ROYAL BANK OF CANADA
Form 424B2
December 20, 2018

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

This pricing supplement amends and restates the pricing supplement dated December 17, 2018.

Amended Pricing Supplement Dated December 20, 2018	
To the Product Prospectus Supplement No. CCBN-1 Dated September 10, 2018, the Prospectus Supplement Dated September 7, 2018 and the Prospectus Dated September 7, 2018	$300,000 Issuer Callable Contingent Coupon Barrier Notes Linked to the Lesser Performing of Two Exchange Traded Funds, due December 22, 2022 Royal Bank of Canada

Royal Bank of Canada is offering Issuer Callable Contingent Coupon Barrier Notes (the "Notes") linked to the lesser performing of four equity securities (each, a "Reference Stock" and collectively, the "Reference Stocks"). The Notes are senior unsecured obligations of Royal Bank of Canada, will pay a quarterly Contingent Coupon at the rate and under the circumstances specified below, and will have the terms described in the documents described above, as supplemented or modified by this pricing supplement.

Reference Stocks and Reference Stock Issuers	Initial Stock Prices	Coupon Barriers and Trigger Prices*
VanEck Vectors® Gold Miners ETF ("GDX")	$20.61	$13.40, which is 65% of its Initial Stock Price
iShares® MSCI Emerging Markets ETF ("EEM")	$39.46	$25.65, which is 65% of its Initial Stock Price

* Rounded to two decimal places.

The Notes do not guarantee any return of principal at maturity. Any payments on the Notes are subject to our credit risk.

Investing in the Notes involves a number of risks. See "Risk Factors" beginning on page PS-5 of the product prospectus supplement dated September 10, 2018, on page S-1 of the prospectus supplement dated September 7, 2018, and "Selected Risk Considerations" beginning on page P-7 of this pricing supplement.

The Notes will not constitute deposits insured by the Canada Deposit Insurance Corporation, the U.S. Federal Deposit Insurance Corporation or any other Canadian or U.S. government agency or instrumentality. The Notes are not subject to conversion into our common shares under subsection 39.2(2.3) of the Canada Deposit Insurance Corporation Act.

Neither the Securities and Exchange Commission (the "SEC") nor any state securities commission has approved or disapproved of the Notes or determined that this pricing supplement is truthful or complete. Any representation to the contrary is a criminal offense.

Issuer:	Royal Bank of Canada	Stock Exchange Listing:	None
Trade Date:	December 17, 2018	Principal Amount:	$1,000 per Note
Issue Date:	December 20, 2018	Maturity Date:	December 22, 2022
Observation Periods:	Quarterly, as set forth below	Coupon Payment Dates:	Quarterly, as set forth below

Valuation Date:	December 19, 2022	Contingent Coupon Rate:	11.20% per annum
Contingent Coupon:	If the closing price of each Reference Stock is greater than or equal to its Coupon Barrier on each trading day during the applicable Observation Period, we will pay the Contingent Coupon on the applicable Coupon Payment Date. You may not receive any Contingent Coupons during the term of the Notes.		
Payment at Maturity (if held to maturity):	If the Notes are not previously called, we will pay you at maturity an amount based on the Final Stock Price of the Lesser Performing Reference Stock: For each $1,000 in principal amount, $1,000 plus the Contingent Coupon at maturity (if payable), unless the Final Stock Price of the Lesser Performing Reference Stock is less than its Trigger Price. If the Final Stock Price of the Lesser Performing Reference Stock is less than its Trigger Price, then the investor will receive at maturity, for each $1,000 in principal amount, a cash payment equal to: $1,000 + ($1,000 x Reference Stock Return of the Lesser Performing Reference Stock) Investors in the Notes could lose some or all of their principal amount if the Final Stock Price of the Lesser Performing Reference Stock is below its Trigger Price.		
Lesser Performing Reference Stock:	The Reference Stock with the lowest Reference Stock Return.		
Call Feature:	The Notes may be called at our discretion on any Coupon Payment Date beginning in June 2019, if we send prior written notice, as described below.		
Final Stock Price:	For each Reference Stock, its closing price on the Valuation Date.		
CUSIP:	78013GHJ7		

	Per Note	Total
Price to public	100%	$300,000
Underwriting discounts and commissions	0%	$0
Proceeds to Royal Bank of Canada	100%	$300,000

The initial estimated value of the Notes as of the date of this pricing supplement is $958.72 per $1,000 in principal amount, which is less than the price to public. The actual value of the Notes at any time will reflect many factors, cannot be predicted with accuracy, and may be less than this amount. We describe our determination of the initial estimated value in more detail below.

RBC Capital Markets, LLC, which we refer to as RBCCM, acting as agent for Royal Bank of Canada, did not receive a commission in connection with the offering of the Notes. See “Supplemental Plan of Distribution (Conflicts of Interest)” below.

RBC Capital Markets, LLC

Issuer Callable Contingent Coupon Barrier Notes
Linked to the Lesser Performing of Two Exchange Traded Funds
Royal Bank of Canada

SUMMARY

The information in this "Summary" section is qualified by the more detailed information set forth in this pricing supplement, the product prospectus supplement, the prospectus supplement, and the prospectus.

General:	This pricing supplement relates to an offering of Issuer Callable Contingent Coupon Barrier Notes (the "Notes") linked to the lesser performing of two exchange traded funds (the "Reference Stocks").
Issuer:	Royal Bank of Canada ("Royal Bank")
Trade Date:	December 17, 2018
Issue Date:	December 20, 2018
Denominations:	Minimum denomination of $1,000, and integral multiples of $1,000 thereafter.
Designated Currency:	U.S. Dollars
Contingent Coupon:	We will pay you a Contingent Coupon during the term of the Notes, periodically in arrears on each Coupon Payment Date, under the conditions described below: · If the closing price of each Reference Stock is greater than or equal to its Coupon Barrier on each trading day during the applicable Observation Period, we will pay the Contingent Coupon applicable to that Observation Period. · If the closing price of any of the Reference Stocks is less than its Coupon Barrier on any trading day during the applicable Observation Period, we will not pay you the Contingent Coupon applicable to that Observation Period. You may not receive a Contingent Coupon for one or more quarterly periods during the term of the Notes.
Contingent Coupon Rate:	11.20% per annum (2.80% per quarter)

Observation Periods and Coupon Payment Dates:

Observation Period Start Dates	Observation Period End Dates	Coupon Payment Dates
December 17, 2018	March 18, 2019	March 21, 2019
March 19, 2019	June 17, 2019	June 20, 2019
June 18, 2019	September 17, 2019	September 20, 2019
September 18, 2019	December 17, 2019	December 20, 2019
December 18, 2019	March 17, 2020	March 20, 2020
March 18, 2020	June 17, 2020	June 22, 2020
June 18, 2020	September 17, 2020	September 22, 2020
September 18, 2020	December 17, 2020	December 22, 2020
December 18, 2020	March 17, 2021	March 22, 2021
March 18, 2021	June 17, 2021	June 22, 2021
June 18, 2021	September 17, 2021	September 22, 2021
September 20, 2021	December 17, 2021	December 22, 2021
December 20, 2021	March 17, 2022	March 22, 2022
March 18, 2022	June 17, 2022	June 22, 2022
June 20, 2022	September 19, 2022	September 22, 2022
September 20, 2022	December 19, 2022 (the Valuation Date)	December 22, 2022 (the Maturity Date)

Record Dates: The record date for each Coupon Payment Date will be one business day prior to that scheduled Coupon Payment Date; provided, however, that any Contingent Coupon payable at maturity or upon a call will be

	payable to the person to whom the payment at maturity or upon the call, as the case may be, will be payable.
Call Feature:	The Notes may be called at our discretion on any Coupon Payment Date beginning in June 2019, if we send prior written notice to the trustee at least three buisness days prior to that scheduled Coupon Date.

