

ROYAL BANK OF CANADA
Form 424B2
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This document amends and restates the pricing supplement filed earlier on October 12, 2018.

PRICING SUPPLEMENT

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Registration Statement No. 333-227001

Dated October 11, 2018

Royal Bank of Canada Step Down Trigger Autocallable Notes

\$3,660,000 Notes Linked to the Least Performing Underlying of the S&P 500[®] Index and the Russell 2000[®] Index due on October 15, 2021

Investment Description

Step Down Trigger Autocallable Notes (the “Notes”) are unsecured and unsubordinated debt securities issued by Royal Bank of Canada linked to the performance of the least performing of the S&P 500[®] Index and the Russell 2000[®] Index (each, an “Underlying Index,” and together, the “Underlying Indices”). If each Underlying Index closes at or above (a) its closing level on October 10, 2018 (its “Initial Level”) on any of the first two Observation Dates (which will occur first approximately one year after the settlement date and then annually thereafter as described below), or (b) its Downside Threshold on the final Observation Date, then we will automatically call the Notes and pay you a Call Price equal to the principal amount per Note plus a Call Return based on the Call Return Rate. The Call Return increases the longer the Notes are outstanding, as described below. If by maturity the Notes have not been called and the Least Performing Underlying Index (as defined below) closes below the Downside Threshold on the final Observation Date, we will repay less than the principal amount, if anything, resulting in a loss that is proportionate to the decline in the level of the Least Performing Underlying Index from its closing level on October 10, 2018 to the final Observation Date, up to a 100% loss of your principal amount invested. The Notes are not subject to conversion into our common shares under subsection 39.2(2.3) of the Canada Deposit Insurance Corporation Act.

Investing in the Notes involves significant risks. The Notes do not pay interest. You may lose some or all of your principal amount. Generally, the higher the Call Return Rate on a Note, the greater the risk of loss on that Note. The contingent repayment of principal applies only if you hold the Notes to maturity. Any payment on the Notes, including any repayment of principal, is subject to our creditworthiness and is not, either directly or indirectly, an obligation of any third party. If we were to default on our payment obligations, you may not receive any amounts owed to you under the Notes and you could lose your entire principal amount. The Notes will not be listed on any securities exchange.

Features Key Dates

Call Return Feature- We will automatically call the Notes for a Call Price equal to the principal amount plus the applicable Call Return based on the Call Return Rate if the closing level of each Underlying Index on any Observation Date is equal to or greater than (a) its Initial Level (in the case of the first two Observation Dates) or (b) its Downside Threshold (in the case of the final Observation Date). The Call Return increases the longer the Notes are outstanding. If the Notes are not called, investors will have full downside market exposure to the Least Performing Underlying Index at maturity.

Downside Exposure at Maturity – If the Notes are not called and, therefore, the Least Performing Underlying Index closes below its Downside Threshold on the final Observation Date, we will pay less than your principal amount, if anything, resulting in a loss of your principal amount that will be proportionate to its full negative Underlying Return. Any contingent repayment of principal only applies if you hold the Notes to maturity. Any payment on the Notes, including any repayment of principal, is subject to our creditworthiness.

Trade Date October 11, 2018

Settlement Date October 15, 2018

Observation Dates¹ Annually (beginning after one year)

(see page 7)

Final Observation Date¹ October 12, 2021

Maturity Date¹ October 15, 2021

¹ Subject to postponement if a market disruption event occurs, as described under “General Terms of the Notes—Payment at Maturity” below.

NOTICE TO INVESTORS: THE NOTES ARE SIGNIFICANTLY RISKIER THAN CONVENTIONAL DEBT INSTRUMENTS. THE ISSUER IS NOT NECESSARILY OBLIGATED TO REPAY THE FULL PRINCIPAL AMOUNT OF THE NOTES AT MATURITY, AND THE NOTES CAN HAVE DOWNSIDE MARKET RISK SIMILAR TO THE LEAST PERFORMING UNDERLYING INDEX. YOU WILL BE EXPOSED TO THE MARKET RISK OF EACH UNDERLYING INDEX ON EACH OBSERVATION DATE, AND ANY DECLINE IN THE LEVEL OF ANY UNDERLYING INDEX MAY NEGATIVELY AFFECT YOUR RETURN AND WILL NOT BE OFFSET OR MITIGATED BY A LESSER DECLINE OR ANY POTENTIAL INCREASE IN THE LEVEL OF THE OTHER UNDERLYING INDEX. THIS MARKET RISK IS IN ADDITION TO THE CREDIT RISK INHERENT IN PURCHASING A DEBT OBLIGATION OF ROYAL BANK OF CANADA. YOU SHOULD NOT PURCHASE THE NOTES IF YOU DO NOT UNDERSTAND OR ARE NOT COMFORTABLE WITH THE SIGNIFICANT RISKS INVOLVED IN INVESTING IN THE NOTES.

YOU SHOULD CAREFULLY CONSIDER THE RISKS DESCRIBED UNDER “KEY RISKS” BEGINNING ON PAGE 6 OF THIS PRICING SUPPLEMENT AND UNDER “RISK FACTORS” BEGINNING ON PAGE S-1 OF THE PROSPECTUS SUPPLEMENT BEFORE PURCHASING ANY NOTES. EVENTS RELATING TO ANY OF THOSE RISKS, OR OTHER RISKS AND UNCERTAINTIES, COULD ADVERSELY AFFECT THE MARKET VALUE OF, AND THE RETURN ON, YOUR NOTES. YOU MAY LOSE SOME OR ALL OF YOUR INITIAL INVESTMENT IN THE NOTES.

Note Offering

This pricing supplement relates to Step Down Trigger Autocallable Notes we are offering linked to the least performing underlying of the S&P 500[®] Index and the Russell 2000[®] Index. The Initial Levels are the closing levels of the Underlying Indices on October 10, 2018. The Notes will be issued in minimum denominations of \$10.00, and integral multiples of \$10.00 in excess thereof, with a minimum investment of \$1,000.00.

Underlying

Indices (Least Performing of)	Tickers	Call Rate	Return	Initial Levels	Downside Thresholds	CUSIP	ISIN
S&P 500 [®] Index (SPX)	SPX	8.90%		2,785.68	1,949.97, which is 70% of its Initial Level (rounded to two decimal places).	78014G633	US78014G6338
Russell 2000 [®] Index (RTY)	RTY			1,575.412	1,102.788, which is 70% of its Initial Level (rounded to three decimal places)		

See “Additional Information About Royal Bank of Canada and the Notes” in this pricing supplement. The Notes will have the terms specified in the prospectus dated September 7, 2018, the prospectus supplement dated September 7, 2018 and this pricing supplement.

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

Offering of the Notes	Price to Public		Fees and Commissions ⁽¹⁾		Proceeds to Us	
	Total	Per Note	Total	Per Note	Total	Per Note
Notes linked to the Least Performing Underlying of the S&P 500 [®] Index and the Russell 2000 [®] Index	\$3,660,000	\$10.00	\$0.00	\$0.00	\$3,660,000	\$10.00

⁽¹⁾ All sales of the Notes will be made to certain fee-based advisory accounts for which UBS Financial Services Inc.,

which we refer to as UBS, is an investment advisor and UBS will act as placement agent. The purchase price will be \$10.00 per Note and UBS will forgo any commissions related to these sales. See “Supplemental Plan of Distribution (Conflicts of Interest)” below.

The initial estimated value of the Notes as of the date of this document is \$9.8420 per \$10 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 under “Key Risks,” “Supplemental Plan of Distribution (Conflicts of Interest)” and “Structuring the Notes” below.

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

UBS Financial Services Inc. RBC Capital Markets, LLC

Additional Information About Royal Bank of Canada and the Notes

You should read this pricing supplement together with the prospectus dated September 7, 2018, as supplemented by the prospectus supplement dated September 7, 2018, relating to our Series H medium-term notes of which these Notes are a part. This pricing supplement, together with the documents listed below, contains the terms of the Notes and supersedes all other prior or contemporaneous oral statements as well as any other written materials including preliminary or indicative pricing terms, correspondence, trade ideas, structures for implementation, sample structures, fact sheets, brochures or other educational materials of ours.

If the terms discussed in this pricing supplement differ from those discussed in the prospectus supplement or the prospectus, the terms discussed herein will control.

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

..Prospectus supplement dated September 7, 2018:

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

..Prospectus dated September 7, 2018:

<https://www.sec.gov/Archives/edgar/data/1000275/000121465918005973/l96181424b3.htm>

As used in this pricing supplement, “we,” “us” or “our” refers to Royal Bank of Canada.

Investor Suitability

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

- .. You fully understand the risks inherent in an investment in the Notes, including the risk of loss of your entire initial investment.
- You can tolerate a loss of all or a substantial portion of your investment and are willing to make an investment that may have the same downside market risk as an investment in the securities composing the Least Performing Underlying Index.
- .. You believe each Underlying Index will close at or above its Initial Level on any of the first two Observation Dates, or you believe each Underlying Index will not close below its Downside Threshold on the final Observation Date.
- .. You are willing to make an investment whose return is limited to the Call Return Rate, regardless of any potential appreciation of the Underlying Indices, which could be significant.
- .. You do not seek guaranteed current income from this investment and are willing to forgo the dividends paid on the equity securities composing the Underlying Indices.
- .. You can tolerate fluctuations in the price of the Notes prior to maturity that may be similar to or exceed the downside fluctuations of the Underlying Indices.
- You are willing to invest in Notes for which there may be little or no secondary market, and you accept that the secondary market will depend in large part on the price, if any, at which RBC Capital Markets, LLC, which we refer to as "RBCCM," is willing to purchase the Notes.
- .. You are willing to invest in the Notes based on the Call Return specified on the cover page of this pricing supplement.
- .. You are willing to invest in the Notes based on the Downside Threshold specified on the cover page of this pricing supplement.
- .. You are willing to accept individual exposure to each Underlying Index and that the performance of the Least Performing Underlying Index will not be offset or mitigated by the performance of the other Underlying Index.
- .. You understand and accept the risks associated with the Underlying Indices.
- .. You are willing to invest in securities that may be called early and you are otherwise willing to hold such securities to maturity.
- .. You are willing to assume our credit risk for all payments under the Notes, and understand that if we default on our obligations, you may not receive any amounts due to you, including any repayment of principal.

