day on which the order is placed, as determined by and posted to Fundserv by the Calculation Agent, which sale price may be lower than the Principal Amount of such Debt Securities. See “Risk Factors – The Initial Estimated Value of the Debt Securities Is Less than the Price to the Public and May not Reflect the Secondary Market Price, if any, of the Debt Securities” above.

Information regarding the Portfolio and the daily closing price for the Debt Securities may be accessed at [www.rbcnotes.com](http://www.rbcnotes.com). There is no assurance that a secondary market for the Debt Securities will develop or be sustained. See “Secondary Market for Securities” in the program supplement.

**Fiscal Agent:** RBC DS. See “Description of the Securities – Fiscal Agency, Calculation Agency and Fundserv Depository Agreement” in the program supplement.

**Calculation Agent:** RBC DS. See “Description of the Securities – Calculation Agent” in the program supplement and “Risk Factors” in the product supplement.

**Tax:** An initial purchaser of Debt Securities who acquires Debt Securities from the Bank on the Issue Date and who, at all relevant times, for purposes of the *Income Tax Act* (Canada), is an individual (other than a trust), is a resident of Canada, deals at arm’s length with and is not affiliated with the Bank, and acquires and holds the Debt Securities as capital property until maturity is herein referred to as a “**Resident Holder**”. Partial Principal Repayments received in respect of the Debt Securities should not be included in the Resident Holder’s income when received, but rather should reduce the Resident Holder’s adjusted cost base of the Debt Securities. However, a Resident Holder will be required to include in income, on a transfer of a Debt Security, the excess, if any, of the price for which it was so transferred by the Resident Holder over its outstanding principal amount at the time of the transfer. Furthermore, a Resident Holder will be required to include in computing income for the taxation year in which the Maturity Date (or earlier repayment in full) occurs the amount, if any, by which the amount payable at maturity (or earlier repayment in full) exceeds the Outstanding Principal Amount of the Debt Securities, except to the extent that such amount has been previously included in the income of the Resident Holder. If the Resident Holder receives an amount that is less than the adjusted cost base of the Debt Securities, the Resident Holder will realize a capital loss equal to the shortfall. See “Certain Canadian Tax Considerations” in Appendix B. Subject Payments may also be subject to U.S. withholding taxes. See “Certain United States Federal Income Tax Considerations” in Appendix B. **Potential purchasers of Debt**



**Securities should consult with their own tax advisors having regard to their particular circumstances.**

The tax treatment resulting from exposure to the Portfolio through an investment in the Debt Securities is different than, and may be either advantageous or disadvantageous relative to, the tax treatment resulting from exposure to the Portfolio through a direct holding of the Underlying Securities in the Portfolio. See “Risk Factors”.

## APPENDIX A

### **SUMMARY INFORMATION REGARDING THE ETFs AND THE INDEX**

We have derived all information contained in this pricing supplement regarding the ETFs from publicly available information. We make no representations or warranty as to the accuracy or completeness of the information derived from these public sources. Such information reflects the policies of, and is subject to change by the BlackRock Fund Advisors for the Bond ETFs and Vanguard for the VTI ETF (collectively the “**Advisers**” and each, an “**Adviser**”). Each ETF is an exchange-traded fund managed by the respective Adviser and created under the laws of the United States of America whose shares trade on the below-mentioned exchanges under the below-mentioned ticker symbol. The Advisers are registered investment companies that are the investment advisers of numerous separate exchange-traded funds. Information provided to or filed with the securities regulators by the Advisers pursuant to securities legislation can be located at [www.sec.gov/edgar.shtml](http://www.sec.gov/edgar.shtml). In addition, information about the Advisers and the ETFs may be obtained from other sources including, but not limited to, press releases, newspaper articles and other publicly disseminated documents and the Adviser’s website at [www.blackrock.com](http://www.blackrock.com) for the Bond ETFs and at [www.vanguard.com](http://www.vanguard.com) for the VTI ETF. We make no representation or warranty as to the accuracy or completeness of such information.

#### **iShares® iBoxx \$ High Yield Corporate Bond ETF**

<b>Tracked Index</b>	Markit iBoxx® USD Liquid High Yield Index
<b>Adviser</b>	BlackRock Fund Advisors
<b>Country</b>	United States
<b>Current Exchange</b>	NYSE Arca
<b>Ticker</b>	HYG
<b>Closing Price of Underlying Securities (November 1, 2019)</b>	US\$86.82

#### **Principal Investment Strategies**

The iShares® iBoxx \$ High Yield Corporate Bond ETF seeks to track the investment results of the Markit iBoxx® USD Liquid High Yield Index, which is a rules-based index consisting of U.S. dollar-denominated, high yield corporate bonds for sale in the U.S. As of February 28, 2019, the Markit iBoxx® USD Liquid High Yield Index included approximately 946 constituents. As of February 28, 2019, a significant portion of the Markit iBoxx® USD Liquid High Yield Index is represented by securities of companies in the consumer services industry or sector. The components of the Markit iBoxx® USD Liquid High Yield Index are likely to change over time.

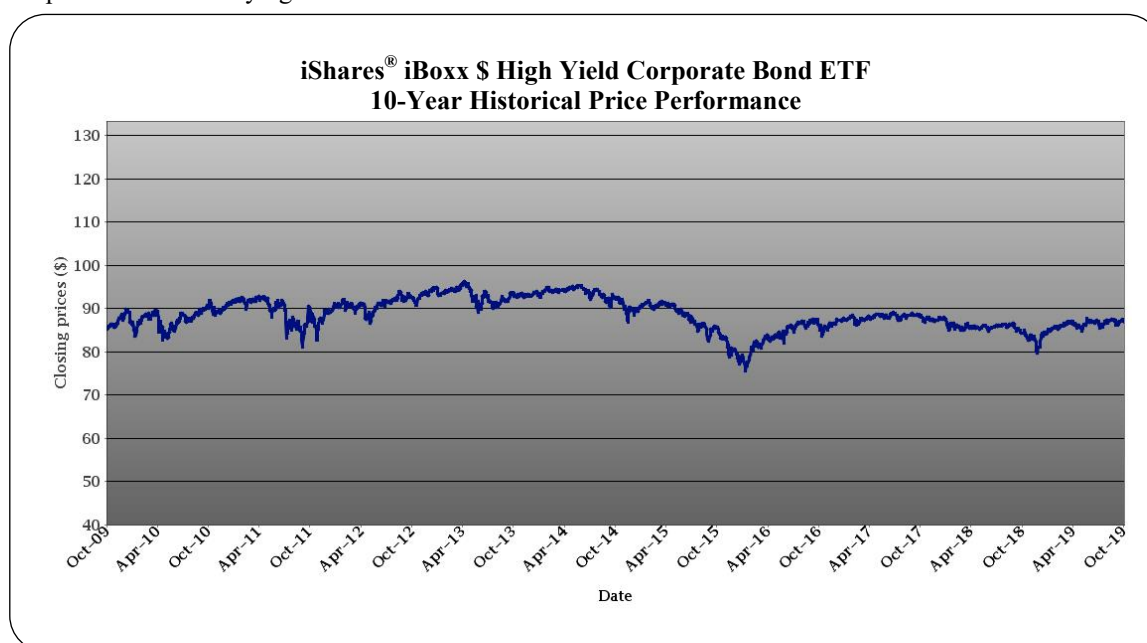
The Adviser uses a representative sampling indexing strategy to manage the ETF. “Representative sampling” is an indexing strategy that involves investing in a representative sample of securities that collectively has an investment profile similar to that of an applicable underlying index. The securities selected are expected to have, in the aggregate, investment characteristics (based on factors such as market capitalization and industry weightings), fundamental characteristics (such as return variability, duration, maturity, credit ratings and yield) and liquidity measures similar to those of an applicable underlying index. The ETF may or may not hold all of the securities in the Markit iBoxx® USD Liquid High Yield Index.