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Payment if Called:	If the Notes are called, then, on the applicable Coupon Payment Date, for each $1,000 principal amount, you will receive $1,000 plus any Contingent Coupon otherwise due on that date.
Valuation Date:	December 19, 2022
Maturity Date:	December 22, 2022
Initial Stock Price:	For each Reference Stock, its closing price on the Trade Date, as specified on the cover page of this pricing supplement.
Final Stock Price:	For each Reference Stock, its closing price on the Valuation Date.
Trigger Price and Coupon Barrier:	For each Reference Stock, 65% of its Initial Stock Price, as specified on the cover page of this pricing supplement.
Payment at Maturity (if not previously called and held to maturity):	If the Notes are not previously called, we will pay you at maturity an amount based on the Final Stock Price of the Lesser Performing Reference Stock: · If the Final Stock Price of the Lesser Performing Reference Stock is greater than or equal to its Trigger Price, we will pay you a cash payment equal to the principal amount plus the Contingent Coupon otherwise due on the Maturity Date (if payable). · If the Final Stock Price of the Lesser Performing Reference Stock is below its Trigger Price, you will receive at maturity, for each $1,000 in principal amount, a cash payment equal to: $1,000 + ($1,000 x Reference Stock Return of the Lesser Performing Reference Stock) The amount of cash that you receive will be less than your principal amount, if anything, resulting in a loss that is proportionate to the decline of the Lesser Performing Reference Stock from the Trade Date to the Valuation Date. Investors in the Notes will lose some or all of their principal amount if the Final Stock Price of the Lesser Performing Reference Stock is less than its Trigger Price.
Stock Settlement:	Not applicable. Payments on the Notes will be made solely in cash.
Reference Stock Return:	With respect to each Reference Stock: $\frac{\text{Final Stock Price} - \text{Initial Stock Price}}{\text{Initial Stock Price}}$
Lesser Performing Reference Stock:	The Reference Stock with the lowest Reference Stock Return.
Market Disruption Events:	If a market disruption event occurs as to any of the Reference Stocks on any trading day during an Observation Period, the closing price of that Reference Stock may be disregarded for the purpose of determining whether the Contingent Coupon is payable for that Observation Period. The occurrence of a market disruption event (or a non-trading day) as to any of the Reference Stocks on the scheduled Valuation Date will result in the postponement of the Valuation Date as to that Reference Stock, as described in the product prospectus supplement. A market disruption event affecting one Reference Stock on the Valuation Date will not affect the determination of the closing price for any other Reference Stock.
Calculation Agent:	RBC Capital Markets, LLC (“RBCCM”)

U.S. Tax Treatment:	By purchasing a Note, each holder agrees (in the absence of a change in law, an administrative determination or a judicial ruling to the contrary) to treat the Notes as a callable pre-paid cash-settled contingent income-bearing derivative contract linked to the Reference Stocks for U.S. federal income tax purposes. However, the U.S. federal income tax consequences of your investment in the Notes are uncertain and the Internal Revenue Service could assert that the Notes should be taxed in a manner that is different from that described in the preceding sentence. Please see the section below, "Supplemental Discussion of U.S. Federal Income Tax Consequences," and the discussion (including the opinion of our counsel Morrison & Foerster LLP) in the product prospectus supplement dated September 10, 2018 under "Supplemental Discussion of U.S. Federal Income Tax Consequences," which apply to the Notes.

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Secondary Market:	RBCCM (or one of its affiliates), though not obligated to do so, may maintain a secondary market in the Notes after the Issue Date. The amount that you may receive upon sale of your Notes prior to maturity may be less than the principal amount.
Listing:	The Notes will not be listed on any securities exchange.
Settlement:	DTC global (including through its indirect participants Euroclear and Clearstream, Luxembourg as described under "Description of Debt Securities — Ownership and Book-Entry Issuance" in the prospectus dated September 7, 2018).
Terms Incorporated in the Master Note:	All of the terms appearing above the item captioned "Secondary Market" on the cover page and pages P-2 and P-3 of this pricing supplement and the terms appearing under the caption "General Terms of the Notes" in the product prospectus supplement dated September 10, 2018, as modified by this pricing supplement.

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ADDITIONAL TERMS OF YOUR NOTES

You should read this pricing supplement together with the prospectus dated September 7, 2018, as supplemented by the prospectus supplement dated September 7, 2018 and the product prospectus supplement dated September 10, 2018, relating to our Senior Global Medium-Term Notes, Series H, of which these Notes are a part. Capitalized terms used but not defined in this pricing supplement will have the meanings given to them in the product prospectus supplement. In the event of any conflict, this pricing supplement will control. The Notes vary from the terms described in the product prospectus supplement in several important ways. You should read this pricing supplement carefully.

This pricing supplement, together with the documents listed below, contains the terms of the Notes and supersedes all prior or contemporaneous oral statements as well as any other written materials including preliminary or indicative pricing terms, correspondence, trade ideas, structures for implementation, sample structures, brochures or other educational materials of ours. You should carefully consider, among other things, the matters set forth in "Risk Factors" in the prospectus supplement dated September 7, 2018 and in the product prospectus supplement dated September 10, 2018, as the Notes involve risks not associated with conventional debt securities. We urge you to consult your investment, legal, tax, accounting and other advisors before you invest in the Notes. You may access these documents on the SEC website at www.sec.gov as follows (or if that address has changed, by reviewing our filings for the relevant date on the SEC website):

Prospectus dated September 7, 2018:
https://www.sec.gov/Archives/edgar/data/1000275/000121465918005973/l96181424b3.htm

Prospectus Supplement dated September 7, 2018:
https://www.sec.gov/Archives/edgar/data/1000275/000121465918005975/f97180424b3.htm

Product Prospectus Supplement dated September 10, 2018:
https://www.sec.gov/Archives/edgar/data/1000275/000114036118038091/form424b5.htm

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

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HYPOTHETICAL EXAMPLES

The table set out below is included for illustration purposes only. The table illustrates the Payment at Maturity of the Notes (excluding any final Contingent Coupon that may be payable) for a hypothetical range of performance for the Lesser Performing Reference Stock, assuming the following terms and that the Notes are not called prior to maturity:

Hypothetical Initial Stock Price:	$100.00*
Hypothetical Trigger Price and Coupon Barrier:	$65.00, which is 65% of the hypothetical Initial Stock Price
Contingent Coupon Rate:	11.20% per annum (or 2.80% per quarter)
Contingent Coupon Amount:	$28.00 per quarter
Observation Periods:	Quarterly
Principal Amount:	$1,000 per Note

* The hypothetical Initial Stock Price of $100 used in the examples below has been chosen for illustrative purposes only and does not represent the actual Initial Stock Price of any Reference Stock. The actual Initial Stock Price for each Reference Stock is set forth on the cover page of this pricing supplement. We make no representation or warranty as to which of the Reference Stocks will be the Lesser Performing Reference Stock. It is possible that the Final Stock Price of each Reference Stock will be less than its Initial Stock Price.

Hypothetical Final Stock Prices are shown in the first column on the left. The second column shows the Payment at Maturity for a range of Final Stock Prices on the Valuation Date. The third column shows the amount of cash to be paid on the Notes per $1,000 in principal amount. If the Notes are called prior to maturity, the hypothetical examples below will not be relevant, and you will receive on the applicable Coupon Payment Date, for each $1,000 principal amount, $1,000 plus the Contingent Coupon otherwise due on the Notes, if payable).

Hypothetical Final Stock Price of the Lesser Performing Reference Stock	Payment at Maturity as Percentage of Principal Amount	Cash Payment Amount per $1,000 in Principal Amount
$150.00	100.00%*	$1,000.00*
$140.00	100.00%*	$1,000.00*
$125.00	100.00%*	$1,000.00*
$120.00	100.00%*	$1,000.00*
$110.00	100.00%*	$1,000.00*
$100.00	100.00%*	$1,000.00*
$90.00	100.00%*	$1,000.00*
$80.00	100.00%*	$1,000.00*
$70.00	100.00%*	$1,000.00*
$65.00	100.00%*	$1,000.00*
$64.99	64.99%	$649.90
$60.00	60.00%	$600.00
$50.00	50.00%	$500.00

$40.00	40.00%	$400.00
$30.00	30.00%	$300.00
$20.00	20.00%	$200.00
$10.00	10.00%	$100.00
$0.00	0.00%	$0.00

*Excluding the final Contingent Coupon, if payable.

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Hypothetical Examples of Amounts Payable at Maturity

The following hypothetical examples illustrate how the payments at maturity set forth in the table above are calculated, assuming the Notes have not been called.

Example 1: The price of the Lesser Performing Reference Stock increases by 25% from the Initial Stock Price of $100.00 to its Final Stock Price of $125.00. Because the Final Stock Price of the Lesser Performing Reference Stock is greater than its Trigger Price, the investor receives at maturity, in addition to any final Contingent Coupon otherwise due on the Notes, a cash payment of $1,000 per Note, despite the 25% appreciation in the price of the Lesser Performing Reference Stock.