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

- .. You do not fully understand the risks inherent in an investment in the Notes, including the risk of loss of your entire initial investment.
- .. You cannot tolerate a loss on your investment and require an investment designed to provide a full return of principal at maturity.
- .. You are not willing to make an investment that may have the same downside market risk as an investment in the equity securities composing the Least Performing Underlying Index.
- You do not believe either Underlying Index will close at or above its Initial Level on any one of the first two Observation Dates, or you believe an Underlying Index will close below its Downside Threshold on the final Observation Date, exposing you to the full downside performance of the Least Performing Underlying Index.
- .. You seek an investment that participates in the full appreciation in the levels of the Underlying Indices, and whose positive return is not limited to the applicable Call Return Rate.
- .. You cannot tolerate fluctuations in the price of the Notes prior to maturity that may be similar to or exceed the downside fluctuations of the Least Performing Underlying Index.
- .. You are unwilling to invest in the Notes based on Call Return Rate specified on the cover page of this pricing supplement.
- .. You are unwilling to invest in the Notes based on the Downside Threshold specified on the cover page of this pricing supplement.
- .. You are unwilling to accept individual exposure to each Underlying Index and that the performance of the Least Performing Underlying Index will not be offset or mitigated by the performance of the other Underlying Index.
- .. You seek guaranteed current income from this investment or prefer to receive the dividends paid on the securities

composing the Underlying Indices.

“You do not understand or accept the risks associated with the Underlying Indices.

You are unable or unwilling to hold securities that may be called early, or you are otherwise unable or unwilling to hold such securities to maturity, or you seek an investment for which there will be an active secondary market for the Notes.

“You are not willing to assume our credit risk for all payments under the Notes, including any repayment of principal.

The suitability considerations identified above are not exhaustive. Whether or not the Notes are a suitable investment for you will depend on your individual circumstances, and you should reach an investment decision only after you and your investment, legal, tax, accounting, and other advisers have carefully considered the suitability of an investment in the Notes in light of your particular circumstances. You should also review carefully the “Key Risks” beginning on page 6 of this pricing supplement for risks related to an investment in the Notes. In addition, you should review carefully the section below, “Information About the Underlying Indices,” for more information about these indices.

Final Terms of the Notes¹

Issuer:	Royal Bank of Canada		
Principal Amount per Note:	\$10 per Note		
Term:	Approximately three years, if not previously called		
Underlying Indices:	The S&P 500 [®] Index (“SPX”) and the Russell 2000 Index (“RTY”)		
Automatic Call Feature:	<p>The Notes will be called if the closing level of each Underlying Index (a) on any of the first two Observation Dates is at or above its Initial Level or (b) on the final Observation Date is at or above its Downside Threshold.</p> <p>If the Notes are called, we will pay you on the applicable Call Settlement Date a cash payment per \$10 principal amount equal to the Call Price for the applicable Observation Date.</p>		
Observation Dates: ²	<p>The first Observation Date will occur on October 15, 2019; Observation Dates will occur annually thereafter on October 12, 2020, and October 12, 2021 (the “final Observation Date”).</p>		
Call Settlement Dates:	<p>Three (3) business days following the applicable Observation Date, except that the Call Settlement Date for the final Observation Date is the Maturity Date.</p>		
Call Price:	<p>The Call Price will be calculated based on the following formula: $\\$10 + (\\$10 \times \text{Call Return})$</p>		
Call Return / Call Return Rate:	<p>The Call Price will be based upon the Call Return. The Call Return increases the longer the Notes are outstanding and will be based on the Call Return Rate of 8.90% per annum.</p> <p>The Call Return will be a fixed amount based upon equal annual installments at the Call Return Rate, which is a per annum rate. The following table sets forth each Observation Date, each Call Settlement Date and the corresponding Call Price for the Notes.</p>		
Observation Dates	Call Settlement Dates	Call Price	Call Return Rate
October 15, 2019	October 18, 2019	\$10.89	8.90%
October 12, 2020	October 15, 2020	\$11.78	17.80%
October 12, 2021 (Final Observation Date)	October 15, 2021 (Maturity Date)	\$12.67	26.70%
Payment at Maturity:	<p>If the Notes are not called and, therefore, the Final Level of the Least Performing Underlying Index is less than its Downside Threshold, we will pay you a cash payment on the maturity date of less than the principal amount, if anything, resulting in a loss on your initial investment that is proportionate to the negative Underlying Return of the Least Performing</p>		

Underlying Index, equal to:
 $\$10.00 + (\$10.00 \times \text{Underlying Return of the Least Performing Underlying Index})$

You may lose a significant portion or all of your principal at maturity that is proportionate to the decline in the Least Performing Underlying Index, regardless of the performance of the other Underlying Index.

Least Performing Underlying Index: The Underlying Index with the lowest Underlying Return.

¹¹ Terms used in this pricing supplement, but not defined herein, shall have the meanings ascribed to them in the prospectus or the prospectus supplement.

Underlying Returns:	With respect to each Underlying Index, <u>Final Level – Initial Level</u> Initial Level
Downside Thresholds:	With respect to each Underlying Index, 70.00% of its Initial Level.
Initial Levels:	With respect to each Underlying Index, its closing level on October 10, 2018.
Final Levels:	With respect to each Underlying Index, its closing level on the Final Observation Date, as determined by the calculation agent.

Investment Timeline

October 10, 2018: The Initial Level and Downside Threshold of each Underlying Index were determined.

Annually (beginning after one year): The Notes will be called if the closing level of each Underlying Index (a) on any of the first two Observation Dates is equal to or greater than its Initial Level (b) on the final Observation Date is equal to or greater than its Downside Threshold.
If the Notes are called, we will pay the Call Price for the applicable Observation Date, equal to the principal amount plus the applicable Call Return.

Maturity Date: The Final Level of each Underlying Index is observed on the final Observation Date.
If the Notes have not been called, and therefore, the Final Level of the Least Performing Underlying Index is less than its Downside Threshold, we will pay less than the principal amount, if anything, resulting in a loss on your initial investment proportionate to the decline of the Least Performing Underlying Index, for an amount equal to:
\$10 + (\$10 × Underlying Return of the Least Performing Underlying Index) per Note

You may lose a significant portion or all of your principal at maturity that is proportionate to the decline in the Least Performing Underlying Index, regardless of the performance of the other Underlying Index.

INVESTING IN THE NOTES INVOLVES SIGNIFICANT RISKS. YOU MAY LOSE SOME OR ALL OF YOUR PRINCIPAL AMOUNT. YOU WILL BE EXPOSED TO THE MARKET RISK OF EACH UNDERLYING INDEX ON EACH OBSERVATION DATE, AND ANY DECLINE IN THE LEVEL OF ONE UNDERLYING INDEX MAY NEGATIVELY AFFECT YOUR RETURN AND WILL NOT BE OFFSET OR MITIGATED BY A LESSER DECLINE OR ANY POTENTIAL INCREASE IN THE LEVEL OF THE OTHER UNDERLYING INDEX. ANY PAYMENT ON THE NOTES, INCLUDING ANY REPAYMENT OF PRINCIPAL, IS SUBJECT TO OUR CREDITWORTHINESS. IF WE WERE TO DEFAULT ON OUR PAYMENT OBLIGATIONS, YOU MAY NOT RECEIVE ANY AMOUNTS OWED TO YOU UNDER THE NOTES AND YOU COULD LOSE YOUR ENTIRE INVESTMENT.

Key Risks

An investment in the Notes involves significant risks. Investing in the Notes is not equivalent to investing directly in the securities composing the Underlying Indices. In addition, your investment in the Notes entails other risks not associated with an investment in conventional debt securities. You should consider carefully the following discussion of risks before you decide that an investment in the Notes is suitable for you. We also urge you to consult your investment, legal, tax, accounting and other advisors before investing in the Notes.

Risks Relating to the Notes Generally

Risk of Loss at Maturity. The Notes differ from ordinary debt securities in that we will not necessarily repay the full principal amount of the Notes at maturity. If the Notes are not called prior to the final Observation Date, we will repay you the principal amount of your Notes in cash only if the Final Level of each Underlying Index is greater than or equal to its Downside Threshold, and we will only make that payment at maturity. If the Notes are not called and, therefore, the Final Level of the Least Performing Underlying Index is less than its Downside Threshold, you will lose some or all of your initial investment in an amount proportionate to the decline in the level of the Least Performing Underlying Index.

The contingent repayment of principal applies only at maturity. If the Notes are not automatically called, you should be willing to hold your Notes to maturity. If you are able to sell your Notes prior to maturity in the secondary market, if any, you may have to do so at a loss relative to your initial investment, even if the levels of both Underlying Indices are above their respective Downside Thresholds.

No Periodic Interest Payments: We will not pay any interest with respect to the Notes.

The Call Feature Limits Your Potential Return: The return potential of the Notes if the Notes are called as of any Observation Date is limited to the applicable Call Return, regardless of the appreciation of either Underlying Index, which may be significant. Therefore, you may receive a lower payment if the Notes are automatically called or at maturity, as the case may be, than you would have if you had invested directly in one or both of the Underlying Indices. In addition, because the Call Return increases the longer the Notes are outstanding, the Call Price payable on the first Observation Date is less than the Call Price payable on later Observation Dates.

