ROYAL BANK OF CANADA
Form FWP
April 01, 2019

ISSUER FREE WRITING PROSPECTUS
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Registration Statement No. 333-227001
Dated April 1, 2019
Royal Bank of Canada Trigger Absolute Return Step Securities
$• Securities Linked to a Basket of Six Equity Indices, due on or about April 30, 2024

Investment Description

Trigger Absolute Return Step Securities are unconditional, unsecured and unsubordinated debt securities issued by Royal Bank of Canada with returns linked to an unequally weighted basket (the "Underlying Basket") of six equity indices, consisting of the EURO STOXX 50® Index (40.00% weighting), the FTSE® 100 Index (20.00% weighting), Nikkei 225 Index (20.00% weighting), the Swiss Market Index (7.50% weighting), the S&P/ASX 200 Index (7.50% weighting), and the Hang Seng® Index (5.00% weighting) (each, an "Underlying Index"). If the Final Basket Level is greater than or equal to the Step Barrier, we will pay the principal amount at maturity plus a return equal to the greater of (i) the Step Return and (ii) the Underlying Return. If the Final Basket Level is equal to or greater than the Downside Threshold but less than the Initial Basket Level, we will pay the principal amount at maturity and a return equal to the absolute value of the Underlying Return (the "Contingent Absolute Return"). If the Final Basket Level is less than the Downside Threshold, we will pay less than the full principal amount at maturity, if anything, resulting in a loss of principal that is proportionate to the negative Underlying Return. The Securities 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 Securities involves significant risks. The Securities do not pay dividends or interest. You may lose some or all of your principal amount. The Step Payment, the Contingent Absolute Return and the contingent repayment of principal apply only if you hold the Securities to maturity. Any payment on the Securities 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 Securities and you could lose your entire investment. The Securities will not be listed on any securities exchange.

Features Key Dates[1]

Step Return with Upside Participation: At maturity, we will pay you the principal amount plus a minimum return of 41.00% - 45.65% (to be determined on the Trade Date), which we call the "Step Return," as long as the value of the Underlying Basket does not close below the Step Barrier on the Final Valuation Date, with participation in any positive Index Return above the Step Return.

Absolute Return Above the Downside Threshold — If the Underlying Return is less than or equal to zero but the Final Basket Level is greater than or equal to the Downside Threshold, we will pay the principal amount at maturity plus a return equal to the product of (i) the principal amount multiplied by (ii) the Contingent Absolute Return.

Downside Exposure— If the Underlying Return is negative and the Final Basket Level is less than the Downside Threshold, we will pay you less than the full principal amount at maturity, resulting in a loss of principal that is proportionate to the negative Underlying Return. Accordingly, you may lose some or all of the principal amount. Any payment on the Securities is subject to our creditworthiness.

Trade Date[1]	April 26, 2019
Settlement Date[1]	April 30, 2019
Final Valuation Date[2]	April 26, 2024
Maturity Date[2]	April 30, 2024

[1] Expected. If we make any change to the expected Trade Date and Settlement Date, the Final Valuation Date and Maturity Date will be changed so that the stated term of the Securities remains approximately the same.

[2] Subject to postponement if a market disruption event occurs, as described under "General Terms of the Securities – Payment at Maturity" in the accompanying product prospectus supplement UBS-IND-1.

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

YOU SHOULD CAREFULLY CONSIDER THE RISKS DESCRIBED UNDER “KEY RISKS” BEGINNING ON PAGE 5 OF THIS FREE WRITING PROSPECTUS AND UNDER ”RISK FACTORS” BEGINNING ON PAGE PS-3 OF THE ACCOMPANYING PRODUCT PROSPECTUS SUPPLEMENT BEFORE PURCHASING ANY SECURITIES. EVENTS RELATING TO ANY OF THOSE RISKS, OR OTHER RISKS AND UNCERTAINTIES, COULD ADVERSELY AFFECT THE MARKET VALUE OF, AND THE RETURN ON, YOUR SECURITIES. YOU COULD LOSE SOME OR ALL OF THE PRINCIPAL AMOUNT.