Example 2: The price of the Lesser Performing Reference Stock decreases by 10% from the Initial Stock Price of $100.00 to its Final Stock Price of $90.00. Because the Final Stock Price of the Lesser Performing Reference Stock is greater than its Trigger Price, the investor receives at maturity, in addition to any final Contingent Coupon otherwise due on the Notes, a cash payment of $1,000 per Note, despite the 10% decline in the price of the Lesser Performing Reference Stock.

Example 3: The price of the Lesser Performing Reference Stock decreases by 65% from the Initial Stock Price of $100.00 to its Final Stock Price of $35.00. Because the Final Stock Price of the Lesser Performing Reference Stock is less than its Trigger Price and its Coupon Barrier, the final Contingent Coupon will not be payable on the Maturity Date, and we will pay only $350.00 for each $1,000 in the principal amount of the Notes, calculated as follows:

Principal Amount + (Principal Amount x Reference Stock Return of the Lesser Performing Reference Stock)
= $1,000 + ($1,000 x -65.00%) = $1,000 - $650.00 = $350.00

* * *

The Payments at Maturity shown above are entirely hypothetical; they are based on prices of the Reference Stocks that may not be achieved on the Valuation Date and on assumptions that may prove to be erroneous. The actual market value of your Notes on the Maturity Date or at any other time, including any time you may wish to sell your Notes, may bear little relation to the hypothetical Payments at Maturity shown above, and those amounts should not be viewed as an indication of the financial return on an investment in the Notes.

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SELECTED RISK CONSIDERATIONS

An investment in the Notes involves significant risks. Investing in the Notes is not equivalent to investing directly in the Reference Stocks. These risks are explained in more detail in the section "Risk Factors" in the product prospectus supplement. In addition to the risks described in the prospectus supplement and the product prospectus supplement, you should consider the following:

- Principal at Risk — Investors in the Notes could lose all or a substantial portion of their principal amount if there is a decline in the trading price of the Lesser Performing Reference Stock between the Trade Date and the Valuation Date. If the Notes are not called and the Final Stock Price of the Lesser Performing Reference Stock on the Valuation Date is less than its Trigger Price, the amount of cash that you receive at maturity will represent a loss of your principal that is proportionate to the decline in the closing price of the Lesser Performing Reference Stock from the Trade Date to the Valuation Date. Any Contingent Coupons received on the Notes prior to the Maturity Date may not be sufficient to compensate for any such loss.
- The Notes Are Subject to an Issuer Call — We may call the Notes at our discretion beginning in June 2019. If the Notes are called, then, on the applicable payment date, for each $1,000 in principal amount, you will receive $1,000 plus any Contingent Coupon otherwise due. You will not receive any Contingent Coupons after the Notes are called. You may be unable to reinvest your proceeds from a call in an investment with a return that is as high as the return on the Notes would have been if they had not been called.
- We will not necessarily make any coupon payments on the Notes — If the closing price of any of the Reference Stocks on any trading day during an Observation Period is less than its Coupon Barrier, we will not pay you the Contingent Coupon applicable to that Observation Period. If the closing price of any of the Reference Stocks is less than its Coupon Barrier on at least one trading day during each of the Observation Periods, we will not pay you any Contingent Coupons during the term of, and you will not receive a positive return on your Notes. Generally, this non-payment of the Contingent Coupon coincides with a period of greater risk of principal loss on your Notes.
- The Notes Are Linked to the Lesser Performing Reference Stock, Even if the Other Reference Stocks Perform Better — If any of the Reference Stocks has a Final Stock Price that is less than its Trigger Price, your return will be linked to the lesser performing of the two Reference Stocks. Even if the Final Stock Price of the other Reference Stock has increased compared to its respective Initial Stock Price, or has experienced a decrease that is less than that of the Lesser Performing Reference Stock, your return will only be determined by reference to the performance of the Lesser Performing Reference Stock, regardless of the performance of the other Reference Stock.
- Your Payment on the Notes Will Be Determined by Reference to Each Reference Stock Individually, Not to a Basket, and the Payment at Maturity Will Be Based on the Performance of the Lesser Performing Reference Stock — The Payment at Maturity will be determined only by reference to the performance of the Lesser Performing Reference Stock, regardless of the performance of the other Reference Stock. The Notes are not linked to a weighted basket, in which the risk may be mitigated and diversified among each of the basket components. For example, in the case of notes linked to a weighted basket, the return would depend on the weighted aggregate performance of the basket components reflected as the basket return. As a result, the depreciation of one basket component could be mitigated by the appreciation of the other basket component, as scaled by the weighting of that basket component. However, in the case of the Notes, the individual performance of each of the Reference Stocks would not be combined, and the depreciation of one Reference Stock would not be mitigated by any appreciation of the other Reference Stock. Instead, your return will depend solely on the Final Stock Price of the Lesser Performing Reference Stock.
- The Call Feature and the Contingent Coupon Feature Limit Your Potential Return — The return potential of the Notes is limited to the pre-specified Contingent Coupon Rate, regardless of the appreciation of the Reference Stocks. In addition, the total return on the Notes will vary based on the number of Contingent Coupon payments prior to

maturity or a call. Further, if the Notes are called due to the Call Feature, you will not receive any Contingent Coupons or any other payment after the applicable payment date. Since the Notes could be called as early as June 2019, the total return on the Notes could be limited to six months. If the Notes are not called, you may be subject to the full downside performance of the Lesser Performing Reference Stock even though your potential return is limited to the Contingent Coupon Rate. As a result, the return on an investment in the Notes could be less than the return on a direct investment in the Reference Stocks.

- Your Return May Be Lower than the Return on a Conventional Debt Security of Comparable Maturity — The return that you will receive on the Notes, which could be negative, may be less than the return you could earn on other investments. Even if your return is positive, your return may be less than the return you would earn if you bought a conventional senior interest bearing debt security of Royal Bank.

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- Payments on the Notes Are Subject to Our Credit Risk, and Changes in Our Credit Ratings Are Expected to Affect the Market Value of the Notes — The Notes are our senior unsecured debt securities. As a result, your receipt of any Contingent Coupons, if payable, and the amount due on any relevant payment date is dependent upon our ability to repay its obligations on the applicable payment dates. This will be the case even if the prices of the Reference Stocks increase after the Trade Date. No assurance can be given as to what our financial condition will be during the term of the Notes.
- There May Not Be an Active Trading Market for the Notes-Sales in the Secondary Market May Result in Significant Losses — There may be little or no secondary market for the Notes. The Notes will not be listed on any securities exchange. RBCCM and our other affiliates may make a market for the Notes; however, they are not required to do so. RBCCM or any other affiliate of ours may stop any market-making activities at any time. Even if a secondary market for the Notes develops, it may not provide significant liquidity or trade at prices advantageous to you. We expect that transaction costs in any secondary market would be high. As a result, the difference between bid and asked prices for your Notes in any secondary market could be substantial.
- The Initial Estimated Value of the Notes Is Less than the Price to the Public — The initial estimated value set forth on the cover page of this pricing supplement does not represent a minimum price at which we, RBCCM or any of our affiliates would be willing to purchase the Notes in any secondary market (if any exists) at any time. If you attempt to sell the Notes prior to maturity, their market value may be lower than the price you paid for them and the initial estimated value. This is due to, among other things, changes in the prices of the Reference Stocks, the borrowing rate we pay to issue securities of this kind, and the inclusion in the price to the public of the estimated costs relating to our hedging of the Notes. These factors, together with various credit, market and economic factors over the term of the Notes, are expected to reduce the price at which you may be able to sell the Notes in any secondary market and will affect the value of the Notes in complex and unpredictable ways. Assuming no change in market conditions or any other relevant factors, the price, if any, at which you may be able to sell your Notes prior to maturity may be less than your original purchase price, as any such sale price would not be expected to include the hedging costs relating to the Notes. In addition to bid-ask spreads, the value of the Notes determined by RBCCM for any secondary market price is expected to be based on the secondary rate rather than the internal funding rate used to price the Notes and determine the initial estimated value. As a result, the secondary price will be less than if the internal funding rate was used. The Notes are not designed to be short-term trading instruments. Accordingly, you should be able and willing to hold your Notes to maturity.
- The Initial Estimated Value of the Notes on the Cover Page of this Pricing Supplement Is an Estimate Only, Calculated as of the Time the Terms of the Notes Were Set — The initial estimated value of the Notes is based on the value of our obligation to make the payments on the Notes, together with the mid-market value of the derivative embedded in the terms of the Notes. See "Structuring the Notes" below. Our estimate is based on a variety of assumptions, including our credit spreads, expectations as to dividends, interest rates and volatility, and the expected term of the Notes. These assumptions are based on certain forecasts about future events, which may prove to be incorrect. Other entities may value the Notes or similar securities at a price that is significantly different than we do.