Reinvestment Risk: If your Notes are called early, the holding period over which you would receive the per annum Call Return Rate could be as little as one year. There is no guarantee that you would be able to reinvest the proceeds from an investment in the Notes in a comparable investment with a similar level of risk in the event the Notes are called prior to the Maturity Date.

The Call Return Rate will reflect in part the volatility and correlation of the Underlying Indices and may not be sufficient to compensate you for the risk of loss at maturity. "Volatility" refers to the frequency and magnitude of changes in the levels of the Underlying Indices. The greater the volatility of the Underlying Indices, the more likely it is that the level of either Underlying Index could close below its Downside Threshold on the final Observation Date. This risk will generally be reflected in a higher Call Return Rate for the Notes than the interest rate payable on our conventional debt securities with a comparable term. In addition, lower correlation between the Underlying Indices can also indicate a greater likelihood of one Underlying Index closing below its Initial Level or Downside Threshold on an Observation Date. This greater risk will also be reflected in a higher Call Return Rate than on a security linked to Underlying Indices with a greater degree of correlation. However, while the Call Return Rate is a fixed amount, the Underlying Indices' volatility and correlation can change significantly over the term of the Notes. The levels of one or both of the Underlying Indices could fall sharply as of the final Observation Date, which could result in the Notes not being called and a significant loss of your principal amount.

The Notes may be called early and are subject to reinvestment risk. The Notes will be called automatically if the closing levels of both Underlying Indices are equal to or greater than their respective Initial Levels on any Call Observation Date. In the event that the Notes are called prior to maturity, there is no guarantee that you will be able to reinvest the proceeds from an investment in the Notes at a comparable rate of return for a similar level of risk. To the extent you are able to reinvest your proceeds in an investment comparable to the Notes, you will incur transaction costs and the original issue price for such an investment is likely to include certain built in costs such as dealer discounts and hedging costs.

The Notes are subject to our credit risk. The Notes are subject to our credit risk, and our credit ratings and credit spreads may adversely affect the market value of the Notes. Investors are dependent on our ability to pay all amounts

due on the Notes, and therefore investors are subject to our credit risk and to changes in the market's view of our creditworthiness. Any decline in our credit ratings or increase in the credit spreads charged by the market for taking our credit risk is likely to adversely affect the value of the Notes. If we were to default on our payment obligations, you may not receive any amounts owed to you under the Notes and you could lose your entire investment.

The initial estimated value of the Notes is less than the price to the public. The initial estimated value for the Notes that is set forth on the cover page of this document, which is less than the public offering price you pay for the Notes, does not represent a minimum price at which we, RBCCM or any of our other affiliates would be willing to purchase the Notes in any secondary market (if any exists) at any time. If you attempt to sell the Notes prior to maturity, their market value may be lower than the price you paid for them and the initial estimated value. This is due to, among other things, changes in the levels of the Underlying Indices, the borrowing rate we pay to issue securities of this kind, and the inclusion in the price to public of our estimated profit and the 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 the price to public, as any such sale price would not be expected to include our estimated profit and the costs relating to our hedging of the Notes. In addition, any price at which you may sell the Notes is likely to reflect customary bid-ask spreads for similar trades. In addition to bid-ask spreads, the value of the Notes determined for any secondary market price is expected to be based on a secondary market rate rather than the internal borrowing rate used to price the Notes and determine the initial estimated value. As a result, the secondary market price will be less than if the internal borrowing 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.

Our initial estimated value of the Notes is an estimate only, calculated as of the time the terms of the Notes are 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 and the amount that may be paid at maturity.

You will not participate in any appreciation of the Underlying Indices, and any potential return on the Notes is limited. The return on the Notes is limited to the pre-specified Call Return Rate, regardless of the appreciation of the Underlying Indices. As a result, the return on an investment in the Notes could be less than the return on a direct investment in the Underlying Indices. Further, if the Notes are called due to the automatic call feature, you will not receive any other payments after the applicable Call Settlement Date. Since the Notes could be called as early as the first Observation Date, the total return on the Notes could be limited. On the other hand, if the Notes have not been previously called and if the level of an Underlying Index is less than its Initial Level and/or Downside Threshold, as the Maturity Date approaches and the remaining number of Observation Dates decreases, the Notes are less likely to be automatically called, as there will be a shorter period of time remaining for the level of that Underlying Index to increase to its Downside Threshold prior to maturity. If the Notes are not called, you will be subject to the Underlying Indices’ risk of decline.

If you sell the Notes prior to maturity, you may receive less than the principal amount. If the Notes are not automatically called, you should be willing to hold the Notes until maturity. If you are able to sell the Notes in the secondary market prior to maturity, you may have to sell them for a loss relative to the principal amount, even if the levels of the Underlying Indices are above their respective Initial Levels and/or Downside Thresholds. In addition, you will not receive the benefit of any contingent repayment of principal associated with the Downside Thresholds if you sell the Notes before the maturity date. The potential returns described in this document assume that the Notes, which are not designed to be short-term trading instruments, are held to maturity.

Your return on the Notes 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. Your investment may not reflect the full opportunity cost to you when you take into account factors that affect the time value of money, such as inflation.

Your return on the Notes will not reflect dividends on the equity securities composing the Underlying Indices. The return on the Notes will not reflect the return you would realize if you actually owned the equity securities composing the Underlying Indices and received the dividends paid on those equity securities. The Final Levels of both Underlying Indices and the determination of the amount to be paid at maturity or upon an automatic call will not take into consideration the value of those dividends.

If the levels of the Underlying Indices change, the market value of the Notes may not change in the same manner. Owning the Notes is not the same as owning the securities composing the Underlying Indices. Accordingly, changes in the levels of the Underlying Indices may not result in a comparable change of the market value of the Notes. If the levels of the Underlying Indices on any trading day increase above their respective Initial Levels or Downside Threshold, the value of the Notes may not increase in a comparable manner, if at all. It is possible for the levels of the Underlying Indices to increase while the value of the Notes declines.

The determination of the payments on the Notes, and whether they are subject to an automatic call, does not take into account all developments in the levels of the Underlying Indices. Changes in the levels of the Underlying Indices during the periods between each Observation Date may not be reflected in the determination as to whether the Notes will be called or the calculation of the amount payable, if any, at maturity. The calculation agent will determine whether the Notes are automatically called on any Observation Date by observing only the closing levels of the Underlying Indices on those dates. The calculation agent will calculate the payment at maturity by comparing only

the closing level of the Least Performing Underlying Index on the final Observation Date relative to its Initial Level. No other levels will be taken into account. As a result, you may lose some or all of your principal amount even if the level of the Least Performing Underlying Index has risen at certain times during the term of the Notes before falling to a level below its Downside Threshold on the final Observation Date.

The Notes are not designed to be short-term trading instruments. The price at which you will be able to sell the Notes to us or our affiliates prior to maturity, if at all, may be at a substantial discount from the principal amount of the Notes, even in cases where the closing levels of the Underlying Indices have appreciated after the date that the Initial Levels were determined. In addition, you will not receive the benefit of any contingent repayment of principal associated with the Downside Thresholds if you sell the Notes before the maturity date. The potential returns described in this document assume that the Notes, which are not designed to be short-term trading instruments, are held to maturity.

You must rely on your own evaluation of the merits of an investment linked to the Underlying Indices. In the ordinary course of their business, our affiliates, or UBS or its affiliates, may have expressed views on expected movements in each of the Underlying Indices or the securities included in the Underlying Indices, and may do so in the future. These views or reports may be communicated to our respective clients and clients of our respective affiliates. However, these views are subject to change from time to time. Moreover, other professionals who transact business in markets relating to either Underlying Index, may at any time have significantly different views from those of ours, and those of UBS and its affiliates. For these reasons, you are encouraged to derive information concerning the Underlying Indices from multiple sources, and you should not rely solely on views expressed by us, UBS, or our respective affiliates.

Your return on the Notes is not linked to a basket consisting of the Underlying Indices. Rather, it will be contingent upon the performance of each individual Underlying Index. Unlike an instrument with a return linked to a basket of indices or other underlying assets, in which risk is mitigated and diversified among all of the components of the basket, you will be exposed equally to the risks related to both of the Underlying Indices. Poor performance by either one of the Underlying Indices over the term of the Notes may negatively affect your return and will not be offset or mitigated by a positive performance by the other Underlying Index. For the Notes to be automatically called or to receive any contingent repayment of principal at maturity from us, both Underlying Indices must close above their

Initial Levels or Downside Thresholds, as applicable, on the applicable Observation Date. In addition, if not called prior to maturity, you may incur a loss proportionate to the negative return of the Least Performing Underlying Index. Accordingly, your investment is subject to the market risk of each Underlying Index, which results in a higher risk of incurring a loss at maturity.

Because the Notes are linked to the individual performance of more than one Underlying Index, it is more likely that one of the Underlying Indices will decrease in value below its Initial Level or its Downside Threshold, increasing the probability that the Notes will not be called and that you will lose some or all of your initial investment. The risk that the Notes will not be called and that you will lose some or all of your initial investment in the Notes is greater if you invest in the Notes as opposed to securities that are linked to the performance of a single Underlying Index if their terms are otherwise substantially similar. With a greater total number of Underlying Indices, it is more likely that an Underlying Index will be below its Initial Level or Downside Threshold on an Observation Date, and therefore it is more likely that the Notes will not be called and that at maturity you will receive an amount in cash which is worth less than your principal amount. In addition, the performances of a pair of Underlying Indices may be positively or negatively correlated, or may not be correlated at all. If the Underlying Indices are not correlated to each other or are negatively correlated, there is a greater potential for one of those Underlying Indices to close below its Initial Level or Downside Threshold, as applicable, on an Observation Date, respectively, and therefore the risk of the Notes not being called and that you will lose a portion of your principal at maturity.