Security Offering

We are offering Trigger Absolute Return Step Securities Linked to an unequally weighted basket of six equity indices. The expected Step Return is listed below. The Securities are offered at a minimum investment of 100 Securities at the Price to Public described below.

Underlying Indices with Weightings	Bloomberg Symbols	Step Return	Step Barrier	Downside Threshold	CUSIP	ISIN
EURO STOXX 50® Index (40.00%)	SX5E	41.00% - 45.65% (to be determined on the Trade Date).	100% of the Initial Basket Level	70% of the Initial Basket Level	78014H540	US78014H5404
FTSE® 100 Index (20.00%)	UKX					
Nikkei 225 Index (20.00%)	NKY					
Swiss Market Index (7.50%)	SMI					
S&P/ASX 200 Index (7.50%)	AS51					
Hang Seng® Index (5.00%)	HSI					

See “Additional Information About Royal Bank of Canada and the Securities” in this free writing prospectus. The Securities will have the terms specified in the prospectus dated September 7, 2018, the prospectus supplement dated September 7, 2018, product prospectus supplement UBS-IND-1 dated September 7, 2018 and this free writing prospectus.

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

	Price to Public		Fees and Commissions[(1)]		Proceeds to Us	
Offering of the Securities	Total	Per Security	Total	Per Security	Total	Per Security
Securities Linked to a basket of six equity indices	$10.00		$0.35		$9.65	

(1) UBS Financial Services Inc., which we refer to as UBS, will receive a commission that will depend on market conditions on the Trade Date. In no event will the commission received by UBS exceed $0.35 per $10 in principal amount. See "Supplemental Plan of Distribution (Conflicts of Interest)" below.

The initial estimated value of the Securities as of the Trade Date is expected to be between $9.2827 and $9.4827 per $10 in principal amount, and will be less than the price to public. The pricing supplement relating to the Securities will set forth our estimate of the initial value of the Securities as of the Trade Date. The actual value of the Securities 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 Securities" below.

The Securities 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 Securities

Royal Bank of Canada has filed a registration statement (including a prospectus) with the Securities and Exchange Commission, or SEC, for the offering to which this free writing prospectus relates. Before you invest, you should read the prospectus in that registration statement and the other documents relating to this offering that Royal Bank of Canada has filed with the SEC for more complete information about Royal Bank of Canada and this offering. You may obtain these documents without cost by visiting EDGAR on the SEC website at www.sec.gov. Alternatively, Royal Bank of Canada, any agent or any dealer participating in this offering will arrange to send you the prospectus, the prospectus supplement, product prospectus supplement UBS-IND-1 and this free writing prospectus if you so request by calling toll-free 1-877-688-2301.

You may revoke your offer to purchase the Securities at any time prior to the time at which we accept such offer by notifying the applicable agent. We reserve the right to change the terms of, or reject any offer to purchase, the Securities prior to their issuance. In the event of any changes to the terms of the Securities, we will notify you and you will be asked to accept such changes in connection with your purchase. You may also choose to reject such changes, in which case we may reject your offer to purchase.

You should read this free writing prospectus together with the prospectus dated September 7, 2018, as supplemented by the prospectus supplement dated September 7, 2018, relating to our senior global medium-term notes, Series H, of which these Securities are a part, and the more detailed information contained in product prospectus supplement UBS-IND-1 dated September 7, 2018. This free writing prospectus, together with the documents listed below, contains the terms of the Securities 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. You should carefully consider, among other things, the matters set forth in “Risk Factors” in the accompanying product prospectus supplement UBS-IND-1, as the Securities involve risks not associated with conventional debt securities.