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

- An Investment in Notes Is Subject to Risks Associated with Foreign Securities Markets — Each of the Reference Stocks tracks the value of certain foreign equity securities. You should be aware that investments in securities linked to the value of foreign equity securities involve particular risks. The foreign securities markets represented by the Reference Stocks may have less liquidity and may be more volatile than U.S. or other securities markets and market developments may affect foreign markets differently from U.S. or other securities markets. Direct or indirect government intervention to stabilize these foreign securities markets, as well as cross-shareholdings in foreign companies, may affect trading prices and volumes in these markets. Also, there is generally less publicly available information about foreign companies than about those U.S. companies that are subject to the reporting requirements of the U.S. Securities and Exchange Commission, and foreign companies are subject to accounting, auditing and financial reporting standards and requirements that differ from those applicable to U.S. reporting companies.

Prices of securities in foreign countries are subject to political, economic, financial and social factors that apply in those geographical regions. These factors, which could negatively affect those securities markets, include the possibility of recent or future changes in a foreign government's economic and fiscal policies, the possible imposition of, or changes in, currency exchange laws or other laws or restrictions applicable to foreign companies or investments in foreign equity securities and the possibility of fluctuations in the rate of exchange between currencies, the possibility of outbreaks of hostility and political instability and the possibility of natural disaster or adverse public health developments in the region. Moreover, foreign economies may differ favorably or unfavorably from the U.S. economy in important respects such as growth of gross national product, rate of inflation, capital reinvestment, resources and self-sufficiency.

- The Notes Are Subject to Foreign Currency Exchange Rate Risk — The share prices of the Reference Stocks will fluctuate based upon their net asset values, which will in turn depend in part upon changes in the value of the currencies in which the non-U.S. stocks that they hold are traded. Accordingly, investors in the Notes will be exposed to currency exchange rate risk with respect to each of the currencies in which the stocks held by the applicable Reference Stock are traded. An investor’s net exposure will depend on the extent to which these currencies strengthen or weaken against the U.S. dollar. If, the dollar strengthens against these currencies, the net asset value of the applicable Reference Stock will be adversely affected and the price of the applicable Reference Stock may decrease.
- Emerging Markets Risk — Investments in securities linked directly or indirectly to emerging market equity securities, such as the EEM, involve many risks, including, but not limited to: economic, social, political, financial and military conditions in the emerging market; regulation by national, provincial, and local governments; less liquidity and smaller market capitalizations than exist in the case of many large U.S. companies; different accounting and disclosure standards; and political uncertainties. Stock prices of emerging market companies may be more volatile and may be affected by market developments differently than U.S. companies. Government intervention to stabilize securities markets and cross-shareholdings may affect prices and volume of trading of the securities of emerging market companies. Economic, social, political, financial and military factors could, in turn, negatively affect such companies’ value. These factors could include changes in the emerging market government’s economic and fiscal policies, possible imposition of, or changes in, currency exchange laws or other laws or restrictions applicable to the emerging market companies or investments in their securities, and the possibility of fluctuations in the rate of exchange between currencies. Moreover, emerging market economies may differ favorably or unfavorably from the U.S. economy in a variety of ways, including growth of gross national product, rate of inflation, capital reinvestment, resources and self-sufficiency. You should carefully consider the risks related to emerging markets, to which the Notes are highly susceptible, before making a decision to invest in the Notes.
- An Investment in the Notes Is Subject to Risks Associated With the Gold and Silver Mining Industries — All or substantially all of the stocks held by the GDX are issued by gold or silver mining companies. As a result, the stocks that will determine the performance of the GDX are concentrated in one sector. Although an investment in the Notes will not give holders any ownership or other direct interests in the stocks held by the GDX, the return on the Notes will be subject to certain risks associated with a direct equity investment in gold or silver mining companies.

In addition, these companies are highly dependent on the price of gold or silver, as applicable. These prices fluctuate widely and may be affected by numerous factors. Factors affecting gold prices include economic factors, including, among other things, the structure of and confidence in the global monetary system, expectations of the future rate of inflation, the relative strength of, and confidence in, the U.S. dollar (the currency in which the price of gold is generally quoted), interest rates and gold borrowing and lending rates, and global or regional economic, financial, political, regulatory, judicial or other events. Gold prices may also be affected by industry factors such as industrial and jewelry demand, lending, sales and purchases of gold by the official sector, including central banks and other governmental agencies and multilateral institutions which hold gold, levels of gold production and production costs, and short-term changes in supply and demand because of trading activities in the gold market. Factors affecting silver prices include general economic trends, technical developments, substitution issues and regulation, as well as specific factors including industrial and jewelry demand, expectations with respect to the rate of inflation, the relative strength of the U.S. dollar (the currency in which the price of silver is generally quoted) and other currencies, interest rates, central bank sales, forward sales by producers, global or regional political or economic events, and production costs and disruptions in major silver producing countries such as Mexico and Peru. The supply of silver consists of a combination of new mine production and existing stocks of bullion and fabricated silver held by governments, public and private financial institutions, industrial organizations and private individuals. In addition, the price of silver has on occasion been subject to very rapid short-term changes due to speculative activities. From time to time, above-ground inventories of silver may also influence the market.

On the other hand, the GDX reflects the performance of shares of gold and silver mining companies and not gold bullion or silver bullion. The GDX may under- or over-perform gold bullion and/or silver bullion over the term of the Notes.

- Our Business Activities May Create Conflicts of Interest — We and our affiliates expect to engage in trading activities related to the securities represented by the Reference Stocks that are not for the account of holders of the Notes or on their behalf. These trading activities may present a conflict between the holders' interests in the Notes and the interests we and our affiliates will have in their proprietary accounts, in facilitating transactions, including options and other derivatives transactions, for their customers and in accounts under their management. These trading activities, if they influence the share price or prices, as applicable, of the Reference Stocks, could be adverse to the interests of the holders of the Notes. We and one or more of our affiliates may, at present or in the future, engage in business with the securities represented by the Reference Stocks, including making loans to or providing advisory services. These services could include investment banking and merger and acquisition advisory services. These activities may present a conflict between our or one or more of our affiliates' obligations and your interests as a holder of the Notes. Moreover, we, and our affiliates may have published, and in the future expect to publish, research reports with respect to the Reference Stocks or securities represented by the Reference Stocks. This research is modified from time to time without notice and may express opinions or provide recommendations that are inconsistent with purchasing or holding the Notes. Any of these activities by us or one or more of our affiliates may affect the share price or prices, as applicable, of the Reference Stocks, and, therefore, the market value of the Notes.

- Owning the Notes Is Not the Same as Owning the Securities Represented by the Reference Stocks — The return on your Notes is unlikely to reflect the return you would realize if you actually owned shares of the Reference Stocks or the securities represented by the Reference Stocks. For instance, you will not receive or be entitled to receive any dividend payments or other distributions on these securities during the term of your Notes. As an owner of the Notes, you will not have voting rights or any other rights that holders of these securities may have. Furthermore, the Reference Stocks may appreciate substantially during the term of the Notes, while your potential return will be limited to the applicable Contingent Coupon payments.
- You Must Rely on Your Own Evaluation of the Merits of an Investment Linked to the Reference Stocks — In the ordinary course of their business, our affiliates may have expressed views on expected movements in the Reference Stocks or the equity securities that they represent, and may do so in the future. These views or reports may be communicated to our clients and clients of our affiliates. However, these views are subject to change from time to time. Moreover, other professionals who transact business in markets relating to any Reference Stock may at any time have significantly different views from those of our affiliates. For these reasons, you are encouraged to derive information concerning the Reference Stocks from multiple sources, and you should not rely solely on views expressed by our affiliates.
- Management Risk — The Reference Stocks are not managed according to traditional methods of ''active'' investment management, which involve the buying and selling of securities based on economic, financial and market analysis and investment judgment. Instead, each Reference Stock, utilizing a ''passive'' or indexing investment approach, attempts to approximate the investment performance of its underlying index by investing in a portfolio of securities that generally replicate its underlying index. Therefore, unless a specific security is removed from its underlying index, the Reference Stock generally would not sell a security because the security's issuer was in financial trouble. In addition, each Reference Stock is subject to the risk that the investment strategy of its investment advisor may not produce the intended results.
- The Reference Stocks and their Underlying Indices Are Different — The performance of each Reference Stock may not exactly replicate the performance of its respective underlying index, because these Reference Stocks will reflect transaction costs and fees that are not included in the calculation of its underlying index. It is also possible that the performance of these Reference Stocks may not fully replicate or may in certain circumstances diverge significantly from the performance of their underlying indices due to the temporary unavailability of certain securities in the secondary market, the performance of any derivative instruments contained in the Reference Stocks, or due to other circumstances. These Reference Stocks may use futures contracts, options, swap agreements, currency forwards and repurchase agreements in seeking performance that corresponds to their underlying indices and in managing cash flows.