The ETF generally will invest at least 90% of its assets in the component securities of the Markit iBoxx® USD Liquid High Yield Index and may invest up to 10% of its assets in certain futures, options and swap contracts, cash and cash equivalents, including shares of money market funds advised by the Adviser or its affiliates, as well as in securities not included in the Markit iBoxx® USD Liquid High Yield Index, but which the Adviser believes will help the ETF track the Markit iBoxx® USD Liquid High Yield Index. The ETF seeks to track the investment results of the Markit iBoxx® USD Liquid High Yield Index before fees and expenses of the ETF.

Information about the ETF and its constituent issuers is available from iShares, Inc. on its website at [www.ishares.com](http://www.ishares.com) and information from this website is not incorporated by reference into this pricing supplement.

## Historical Price Performance

The following chart sets forth the historical price performance of the shares of iShares® iBoxx \$ High Yield Corporate Bond ETF for the period specified below. Historical price performance does not take into account distributions or dividends paid on the Underlying Securities.



All dollar amounts in graph in US\$.

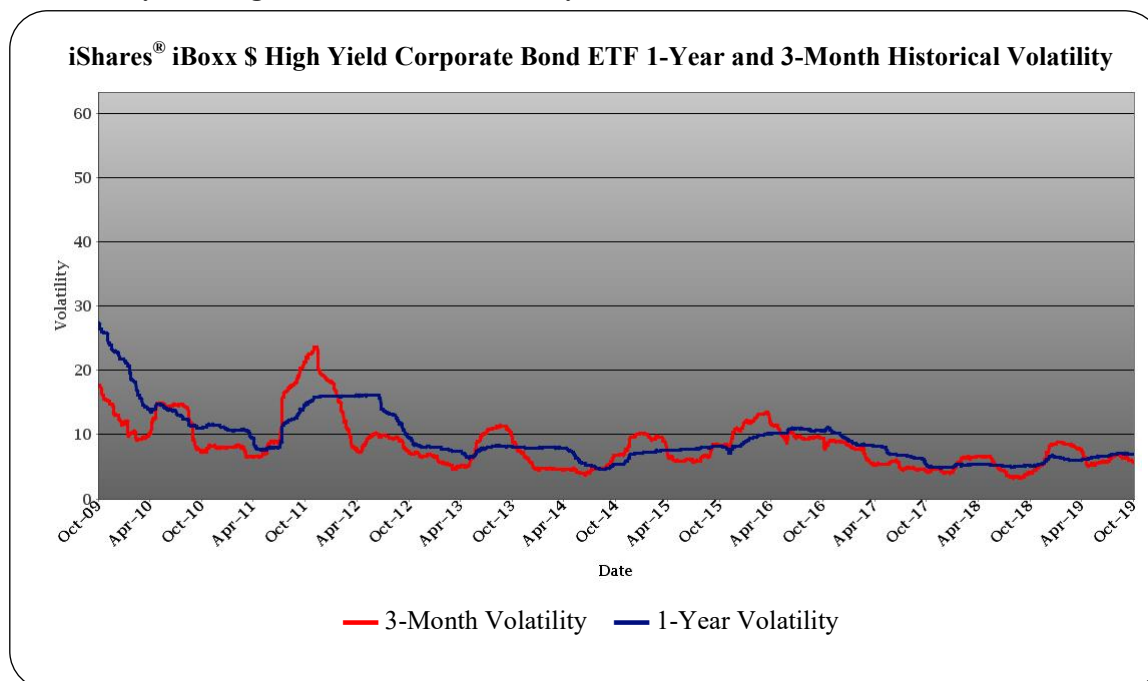
**Historical price performance of the shares of iShares® iBoxx \$ High Yield Corporate Bond ETF will not necessarily predict future price performance of the shares of iShares® iBoxx \$ High Yield Corporate Bond ETF or the Debt Securities.** The source of the data displayed in this chart is Bloomberg L.P. and its accuracy cannot be guaranteed.

Historical annual percentage change of the shares of iShares® iBoxx \$ High Yield Corporate Bond ETF										
Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Percentage change (%)	15.56	2.79	-0.95	4.38	-0.50	-3.53	-10.07	7.41	0.82	-7.06

Source: Bloomberg L.P.: Measures annualized period as of December 31 of the previous year.

The following chart sets forth the one-year and three-month historical volatility of the shares of iShares® iBoxx \$ High Yield Corporate Bond ETF for the periods specified below.

**Historical volatility is not a guarantee of future volatility.**



The source of the data displayed in this chart is Bloomberg L.P. and its accuracy cannot be guaranteed.

Volatility is the term used to describe the magnitude and frequency of the changes in a security's value over a given time period. A higher volatility means that a security's value can potentially be spread out over a larger range of values. This means that the price of the security can change dramatically over a short time period in either direction. A lower volatility means that a security's value does not fluctuate dramatically, but changes in value at a steady pace over a period of time.

### iShares® 7-10 Year Treasury Bond ETF

<b>Tracked Index</b>	ICE U.S. Treasury 7-10 Year Bond Index
<b>Adviser</b>	BlackRock Fund Advisors
<b>Country</b>	United States
<b>Current Exchange</b>	NASDAQ
<b>Ticker</b>	IEF
<b>Closing Price of Underlying Securities (November 1, 2019)</b>	US\$112.13

#### Principal Investment Strategies

The iShares® 7-10 Year Treasury Bond ETF seeks to track the investment results of the ICE U.S. Treasury 7-10 Year Bond Index, which measures the performance of public obligations of the U.S. Treasury that have a remaining maturity of greater than or equal to seven years and less than ten years. As of February 28, 2019, there were 20 issues in the ICE U.S. Treasury 7-10 Year Bond Index. The ICE U.S. Treasury 7-10 Year Bond Index consists of publicly-issued U.S. Treasury securities that have a remaining maturity of greater than or equal to seven years and less than ten years and have \$300 million or more of outstanding face value, excluding amounts held by the Federal Reserve System. In addition, the securities in the ICE U.S. Treasury 7-10 Year Bond Index must be fixed-rate and denominated in U.S. dollars. Excluded from the ICE U.S. Treasury 7-10 Year Bond Index are inflation-linked securities, Treasury bills, cash management bills, any government agency debt issued with or without a government guarantee and zero-coupon issues that have been stripped from coupon-paying bonds. The ICE U.S. Treasury 7-10 Year Bond Index is market value weighted, and the securities in the ICE U.S. Treasury 7-10 Year Bond Index are updated on the last business day of each month.

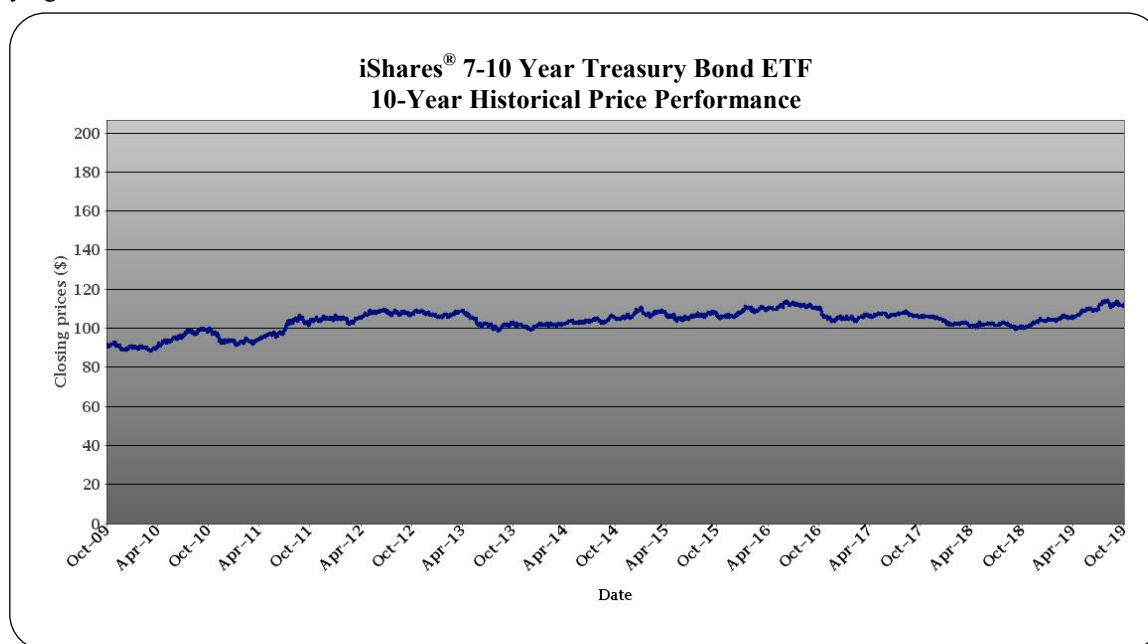
The Adviser uses a representative sampling indexing strategy to manage the ETF. The ETF may or may not hold all of the securities in the ICE U.S. Treasury 7-10 Year Bond Index.