If the terms discussed in this free writing prospectus differ from those discussed in the product prospectus supplement, 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):

- Product prospectus supplement UBS-IND-1 dated September 7, 2018:
  https://www.sec.gov/Archives/edgar/data/1000275/000114036118038046/form424b5.htm

- 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 free writing prospectus, “we,” “us” or “our” refers to Royal Bank of Canada.

Investor Suitability

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

- You fully understand the risks inherent in an investment in the Securities, including the risk of loss of your entire initial investment.
- You can tolerate the loss of all or a substantial portion of the principal amount of the Securities and are willing to make an investment that may have the full downside market risk as a hypothetical investment in the Underlying Basket.
- You seek an investment with a return linked to the performance of the Underlying Basket and believe the Final Basket Level is likely to be at or above the Step Barrier on the Final Valuation Date.
- You understand and accept that your potential positive return from the Contingent Absolute Return feature is limited by the Downside Threshold.
- You would be willing to invest in the Securities if the Step Return is set to the bottom of the range indicated on the cover page of this document (the actual Step Return will be determined on the Trade Date).
- You can tolerate fluctuations in the price of the Securities prior to maturity that may be similar to or exceed the downside fluctuations in the value of the Underlying Basket.
- You do not seek current income from your investment and are willing to forgo dividends paid on the securities represented by the Underlying Indices.
- You are willing to hold the Securities to maturity and accept that there may be little or no secondary market for the Securities.
- You understand and accept the risks associated with the Underlying Indices.
- You are willing to assume our credit risk for all payments under the Securities, and understand that if we default on our obligations, you may not receive any amounts due to you, including any repayment of principal.

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

- You do not fully understand the risks inherent in an investment in the Securities, including the risk of loss of your entire initial investment.
- You require an investment designed to provide a full return of principal at maturity.
- You cannot tolerate the loss of all or a substantial portion of the principal amount of the Securities, and you are not willing to make an investment that may have the full downside market risk as a hypothetical investment in the Underlying Basket.
- You believe that the Final Basket Level is unlikely to be at or above the Step Barrier on the Final Valuation Date.
- You believe the Underlying Basket will depreciate from the Initial Basket Level over the term of the Securities and is likely to close below the Downside Threshold on the Final Valuation Date.
- You do not understand and accept that your potential positive return from the Contingent Absolute Return feature is limited by the Downside Threshold.
- You would be unwilling to invest in the Securities if the Step Return is set to the bottom of the range indicated on the cover page of this document (the actual Step Return will be determined on the Trade Date).
- You cannot tolerate fluctuations in the price of the Securities prior to maturity that may be similar to or exceed the downside fluctuations in the value of the Underlying Basket.
- You seek current income from this investment or prefer to receive the dividends paid on the securities represented by the Underlying Indices.
- You are unable or unwilling to hold the Securities to maturity or you seek an investment for which there will be an active secondary market.
- You do not understand and accept the risks associated with the Underlying Indices.
- You are not willing to assume our credit risk for all payments under the Securities, including any repayment of principal.

The suitability considerations identified above are not exhaustive. Whether or not the Securities 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 Securities in light of your particular circumstances. You should also review carefully the “Key Risks”

in this free writing prospectus and "Risk Factors" in the accompanying product prospectus supplement UBS-IND-1 for risks related to an investment in the Securities. In addition, you should review carefully the section below, "Information About the Underlying Indices," for more information about the Underlying Indices.

Indicative Terms of the Securities[1]

Issuer:	Royal Bank of Canada
Issue Price:	$10 per Security (subject to a minimum purchase of 100 Securities).
Principal Amount:	$10 per Security.
Term[2]:	Approximately five years
Underlying Basket:	An unequally weighted basket consisting of the following equity indices:

Underlying Indices	Bloomberg Symbols	Component Weightings	Initial Levels
EURO STOXX 50® Index	SX5E	40.00%	
FTSE® 100 Index	UKX	20.00%	
Nikkei 225 Index	NKY	20.00%	
Swiss Market Index	SMI	7.50%	
S&P/ASX 200 Index	AS51	7.50%	
Hang Seng® Index	HSI	5.00%	