During periods of market volatility, securities held by these Reference Stocks may be unavailable in the secondary market, market participants may be unable to calculate accurately their net asset value per share and their liquidity may be adversely affected. This kind of market volatility may also disrupt the ability of market participants to create and redeem shares of the applicable Reference Stock. Further, market volatility may adversely affect, sometimes materially, the prices at which market participants are willing to buy and sell shares of the applicable Reference Stock. As a result, under these circumstances, the market value of shares of these Reference Stocks may vary substantially from the applicable net asset value per share. For all of the foregoing reasons, the performance of these Reference

Stocks may not correlate with the performance of their underlying indices as well as their net asset value per share, which could materially and adversely affect the value of the Notes in the secondary market and/or reduce the payments on the Notes.

- We and Our Affiliates Do Not Have Any Affiliation with the Advisor or the Sponsors of the Reference Stocks or the Underlying Indices and Are Not Responsible for Their Public Disclosure of Information — We and our affiliates are not affiliated with the investment advisor or the sponsors of any Reference Stock or their underlying indices in any way and have no ability to control or predict their actions, including any errors in or discontinuance of disclosure regarding its methods or policies relating to the Reference Stocks or the underlying indices. The investment advisor or the sponsors of the Reference Stocks and the underlying indices are not involved in the offering of the Notes in any way and have no obligation to consider your interests as an owner of the Notes in taking any actions relating to the Reference Stocks that might affect the value of the Notes. Neither we nor any of our affiliates has independently verified the adequacy or accuracy of the information about the investment advisor, the sponsors, or the Reference Stocks contained in any public disclosure of information. You, as an investor in the Notes, should make your own investigation into the Reference Stocks.

- The Policies of the Reference Stocks' Investment Advisers or Underlying Indices Could Affect the Amount Payable on the Notes and Their Market Value — The policies of the Reference Stocks' investment advisers concerning the management of the Reference Stocks, or the index sponsor for each underlying index, concerning the calculation of each underlying index, additions, deletions or substitutions of the securities held by the Reference Stocks could affect the market price of shares of the Reference Stocks and, therefore, the amount payable on the Notes on the maturity date and the market value of the Notes before that date. The amount payable on the Notes and their market value could also be affected if the Reference Stocks' investment advisers or relevant sponsors change these policies, for example, by changing the manner in which an investment adviser manages the Reference Stocks, or if the sponsor changes the manner in which it calculates the applicable index, or if a Reference Stock's investment adviser discontinues or suspends maintenance of a Reference Stock, in which case it may become difficult to determine the market value of the Notes. The Reference Stocks' investment advisers have no connection to the offering of the Notes and have no obligations to you as an investor in the Notes in making its decisions regarding the Reference Stocks.
- Market Disruption Events and Adjustments — The payment at maturity and the Valuation Date are subject to adjustment as described in the product prospectus supplement. For a description of what constitutes a market disruption event as well as the consequences of that market disruption event, see "General Terms of the Notes—Market Disruption Events" in the product prospectus supplement.

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INFORMATION REGARDING THE REFERENCE STOCK ISSUERS

Information provided to or filed with the SEC by the Reference Stocks under the Securities Exchange Act of 1934, as amended, and the Investment Company Act of 1940, as amended, can be located through the SEC's website at http://www.sec.gov. In addition, information may be obtained from other sources including, but not limited to, press releases, newspaper articles and other publicly disseminated documents. We have not participated in the preparation of, or verified, such publicly available information. None of the forgoing documents or filings are incorporated by reference in, and should not be considered part of, this document.

The following information regarding the Reference Stocks is derived from publicly available information.

We have not independently verified the accuracy or completeness of reports filed by the Reference Stocks with the SEC, information published by them on their websites or in any other format, information about them obtained from any other source or the information provided below.

We obtained the information regarding the historical performance of the Reference Stocks set forth below from Bloomberg Financial Markets.

We have not independently verified the accuracy or completeness of the information obtained from Bloomberg Financial Markets. The historical performance of the Reference Stocks should not be taken as an indication of their future performance, and no assurance can be given as to the market prices of any Reference Stock at any time during the term of the Notes. We cannot give you assurance that the performance of any Reference Stock will not result in the loss of all or part of your investment.

The iShares® MSCI Emerging Markets ETF

The shares of the Fund are issued by iShares, Inc. ("iShares®"), a registered investment company, which consists of numerous separate investment portfolios, including the iShares® MSCI Emerging Markets ETF (the "EEM"). The Fund seeks investment results that correspond generally to the price and yield performance, before fees and expenses, of the MSCI Emerging Markets Index (the "underlying index"). BlackRock Fund Advisors ("BFA") serves as the investment advisor to the EEM. The Fund typically earns income dividends from securities included in the underlying index. These amounts, net of expenses and taxes (if applicable), are passed along to the EEM's shareholders as "ordinary income." In addition, the EEM realizes capital gains or losses whenever it sells securities. Net long-term capital gains are distributed to shareholders as "capital gain distributions." However, because the Notes are linked only to the share price of the EEM, you will not be entitled to receive income, dividend, or capital gain distributions from the EEM or any equivalent payments.

The selection of the EEM is not a recommendation to buy or sell the shares of the EEM. Neither we nor any of our affiliates make any representation to you as to the performance of the shares of the EEM.

"iShares®" and BlackRock® are registered trademarks of BlackRock, Inc. ("BlackRock®"). BlackRock® has licensed certain trademarks and trade names of BlackRock® for our use. The Notes are not sponsored, endorsed, sold, or promoted by BlackRock®, or by iShares®. Neither BlackRock® nor iShares® make any representations or warranties to the owners of the Notes or any member of the public regarding the advisability of investing in the Notes. Neither BlackRock® nor iShares® shall have any obligation or liability in connection with the registration, operation, marketing, trading, or sale of the Notes or in connection with our use of information about the iShares® funds.

The EEM

The EEM trades on the NYSE Arca under the ticker symbol "EEM." BFA employs a technique known as representative sampling to track the underlying index. The EEM generally invests at least 90% of its assets in the securities of the underlying index and in American Depositary Receipts or Global Depositary Receipts based on the securities of the underlying index. The EEM may invest the remainder of its assets in securities not included in the underlying index, but which BFA believes will help the EEM track the underlying index, or in futures contracts, options on futures contracts, other types of options and swaps related to the underlying index, as well as cash and cash equivalents, including shares of money market funds affiliated with BFA or its affiliates. BFA will waive portfolio management fees in an amount equal to the portfolio management fees of such other iShares funds for any portion of the EEM's assets invested in shares of such other funds.

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Investment Objective and Strategy

The EEM seeks to provide investment results that correspond generally to the price and yield performance, before fees and expenses, of publicly traded securities in emerging markets, as represented by the underlying index. The EEM's investment objective and the underlying index may be changed at any time without shareholder approval.

The return on the Notes is linked to the performance of the EEM, and not to the performance of the underlying index on which the EEM is based. Although the EEM seeks results that correspond generally to the performance of the underlying index, the EEM follows a strategy of "representative sampling," which means the EEM's holdings do not identically correspond to the holdings and weightings of the underlying index, and may significantly diverge from the underlying index. Although the EEM generally invests at least 90% of its assets in some of the same securities as those contained in the underlying index and in depositary receipts representing the same securities as those contained in the underlying index, it does not hold all of the securities underlying the underlying index and may invest the remainder in securities that are not contained in the underlying index, or in other types of investments. Currently, the EEM holds substantially fewer securities than the underlying index. Additionally, when the EEM purchases securities not held by the underlying index, the EEM may be exposed to additional risks, such as counterparty credit risk or liquidity risk, to which the underlying index components are not exposed. Therefore, the EEM will not directly track the performance of the underlying index and there may be significant variation between the performance of the EEM and the underlying index on which it is based.