The ETF generally invests at least 90% of its assets in the bonds of the ICE U.S. Treasury 7-10 Year Bond Index and at least 95% of its assets in U.S. government bonds. The ETF may invest up to 10% of its assets in U.S. government bonds not included in the ICE U.S. Treasury 7-10 Year Bond Index, but which the Adviser believes will help the ETF track the ICE U.S. Treasury 7-10 Year Bond Index. The ETF also may invest up to 5% of its assets in repurchase agreements collateralized by U.S. government obligations and in cash and cash equivalents, including shares of money market funds advised by the Adviser or its affiliates. The ETF seeks to track the investment results of the ICE U.S. Treasury 7-10 Year Bond Index before fees and expenses of the ETF.

Information about the ETF and its constituent issuers is available from iShares, Inc. on its website at [www.ishares.com](http://www.ishares.com) and information from this website is not incorporated by reference into this pricing supplement.

#### Historical Price Performance

The following chart sets forth the historical price performance of the shares iShares® 7-10 Year Treasury Bond ETF for the period specified below. Historical price performance does not take into account distributions or dividends paid on the Underlying Securities.



All dollar amounts in graph in US\$.

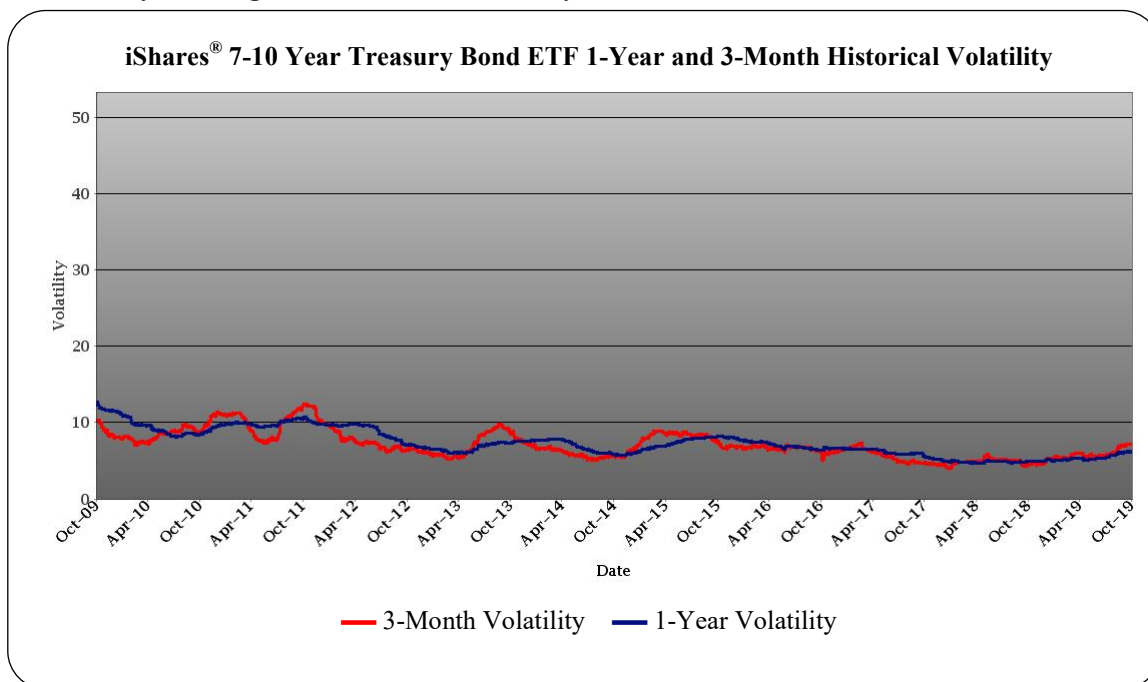
**Historical price performance of the shares of iShares<sup>®</sup> 7-10 Year Treasury Bond ETF will not necessarily predict future price performance of the shares of iShares<sup>®</sup> 7-10 Year Treasury Bond ETF or the Debt Securities.** The source of the data displayed in this chart is Bloomberg L.P. and its accuracy cannot be guaranteed.

Historical annual percentage change of the shares of iShares <sup>®</sup> 7-10 Year Treasury Bond ETF										
Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Percentage change (%)	-10.08	5.89	12.52	1.82	-7.68	6.80	-0.38	-0.73	0.72	-1.30

Source: Bloomberg L.P.: Measures annualized period as of December 31 of the previous year.

The following chart sets forth the one-year and three-month historical volatility of the shares of iShares<sup>®</sup> 7-10 Year Treasury Bond ETF for the periods specified below.

**Historical volatility is not a guarantee of future volatility.**



The source of the data displayed in this chart is Bloomberg L.P. and its accuracy cannot be guaranteed.

### iShares® 20+ Year Treasury Bond ETF

<b>Tracked Index</b>	ICE U.S. Treasury 20+ Year Bond Index
<b>Adviser</b>	BlackRock Fund Advisors
<b>Country</b>	United States
<b>Current Exchange</b>	NASDAQ
<b>Ticker</b>	TLT
<b>Closing Price of Underlying Securities (November 1, 2019)</b>	US\$140.56

#### Principal Investment Strategies

The iShares® 20+ Year Treasury Bond ETF seeks to track the investment results of the ICE U.S. Treasury 20+ Year Bond Index, which measures the performance of public obligations of the U.S. Treasury that have a remaining maturity greater than twenty years. As of December 31, 2016, there were 36 issuers in the ICE U.S. Treasury 20+ Year Bond Index. The ICE U.S. Treasury 20+ Year Bond Index consists of publicly-issued U.S. Treasury securities that have a remaining maturity greater than twenty years and have US\$300 million or more of outstanding face value, excluding amounts held by the Federal Reserve System. In addition, the securities in the ICE U.S. Treasury 20+ Year Bond Index must be fixed-rate and denominated in U.S. dollars. Excluded from the ICE U.S. Treasury 20+ Year Bond Index are inflation-linked securities, U.S. Treasury bills, cash management bills, any government agency debt issued with or without a government guarantee and zero-coupon issues that have been stripped from coupon-paying bonds. The ICE U.S. Treasury 20+ Year Bond Index is weighted by market capitalization, and the securities in the ICE U.S. Treasury 20+ Year Bond Index are updated on the last business day of each month.

The Adviser uses a representative sampling indexing strategy to manage the Bond ETF. The Bond ETF may or may not hold all of the securities in the ICE U.S. Treasury 20+ Year Bond Index.

The Bond ETF generally invests at least 90% of its assets in the bonds of the ICE U.S. Treasury 20+ Year Bond Index and at least 95% of its assets in U.S. government bonds. The Bond ETF may invest up to 10% of its assets in U.S. government bonds not included in the ICE U.S. Treasury 20+ Year Bond Index, but which the Adviser believes will help the Bond ETF track the ICE U.S. Treasury 20+ Year Bond Index. The Bond ETF also may invest up to 5% of its assets in repurchase agreements collateralized by U.S. government obligations and in cash and cash equivalents, including shares of money market funds advised by the Adviser or its affiliates. The Bond ETF seeks to track the investment results of the ICE U.S. Treasury 20+ Year Bond Index before fees and expenses of the Bond ETF.