Payment at Maturity (per $10 Security):	If the Underlying Return is zero or positive, we will pay you: $10 + $10 × (the greater of: (a) the Step Return and (b) the Underlying Return); If the Underlying Return is negative, but the Final Basket Level is greater than or equal to the Downside Threshold, we will pay you: $10 + ($10 x Contingent Absolute Return) In this scenario, you will receive a 1% positive return on the Securities for each 1% negative return on the Underlying Basket. If the Underlying Return is negative and the Final Basket Level is less than the Downside Threshold, we will pay you a cash payment that is less than the principal amount, resulting in a loss of principal that is proportionate to the negative Underlying Return, calculated as follows: $10 + ($10 × Underlying Return) In this scenario, you will lose some or all of the principal amount, in an amount proportionate to the negative Underlying Return.
Underlying Return:	$\frac{\text{Final Basket Level} - \text{Initial Basket Level}}{\text{Initial Basket Level}}$
Contingent Absolute Return:	The absolute value of the Underlying Return. For example, if the Underlying Return is -5%, the Contingent Absolute Return will be equal to 5%.
Downside Threshold:	70, which is 70% of the Initial Basket Level
Step Barrier:	100, which is 100% of the Initial Basket Level
Step Return:	41.00% - 45.65% (to be determined on the Trade Date).

To be set to 100 on the Trade Date.

Initial Basket Level:	
Final Basket Level:	10 x [1 + (the sum of the Index Return of each Underlying Index multiplied by its Component Weighting)]
Index Return of Each Underlying Index:	The Index Return with respect to each Underlying Index reflects the performance of that Underlying Index, calculated as follows: Final Level – Initial Level Initial Level
Initial Level:	With respect to each Underlying Index, the Index Closing Level of that Underlying Index on the Trade Date, as indicated in the table above.
Final Level:	With respect to each Underlying Index, the Index Closing Level of that Underlying Index on the Final Valuation Date. If there is a market disruption event as to an Underlying Index on the Final Valuation Date, or if that date is not a trading day as to an Underlying Index, only the determination of the Final Level for that Underlying Index will be postponed, as set forth in the product prospectus supplement.

Investment Timeline

Trade Date:	The Initial Step Return is determined.
Maturity Date:	The Final Level and the Index Return of each Underlying Index, the Final Basket Level and the Underlying Return are determined. If the Final Basket Level is greater than or equal to the Step Barrier, we will pay you a cash payment per Security equal to: $10 + [$10 × (the greater of (i) the Step Return and (ii) the Underlying Return)] If the Final Basket Level is less than the Initial Basket Level, but greater than or equal to the Downside Threshold, we will pay you a cash payment equal to: $10 + ($10 × Contingent Absolute Return); If the Final Basket Level is less than the Downside Threshold, we will pay you a cash payment that is less than the principal amount, calculated as follows: $10 + ($10 x Underlying Return) In this scenario, you will lose some or all of the principal amount, in an amount proportionate to the negative Underlying Return.

Investing in the Securities involves significant risks. You may lose SOME OR ALL of your principal amount. Any payment on the Securities, 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 Securities and you could lose your entire iNVESTMENT.

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

[2] In the event we make any change to the expected Trade Date and Settlement Date, the Final Valuation Date and Maturity Date will be changed to ensure that the stated term of the Securities remains approximately the same.

Key Risks

An investment in the Securities involves significant risks. Investing in the Securities is not equivalent to investing directly in any of the component securities of the Underlying Indices. These risks are explained in more detail in the "Risk Factors" section of the accompanying product prospectus supplement UBS-IND-1. We also urge you to consult your investment, legal, tax, accounting and other advisors before investing in the Securities.