It is impossible to predict what the correlations between the Underlying Indices will be over the term of the Notes. The Underlying Indices represent different equity markets and these different equity markets may not perform similarly over the term of the Notes. Although the correlation of the Underlying Indices' performance may change over the term of the Notes, the Call Return Rate is determined, in part, based on the Underlying Indices' performance calculated using our internal models at the time when the terms of the Notes are determined. As stated earlier, a higher Call Return Rate is generally associated with lower correlation of the Underlying Indices, which reflects a greater potential for the Notes not to be called and for a loss on your investment at maturity. See "Correlation of the Underlying Indices" below.

Risks Relating to Liquidity and Secondary Market Issues

Secondary trading in the Notes may be limited. The Notes will not be listed on any securities exchange. RBCCM intends to offer to purchase the Notes in the secondary market, but is not required to do so. Even if there is a secondary market, it may not provide enough liquidity to allow you to trade or sell the Notes easily. Because other dealers are not likely to make a secondary market for the Notes, the price at which you may be able to trade your Notes is likely to depend on the price, if any, at which RBCCM is willing to buy the Notes.

The terms of the Notes at issuance were influenced and their market value prior to maturity will be influenced by many unpredictable factors. Many economic and market factors influenced the terms of the Notes at issuance and will impact their value prior to maturity. These factors are similar in some ways to those that could affect the value of a combination of instruments that might be used to replicate the payments on the Notes, including a combination of a bond with one or more options or other derivative instruments. For the market value of the Notes, we expect that, generally, the levels of the Underlying Indices on any day will affect the value of the Notes more than any other single factor. However, you should not expect the value of the Notes in the secondary market to vary in proportion to changes in the levels of the Underlying Indices. The value of the Notes will be affected by a number of economic and market factors that may either offset or magnify each other, including:

- the level of the Underlying Indices;
- whether the levels of the Underlying Indices are below their respective Initial Levels or the Downside Thresholds;
- the actual and expected volatility of the Underlying Indices;
- the expected correlation of the Underlying Indices;
- the time remaining to maturity of the Notes;
- the dividend rates on the securities composing the Underlying Indices;
- interest and yield rates in the market generally, as well as in the markets of the equity securities composing the Underlying Indices;
- a variety of economic, financial, political, regulatory or judicial events;
- the occurrence of certain events with respect to the Underlying Indices that may or may not require an adjustment to the terms of the Notes; and

our creditworthiness, including actual or anticipated downgrades in our credit ratings.

Some or all of these factors influenced the terms of the Notes at issuance, and will also influence the price you will receive if you choose to sell the Notes prior to maturity. The impact of any of the factors set forth above may enhance or offset some or all of any change resulting from another factor or factors. You may have to sell the Notes at a substantial discount from the principal amount if, for example, the level of one or both of the Underlying Indices is at, or not sufficiently above, its Downside Threshold.

Risks Relating to the Underlying Indices

Changes that affect an Underlying Index will affect the market value of the Notes and the payments on the Notes.

The policies of the applicable index sponsor concerning the calculation of each Underlying Index, additions, deletions or substitutions of the components of that Underlying Index and the manner in which changes affecting those components, such as stock dividends, reorganizations or mergers, may be reflected in the Underlying Index and, therefore, could affect the amounts payable on the Notes, and the market value of the Notes prior to maturity.

The amounts payable on the Notes and their market value could also be affected if the index sponsor changes these policies, for example, by changing the manner in which it calculates the applicable Underlying Index, or if the index sponsor discontinues or suspends calculation or publication of that Underlying Index, in which case it may become difficult to determine the market value of the Notes.

We have no affiliation with either index sponsor and will not be responsible for any actions taken by an index sponsor. Neither index sponsor is an affiliate of ours or will be involved in the offering of the Notes in any way. Consequently, we have no control of the actions of either index sponsor, including any actions of the type that might impact the value of the Notes. Neither index sponsor has any obligation of any sort with respect to the Notes. Thus, no index sponsor has any obligation to take your interests into consideration for any reason, including in taking any actions that might affect the value of the Notes. None of our proceeds from the issuance of the Notes will be delivered to either index sponsor.

The historical performance of the Underlying Indices should not be taken as an indication of their future performance. The levels of the Underlying Indices will determine the amount to be paid on the Notes. The historical performance of each Underlying Index does not give an indication of its future performance. As a result, it is impossible to predict whether the level of the Underlying Indices will rise or fall during the term of the Notes. The level of each Underlying Index will be influenced by complex and interrelated political, economic, financial and other factors. The level of each Underlying Index may decrease such that you may not receive any return on your investment. There can be no assurance that the level of each Underlying Index will not decrease so that at maturity you will not lose some or all of your investment.

An investment in Notes linked to the RTY is subject to risks associated in investing in stocks with a small market capitalization. The RTY consists of stocks issued by companies with relatively small market capitalizations. These companies often have greater stock price volatility, lower trading volume and less liquidity than large-capitalization companies. As a result, the level of the RTY may be more volatile than that of a market measure that does not track solely small-capitalization stocks. Stock prices of small-capitalization companies are also often more vulnerable than those of large-capitalization companies to adverse business and economic developments, and the stocks of small-capitalization companies may be thinly traded, and be less attractive to many investors if they do not pay dividends. In addition, small capitalization companies are often less well-established and less stable financially than large-capitalization companies and may depend on a small number of key personnel, making them more vulnerable to loss of those individuals. Small capitalization companies tend to have lower revenues, less diverse product lines, smaller shares of their target markets, fewer financial resources and fewer competitive strengths than large-capitalization companies. These companies may also be more susceptible to adverse developments related to their products or services.

Risks Relating to Hedging Activities and Conflicts of Interest

We, UBS or our respective affiliates may have adverse economic interests to the holders of the Notes. RBCCM, UBS and our respective affiliates trade the securities represented by the Underlying Indices, and other financial instruments related to the Underlying Indices, on a regular basis, for their accounts and for other accounts under our or their management. UBS, RBCCM and these affiliates may also issue or underwrite or assist unaffiliated entities in the issuance or underwriting of other securities or financial instruments that relate to the Underlying Indices. To the extent that we, UBS or any of our respective affiliates serves as issuer, agent or underwriter for such securities or financial instruments, our or their interests with respect to such products may be adverse to those of the holders of the Notes. Any of these trading activities could potentially affect the performance of the Underlying Indices and, accordingly, could affect the value of the Notes, and the amounts, if any, payable on the Notes.

We, UBS or our respective affiliates may currently or from time to time engage in business with the issuers of the securities represented by the Underlying Indices, including extending loans to, or making equity investments in, or providing advisory services to them, including merger and acquisition advisory services. In the course of this business, we, UBS or our respective affiliates may acquire non-public information about these companies, and we will not disclose any such information to you. None of us, UBS or our respective affiliates makes any representation or warranty to any purchaser of the Notes with respect to any matters whatsoever relating to our business with the issuer of any security included in the Underlying Indices or future price movements of any such security.

Additionally, we, UBS or our respective affiliates may serve as issuer, agent or underwriter for additional issuances of securities with returns linked or related to changes in the level of one or more of the Underlying Indices. By introducing competing products into the marketplace in this manner, we could adversely affect the value of the Notes. We may hedge our obligations under the Notes through certain affiliates, who would expect to make a profit on such hedge. We or our affiliates may adjust these hedges by, among other things, purchasing or selling those assets at any time, including around the time of each Observation Date, which could have an impact on the return of the Notes.

Because hedging our obligations entails risk and may be influenced by market forces beyond our or our affiliates' control, such hedging may result in a profit that is more or less than expected, or it may result in a loss.

The calculation agent will have significant discretion with respect to the Notes, which may be exercised in a manner that is adverse to your interests. Our wholly-owned subsidiary, RBCCM, will act as the calculation agent. The calculation agent will determine, among other things, the closing levels of the Underlying Indices on each Observation Date, if any; whether the Notes are subject to an automatic call; the Final Level for each Underlying Index; the Underlying Return for each Underlying Index; and the amounts, if any, that we will pay to you on the Notes. The calculation agent will also be responsible for determining whether a market disruption event has occurred. The calculation agent may exercise its discretion in a manner which reduces your return on the Notes. Since these determinations by the calculation agent may affect the payments on the Notes, the calculation agent may have a conflict of interest if it needs to make a determination of this kind.

Market disruptions may adversely affect your return. The calculation agent may, in its sole discretion, determine that the markets have been affected in a manner that prevents it from properly determining the closing level of one or both of the Underlying Indices on any Observation Date or calculating the Underlying Return for each Underlying Index and the amount, if any, that we are required to pay you. These events may include disruptions or suspensions of trading in the markets as a whole. If the calculation agent, in its sole discretion, determines that any of these events prevents us or any of our affiliates from properly hedging our obligations under the Notes, it is possible that one or more of the Observation Dates and the maturity date will be postponed, and your return will be adversely affected. See "General Terms of the Notes—Market Disruption Events."

Non-U.S. investors may be subject to certain additional risks. This document contains a general description of certain U.S. tax considerations relating to the Notes. In the event you are a non-U.S. investor, you should consult your tax advisors as to the consequences,

under the tax laws of the country where you are a resident for tax purposes, of acquiring, holding and disposing of the Notes and receiving the payments that might be due under the Notes.

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

Significant aspects of the income tax treatment of an investment in the Notes may be uncertain. The tax treatment of an investment in the Notes is uncertain. We do not plan to request a ruling from the Internal Revenue Service or the Canada Revenue Agency regarding the tax treatment of an investment in the Notes, and the Internal Revenue Service, the Canada Revenue Agency or a court may not agree with the tax treatment described in this document. The Internal Revenue Service has issued a notice indicating that it and the Treasury Department are actively considering whether, among other issues, a holder should be required to accrue ordinary income on a current basis irrespective of any Contingent Coupons. The outcome of this process is uncertain and could apply on a retroactive basis.