Prior to April 1, 2016, the Bond ETF tracked the Bloomberg Barclays U.S. 20+ Year Treasury Bond Index.

Information about the Bond ETF and its constituent issuers is available from iShares, Inc. on its website at [www.ishares.com](http://www.ishares.com) and information from this website is not incorporated by reference into this pricing supplement.

#### Historical Price Performance

The following chart sets forth the historical price performance of the shares of iShares® 20+ Year Treasury Bond ETF for the period specified below. Historical price performance does not take into account distributions or dividends paid on the Underlying Securities of the Bond ETF.



All dollar amounts in graph in US\$.

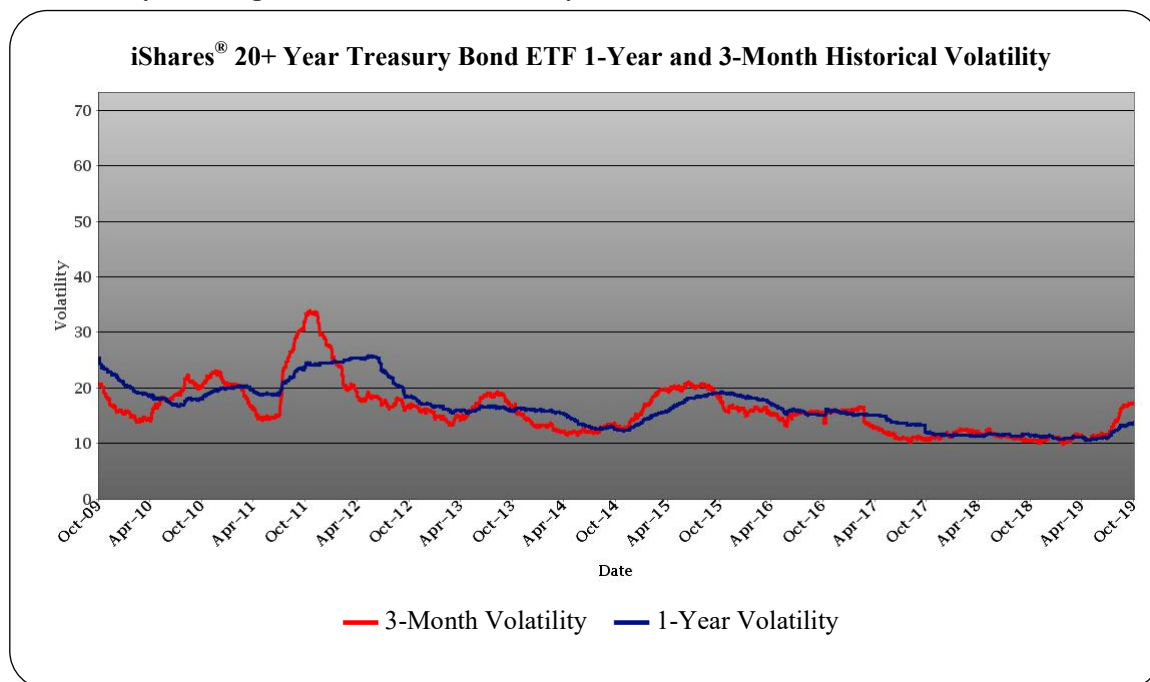
**Historical price performance of the shares of iShares® 20+ Year Treasury Bond ETF will not necessarily predict future price performance of the shares of iShares® 20+ Year Treasury Bond ETF or the Debt Securities.** The source of the data displayed in this chart is Bloomberg L.P. and its accuracy cannot be guaranteed.

Historical annual percentage change of the shares of iShares® 20+ Year Treasury Bond ETF										
Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Percentage change (%)	-24.68	4.71	28.82	-0.06	-15.94	23.62	-4.24	-1.20	6.49	-4.22

Source: Bloomberg L.P.: Measures annualized period as of December 31 of the previous year.

The following chart sets forth the one-year and three-month historical volatility of the shares of iShares® 20+ Year Treasury Bond ETF for the periods specified below.

**Historical volatility is not a guarantee of future volatility.**



The source of the data displayed in this chart is Bloomberg L.P. and its accuracy cannot be guaranteed.



### Vanguard Total Stock Market ETF

<b>Tracked Index</b>	CRSP US Total Market TR Index
<b>Adviser</b>	Vanguard
<b>Country</b>	United States
<b>Current Exchange</b>	NYSE Arca
<b>Ticker</b>	VTI
<b>Closing Price of Underlying Securities (November 1, 2019)</b>	US\$155.83

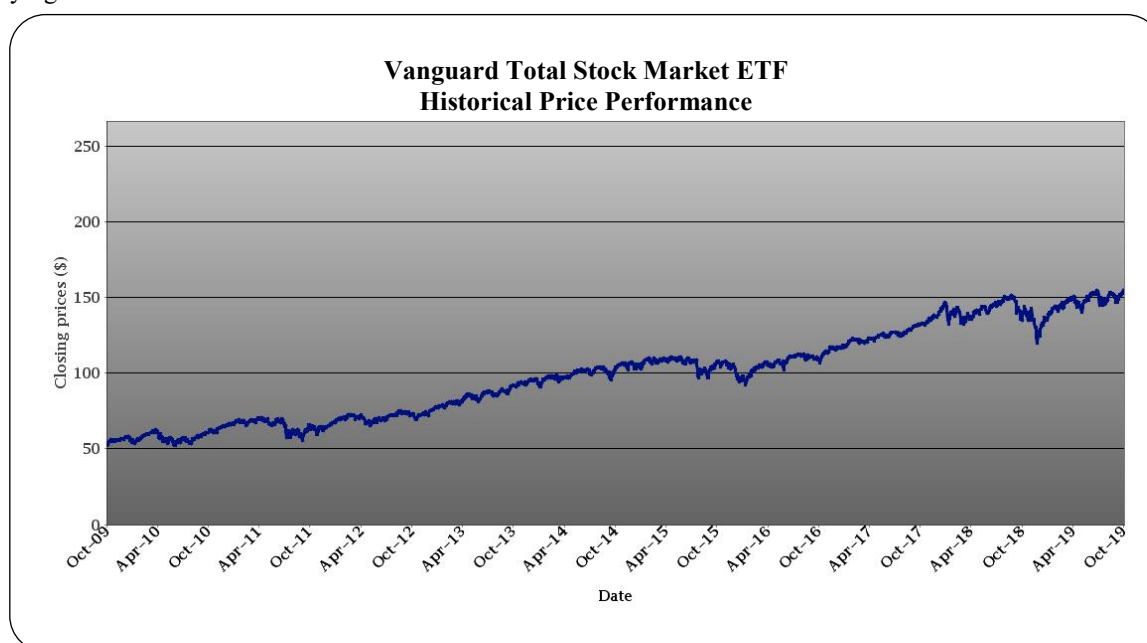
#### Principal Investment Strategies

The ETF employs an indexing investment approach designed to track the performance of the CRSP US Total Market TR Index, which represents approximately 100% of the investable U.S. stock market and includes large-, mid-, small-, and micro-cap stocks. The ETF invests by sampling the CRSP US Total Market TR Index, meaning that it holds a broadly diversified collection of securities that, in the aggregate, approximates the full CRSP US Total Market TR Index in terms of key characteristics. These key characteristics include industry weightings and market capitalization, as well as certain financial measures, such as price/earnings ratio and dividend yield.

Information about the ETF and its constituent issuers is available from Vanguard on its website at [www.vanguard.com](http://www.vanguard.com) and information from this website is not incorporated by reference into this pricing supplement.

#### Historical Price Performance

The following chart sets forth the historical price performance of the shares of Vanguard Total Stock Market ETF for the period specified below. Historical price performance does not take into account distributions or dividends paid on the Underlying Securities.