- Your Investment in the Securities May Result in a Loss of Principal: The Securities differ from ordinary debt securities in that we are not necessarily obligated to repay the full principal amount of the Securities at maturity. The return on the Securities at maturity is linked to the performance of the Underlying Basket and will depend on whether, and the extent to which, the Underlying Return is positive or negative. If the Final Basket Level is less than the Downside Threshold, the Contingent Absolute Return feature will no longer be available, you will be fully exposed to any negative Underlying Return and we will pay you less than your principal amount at maturity, resulting in a loss proportionate to the decrease in the value of the Underlying Basket from the Initial Basket Level to the Final Basket Level. Accordingly, you could lose the entire principal amount of the Securities.
- The Step Return and the Contingent Absolute Return Apply Only if You Hold the Securities to Maturity: You should be willing to hold the Securities to maturity. If you are able to sell your Securities in the secondary market, the price you receive will likely not reflect the full economic value of the Step Return or the Securities themselves, and the return you realize may be less than the Underlying Basket's return at the time of sale even if that return is positive.
- The Contingent Repayment of Principal Applies Only if You Hold the Securities to Maturity: The contingent repayment of principal only applies at maturity. If you are able to sell your Securities prior to maturity in the secondary market, you may have to sell them at a loss even if the value of the Underlying Basket is above the Downside Threshold at the time of sale.
- The Potential for a Positive Return if the Underlying Basket Depreciates is Limited: Any positive return on the Securities if the Underlying Basket depreciates will be limited by the Downside Threshold, because the Contingent Absolute Return feature will apply only if the Final Basket Level is greater than or equal to the Downside Threshold. If the Final Basket Level is less than the Downside Threshold, you will not receive a Contingent Absolute Return and will instead lose some or all of your investment.
- No Interest Payments: We will not pay any interest with respect to the Securities.
- An Investment in the Securities Is Subject to Our Credit Risk: The Securities are our unsubordinated, unsecured debt obligations of the issuer, and are not, either directly or indirectly, an obligation of any third party. Any payment to be made on the Securities, including any repayment of principal at maturity, depends on our ability to satisfy our obligations as they come due. As a result, our actual and perceived creditworthiness may affect the market value of the Securities and, in the event we were to default on our obligations, you may not receive any amounts owed to you under the terms of the Securities and you could lose your entire initial investment.
- The Securities Will Be Subject to Risks, Including Non-Payment in Full, Under Canadian Bank Resolution Powers: Under Canadian bank resolution powers, the Canada Deposit Insurance Corporation ("CDIC") may, in circumstances where we have ceased, or are about to cease, to be viable, assume temporary control or ownership over us and may be granted broad powers by one or more orders of the Governor in Council (Canada), including the power to sell or dispose of all or a part of our assets, and the power to carry out or cause us to carry out a transaction or a series of transactions the purpose of which is to restructure our business. See "Description of Debt Securities — Canadian Bank Resolution Powers" in the accompanying prospectus for a description of the Canadian bank resolution powers, including the bail-in regime. If the CDIC were to take action under the Canadian bank resolution powers with respect to us, holders of the Securities could be exposed to losses.
- Your Return on the Securities May Be Lower than the Return on a Conventional Debt Security of Comparable Maturity: The return that you will receive on the Securities, which could be negative, may be less than the return you could earn on other investments. Even if your return is positive, your return may be less than the return you could earn if you bought a conventional senior interest bearing debt security of ours with the same maturity date or if you were able to invest directly in the Underlying Indices or the securities included in the Underlying Indices. Your investment may not reflect the full opportunity cost to you when you take into account factors that affect the time value of money.
- Lack of Liquidity: The Securities will not be listed on any securities exchange. RBC Capital Markets, LLC

("RBCCM") intends to offer to purchase the Securities 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 Securities easily. Because other dealers are not likely to make a secondary market for the Securities, the price at which you may be able to trade your Securities is likely to depend on the price, if any, at which RBCCM is willing to buy the Securities.