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

Use of Proceeds and Hedging

The net proceeds we receive from the sale of the Notes will be used for general corporate purposes and, in part, by us or by one or more of our affiliates in connection with hedging our obligations under the Notes. The original issue price of the Notes includes the estimated cost of hedging our obligations under the Notes.

In anticipation of the sale of the Notes, we expect to enter into hedging transactions with one or more of our affiliates, involving the Underlying Indices or the securities composing the Underlying Indices, and/or related listed and/or over-the-counter derivative instruments prior to or on the trade date. From time to time, including around the time of each Observation Date and the maturity date, we and our respective affiliates may enter into additional hedging transactions or unwind those that we or they have entered into. In this regard, we and our respective affiliates may:

“acquire or dispose of investments relating to the Underlying Indices;

..acquire or dispose of long or short positions in listed or over-the-counter derivative instruments related to the Underlying Indices; or

“any combination of the above two.

We and our affiliates may acquire a long or short position in securities similar to the Notes from time to time and may, in our or their sole discretion, hold or resell those similar securities.

We and our affiliates may close out our or their hedges at any time during the term of the Notes, including on or before any Observation Date. That step may, for example, involve sales or purchases of over-the-counter derivative instruments linked to the Underlying Indices.

Hypothetical Examples

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

The examples below illustrate the payment upon a call or at maturity for a \$10 Note in a hypothetical offering of the Notes, with the following assumptions:*

Principal Amount:	\$10
Term:	3 years (unless earlier called)
Hypothetical Initial Levels of Each Underlying Index:	100
Call Return Rate:	8.90% per annum
Observation Dates:	Annually (beginning one year after the Settlement Date).
Hypothetical Downside Thresholds of Each Underlying Index:	70.00 (which is 70% of its Initial Level)

*Not the actual Initial Levels or Downside Thresholds applicable to the Notes. The actual Initial Levels and Downside Thresholds for the Notes were based on the closing levels of the Underlying Indices on October 10, 2018, and are set forth on the cover page of this document.

Example 1 - The closing level of each Underlying Index on the first Observation Date is at or above its Initial Level; the Notes are called

Closing Levels on the first Observation Date:	SPX: 105.00 (at or above its Initial Level) RTY: 105.00 (at or above its Initial Level)
Call Price (per \$10.00):	\$10.89

In this example, on the first Observation Date, because the closing level of each Underlying Index is at or above its Initial Level, the Notes would be called, and we would pay you on the applicable Call Settlement Date a total call price of \$10.89 per \$10.00 in principal amount (an 8.90% total return on the Notes).

Example 2 - The closing level of each Underlying Index on the final Observation Date is at or above its Downside Threshold; the Notes are called

Closing Level at first Observation Date:	SPX: 95.00 (less than its Initial Level) RTY: 95.00 (less than its Initial Level)
Closing Level at second Observation Date:	SPX: 90.00 (less than its Initial Level) RTY: 85.00 (less than its Initial Level)
Closing Level at final Observation Date (Final Level):	SPX: 105.00 (at or above its Downside Threshold) RTY: 80.00 (at or above its Downside Threshold)
Call Price (per \$10.00):	\$12.67

In this example, the closing levels of both Underlying Indices on each of the first two Observation Dates are less than their respective Initial Levels; as a result, the Notes are not automatically called following any of the first two Observation Dates.

On the final Observation Date, the closing level of the SPX is \$105.00 and the closing level of the RTY is 80.00. Because the closing level of each Underlying Index is greater than its respective Downside Threshold, the Notes would be called on the final Observation Date and we would pay you on the applicable Call Settlement Date the call price of \$12.67 per \$10.00 stated principal amount (a 26.70% total return on the notes). The Notes will be automatically called even though the Final Level of one Underlying Index is less than its Initial Level.

Example 3 - Notes are NOT Called and the Final Level of the Least Performing Underlying Index is below Its Downside Threshold on the final Observation Date

Closing Level at first Observation Date:	SPX: 95.00 (less than its Initial Level) RTY: 95.00 (less than its Initial Level)
Closing Level at second Observation Date:	SPX: 90.00 (less than its Initial Level) RTY: 85.00 (less than its Initial Level)

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Closing Level at final Observation Date (Final Level):	SPX: 101.00 (at or above its Downside Threshold) RTY: 50.00 (below its Downside Threshold)
Payment at Maturity (per \$10.00):	$\$10.00 \times (1 + \text{Underlying Return of the Least Performing Underlying Index})$ $\$10.00 \times (1 - 50\%)$ \$5.00

In this example, the closing level of each Underlying Index on each of the first two Observation Dates is less than its respective Initial Level; as a result the Notes are not automatically called following any of those Observation Dates. On the final Observation Date, the Underlying Return of the SPX is -25% and the Underlying Return of the RTY is -50%. As a result, the RTY is the Least Performing Underlying Index. In this example, because the Notes are not automatically called and, therefore, the Final Level of the Least Performing Underlying Index is less than its Downside Threshold, we will pay you at maturity \$5.00 per \$10.00 principal amount (a 50.00% loss on the Notes) and you would incur a loss at maturity equal to the full decline of the Least Performing Underlying Index. In this scenario, even though one of the Underlying Indices has a positive Underlying Return on the final Observation Date, your payment at maturity will be based solely on the Least Performing Underlying Index and you would not benefit from the performance of the other Underlying Index.

What Are the Tax Consequences of the Notes?

U.S. Federal Income Tax Consequences

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

The following section supplements the discussion of U.S. federal income taxation in the accompanying prospectus and prospectus supplement. It applies only to those holders who are not excluded from the discussion of U.S. federal income taxation in the accompanying prospectus. It does not address the tax consequences applicable to any holders under Section 451(b) of the Internal Revenue Code. This discussion applies only to U.S. holders and non-U.S. holders that will purchase the Notes upon original issuance and will hold the Notes as capital assets for U.S. federal income tax purposes. In addition, the discussion below assumes that an investor in the Notes will be subject to a significant risk that it will lose a significant amount of its investment in the Notes.

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

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

We will not attempt to ascertain whether the issuer of any of the component stocks included in any Underlying Index would be treated as a “passive foreign investment company” within the meaning of Section 1297 of the Internal Revenue Code or a “U.S. real property holding corporation” within the meaning of Section 897 of the Internal Revenue Code. If the issuer of one or more of such stocks were so treated, certain adverse U.S. federal income tax consequences could possibly apply. You should refer to any available information filed with the SEC and other authorities by the issuers of the component stock included in any Underlying Index and consult your tax advisor regarding the possible consequences to you in this regard, if any.

In the opinion of our counsel, Morrison & Foerster LLP, it would generally be reasonable to treat a Note with terms described in this document as a callable pre-paid cash-settled derivative contract linked to the Underlying Index for U.S. federal income tax purposes, and the terms of the Notes require a holder and us (in the absence of a change in law or an administrative or judicial ruling to the contrary) to treat the Notes for all tax purposes in accordance with such characterization. If the Notes are so treated, a U.S. holder should generally recognize capital gain or loss upon the sale or maturity of the Notes in an amount equal to the difference between the amount a holder receives at such time and the holder’s tax basis in the Notes. Capital gain recognized by an individual U.S. holder is generally taxed at preferential rates where the property is held for more than one year and is generally taxed at ordinary income rates where the property is held for one year or less. The deductibility of capital losses is subject to limitations. The following discussion assumes that the treatment described in this paragraph is proper and will be respected.

If the Notes are treated as described above, a U.S. holder should generally recognize capital gain or loss upon the call, sale or maturity of the Notes in an amount equal to the difference between the amount a holder receives at such time and the holder’s tax basis in the Notes. In general, a U.S. holder’s tax basis in the Notes will be equal to the price the holder paid for the Notes. The capital loss treatment of any loss recognized upon the sale, exchange or maturity of the Notes, could result in adverse tax consequences to a holder because the deductibility of capital losses is subject to limitations.

Alternative Treatments. Alternative tax treatments of the Notes are also possible and the Internal Revenue Service might assert that a treatment other than that described above is more appropriate. For example, it would also be

possible to treat the Notes, and the Internal Revenue Service might assert that the Notes should be treated, as a single debt instrument.

Because of the absence of authority regarding the appropriate tax characterization of the Notes, it is also possible that the Internal Revenue Service could seek to characterize the securities in a manner that results in other tax consequences that are different from those described above. For example, the Internal Revenue Service could possibly assert that any gain or loss that a holder may recognize upon the sale or maturity of the securities should be treated as ordinary gain or loss.

Because the Notes have a term that exceeds one year, such a debt instrument would be subject to the special tax rules governing contingent payment debt instruments. If the Notes are so treated, a holder would generally be required to accrue interest income over the term of the Notes based upon the yield at which we would issue a non-contingent fixed-rate debt instrument with other terms and conditions similar to the Notes. In addition, any gain a holder might recognize upon the call, sale or maturity of the Notes would be ordinary income and any loss recognized by a holder at such time would generally be ordinary loss to the extent of interest that same holder included in income in the current or previous taxable years in respect of the Notes, and thereafter, would be capital loss.

Because of the absence of authority regarding the appropriate tax characterization of the Notes, it is also possible that the Internal Revenue Service could seek to characterize the Notes in a manner that results in other tax consequences that are different from those described above. For example, the Internal Revenue Service could possibly assert that any gain or loss that a holder may recognize upon the call, sale or maturity of the Notes should be treated as ordinary gain or loss.