All dollar amounts in graph in US\$.

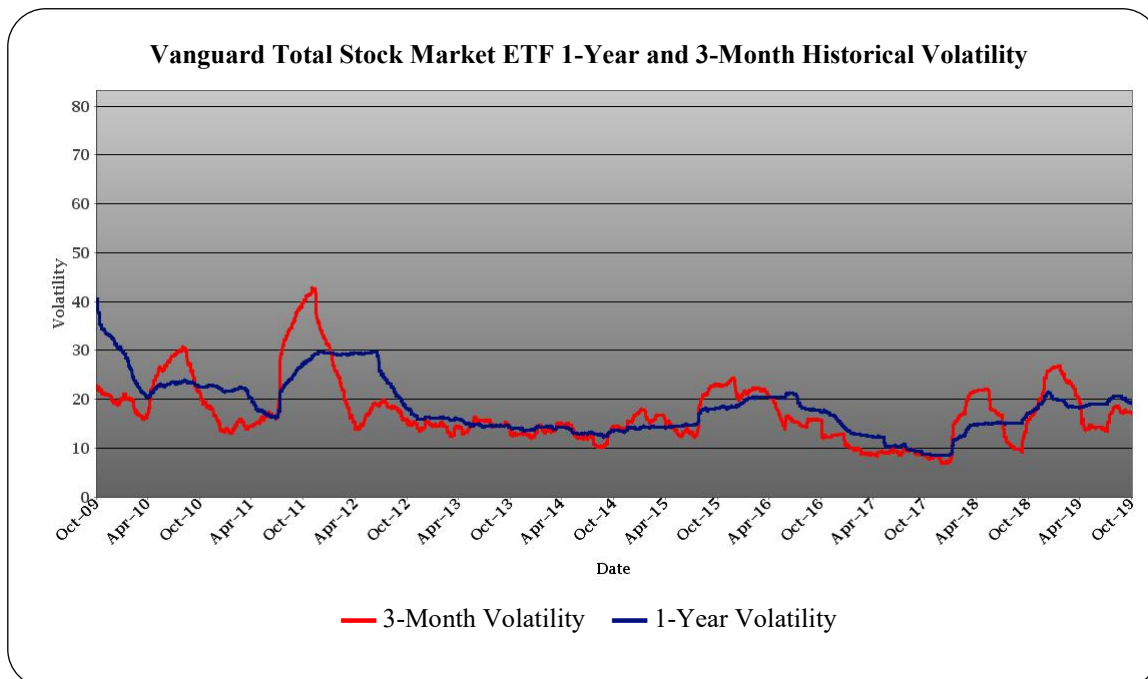
**Historical price performance of the shares of Vanguard Total Stock Market ETF will not necessarily predict future price performance of the shares of Vanguard Total Stock Market ETF or the Debt Securities.** The source of the data displayed in this chart is Bloomberg L.P. and its accuracy cannot be guaranteed.

<b>Historical annual percentage change of the shares of Vanguard Total Stock Market ETF</b>										
Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Percentage change (%)	25.99	15.19	-0.97	13.97	30.90	10.51	-1.60	10.57	19.02	-7.01

Source: Bloomberg L.P.: Measures annualized period as of December 31 of the previous year.

The following chart sets forth the one-year and three-month historical volatility of the shares of Vanguard Total Stock Market ETF for the periods specified below.

**Historical volatility is not a guarantee of future volatility.**



The source of the data displayed in this chart is Bloomberg L.P. and its accuracy cannot be guaranteed.

### ICE BofAML US High Yield Master II Option-Adjusted Spread

The following is a summary description of the ICE BofAML US High Yield Master II Option-Adjusted Spread based on information obtained at <https://fred.stlouisfed.org/series/BAMLH0A0HYM2>.

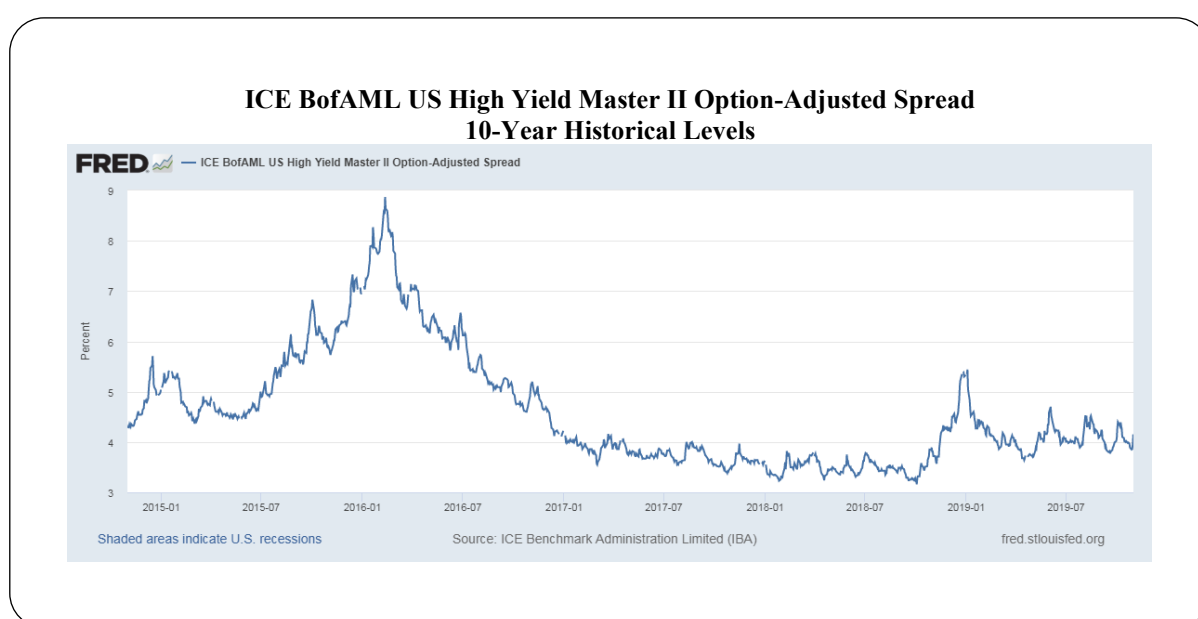
<b>Index</b>	ICE BofAML US High Yield Master II Option-Adjusted Spread
<b>Country</b>	United States of America
<b>Index Sponsor</b>	ICE Data Indices
<b>Method of Calculation</b>	Capitalization Weighted
<b>Closing Level (November 1, 2019)</b>	4.09

#### General Description

The ICE BofAML Option-Adjusted Spreads (OASs) are the calculated spreads between a computed OAS index of all bonds in a given rating category and a spot Treasury curve. An OAS index is constructed using each constituent bond, weighted by market capitalization. The ICE BofAML High Yield Master II OAS uses an index of bonds that are below investment grade (those rated BB or below).

#### Historical Price Performance

The following chart sets forth the historical level of the ICE BofAML US High Yield Master II Option-Adjusted Spread for the period specified below. Historical price performance does not take into account distributions or dividends paid on the securities underlying the ICE BofAML US High Yield Master II Option-Adjusted Spread.



**Historical levels of the ICE BofAML US High Yield Master II Option-Adjusted Spread will not necessarily predict future levels of the ICE BofAML US High Yield Master II Option-Adjusted Spread or the Securities.** The source of the data displayed in this chart is the Federal Reserve Bank of St. Louis and its accuracy cannot be guaranteed.

Historical annual percentage change of the ICE BofAML US High Yield Master II Option-Adjusted Spread										
Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Percentage change (%)	15.10	-45.90	-3.50	-0.20	-22.90	-13.50	32.80	11.30	-37.00	-3.70

Source: Federal Reserve Bank of St. Louis: Measures annualized period as of December 31 of the previous year.