- The Initial Estimated Value of the Securities Will Be Less than the Price to the Public: The initial estimated value of the Securities that will be set forth in the final pricing supplement for the Securities, will be less than the public offering price you pay for the Securities, does not represent a minimum price at which we, RBCCM or any of our other affiliates would be willing to purchase the Securities in any secondary market (if any exists) at any time. If you attempt to sell the Securities prior to maturity, their market value may be lower than the price you paid for them and the initial estimated value. This is due to, among other things, changes in the value of the Underlying Basket, the borrowing rate we pay to issue securities of this kind, and the inclusion in the price to the public of the underwriting discount, and our estimated profit and the costs relating to our hedging of the Securities. These factors, together with various credit, market and economic factors over the term of the Securities, are expected to reduce the price at which you may be able to sell the Securities in any secondary market and will affect the value of the Securities 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 Securities prior to maturity may be less than the price to public, as any such sale price would not be expected to include the underwriting discount and our estimated profit and the costs relating to our hedging of the Securities. In addition, any price at which you may sell the Securities is likely to reflect customary bid-ask spreads for similar trades. In addition to bid-ask spreads, the value of the Securities determined for any secondary market price is expected to be based on the secondary market rate rather than the internal borrowing rate used to price the Securities and determine the initial estimated value. As a result, the secondary price will be less than if the internal borrowing rate was used. The Securities are not designed to be short-term trading instruments. Accordingly, you should be able and willing to hold your Securities to maturity.
- Our Initial Estimated Value of the Securities Is an Estimate Only, Calculated as of the Time the Terms of the Securities Are Set: The initial estimated value of the Securities is based on the value of our obligation to make the payments on the Securities, together with the mid-market value of the derivative embedded in the terms of the Securities. See "Structuring the Securities" 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 Securities. These assumptions are based on certain forecasts about future events, which may prove to be incorrect. Other entities may value the Securities or similar securities at a price that is significantly different than we do.

The value of the Securities 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 Securities in any secondary market, if any, should be expected to differ materially from the initial estimated value of your Securities and the amount that may be paid at maturity.

- Changes in the Level of One or More of the Underlying Indices May Be Offset by Changes in the Level of One or More of the Other Underlying Indices: Changes in the levels of the Underlying Indices may not correlate with each other. At a time when the level of one of the Underlying Indices increases, the level of any other Underlying Indices may not increase as much or may even decline. Therefore, in calculating the Final Basket Level, an increase in the level of one of the Underlying Indices may be moderated, or more than offset, by a lesser increase or decline in the level of any other Underlying Indices. In addition, because the SX5E makes up 40% of the Underlying Basket, we expect that generally the market value of your Securities and your payment at maturity will depend to a greater extent on the performance of the SX5E than the performance of each of the other Underlying Indices. Further, high correlation of movements in the levels of the Underlying Indices during periods of negative returns among the Underlying Indices could have an adverse effect on any payment on the Securities.
- No Dividend Payments or Voting Rights: Investing in the Securities is not equivalent to investing directly in any of the component securities of an Underlying Index: As a holder of the Securities, you will not have voting rights or rights to receive cash dividends or other distributions or other rights that holders of the equity securities underlying an Underlying Index would have. Each Underlying Index is a price return index, and its Index Return excludes any cash dividend payments paid on its component stocks.
- An Investment in the Securities Is Subject to Risks Associated with Non-U.S. Securities Markets: The securities included in each Underlying Index have been issued by non-U.S. companies. An investment in securities linked to the value of non-U.S. equity securities involves particular risks. Non-U.S. securities markets may be more volatile than U.S. securities markets, and market developments may affect non-U.S. securities markets differently from the U.S. securities markets. Direct or indirect government intervention to stabilize these non-U.S. securities markets, as well as cross shareholdings among non-U.S. companies, may affect trading prices and volumes in those markets. Also, there is generally less publicly available information in the U.S. about non-U.S. companies than about those U.S. companies that are subject to the reporting requirements of the SEC, and non-U.S. companies are subject to accounting, disclosure, auditing and financial reporting standards and requirements that differ from those applicable to U.S. reporting companies.