Representative Sampling

BFA uses a representative sampling strategy to track the underlying index. Representative sampling is an indexing strategy that involves investing in a representative sample of securities that collectively has an investment profile similar to the 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 and yield) and liquidity measures similar to those of the underlying index. Exchange traded funds may or may not hold all of the securities that are included in the underlying index.

Correlation

The underlying index is a theoretical financial calculation, while the EEM is an actual investment portfolio. The performance of the EEM and the index will vary somewhat due to transaction costs, foreign currency valuations, asset valuations, corporate actions (such as mergers and spin-offs), timing variances and differences between the EEM's portfolio and the index resulting from legal restrictions (such as diversification requirements that apply to the EEM but not to the index) or representative sampling. A figure of 100% would indicate perfect correlation. Any correlation of less than 100% is called "tracking error." The EEM, using representative sampling, can be expected to have a greater tracking error than a fund using a replication indexing strategy. "Replication" is a strategy in which a fund invests in substantially all of the securities in its underlying index in approximately the same proportions as in the underlying index.

Share Prices

The approximate value of one share of the EEM is disseminated every fifteen seconds throughout the trading day by the national securities exchange on which the EEM is listed or by other information providers or market data vendors. This approximate value should not be viewed as a "real-time" update of the net asset value, because the approximate value may not be calculated in the same manner as the net asset value, which is computed once a day. The approximate value generally is determined by using current market quotations and/or price quotations obtained from broker-dealers that may trade in the portfolio securities held by the EEM. The EEM is not involved in, or responsible for, the calculation or dissemination of the approximate value and makes no warranty as to its accuracy.

The Underlying Index

The information below is included only to give insight to the underlying index, the performance of which the EEM attempts to reflect. The Notes are linked to the performance of the EEM and not to the underlying index. We have derived all information contained in this document regarding the underlying index, including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. The underlying index is a stock index calculated, published and disseminated daily by MSCI, Inc. ("MSCI"), a majority-owned subsidiary of Morgan Stanley, through numerous data vendors, on the MSCI website and in real time on Bloomberg Financial Markets and Reuters Limited. Neither MSCI nor Morgan Stanley has any obligation to continue to calculate and publish, and may discontinue calculation and publication of the underlying index

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The MSCI Emerging Markets Index is intended to measure equity market performance in the global emerging markets. The MSCI Emerging Markets Index is a free float-adjusted market capitalization index with a base date of December 31, 1987 and an initial value of 100. The MSCI Emerging Markets Index is calculated daily in U.S. dollars and published in real time every 60 seconds during market trading hours. The MSCI Emerging Markets Index currently consists of the following 24 emerging market country indices: Brazil, Chile, China, Colombia, Czech Republic, Greece, Egypt, Hungary, India, Indonesia, South Korea, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Qatar, Russia, South Africa, Taiwan, Thailand, Turkey and United Arab Emirates. According to MSCI, beginning in June 2018, MSCI began to include Chinese A Shares in this index. The MSCI Emerging Markets Index is part of the MSCI Regional Equity Indices series and is an MSCI Global Investable Market Index, which is a family within the MSCI International Equity Indices.

General – MSCI Indices

MSCI provides global equity indices intended to measure equity performance in international markets and the MSCI International Equity Indices are designed to serve as global equity performance benchmarks. In constructing these indices, MSCI applies its index construction and maintenance methodology across developed, emerging, and frontier markets.

MSCI enhanced the methodology used in its MSCI International Equity Indices. The MSCI Standard and MSCI Small Cap Indices, along with the other MSCI equity indices based on them, transitioned to the global investable market indices methodology described below. The transition was completed at the end of May 2008. The Enhanced MSCI Standard Indices are composed of the MSCI Large Cap and Mid Cap Indices. The MSCI Global Small Cap Index transitioned to the MSCI Small Cap Index resulting from the Global Investable Market Indices methodology and contains no overlap with constituents of the transitioned MSCI Standard Indices. Together, the relevant MSCI Large Cap, Mid Cap, and Small Cap Indices will make up the MSCI investable market index for each country, composite, sector, and style index that MSCI offers.

Constructing the MSCI Global Investable Market Indices. MSCI undertakes an index construction process, which involves:

- defining the equity universe;
- determining the market investable equity universe for each market;
- determining market capitalization size segments for each market;
- applying index continuity rules for the MSCI Standard Index;
- creating style segments within each size segment within each market; and
- classifying securities under the Global Industry Classification Standard (the "GICS").

Defining the Equity Universe. The equity universe is defined by:

- Identifying Eligible Equity Securities: the equity universe initially looks at securities listed in any of the countries in the MSCI Global Index Series, which will be classified as either Developed Markets ("DM") or Emerging Markets ("EM"). All listed equity securities, including Real Estate Investment Trusts, are eligible for inclusion in the equity universe. Conversely, mutual funds, ETFs, equity derivatives and most investment trusts are not eligible for inclusion in the equity universe.
- Classifying Eligible Securities into the Appropriate Country: each company and its securities (i.e., share classes) are classified in only one country.

Effective with the November 2015 semi-annual index review, companies traded outside of their country of classification (i.e., "foreign listed companies") became eligible for inclusion in the MSCI Country Investable Market Indexes along with the applicable MSCI Global Index. In order for a MSCI Country Investable Market Index to be eligible to include foreign listed companies, it must meet the Foreign Listing Materiality Requirement. To meet the Foreign Listing Materiality Requirement, the aggregate market capitalization of all securities represented by foreign listings should represent at least (i) 5% of the free float-adjusted market capitalization of the relevant MSCI Country Investable Market Index and (ii) 0.05% of the free-float adjusted market capitalization of the MSCI ACWI Investable Market Index.

Determining the Market Investable Equity Universes. A market investable equity universe for a market is derived by applying investability screens to individual companies and securities in the equity universe that are classified in that market. A market is equivalent to a single country, except in DM Europe, where all DM countries in Europe are aggregated into a single market for index construction purposes. Subsequently, individual DM Europe country indices within the MSCI Europe Index are derived from the constituents of the MSCI Europe Index under the global investable market indices methodology.

The investability screens used to determine the investable equity universe in each market are as follows:

- Equity Universe Minimum Size Requirement: this investability screen is applied at the company level. In order to be included in a market investable equity universe, a company must have the required minimum full market capitalization.
- Equity Universe Minimum Free Float−Adjusted Market Capitalization Requirement: this investability screen is applied at the individual security level. To be eligible for inclusion in a market investable equity universe, a security must have a free float−adjusted market capitalization equal to or higher than 50% of the equity universe minimum size requirement.
- DM and EM Minimum Liquidity Requirement: this investability screen is applied at the individual security level. To be eligible for inclusion in a market investable equity universe, a security must have adequate liquidity. The twelve-month and three-month Annual Traded Value Ratio ("ATVR"), a measure that screens out extreme daily trading volumes and takes into account the free float−adjusted market capitalization size of securities, together with the three-month frequency of trading are used to measure liquidity. A minimum liquidity level of 20% of three- and twelve-month ATVR and 90% of three-month frequency of trading over the last four consecutive quarters are required for inclusion of a security in a market investable equity universe of a DM, and a minimum liquidity level of 15% of three- and twelve-month ATVR and 80% of three-month frequency of trading over the last four consecutive quarters are required for inclusion of a security in a market investable equity universe of an EM.
- Global Minimum Foreign Inclusion Factor Requirement: this investability screen is applied at the individual security level. To be eligible for inclusion in a market investable equity universe, a security's Foreign Inclusion Factor ("FIF") must reach a certain threshold. The FIF of a security is defined as the proportion of shares outstanding that is available for purchase in the public equity markets by international investors. This proportion accounts for the available free float of and/or the foreign ownership limits applicable to a specific security (or company). In general, a security must have an FIF equal to or larger than 0.15 to be eligible for inclusion in a market investable equity universe.
- Minimum Length of Trading Requirement: this investability screen is applied at the individual security level. For an initial public offering ("IPO") to be eligible for inclusion in a market investable equity universe, the new issue must have started trading at least three months before the implementation of a semi−annual index review (as described below). This requirement is applicable to small new issues in all markets. Large IPOs are not subject to the minimum length of trading requirement and may be included in a market investable equity universe and the Standard Index outside of a Quarterly or Semi−Annual Index Review.
- Minimum Foreign Room Requirement: this investability screen is applied at the individual security level. For a security that is subject to a foreign ownership limit to be eligible for inclusion in a market investable equity universe, the proportion of shares still available to foreign investors relative to the maximum allowed (referred to as "foreign room") must be at least 15%.