## APPENDIX B

### Certain Canadian Tax Considerations

In the opinion of the Bank's counsel, Davies Ward Phillips & Vineberg LLP, the following summary fairly describes the principal Canadian federal income tax considerations under the *Income Tax Act* (Canada) (the "**Tax Act**") generally applicable to an initial purchaser of Debt Securities under this pricing supplement who, at all relevant times, for purposes of the Tax Act, is an individual (other than a trust) resident (or deemed to be resident) in Canada, deals at arm's length with and is not affiliated with the Bank, and acquires and holds the Debt Securities as capital property (a "**Resident Holder**"). Certain Resident Holders who might not otherwise be considered to hold their Debt Securities as capital property may, in certain circumstances, have their Debt Securities, and all other "Canadian securities" (as defined in the Tax Act) owned by such Resident Holders in the taxation year and each subsequent taxation year, treated as capital property as a result of having made the irrevocable election permitted by subsection 39(4) of the Tax Act.

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 prior to the date hereof (the "**Proposals**") and counsel's understanding of the current administrative and assessing policies and practices of the Canada Revenue Agency ("**CRA**"). Except for the Proposals, this summary does not take into account or anticipate any changes (including retroactive changes) in the law or the administrative and assessing policies or 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. Provisions of provincial income tax legislation vary from province to province in Canada and may differ from federal income tax legislation. No assurance can be given that the Proposals will be implemented in their current form, or at all. This summary assumes that the Resident Holder will neither undertake nor arrange a transaction in respect of the Debt Securities primarily for the purpose of obtaining a tax benefit and has not entered into a "derivative forward agreement" (as defined in the Tax Act) in respect of the Debt Securities and that the Debt Securities are not issued at a discount.

**This summary is of a general nature only and is not intended to constitute, nor should it be relied upon or construed as, tax advice to any particular Resident Holder, nor is it exhaustive of all possible Canadian federal income tax considerations. Holders should consult their own tax advisors as to the potential consequences to them of the acquisition, ownership and disposition of Debt Securities having regard to their particular circumstances.**

As noted, this summary is addressed only to Resident Holders. Purchasers of Debt Securities who are not resident in Canada are urged to consult with their tax advisors.

The tax treatment resulting from exposure to the Portfolio through an investment in the Debt Securities is different than, and may be either advantageous or disadvantageous relative to, the tax treatment resulting from exposure to the Portfolio through a direct holding of the Underlying Securities in the Portfolio. See "Risk Factors".

#### **Partial Principal Repayments**

The Partial Principal Repayments received in respect of the Debt Securities (before taking into account any withholding tax exigible on Partial Principal Repayments) prior to their maturity (or earlier repayment in full) should not be included in the Resident Holder's income when received, but rather should reduce the Resident Holder's adjusted cost base of the Debt Securities.

#### **Holding Debt Securities**

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. While the Debt Securities will generally be considered to be prescribed debt obligations to a Resident Holder, counsel understands that CRA's current administrative practice is not to require any 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 Debt Securities generally will not be determinable. Where this is the case, on the basis of such understanding of CRA's administrative practice there should be no deemed accrual of interest on the Debt Securities for taxation years (being calendar years) of a Resident Holder ending prior to the Maturity Date (or, if applicable, the date of their earlier repayment in full), except as described below under "Disposition of Debt Securities" where a Debt Security is transferred before such date.

The terms of the Debt Securities provide that if in any calendar quarter the cumulative total of Partial Principal Repayments otherwise payable in that and all previous calendar quarters would exceed \$99.00 per Debt Security, then Pre-Maturity Interest generally will commence to accrue on the Outstanding Principal Amount of each such Debt Security. Any amount received or receivable by a Resident Holder (depending on the method regularly followed by the Resident Holder in computing income under the Tax Act) in a taxation year as, on account of, in lieu of payment of or in satisfaction of, interest will be required to be included in the Resident Holder's income for the taxation year, except to the extent that such amount has already been included in the Resident Holder's income for that or a preceding taxation year.

### **Foreign Tax Credit or Deduction**

A Resident Holder may not be entitled to a foreign tax credit in respect of any United States withholding taxes which are required to be withheld from Partial Principal Repayments made to the Resident Holder given that such Partial Principal Repayments will not qualify as income from a United States source. Where such withholding taxes are paid on a Partial Principal Repayment, they may not qualify as being in respect of income of the Resident Holder for that year from the Debt Securities and thus may not be eligible for deduction in computing income. A Resident Holder also may not be entitled to a foreign tax credit, or deduction from income, if the holder is subject to United States withholding tax on the proceeds of sale by the holder of a Debt Security. The rules in respect of any such credit or deduction are complex and their application may vary depending on a Resident Holder's individual circumstances. A Resident Holder should consult a tax advisor before claiming any such credit or deduction, or a foreign tax credit or deduction in respect of any withholding taxes on amounts paid under the Debt Securities as Pre-Maturity Interest or in respect of the portion of the Redemption Amount attributable to the Final Distribution Amount or in respect of any United States taxes to which the proceeds of sale of a Debt Security are subject.

In addition, a Resident Holder will not be entitled to a foreign tax credit or deduction from income for any reductions made in respect of foreign withholding taxes in calculating the amount of U.S. Equity Distributions.

Furthermore, a Resident Holder also will not be entitled to a foreign tax credit or a deduction in computing income in respect of any United States withholding taxes which are withheld from Partial Principal Repayments, Pre-Maturity Interest, or in respect of any United States taxes which are withheld from the proceeds of sale of a Debt Security, or in respect of the portion of the Redemption Amount attributable to the Final Distribution Amount in amounts in excess of the rate of withholding required under the taxation laws of the U.S.

### **Payment at Maturity or Earlier Repayment in Full**

A Resident Holder who holds the Debt Securities until maturity (or earlier repayment in full by the Bank) will be required to include in computing the Resident Holder's income for the taxation year in which the Maturity Date (or earlier repayment in full) occurs the amount, if any, by which the amount payable at maturity (or earlier repayment in full) exceeds the Outstanding Principal Amount of the Debt Securities at that time. Alternatively, the Resident Holder will realize a capital loss to the extent that the amount received at maturity (or earlier repayment in full) is less than the Resident Holder's adjusted cost base of such Debt Securities (which generally should be equal to the cost of the Debt Securities to the Resident Holder less the total amount of the Partial Principal Repayments (before withholding taxes) previously received by the Resident Holder). The income tax considerations associated with the realization of a capital loss are described below.

### **Disposition of Debt Securities**

Changes in the Underlying Securities comprising the Portfolio or changes in the Portfolio will not result in the disposition of a Debt Security by a Resident Holder.

Where a Resident Holder disposes of a Debt Security (other than to the Bank on the Maturity Date or earlier repayment in full), the Tax Act requires the amount of interest, if any, accrued on the Debt Security that is unpaid at that time to be included in computing the income of the Resident Holder for the taxation year in which the disposition occurs (except to the extent such amount has otherwise been included in computing the income of the Resident Holder for that year or a preceding year), and excludes such amount from the proceeds of disposition.

On an assignment or other transfer of a Debt Security by a Resident Holder (other than to the Bank on the Maturity Date or earlier repayment in full), a formula amount will be deemed to have accrued on the Debt Security up to the time of the transfer, so that such amount will be required to be included in the income of the Resident Holder for the taxation year of the Resident Holder in which the transfer occurs. Such formula amount equals the excess, if any, of the price for which it is so transferred over its outstanding principal amount at the time of the transfer.

The Resident Holder should realize a capital loss to the extent that the proceeds of disposition, net of amounts included in income as interest (including any formula amount as described above) and any reasonable costs of disposition, are less

than the Resident Holder's adjusted cost base of the Debt Securities (which generally should be equal to the cost of the Debt Securities to the Resident Holder less the total amount of the Partial Principal Repayments (before withholding taxes) previously received by the Resident Holder). As described above, any gain realized from the disposition of Debt Securities will be included in income and will not give rise to a capital gain. Resident Holders who dispose of Debt Securities prior to the Maturity Date (or earlier repayment in full) should consult their own tax advisors with respect to their particular circumstances.