The Internal Revenue Service has released a notice that may affect the taxation of holders of the Notes. According to the notice, the Internal Revenue Service and the U.S. Treasury Department are actively considering whether the holder of an instrument similar to the Notes should be required to accrue ordinary income on a current basis. It is not possible to determine what guidance they will ultimately issue, if any. It is possible, however, that under such guidance, holders of the Notes will ultimately be required to accrue income currently and this could be applied on a retroactive basis.

The Internal Revenue Service and the U.S. Treasury Department are also considering other relevant issues, including whether additional gain or loss from such instruments should be treated as ordinary or capital and whether the special “constructive ownership rules” of Section 1260 of

the Internal Revenue Code, which very generally can operate to recharacterize certain long-term capital gains as ordinary income and impose an interest charge, might be applied to such instruments. Holders are urged to consult their tax advisors concerning the significance, and the potential impact, of the above considerations. We intend to treat the Notes for U.S. federal income tax purposes in accordance with the treatment described in this document unless and until such time as the U.S. Treasury Department and Internal Revenue Service determine that some other treatment is more appropriate.

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

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

Non-U.S. Holders. The following discussion applies to non-U.S. holders of the Notes. A non-U.S. holder is a beneficial owner of the Notes that, for U.S. federal income tax purposes, is a non-resident alien individual, a foreign corporation, or a foreign estate or trust.

Except as discussed below, a non-U.S. holder will generally not be subject to U.S. federal income or withholding tax on any gain upon the call, sale or maturity of the Notes, provided that (i) the holder complies with any applicable certification requirements (which certification may generally be made on a Form W-8BEN or Form W-8BEN-E, or a substitute or successor form), (ii) the payment is not effectively connected with the conduct by the holder of a U.S. trade or business, and (iii) if the holder is a non-resident alien individual, such holder is not present in the U.S. for 183 days or more during the taxable year of the call, sale or maturity of the Notes. In the case of (ii) above, the holder generally would be subject to U.S. federal income tax with respect to any income or gain in the same manner as if the holder were a U.S. holder and, in the case of a holder that is a corporation, the holder may also be subject to a branch profits tax equal to 30% (or such lower rate provided by an applicable U.S. income tax treaty) of a portion of its earnings and profits for the taxable year that are effectively connected with its conduct of a trade or business in the U.S., subject to certain adjustments. Payments made to a non-U.S. holder may be subject to information reporting and to backup withholding unless the holder complies with applicable certification and identification requirements as to its foreign status.

As discussed above, alternative characterizations of the Notes for U.S. federal income tax purposes are possible. Should an alternative characterization, by reason of change or clarification of the law, by regulation or otherwise, cause payments as to the Notes to become subject to withholding tax in addition to the withholding tax described above, we will withhold tax at the applicable statutory rate. The Internal Revenue Service has also indicated that it is considering whether income in respect of instruments such as the Notes should be subject to withholding tax. Prospective investors should consult their own tax advisors in this regard.

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 Internal Revenue Service has issued guidance that states that the U.S. Treasury Department and the Internal Revenue Service 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 Underlying Indices or the Notes (for example, upon an Underlying Index rebalancing), 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 Underlying Indices 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.

Individual holders that own “specified foreign financial assets” may be required to include certain information with respect to such assets with their U.S. federal income tax return. You are urged to consult your own tax advisor regarding such requirements with respect to the Notes.

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

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

Canadian Federal Income Tax Consequences

For a discussion of the material Canadian federal income tax consequences relating to an investment in the Notes, please see the section entitled “Tax Consequences—Canadian Taxation” in the accompanying prospectus, which you should carefully review prior to investing in the Notes.

Information About the Underlying Indices

We have derived all information contained in this document regarding each of the Underlying Indices, including, without limitation, its make up, method of calculation, and changes in its components, from publicly available sources. The information reflects the policies of, and is subject to change by, the applicable index sponsor. Each index sponsor, which owns the copyright and all other rights to the applicable Underlying Index, has no obligation to continue to publish, and may discontinue publication of, that Underlying Index. The consequences of an index sponsor discontinuing publication of the applicable Underlying Index are discussed below under the heading “General Terms of the Notes—Discontinuation of an Underlying Index; Alteration of Method of Calculation.” None of us, UBS or RBCCM accepts any responsibility for the calculation, maintenance or publication of any Underlying Index or any successor index.

The S&P 500® Index

The SPX is intended to provide an indication of the pattern of common stock price movement in the large capitalization segment of the U.S. equity market. The calculation of the level of the SPX is based on the relative value of the aggregate market value of the common stocks of 500 companies as of a particular time compared to the aggregate average market value of the common stocks of 500 similar companies during the base period of the years 1941 through 1943.

The index sponsor calculates the SPX by reference to the prices of the constituent stocks of the SPX without taking account of the value of dividends paid on those stocks. As a result, the return on the Notes will not reflect the return you would realize if you actually owned the SPX constituent stocks and received the dividends paid on those stocks.

Computation of the SPX

While the index sponsor currently employs the following methodology to calculate the SPX, no assurance can be given that the index sponsor will not modify or change this methodology in a manner that may affect the Payment at Maturity.

Historically, the market value of any component stock of the SPX was calculated as the product of the market price per share and the number of then outstanding shares of such component stock. In March 2005, the index sponsor began shifting the SPX halfway from a market capitalization weighted formula to a float-adjusted formula, before moving the SPX to full float adjustment on September 16, 2005. The index sponsor’s criteria for selecting stocks for the SPX did not change with the shift to float adjustment. However, the adjustment affects each company’s weight in the SPX.

Under float adjustment, the share counts used in calculating the SPX reflect only those shares that are available to investors, not all of a company’s outstanding shares. Float adjustment excludes shares that are closely held by control groups, other publicly traded companies or government agencies.

In September 2012, all shareholdings representing more than 5% of a stock’s outstanding shares, other than holdings by “block owners,” were removed from the float for purposes of calculating the SPX. Generally, these “control holders” will include officers and directors, private equity, venture capital and special equity firms, other publicly traded companies that hold shares for control, strategic partners, holders of restricted shares, ESOPs, employee and family trusts, foundations associated with the company, holders of unlisted share classes of stock, government entities at all levels (other than government retirement/pension funds) and any individual person who controls a 5% or greater stake in a company as reported in regulatory filings. However, holdings by block owners, such as depository banks, pension funds, mutual funds and ETF providers, 401(k) plans of the company, government retirement/pension funds, investment funds of insurance companies, asset managers and investment funds, independent foundations and savings and investment plans, will ordinarily be considered part of the float.

Treasury stock, stock options, restricted shares, equity participation units, warrants, preferred stock, convertible stock, and rights are not part of the float. Shares held in a trust to allow investors in countries outside the country of domicile, such as depository shares and Canadian exchangeable shares are normally part of the float unless those shares form a control block.

For each stock, an investable weight factor (“IWF”) is calculated by dividing the available float shares by the total shares outstanding. Available float shares are defined as the total shares outstanding less shares held by control holders. This calculation is subject to a 5% minimum threshold for control blocks. For example, if a company’s officers and directors hold 3% of the company’s shares, and no other control group holds 5% of the company’s shares,

the index sponsor would assign that company an IWF of 1.00, as no control group meets the 5% threshold. However, if a company's officers and directors hold 3% of the company's shares and another control group holds 20% of the company's shares, the index sponsor would assign an IWF of 0.77, reflecting the fact that 23% of the company's outstanding shares are considered to be held for control. As of July 31, 2017, companies with multiple share class lines are no longer eligible for inclusion in the SPX. Constituents of the SPX prior to July 31, 2017 with multiple share class lines will be grandfathered in and continue to be included in the SPX. If a constituent company of the SPX reorganizes into a multiple share class line structure, that company will remain in the SPX at the discretion of the S&P Index Committee in order to minimize turnover

The SPX is calculated using a base-weighted aggregate methodology. The level of the SPX reflects the total market value of all 500 component stocks relative to the base period of the years 1941 through 1943. An indexed number is used to represent the results of this calculation in order to make the level easier to work with and track over time. The actual total market value of the component stocks during the base period of the years 1941 through 1943 has been set to an indexed level of 10. This is often indicated by the notation 1941- 43 = 10. In practice, the daily calculation of the SPX is computed by dividing the total market value of the component stocks by the "index divisor." By itself, the index divisor is an arbitrary number. However, in the context of the calculation of the SPX, it serves as a link to the original base period level of the SPX. The index divisor keeps the SPX comparable over time and is the manipulation point for all adjustments to the SPX, which is index maintenance.

Index Maintenance

Index maintenance includes monitoring and completing the adjustments for company additions and deletions, share changes, stock splits, stock dividends, and stock price adjustments due to company restructuring or spinoffs. Some corporate actions, such as stock splits and stock dividends, require changes in the common shares outstanding and the stock prices of the companies in the SPX, and do not require index divisor adjustments.

To prevent the level of the SPX from changing due to corporate actions, corporate actions which affect the total market value of the SPX require an index divisor adjustment. By adjusting the index divisor for the change in market value, the level of the SPX remains constant and does not reflect the corporate actions of individual companies in the SPX. Index divisor adjustments are made after the close of trading and after the calculation of the index closing level. Changes in a company's shares outstanding and IWF due to its acquisition of another public company are made as soon as reasonably possible. At S&P's discretion, de minimis merger and acquisition share changes are accumulated and implemented with the quarterly share rebalancing.

All other changes of less than 5% are accumulated and made quarterly on the third Friday of March, June, September, and December.

Changes in a company's total shares outstanding of 5% or more due to public offerings are made as soon as reasonably possible. Other changes of 5% or more (for example, due to tender offers, Dutch auctions, voluntary exchange offers, company stock repurchases, private placements, acquisitions of private companies or non-index companies that do not trade on a major exchange, redemptions, exercise of options, warrants, conversion of preferred stock, notes, debt, equity participations, at-the-market stock offerings or other recapitalizations) are made weekly, and are generally announced on Fridays for implementation after the close of trading the following Friday (one week later). If a 5% or more share change causes a company's IWF to change by five percentage points or more, the IWF is updated at the same time as the share change. IWF changes resulting from partial tender offers are considered on a case-by-case basis.