Defining Market Capitalization Size Segments for Each Market. Once a market investable equity universe is defined, it is segmented into the following size−based indices:

- Investable Market Index (Large + Mid + Small);
- Standard Index (Large + Mid);
- Large Cap Index;
- Mid Cap Index; or
- Small Cap Index.

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Creating the size segment indices in each market involves the following steps:
- defining the market coverage target range for each size segment;
- determining the global minimum size range for each size segment;
- determining the market size segment cutoffs and associated segment number of companies;
- assigning companies to the size segments; and
- applying final size–segment investability requirements.

Index Continuity Rules for the Standard Indices. In order to achieve index continuity, as well as to provide some basic level of diversification within a market index, and notwithstanding the effect of other index construction rules described in this section, a minimum number of five constituents will be maintained for a DM Standard Index and a minimum number of three constituents will be maintained for an EM Standard Index.

Creating Style Indices within Each Size Segment. All securities in the investable equity universe are classified into value or growth segments using the MSCI Global Value and Growth methodology.

Classifying Securities under the Global Industry Classification Standard. All securities in the global investable equity universe are assigned to the industry that best describes their business activities. To this end, MSCI has designed, in conjunction with S&P Dow Jones Indexes, the GICS. Under the GICS, each company is assigned to one sub–industry according to its principal business activity. Therefore, a company can belong to only one industry grouping at each of the four levels of the GICS.

Index Maintenance

The MSCI Global Investable Market Indices are maintained with the objective of reflecting the evolution of the underlying equity markets and segments on a timely basis, while seeking to achieve index continuity, continuous investability of constituents and replicability of the indices, index stability and low index turnover. In particular, index maintenance involves:

(i) Semi–Annual Index Reviews (“SAIRs”) in May and November of the Size Segment and Global Value and Growth Indices which include:
- updating the indices on the basis of a fully refreshed equity universe;
- taking buffer rules into consideration for migration of securities across size and style segments; and
- updating FIFs and Number of Shares (“NOS”).

(ii) Quarterly Index Reviews in February and August of the Size Segment Indices aimed at:
- including significant new eligible securities (such as IPOs that were not eligible for earlier inclusion) in the index;
- allowing for significant moves of companies within the Size Segment Indices, using wider buffers than in the SAIR; and
- reflecting the impact of significant market events on FIFs and updating NOS.

(iii) Ongoing Event–Related Changes: changes of this type are generally implemented in the indices as they occur. Significantly large IPOs are included in the indices after the close of the company’s tenth day of trading.

None of us, RBCCM or any of our other affiliates accepts any responsibility for the calculation, maintenance, or publication of, or for any error, omission, or disruption in, the index or any successor to the index.

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The VanEck Vectors® Gold Miners ETF
The GDX is an investment portfolio maintained, managed and advised by Van Eck. The VanEck Vectors™ ETF Trust is a registered open-end investment company that consists of numerous separate investment portfolios, including the GDX.
The GDX is an exchange traded fund that trades on NYSE Arca under the ticker symbol "GDX."
The GDX seeks to provide investment results that correspond generally to the price and yield performance, before fees and expenses, of the Underlying Index. The Underlying Index was developed by the NYSE Amex and is calculated, maintained and published by NYSE Arca. The Underlying Index is a modified market capitalization-weighted index comprised of publicly traded companies involved primarily in mining for gold or silver.
The GDX utilizes a "passive" or "indexing" investment approach in attempting to track the performance of the Underlying Index. The GDX will invest in all of the securities which comprise the Underlying Index. The GDX will normally invest at least 95% of its total assets in common stocks that comprise the Underlying Index.
The Notes are not sponsored, endorsed, sold or promoted by Van Eck. Van Eck makes no representations or warranties to the owners of the Notes or any member of the public regarding the advisability of investing in the Notes. Van Eck has no obligation or liability in connection with the operation, marketing, trading or sale of the Notes.
The NYSE Arca Gold Miners Index
The NYSE Arca Gold Miners Index is a modified market capitalization weighted index comprised of securities issued by publicly traded companies involved primarily in the mining of gold or silver. The underlying index was developed by the NYSE Amex and is calculated, maintained and published by NYSE Arca.
Eligibility Criteria for Index Components
The underlying index includes common stocks, ADRs or GDRs of selected companies that are involved in mining for gold and silver and that are listed for trading and electronically quoted on a major stock market that is accessible by foreign investors. Generally, this includes exchanges in most developed markets and major emerging markets, and includes companies that are cross-listed, i.e., both U.S. and Canadian listings. NYSE Arca will use its discretion to avoid exchanges and markets that are considered "frontier" in nature or have major restrictions to foreign ownership.
The underlying index includes companies that derive at least 50% of their revenues from gold mining and related activities (40% for companies that are already included in the underlying index). Also, the underlying index will maintain an exposure to companies with a significant revenue exposure to silver mining in addition to gold mining, which will not exceed 20% of the underlying index weight at each rebalance.
Currently, only companies with a market capitalization of greater than $750 million that have an average daily trading volume of at least 50,000 shares and an average daily value traded of at least $1 million over the past three months are eligible for inclusion in the underlying index. Starting in December 2013, for companies already included in the underlying index, the market capitalization requirement at each rebalance will be $450 million, the average daily volume requirement will be at least 30,000 shares over the past three months and the average daily value traded requirement will be at least $600,000 over the past three months.
NYSE Arca has the discretion to not include all companies that meet the minimum criteria for inclusion.
Calculation of the Underlying Index
The underlying index is calculated by NYSE Arca on a price return basis. The calculation is based on the current modified market capitalization divided by a divisor. The divisor was determined on the initial capitalization base of the underlying index and the base level and may be adjusted as a result of corporate actions and composition changes, as described below. The level of the underlying index was set at 500.00 on December 20, 2002 which is the index base date. The underlying index is calculated using the following formula:

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Where:
t = day of calculation;
N = number of constituent equities in the underlying index;
Qi,t = number of shares of equity i on day t;
Mi,t = multiplier of equity i;
Ci,t = price of equity i on day t; and
DIV = current index divisor on day t.
Underlying Index Maintenance
The underlying index is reviewed quarterly to ensure that at least 90% of the underlying index weight is accounted for by index components that continue to meet the initial eligibility requirements. NYSE Arca may at any time and from time to time change the number of securities comprising the group by adding or deleting one or more securities, or replacing one or more securities contained in the group with one or more substitute securities of its choice, if in NYSE Arca's discretion such addition, deletion or substitution is necessary or appropriate to maintain the quality and/or character of the underlying index. Components will be removed from the underlying index during the quarterly review if either (1) the market capitalization falls below $450 million or (2) the traded average daily shares for the previous three months is less than 30,000 shares and the average daily traded value for the previous three months is less than $600,000.
At the time of the quarterly rebalance, the component security weights (also referred to as the multiplier or share quantities of each component security) will be modified to conform to the following asset diversification requirements:

(1) the weight of any single component security may not account for more than 20% of the total value of the underlying index;
(2) the component securities are split into two subgroups–large and small, which are ranked by market capitalization weight in the underlying index. Large securities are defined as having a starting index weight greater than or equal to 5%. Small securities are defined as having a starting index weight below 5%; and
(3) the final aggregate weight of those component securities which individually represent more than 4.5% of the total value of the underlying index may not account for more than 45% of the total index value.

The weights of the components securities (taking into account expected component changes and share adjustments) are modified in accordance with the underlying index's diversification rules.
Diversification Rule 1: If any component stock exceeds 20% of the total value of the underlying index, then all stocks greater than 20% of the underlying index are reduced to represent 20% of the value of the underlying index. The aggregate amount by which all component stocks are reduced is redistributed proportionately across the remaining stocks that represent less than 20% of the index value. After this redistribution, if any other stock then exceeds 20%, the stock is set to 20% of the index value and the redistribution is repeated.
Diversification Rule 2: The components are sorted into two groups, large are components with a starting index weight of 5% or greater and small are components with a weight of under 5% (after any adjustments for Diversification Rule 1). The large group will represent in the aggregate 45% and the small group will represent 55% in the aggregate of the final index weight. This will be adjusted through the following process: The weight of each of the large stocks will be scaled down proportionately (with a floor of 5%) so that the aggregate weight of the large components will be reduced to represent 45% of the underlying index. If any large component stock falls below a weight equal to the product of 5% and the proportion by which the stocks were scaled down following this distribution, then the weight of the stock is set equal to 5% and the components with weights greater than 5% will be reduced proportionately. The weight of each of the small components will be scaled up proportionately from the redistribution of the large components. If any small component stock exceeds a weight equal to the product of 4.5% and the proportion by which the stocks were scaled down following this distribution, then the weight of the stock is set equal to 4.5%. The redistribution of weight

to the remaining stocks is repeated until the entire amount has been redistributed.