### **Treatment of Capital Losses**

One-half of any capital loss realized by a Resident Holder 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.

### **Eligibility for Investment**

The Debt Securities, if issued on the date of this pricing supplement, would be qualified investments (for purposes of the Tax Act) for trusts governed by registered retirement savings plans ("**RRSPs**"), registered retirement income funds ("**RRIFs**"), tax-free savings accounts ("**TFSAs**"), registered disability savings plans ("**RDSPs**"), registered education savings plans ("**RESPs**") and deferred profit sharing plans ("**DPSPs**"), each within the meaning of the Tax Act (other than a DPSP to which payments are made by the Bank or a corporation or partnership with which the Bank does not deal at arm's length within the meaning of the Tax Act).

Notwithstanding the foregoing, if Debt Securities are "prohibited investments" (as that term is defined in the Tax Act) for an RRSP, RRIF, TFSA, RDSP or RESP, the annuitant of the RRSP or RRIF, the holder of the TFSA or RDSP, or the subscriber of the RESP, as the case may be (each a "**Plan Holder**"), will be subject to a penalty tax as set out in the Tax Act. Debt Securities will be "prohibited investments" for an RRSP, RRIF, TFSA, RDSP or RESP of a Plan Holder who has a "significant interest" (as defined in the Tax Act for purposes of the prohibited investment rules) in the Bank or who does not deal at arm's length, within the meaning of the Tax Act, with the Bank.

Investors should also review the discussion of U.S. withholding taxes below under "Certain United States Federal Income Tax Considerations".

## Certain United States Federal Income Tax Considerations

*The following is a general description of certain United States tax considerations relating to the Debt Securities. It does not purport to be a complete analysis of all tax considerations relating to the Debt Securities. Prospective purchasers of the Debt Securities should consult their tax advisors as to the consequences under the tax laws of the country of which they are resident for tax purposes and the tax laws of the United States of acquiring, holding and disposing of the Debt Securities and receiving payments under the Debt Securities. Except as otherwise specifically noted, this summary is based upon the law as in effect on the date of this pricing supplement and is subject to any change in law that may take effect after such date.*

A “dividend equivalent” payment is treated as a dividend from sources within the United States and such payments generally would be subject to a 30% United States withholding tax (or a lower rate under an applicable income tax treaty) if paid to a Non-United States Holder. A “**Non-United States Holder**” is a beneficial owner of a Debt Security that, for United States federal income tax purposes, is a non-resident alien individual, a foreign corporation, or a foreign estate or trust. Under United States Treasury Department regulations, payments (including deemed payments) with respect to equity-linked instruments (“**ELIs**”) that are “specified ELIs” may be treated as dividend equivalents if such specified ELIs reference an interest in an “underlying security,” which is generally any interest in an entity taxable as a corporation for U.S. federal income tax purposes if a payment with respect to such interest could give rise to a U.S. source dividend. Withholding for a dividend equivalent payment is not required until the later of when (a) the amount of a dividend equivalent is determined and (b) a payment occurs. The amount of a dividend equivalent is determined on the earlier of the date that is the record date of the dividend and the day prior to the ex-dividend date with respect to the dividend. A payment generally occurs when (a) money or other property is paid to or by the long party, (b) in the case of dividends for certain baskets referencing more than 25 underlying securities, a payment is treated as being made at the end of the applicable calendar quarter, or (c) the long party sells, exchanges, transfers, or otherwise disposes of the transaction (including by settlement, offset, termination, expiration, lapse, or maturity). There is an exception, however, for when a long party pays a premium or other upfront payment to the short party at the time of issuance. Upon a sale of the Debt Security, a Non-United States Holder is deemed to receive any dividend equivalent amount that has accrued on the Debt Security up until the date of sale. The IRS has issued guidance that states that the United States Treasury Department and the IRS intend to amend the effective dates of the United States Department Treasury regulations to provide that withholding on dividend equivalent payments will not apply to specified ELIs that are not delta-one instruments and that are issued before January 1, 2021. Based on market information as of the date of this pricing supplement, the Bank expects that the delta of the Debt Security will be one, and therefore, payments or portions of the payments on the Debt Securities may be dividend equivalents subject to withholding. If any payments are treated as dividend payments subject to withholding, the Bank (or the applicable paying agent) will withhold taxes (subject to reduction under the Treaty (as defined below)) without being required to pay to Non-United States Holders any additional amounts with respect to amounts so withheld. Further, Non-United States Holders may be required to provide certifications prior to, or upon the sale or maturity of the Debt Securities in order to minimize or avoid United States withholding taxes. Pursuant to the convention between the Government of the United States of America and Canada with respect to taxes on income and on capital signed September 26, 1980, as amended (the “**Treaty**”), dividends derived by a trust, company, organization or other arrangement operated exclusively to administer or provide pension, retirement, or employee benefits that qualifies as a resident of Canada under the Treaty (including certain RRSPs, RRIFs and DPSPs) should generally be exempt from United States taxation. Other persons qualified as residents of Canada under the Treaty may generally be entitled to a 15% rather than 30% withholding tax rate on dividend equivalent payments. To claim benefits under an income tax treaty, a Non-United States Holder must certify as to its eligibility under the appropriate treaty’s limitations on benefits article, if applicable (which certification may generally be made on an Internal Revenue Service Form W-8BEN or W-8BEN-E, or a substitute or successor form).

The dividend equivalent rules discussed above may also apply to payments received under hedging arrangements. An amount equal to the sum of (i) the Equity Distributions paid during the corresponding Partial Principal Repayment Period, and (ii) provided that the NAV per Debt Security is greater than or equal to \$1.25 on the applicable Payment Date, the Guaranteed Payment per Debt Security will be paid to holders as a Partial Principal Repayment on the Debt Securities on a quarterly basis. If and to the extent that United States withholding taxes would become payable in respect of dividend equivalent payments made to a taxable holder who is a resident of Canada for purposes of, and is entitled to claim the benefit of, the Treaty (the “**Reference Holder**”) on a hedging instrument in respect of listed shares of U.S. public companies (the “**Reference Hedge**”), the Equity Distributions used to satisfy the corresponding portion of the Partial Principal Repayments and the portion of the Redemption Amount attributable to the Subject Payments will be reduced by such rate of United States withholding. In particular, the amount of any Subject Payments would generally be reduced by a percentage equal to the rate of United States withholding tax (currently 15%) that would be payable in respect of payments to the Reference Holder under the Reference Hedge (with a corresponding reduction in the amount of the Variable Return). The reduced amount will be converted into Canadian dollars at the applicable CAD/USD Foreign Exchange Rate to determine the Subject Payments. For purposes of this calculation, in determining the attributes of the Reference Hedge, the Calculation Agent shall, in its judgment, acting reasonably, seek to minimize adverse tax consequences to the Reference Holder. Although the Bank does not anticipate payments under the Reference Hedge to be subject to United States withholding tax, the Subject Payments would be reduced if payments under the Reference Hedge were determined to be subject to United States withholding tax. See the discussion under “Partial Principal Repayments” commencing on page 10 of this pricing supplement for additional information.



## APPENDIX C

### Net Value of the Portfolio Calculation Examples

References in this Appendix C to “CAD” or “\$” are to Canadian currency and references to “USD” and “US\$” are to United States currency.

The examples set out below are included for illustration purposes only. The Net Values of the Portfolio, Settlement Amounts and exchange rates used to illustrate the adjustments to the Net Values of the Portfolio resulting from the application of the Currency Forward are not estimates or forecasts of the Net Values of the Portfolio, Settlement Amounts or exchange rates on which the adjustments of Net Value of the Portfolio resulting from the application of the Currency Forward will depend. In all four examples, it is assumed that the Net Value of the Portfolio at the end of the previous quarter is \$10,000. As can be seen from these examples, the Settlement Amount notionally received or paid under the Currency Forward differs somewhat from the foreign exchange gain or loss on the Portfolio, thereby illustrating that the Currency Forward is only a partial hedge.