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

- The Return on the Securities Will Not Be Adjusted for the Exchange Rates Related to the Underlying Indices: Although the equity securities that comprise each Underlying Index are traded in the foreign currencies, and your Securities are denominated in U.S. dollars, the amount payable on your Securities will not be adjusted for changes in the exchange rates between the U.S. dollar and the relevant foreign currencies. Therefore, if a relevant foreign currency appreciates or depreciates relative to the U.S. dollar over the term of the Securities, you will not receive any additional payment or incur any reduction in any payment on the Securities. Changes in exchange rates, however, may also reflect changes in the foreign economies that in turn may affect the level of an Underlying Index, and therefore the return on your Securities.
- Changes Affecting an Underlying Index: The policies of an index sponsor concerning additions, deletions and substitutions of the stocks included in the relevant Underlying Index and the manner in which the index sponsor takes account of certain changes affecting those stocks included in the relevant Underlying Index may adversely affect the level of that Underlying Index. The policies of an index sponsor with respect to the calculation of the relevant Underlying Index could also adversely affect the level of that Underlying Index. An index sponsor may discontinue or suspend calculation or dissemination of the relevant Underlying Index and has no obligation to consider your interests in the Securities when taking any action regarding the relevant Underlying Index. Any such actions could have an adverse effect on the value of the Securities and the amount that may be paid at maturity

Potential Conflicts: We and our affiliates play a variety of roles in connection with the issuance of the Securities, including hedging our obligations under the Securities. In performing these duties, the economic interests of the calculation agent and other affiliates of ours are potentially adverse to your interests as an investor in the Securities.

¨ Potentially Inconsistent Research, Opinions or Recommendations by RBCCM, UBS or Their Affiliates: RBCCM, UBS or their respective affiliates may publish research, express opinions or provide recommendations that are inconsistent with investing in or holding the Securities, and which may be revised at any time. Any such research, opinions or recommendations could affect the value of the Underlying Basket or the equity securities included in the Underlying Basket, and therefore the market value of the Securities.

¨ Uncertain Tax Treatment: Significant aspects of the tax treatment of an investment in the Securities are uncertain. You should consult your tax adviser about your tax situation.

¨ Potential Royal Bank of Canada and UBS Impact on Price: Trading or other transactions by Royal Bank of Canada, UBS and our respective affiliates in the equity securities included in the Underlying Basket or in futures, options, exchange-traded funds or other derivative products on the equity securities included in the Underlying Basket may adversely affect the market value of those equity securities and the value of the Underlying Basket and, therefore, the market value of the Securities.

¨ The Probability That the Value of the Underlying Basket Will Fall Below the Downside Threshold on the Final Valuation Date Will Depend on the Volatility of the Underlying Basket: "Volatility" refers to the frequency and magnitude of changes in the value of the Underlying Basket. Greater expected volatility with respect to the Underlying Basket reflects a higher expectation as of the Trade Date that the Underlying Basket could close below its Downside Threshold on the Final Valuation Date, resulting in the loss of some or all of your investment. However, the Underlying Basket's volatility can change significantly over the term of the Securities. The value of the Underlying Basket could fall sharply, which could result in a significant loss of principal.

¨ The Terms of the Securities at Issuance and Their Market Value Prior to Maturity Will Be Influenced by Many Unpredictable Factors: Many economic and market factors will influence the terms of the Securities at issuance and 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 Securities, including a combination of a bond with one or more options or other derivative instruments. For the market value of the Securities, we expect that, generally, the value of the Underlying Basket on any day will affect the value of the Securities more than any other single factor. However, you should not expect the value of the Securities in the secondary market to vary in proportion to changes in the value of the Underlying Basket. The value of the Securities will be affected by a number of other factors that may either offset or magnify each other, including:

- the actual or expected volatility of the Underlying Basket;
- the time remaining to maturity of the Securities;
- the dividend rates on the equity securities included in the Underlying Basket;

- interest and yield rates in the market generally, as well as in each of the markets of the equity securities included in the Underlying Basket;
- a variety of economic, financial, political, regulatory or judicial events; and
- our creditworthiness, including actual or anticipated downgrades in our credit ratings.