License Agreement

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The Notes are not sponsored, endorsed, sold or promoted by S&P Dow Jones Indices LLC, Dow Jones, S&P or any of their respective affiliates (collectively, "S&P Dow Jones Indices"). S&P Dow Jones Indices make no representation or warranty, express or implied, to the holders of the Notes or any member of the public regarding the advisability of investing in securities generally or in the Notes particularly or the ability of the SPX to track general market performance. S&P Dow Jones Indices' only relationship to us with respect to the SPX is the licensing of the SPX and certain trademarks, service marks and/or trade names of S&P Dow Jones Indices and/or its third party licensors. The SPX is determined, composed and calculated by S&P Dow Jones Indices without regard to us or the Notes. S&P Dow Jones Indices have no obligation to take our needs or the needs of holders of the Notes into consideration in determining, composing or calculating the SPX. S&P Dow Jones Indices are not responsible for and have not participated in the determination of the prices, and amount of the Notes or the timing of the issuance or sale of the Notes or in the determination or calculation of the equation by which the Notes are to be converted into cash. S&P Dow Jones Indices have no obligation or liability in connection with the administration, marketing or trading of the Notes. There is no assurance that investment products based on the SPX will accurately track index performance or provide positive investment returns. S&P Dow Jones Indices LLC and its subsidiaries are not investment advisors. Inclusion of a security or futures contract within an index is not a recommendation by S&P Dow Jones Indices to buy, sell, or hold such security or futures contract, nor is it considered to be investment advice. Notwithstanding the foregoing, CME Group Inc. and its affiliates may independently issue and/or sponsor financial products unrelated to the Notes currently being issued by us, but which may be similar to and competitive with the Notes. In addition, CME Group Inc. and its affiliates may trade financial products which are linked to the performance of the SPX. It is possible that this trading activity will affect the value of the Notes.

S&P DOW JONES INDICES DO NOT GUARANTEE THE ADEQUACY, ACCURACY, TIMELINESS AND/OR THE COMPLETENESS OF THE SPX OR ANY DATA RELATED THERETO OR ANY COMMUNICATION, INCLUDING BUT NOT LIMITED TO, ORAL OR WRITTEN COMMUNICATION (INCLUDING ELECTRONIC COMMUNICATIONS) WITH RESPECT THERETO. S&P DOW JONES INDICES SHALL NOT BE SUBJECT TO ANY DAMAGES OR LIABILITY FOR ANY ERRORS, OMISSIONS, OR DELAYS THEREIN. S&P DOW JONES INDICES MAKE NO EXPRESS OR IMPLIED WARRANTIES, AND EXPRESSLY DISCLAIMS ALL WARRANTIES, OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE OR AS TO

RESULTS TO BE OBTAINED BY US, HOLDERS OF THE NOTES, OR ANY OTHER PERSON OR ENTITY FROM THE USE OF THE SPX OR WITH RESPECT TO ANY DATA RELATED THERETO. WITHOUT LIMITING ANY OF THE FOREGOING, IN NO EVENT WHATSOEVER SHALL S&P DOW JONES INDICES BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, PUNITIVE, OR CONSEQUENTIAL DAMAGES INCLUDING BUT NOT LIMITED TO, LOSS OF PROFITS, TRADING LOSSES, LOST TIME OR GOODWILL, EVEN IF THEY HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, WHETHER IN CONTRACT, TORT, STRICT LIABILITY, OR OTHERWISE. THERE ARE NO THIRD PARTY BENEFICIARIES OF ANY AGREEMENTS OR ARRANGEMENTS BETWEEN S&P DOW JONES INDICES AND US, OTHER THAN THE LICENSORS OF S&P DOW JONES INDICES.

Historical Information

The following table sets forth the quarterly high, low and period-end closing levels of the SPX, as reported by Bloomberg L.P. The historical performance of the SPX should not be taken as an indication of future performance. We cannot give you assurance that the performance of the SPX will result in the return of any of your initial investment.

Quarter Begin	Quarter End	Quarterly Closing High	Quarterly Closing Low	Quarterly Period-End Close
1/1/2008	3/31/2008	1,447.16	1,273.37	1,322.70
4/1/2008	6/30/2008	1,426.63	1,278.38	1,280.00
7/1/2008	9/30/2008	1,305.32	1,106.39	1,166.36
10/1/2008	12/31/2008	1,161.06	752.44	903.25
1/1/2009	3/31/2009	934.70	676.53	797.87
4/1/2009	6/30/2009	946.21	811.08	919.32
7/1/2009	9/30/2009	1,071.66	879.13	1,057.08
10/1/2009	12/31/2009	1,127.78	1,025.21	1,115.10
1/1/2010	3/31/2010	1,174.17	1,056.74	1,169.43
4/1/2010	6/30/2010	1,217.28	1,030.71	1,030.71
7/1/2010	9/30/2010	1,148.67	1,022.58	1,141.20
10/1/2010	12/31/2010	1,259.78	1,137.03	1,257.64
1/1/2011	3/31/2011	1,343.01	1,256.88	1,325.83
4/1/2011	6/30/2011	1,363.61	1,265.42	1,320.64
7/1/2011	9/30/2011	1,353.22	1,119.46	1,131.42
10/1/2011	12/31/2011	1,285.09	1,099.23	1,257.60
1/1/2012	3/31/2012	1,416.51	1,277.06	1,408.47
4/1/2012	6/30/2012	1,419.04	1,278.04	1,362.16
7/1/2012	9/30/2012	1,465.77	1,334.76	1,440.67
10/1/2012	12/31/2012	1,461.40	1,353.33	1,426.19
1/1/2013	3/31/2013	1,569.19	1,457.15	1,569.19
4/1/2013	6/30/2013	1,669.16	1,541.61	1,606.28
7/1/2013	9/30/2013	1,725.52	1,614.08	1,681.55
10/1/2013	12/31/2013	1,848.36	1,655.45	1,848.36
1/1/2014	3/31/2014	1,878.04	1,741.89	1,872.34
4/1/2014	6/30/2014	1,962.87	1,815.69	1,960.23
7/1/2014	9/30/2014	2,011.36	1,909.57	1,972.29
10/1/2014	12/31/2014	2,090.57	1,862.49	2,058.90
1/1/2015	3/31/2015	2,117.39	1,992.67	2,067.89
4/1/2015	6/30/2015	2,130.82	2,057.64	2,063.11
7/1/2015	9/30/2015	2,128.28	1,867.61	1,920.03
10/1/2015	12/31/2015	2,109.79	1,923.82	2,043.94
1/1/2016	3/31/2016	2,063.95	1,829.08	2,059.74
4/1/2016	6/30/2016	2,119.12	2,000.54	2,098.86
7/1/2016	9/30/2016	2,190.15	2,088.55	2,168.27
10/1/2016	12/31/2016	2,271.72	2,085.18	2,238.83
1/1/2017	3/31/2017	2,395.96	2,257.83	2,362.72
4/1/2017	6/30/2017	2,453.46	2,328.95	2,423.41
7/1/2017	9/30/2017	2,519.36	2,409.75	2,519.36
10/1/2017	12/31/2017	2,690.16	2,529.12	2,673.61
1/1/2018	3/28/2018	2,872.87	2,581.00	2,640.87
4/1/2018	6/30/2018	2,786.85	2,581.88	2,718.37
7/1/2018	9/30/2018	2,930.75	2,713.22	2,913.98
10/1/2018	10/10/2018*	2,925.51	2,785.68	2,785.68

* This pricing supplement includes information for the fourth calendar quarter of 2018 for the period from October 1, 2018 through October 10, 2018. Accordingly, the “Quarterly Closing High,” “Quarterly Closing Low” and “Quarterly Period-End Close” data indicated are for this shortened period only and do not reflect complete data for the fourth calendar quarter of 2018.

The graph below illustrates the performance of this Underlying Index from October 10, 2008 to October 10, 2018, based on its Initial Level of 2,785.68, which was its closing level on October 10, 2018. The solid line represents its Downside Threshold of 1,949.97, which is 70.00% of its Initial Level (rounded to two decimal places).

nDownside Threshold = 70% of its Initial Level

HISTORIC PERFORMANCE IS NOT AN INDICATION OF FUTURE PERFORMANCE

Source: Bloomberg L.P. We have not independently verified the accuracy or completeness of the information obtained from Bloomberg L.P.

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The Russell 2000® Index

The RTY was developed by Russell Investments (“Russell”) before FTSE International Limited (“FTSE”) and Russell combined in 2015 to create FTSE Russell, which is wholly owned by London Stock Exchange Group. Russell began dissemination of the RTY (Bloomberg L.P. index symbol “RTY”) on January 1, 1984. The RTY was set to 135 as of the close of business on December 31, 1986. FTSE Russell (the “index sponsor”) calculates and publishes the RTY. The RTY is designed to track the performance of the small capitalization segment of the U.S. equity market. As a subset of the Russell 3000® Index, the RTY consists of the smallest 2,000 companies included in the Russell 3000® Index. The Russell 3000® Index measures the performance of the largest 3,000 U.S. companies, representing approximately 98% of the investable U.S. equity market. The RTY is determined, comprised, and calculated by the index sponsor without regard to the Notes.