**Example #1 – Increase in Net Value of the Portfolio and Depreciation of U.S. Currency.** In this example, the notional settlement of the Currency Forward results in the addition of a positive Settlement Amount to the Net Value of the Portfolio as a result of the depreciation of the U.S. currency.

#### **Assumptions**

- (a) CAD/USD Foreign Exchange Rate at end of previous quarter: \$1.00 = US\$0.940
- (b) CAD/USD Foreign Exchange Rate at end of current quarter: \$1.00 = US\$0.965
- (c) Currency Forward exchange rate for current quarter: \$1.00 = US\$0.935
- (d) Net Value of the Portfolio at end of previous quarter: \$10,000 = US\$9,400 (i.e. \$10,000\*0.940)
- (e) U.S. dollar equivalent Net Value of the Portfolio at end of the current quarter prior to addition of the Settlement Amount: US\$9,800

#### **Calculation of the Net Value of the Portfolio**

- (a) Net Value of the Portfolio at end of the current quarter, prior to addition of the Settlement Amount:  
$$\text{US\$9,800}/0.965 = \$10,155.44$$
- (b) Settlement Amount, based on the difference between the Currency Forward exchange rate and the CAD/USD Foreign Exchange Rate at end of the current quarter:  
$$\text{US\$9,400}/0.935 - \text{US\$9,400}/0.965 = \$312.54$$
- (c) Net Value of the Portfolio after addition of the positive Settlement Amount:  
$$\$10,155.44 + \$312.54 = \$10,467.98$$

#### **Impact of Partial Currency Hedge**

- (a) Net Value of the Portfolio at end of the current quarter, if the exchange rate remained unchanged during the quarter, calculated to demonstrate the foreign exchange loss prior to adjustment for Currency Forward:  
$$\text{US\$9,800}/0.940 = \$10,425.53$$
- (b) Foreign exchange loss on Portfolio prior to adjustment for Currency Forward above:  
$$\$10,425.53 - \$10,155.44 = \$270.09$$

**Example #2 – Increase in Net Value of the Portfolio and Appreciation of U.S. Currency.** In this example, the notional settlement of the Currency Forward results in the addition of a negative Settlement Amount to the Net Value of the Portfolio as a result of the appreciation of the U.S. currency.

#### **Assumptions**

- (a) CAD/USD Foreign Exchange Rate at end of previous quarter: \$1.00 = US\$0.940
- (b) CAD/USD Foreign Exchange Rate at end of current quarter: \$1.00 = US\$0.920
- (c) Currency Forward exchange rate for current quarter: \$1.00 = US\$0.935
- (d) Net Value of the Portfolio at end of previous quarter: \$10,000 = US\$9,400 (i.e. \$10,000\*0.940)

- (e) U.S. dollar equivalent Net Value of the Portfolio at end of the current quarter prior to addition of the Settlement Amount: US\$9,800

#### **Calculation of the Net Value of the Portfolio**

- (a) Net Value of the Portfolio at end of the current quarter, prior to addition of the Settlement Amount:  

$$\text{US\$9,800}/0.920 = \$10,652.17$$
- (b) Settlement Amount, based on the difference between the Currency Forward exchange rate and the CAD/USD Foreign Exchange Rate at end of the current quarter:  

$$\text{US\$9,400}/0.935 - \text{US\$9,400}/0.920 = -\$163.92$$
- (c) Net Value of the Portfolio after addition of the negative Settlement Amount:  

$$\$10,652.17 + (- \$163.92) = \$10,488.25$$

#### **Impact of Partial Currency Hedge**

- (a) Net Value of the Portfolio at end of the current quarter, if the exchange rate remained unchanged during the quarter, calculated to demonstrate the foreign exchange gain prior to adjustment for Currency Forward:  

$$\text{US\$9,800}/0.940 = \$10,425.53$$
- (b) Foreign exchange gain on Portfolio prior to adjustment for Currency Forward above:  

$$\$10,652.17 - \$10,425.53 = \$226.64$$

**Example #3 – Decrease in Net Value of the Portfolio and Depreciation of U.S. Currency.** In this example, the notional settlement of the Currency Forward results in the addition of a positive Settlement Amount to the Net Value of the Portfolio as a result of the depreciation of the U.S. currency.

#### **Assumptions**

- (a) CAD/USD Foreign Exchange Rate at end of previous quarter: \$1.00 = US\$0.940
- (b) CAD/USD Foreign Exchange Rate at end of current quarter: \$1.00 = US\$0.965
- (c) Currency Forward exchange rate for current quarter: \$1.00 = US\$0.935
- (d) Net Value of the Portfolio at end of previous quarter: \$10,000 = US\$9,400 (i.e. \$10,000\*0.940)
- (e) U.S. dollar equivalent Net Value of the Portfolio at end of the current quarter prior to addition of the Settlement Amount: US\$9,000

#### **Calculation of the Net Value of the Portfolio**

- (a) Net Value of the Portfolio at end of the current quarter, prior to addition of the Settlement Amount:  

$$\text{US\$9,000}/0.965 = \$9,326.42$$
- (b) Settlement Amount, based on the difference between the Currency Forward exchange rate and the CAD/USD Foreign Exchange Rate at end of the current quarter:  

$$\text{US\$9,400}/0.935 - \text{US\$9,400}/0.965 = \$312.54$$
- (c) Net Value of the Portfolio after addition of the positive Settlement Amount:  

$$\$9,326.42 + \$312.54 = \$9,638.96$$

#### **Impact of Partial Currency Hedge**

- (a) Net Value of the Portfolio at end of the current quarter, if the exchange rate remained unchanged during the quarter, calculated to demonstrate the foreign exchange loss prior to adjustment for Currency Forward:  

$$\text{US\$9,000}/0.940 = \$9,574.47$$
- (b) Foreign exchange loss on Portfolio prior to adjustment for Currency Forward above:  

$$\$9,574.47 - \$9,326.42 = \$248.05$$

**Example #4 – Decrease in Net Value of the Portfolio and Appreciation of U.S. Currency.** In this example, the notional settlement of the Currency Forward results in the addition of a negative Settlement Amount to the Net Value of the Portfolio as a result of the appreciation of the U.S. currency.

**Assumptions**

- (a) CAD/USD Foreign Exchange Rate at end of previous quarter: \$1.00 = US\$0.940
- (b) CAD/USD Foreign Exchange Rate at end of current quarter: \$1.00 = US\$0.920
- (c) Currency Forward exchange rate for current quarter: \$1.00 = US\$0.935
- (d) Net Value of the Portfolio at end of previous quarter: \$10,000 = US\$9,400 (i.e. \$10,000\*0.940)
- (e) U.S. dollar equivalent Net Value of the Portfolio at end of the current quarter prior to addition of the Settlement Amount: US\$9,000

**Calculation of the Net Value of the Portfolio**

- (a) Net Value of the Portfolio at end of the current quarter, prior to addition of the Settlement Amount:  
$$\text{US\$9,000}/0.920 = \$9,782.61$$
- (b) Settlement Amount, based on the difference between the Currency Forward exchange rate and the CAD/USD Foreign Exchange Rate at end of the current quarter:  
$$\text{US\$9,400}/0.935 - \text{US\$9,400}/0.920 = -\$163.92$$
- (c) Net Value of the Portfolio after addition of the negative Settlement Amount:  
$$\$9,782.61 + (-\$163.92) = \$9,618.69$$

**Impact of Partial Currency Hedge**

- (a) Net Value of the Portfolio at end of the current quarter, if the exchange rate remained unchanged during the quarter, calculated to demonstrate the foreign exchange gain prior to adjustment for Currency Forward:  
$$\text{US\$9,000}/0.940 = \$9,574.47$$
- (b) Foreign exchange gain on Portfolio prior to adjustment for Currency Forward above:  
$$\$9,782.61 - \$9,574.47 = \$208.14$$