Changes to the underlying index composition and/or the component security weights in the underlying index are determined and announced prior to taking effect. These changes typically become effective after the close of trading on the third Friday of each calendar quarter month in connection with the quarterly index rebalance. The share quantities of each component security in the index portfolio remains fixed between quarterly reviews except in the event of certain types of corporate actions such as stock splits, reverse stock splits, stock dividends, or similar events. The share quantities used in the underlying index calculation are not typically adjusted for shares issued or repurchased between quarterly reviews. However, in the event of a merger between two components, the share quantities of the surviving entity may be adjusted to account for any stock issued in the acquisition. NYSE Arca may substitute securities or change the number of securities included in the underlying index, based on changing conditions in the industry or in the event of certain types of corporate actions, including mergers, acquisitions, spin-offs, and reorganizations. In the event of component or share quantity changes to the index portfolio, the payment of dividends other than ordinary cash dividends, spin-offs, rights offerings, re-capitalization, or other corporate actions affecting a component security of the underlying index, the index divisor may be adjusted to ensure that there are no changes to the index level as a result of nonmarket forces.

Issuer Callable Contingent Coupon Barrier Notes
Linked to the Lesser Performing of Two Exchange Traded Funds
Royal Bank of Canada

HISTORICAL INFORMATION

The graphs below set forth the information relating to the historical performance of the Reference Stocks. The information provided in these graphs is for the period from January 1, 2008 through December 17, 2018.

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

We have not independently verified the accuracy or completeness of the information obtained from Bloomberg Financial Markets. The historical performance of any Reference Stock should not be taken as an indication of its future performance, and no assurance can be given as to the prices of the Reference Stocks at any time. We cannot give you assurance that the performance of the Reference Stocks will not result in the loss of all or part of your investment.

Issuer Callable Contingent Coupon Barrier Notes
Linked to the Lesser Performing of Two Exchange Traded Funds
Royal Bank of Canada

Historical Information for the EEM
The graph below illustrates the performance of this Reference Stock from January 1, 2008 to December 17, 2018, reflecting its Initial Stock Price of $39.46. The red line represents its Coupon Barrier and Trigger Price of $25.65, which is equal to 65% of its Initial Stock Price, rounded to two decimal places.

Issuer Callable Contingent Coupon Barrier Notes
Linked to the Lesser Performing of Two Exchange Traded Funds
Royal Bank of Canada

Historical Information for the GDX

The graph below illustrates the performance of this Reference Stock from January 1, 2008 to December 17, 2018, reflecting its Initial Stock Price of $20.61. The red line represents its Coupon Barrier and Trigger Price of $13.40, which is equal to 65% of its Initial Stock Price, rounded to two decimal places.

Issuer Callable Contingent Coupon Barrier Notes
Linked to the Lesser Performing of Two Exchange Traded Funds
Royal Bank of Canada

SUPPLEMENTAL DISCUSSION OF
U.S. FEDERAL INCOME TAX CONSEQUENCES

The following disclosure supplements, and to the extent inconsistent supersedes, the discussion in the product prospectus supplement dated September 10, 2018 under "Supplemental Discussion of U.S. Federal Income Tax Consequences."

Under Section 871(m) of the Code, a "dividend equivalent" payment is treated as a dividend from sources within the United States. Such payments generally would be subject to a 30% U.S. withholding tax if paid to a non-U.S. holder. Under U.S. Treasury Department regulations, payments (including deemed payments) with respect to equity-linked instruments ("ELIs") that are "specified ELIs" may be treated as dividend equivalents if such specified ELIs reference an interest in an "underlying security," which is generally any interest in an entity taxable as a corporation for U.S. federal income tax purposes if a payment with respect to such interest could give rise to a U.S. source dividend. However, the IRS has issued guidance that states that the U.S. Treasury Department and the IRS intend to amend the effective dates of the U.S. Treasury Department regulations to provide that withholding on dividend equivalent payments will not apply to specified ELIs that are not delta-one instruments and that are issued before January 1, 2021. Based on our determination that the Notes are not delta-one instruments, non-U.S. holders should not be subject to withholding on dividend equivalent payments, if any, under the Notes. However, it is possible that the Notes could be treated as deemed reissued for U.S. federal income tax purposes upon the occurrence of certain events affecting the Reference Stocks or the Notes, and following such occurrence the Notes could be treated as subject to withholding on dividend equivalent payments. Non-U.S. holders that enter, or have entered, into other transactions in respect of the Reference Stocks or the Notes should consult their tax advisors as to the application of the dividend equivalent withholding tax in the context of the Notes and their other transactions. If any payments are treated as dividend equivalents subject to withholding, we (or the applicable withholding agent) would be entitled to withhold taxes without being required to pay any additional amounts with respect to amounts so withheld.

SUPPLEMENTAL PLAN OF DISTRIBUTION (CONFLICTS OF INTEREST)

Delivery of the Notes will be made against payment for the Notes on December 20, 2018, which is the third (3rd) business day following the Trade Date (this settlement cycle being referred to as "T+3"). See "Plan of Distribution" in the prospectus dated September 7, 2018. For additional information as to the relationship between us and RBCCM, please see the section "Plan of Distribution — Conflicts of Interest" in the prospectus dated September 7, 2018.

We will deliver the Notes on a date that is greater than two business days following the Trade Date. Under Rule 15c6-1 of the Exchange Act, trades in the secondary market generally are required to settle in two business days, unless the parties to any such trade expressly agree otherwise. Accordingly, purchasers who wish to trade the Notes more than two business days prior to the original Issue Date will be required to specify alternative arrangements to prevent a failed settlement.

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

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

STRUCTURING THE NOTES

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

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

The lower implied borrowing rate is a factor that reduced the economic terms of the Notes to you. The initial offering price of the Notes also reflects the underwriting commission and our estimated hedging costs. These factors resulted in the initial estimated value for the Notes on the Trade Date being less than their public offering price. See "Selected Risk Considerations — The Initial Estimated Value of the Notes Is Less than the Price to the Public" above.

VALIDITY OF THE NOTES

In the opinion of Norton Rose Fulbright Canada LLP, the issue and sale of the Notes has been duly authorized by all necessary corporate action of the Bank in conformity with the Indenture, and when the Notes have been duly executed, authenticated and issued in accordance with the Indenture and delivered against payment therefor, the Notes will be validly issued and, to the extent validity of the Notes is a matter governed by the laws of the Province of Ontario or Québec, or the laws of Canada applicable therein, and will be valid obligations of the Bank, subject to equitable remedies which may only be granted at the discretion of a court of competent authority, subject to applicable bankruptcy, to rights to indemnity and contribution under the Notes or the Indenture which may be limited by applicable law; to insolvency and other laws of general application affecting creditors' rights, to limitations under applicable limitations statutes, and to limitations as to the currency in which judgments in Canada may be rendered, as prescribed by the Currency Act (Canada). This opinion is given as of the date hereof and is limited to the laws of the Provinces of Ontario and Québec and the federal laws of Canada applicable thereto. In addition, this opinion is subject to customary assumptions about the Trustee's authorization, execution and delivery of the Indenture and the genuineness of signatures and certain factual matters, all as stated in the letter of such counsel dated September 7, 2018, which has been filed as Exhibit 5.1 to Royal Bank's Form 6-K filed with the SEC dated September 7, 2018.

In the opinion of Morrison & Foerster LLP, when the Notes have been duly completed in accordance with the Indenture and issued and sold as contemplated by the prospectus supplement and the prospectus, the Notes will be valid, binding and enforceable obligations of Royal Bank, entitled to the benefits of the Indenture, subject to applicable bankruptcy, insolvency and similar laws affecting creditors' rights generally, concepts of reasonableness and equitable principles of general applicability (including, without limitation, concepts of good faith, fair dealing and the lack of bad faith). This opinion is given as of the date hereof and is limited to the laws of the State of New York. This opinion is subject to customary assumptions about the Trustee's authorization, execution and delivery of the Indenture and the genuineness of signatures and to such counsel's reliance on the Bank and other sources as to certain factual matters, all as stated in the legal opinion dated September 7, 2018, which has been filed as Exhibit 5.2 to the Bank's Form 6-K dated September 7, 2018.