Selection of Stocks Underlying the RTY

All companies eligible for inclusion in the RTY must be classified as a U.S. company under the index sponsor’s country-assignment methodology. If a company is incorporated, has a stated headquarters location, and trades in the same country (American Depositary Receipts and American Depositary Shares are not eligible), then the company is assigned to its country of incorporation. If any of the three factors are not the same, the index sponsor defines three Home Country Indicators (“HCIs”): country of incorporation, country of headquarters, and country of the most liquid exchange (as defined by a two-year average daily dollar trading volume) (“ADDTV”) from all exchanges within a country. Using the HCIs, the index sponsor compares the primary location of the company’s assets with the three HCIs. If the primary location of its assets matches any of the HCIs, then the company is assigned to the primary location of its assets. If there is insufficient information to determine the country in which the company’s assets are primarily located, the index sponsor will use the primary country from which the company’s revenues are primarily derived for the comparison with the three HCIs in a similar manner. The index sponsor uses the average of two years of assets or revenues data to reduce potential turnover. If conclusive country details cannot be derived from assets or revenues data, the index sponsor will assign the company to the country of its headquarters, which is defined as the address of the company’s principal executive offices, unless that country is a Benefit Driven Incorporation “BDI” country, in which case the company will be assigned to the country of its most liquid stock exchange. BDI countries include: Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Bonaire, British Virgin Islands, Cayman Islands, Channel Islands, Cook Islands, Curacao, Faroe Islands, Gibraltar, Guernsey, Isle of Man, Jersey, Liberia, Marshall Islands, Panama, Saba, Sint Eustatius, Sint Maarten, and Turks and Caicos Islands. For any companies incorporated or headquartered in a U.S. territory, including countries such as Puerto Rico, Guam, and U.S. Virgin Islands, a U.S. HCI is assigned.

All securities eligible for inclusion in the RTY must trade on a major U.S. exchange. Stocks must have a closing price at or above \$1.00 on their primary exchange on the last trading day in May to be eligible for inclusion during annual reconstitution. However, in order to reduce unnecessary turnover, if an existing member’s closing price is less than \$1.00 on the last day of May, it will be considered eligible if the average of the daily closing prices (from its primary exchange) during the month of May is equal to or greater than \$1.00. Initial public offerings are added each quarter and must have a closing price at or above \$1.00 on the last day of their eligibility period in order to qualify for index inclusion. If an existing stock does not trade on the “rank day” (typically the last trading day in May, but a confirmed timetable is announced each Spring) but does have a closing price at or above \$1.00 on another eligible U.S. exchange, that stock will be eligible for inclusion.

An important criterion used to determine the list of securities eligible for the RTY is total market capitalization, which is defined as the market price as of the last trading day in May for those securities being considered at annual reconstitution times the total number of shares outstanding. Where applicable, common stock, non-restricted exchangeable shares and partnership units/membership interests are used to determine market capitalization. Any other form of shares such as preferred stock, convertible preferred stock, redeemable shares, participating preferred stock, warrants and rights, installment receipts or trust receipts, are excluded from the calculation. If multiple share classes of common stock exist, they are combined. In cases where the common stock share classes act independently of each other (e.g., tracking stocks), each class is considered for inclusion separately. If multiple share classes exist, the pricing vehicle will be designated as the share class with the highest two-year trading volume as of the rank day in May.

Companies with a total market capitalization of less than \$30 million are not eligible for the RTY. Similarly, companies with only 5% or less of their shares available in the marketplace are not eligible for the RTY. Royalty trusts, limited liability companies, closed-end investment companies (companies that are required to report Acquired Fund Fees and Expenses, as defined by the SEC, including business development companies), blank check companies, special-purpose acquisition companies, and limited partnerships are also not eligible for inclusion in the Russell U.S. Indices. Exchange traded funds and mutual funds are also excluded. Bulletin board, pink-sheets, and over-the-counter (“OTC”) traded securities are not eligible for inclusion.

Annual reconstitution is a process by which the RTY is completely rebuilt. On the rank last trading day of May, all eligible securities are ranked by their total market capitalization. The largest 4,000 become the Russell 3000E Index, and the other of the index sponsor’s indexes are determined from that set of securities. Reconstitution of the RTY occurs on the last Friday in June or, when the last Friday in June is the 29th or 30th, reconstitution occurs on the prior Friday. In addition, the index sponsor adds initial public offerings to the RTY on a quarterly basis based on total market capitalization guidelines ranking within the market-adjusted capitalization breaks established during the most recent reconstitution.

After membership is determined, a security’s shares are adjusted to include only those shares available to the public. This is often referred to as “free float.” The purpose of the adjustment is to exclude from market calculations the capitalization that is not available for purchase and is not part of the investable opportunity set.

License Agreement

FTSE Russell and Royal Bank of Canada have entered into a non-exclusive license agreement providing for the license to Royal Bank of Canada, and certain of its affiliates, in exchange for a fee, of the right to use indices owned and published by FTSE Russell in connection with some securities, including the Notes.

FTSE Russell does not guarantee the accuracy and/or the completeness of the RTY or any data included in the RTY and has no liability for any errors, omissions, or interruptions in the RTY. FTSE Russell makes no warranty, express or implied, as to results to be obtained by the calculation agent, holders of the Notes, or any other person or entity from the use of the RTY or any data included in the RTY in connection with the rights licensed under the license agreement described in this document or for any other use. FTSE Russell makes no express or implied warranties, and hereby expressly disclaims all warranties of merchantability or fitness for a particular purpose with respect to the RTY or any data included in the RTY. Without limiting any of the above information, in no event will FTSE Russell have any liability for any special, punitive, indirect or consequential damages, including lost profits, even if notified of the possibility of these damages.

The Notes are not sponsored, endorsed, sold or promoted by FTSE Russell. FTSE Russell makes no representation or warranty, express or implied, to the owners of the Notes or any member of the public regarding the advisability of investing in securities generally or in the Notes particularly or the ability of the RTY to track general stock market performance or a segment of the same. FTSE Russell's publication of the RTY in no way suggests or implies an opinion by FTSE Russell as to the advisability of investment in any or all of the stocks upon which the RTY is based. FTSE Russell's only relationship to Royal Bank of Canada is the licensing of certain trademarks and trade names of FTSE Russell and of the RTY, which is determined, composed and calculated by FTSE Russell without regard to Royal Bank of Canada or the Notes. FTSE Russell is not responsible for and has not reviewed the Notes nor any associated literature or publications and FTSE Russell makes no representation or warranty express or implied as to their accuracy or completeness, or otherwise. FTSE Russell reserves the right, at any time and without notice, to alter, amend, terminate or in any way change the RTY. FTSE Russell has no obligation or liability in connection with the administration, marketing or trading of the Notes.

"Russell 2000" and "Russell 3000" are registered trademarks of FTSE Russell in the U.S. and other countries.

Historical Information

The following table sets forth the quarterly high, low and period-end closing levels of the RTY, as reported by Bloomberg L.P. The historical performance of the RTY should not be taken as an indication of future performance. We cannot give you assurance that the performance of the RTY will result in the return of any of your initial investment.

Quarter Begin	Quarter End	Quarterly Closing High	Quarterly Closing Low	Quarterly Period-End Close
1/01/2008	3/31/2008	753.554	643.966	687.967
4/01/2008	6/30/2008	763.266	686.073	689.659
7/01/2008	9/30/2008	754.377	657.718	679.583
10/01/2008	12/31/2008	671.590	385.308	499.453
1/01/2009	3/31/2009	514.710	343.260	422.748
4/01/2009	6/30/2009	531.680	429.158	508.281
7/01/2009	9/30/2009	620.695	479.267	604.278
10/01/2009	12/31/2009	634.072	562.395	625.389
1/01/2010	3/31/2010	690.303	586.491	678.643
4/01/2010	6/30/2010	741.922	609.486	609.486
7/01/2010	9/30/2010	677.642	590.034	676.139
10/01/2010	12/31/2010	792.347	669.450	783.647
1/03/2011	3/31/2011	843.549	773.184	843.549
4/01/2011	6/30/2011	865.291	777.197	827.429
7/01/2011	9/30/2011	858.113	643.421	644.156
10/03/2011	12/30/2011	765.432	609.490	740.916
1/02/2012	3/30/2012	846.129	747.275	830.301
4/02/2012	6/29/2012	840.626	737.241	798.487
7/02/2012	9/28/2012	864.697	767.751	837.450
10/01/2012	12/31/2012	852.495	769.483	849.350
1/01/2013	3/29/2013	953.068	872.605	951.542
4/01/2013	6/28/2013	999.985	901.513	977.475
7/01/2013	9/30/2013	1,078.409	989.535	1,073.786
10/01/2013	12/31/2013	1,163.637	1,043.459	1,163.637
1/01/2014	3/31/2014	1,208.651	1,093.594	1,173.038
4/01/2014	6/30/2014	1,192.964	1,095.986	1,192.964
7/01/2014	9/30/2014	1,208.150	1,101.676	1,101.676
10/01/2014	12/31/2014	1,219.109	1,049.303	1,204.696
1/02/2015	3/31/2015	1,266.373	1,154.709	1,252.772
4/01/2015	6/30/2015	1,295.799	1,215.417	1,253.947
7/1/2015	9/30/2015	1,273.328	1,083.907	1,100.688
10/01/2015	12/31/2015	1,204.159	1,097.552	1,135.889
1/04/2016	3/31/2016	1,114.028	953.715	1,114.028
4/01/2016	6/30/2016	1,188.954	1,089.646	1,151.923
7/01/2016	9/30/2016	1,263.438	1,139.453	1,251.646
10/01/2016	12/31/2016	1,388.073	1,156.885	1,357.130
1/01/2017	3/31/2017	1,413.635	1,345.598	1,385.920
4/1/2017	6/30/2017	1,425.985	1,345.244	1,415.359
7/1/2017	9/30/2017	1,490.861	1,356.905	1,490.861
10/1/2017	12/31/2017	1,548.926	1,464.095	1,535.511
1/1/2018	3/28/2018	1,610.706	1,463.793	1,529.427
4/1/2018	6/30/2018	1,706.985	1,492.531	1,643.069