Some or all of these factors will influence the terms of the Securities at issuance, and the price you will receive if you choose to sell the Securities 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 Securities at a substantial discount from the principal amount if, for example, the value of the Underlying Basket is at, below or not sufficiently above, the Initial Basket Level.

Hypothetical Examples and Return Table at Maturity

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

The following table and hypothetical examples below illustrate the payment at maturity per $10 Security for a hypothetical range of Underlying Returns from -100.00% to +100.00, reflect the Downside Threshold of 70% of the Initial Basket Level, and are based on the Initial Basket Level of 100 and a Step Return of 41.00% (which is the low end of the Step Return range set forth on the cover page). The actual Step Return will be set on the Trade Date. The hypothetical Payment at Maturity examples set forth below are for illustrative purposes only and may not be the actual returns applicable to a purchaser of the Securities. The actual payment at maturity will be determined based on the Final Basket Level on the Final Valuation Date. You should consider carefully whether the Securities are suitable to your investment goals. The numbers appearing in the table below have been rounded for ease of analysis.

Example 1 – On the Final Valuation Date, the Underlying Basket closes 5% above the Initial Basket Level. Because the Underlying Return is positive, we will pay you an amount based upon the greater of the Underlying Return and Step Return, calculated as follows:

Underlying Return = (105– 100) / 100 = 5%

Payment at Maturity = $10 + [$10 x the greater of (i) 41.00% and (ii) 5%] = $14.10

Because the Final Basket Level is greater than or equal to the Step Barrier but the Underlying Return is less than the Step Return of 41.00%, the Payment at Maturity is equal to $14.10 per $10.00 Principal Amount of Securities, resulting in a total return on the Securities of 41.00%.

Example 2 – On the Final Valuation Date, the Underlying Basket closes 60% above the Initial Basket Level. Because the Underlying Return is positive, we will pay you an amount based upon the greater of the Underlying Return and Step Return, calculated as follows:

Underlying Return = (160 – 100) / 100 = 60%

Payment at Maturity = $10 + [$10 x the greater of (i) 41.00% and (ii) 60%] = $16.00

Because the Final Basket Level is greater than or equal to the Step Barrier but the Underlying Return is greater than the Step Return, the Payment at Maturity is equal to $16.00 per $10.00 Principal Amount of Securities, resulting in a total return on the Securities of 60%.

Example 3 – On the Final Valuation Date, the Underlying Basket closes 10% below the Initial Basket Level. Because the Underlying Return is negative and the Final Basket Level is greater than the Downside Threshold, the payment at maturity will be calculated as follows:

$10 + ($10 x 10.00%) = $10.00 + $1.00 = $11.00

Example 4 – On the Final Valuation Date, the Underlying Basket closes 40% below the Initial Basket Level. Because the Final Basket Level is less than the Downside Threshold, we will pay you at maturity a cash payment of $6.00 per $10 principal amount Security (a 40% loss on the principal amount), calculated as follows:

$10 + ($10 x -40%) = $10.00 - $4.00 = $6.00

Hypothetical Final Basket Level	Hypothetical Underlying Return*	Hypothetical Payment at Maturity ($)	Total Return on Securities (%)[1]
200.00	100.00%	$20.00	100.00%
175.00	75.00%	$17.50	75.00%
160.00	60.00%	$16.00	60.00%
150.00	50.00%	$15.00	50.00%
141.00	41.00%	$14.10	41.00%
140.00	40.00%	$14.10	41.00%
130.00	30.00%	$14.10	41.00%

120.00	20.00%	$14.10	41.00%
110.00	10.00%	$14.10	41.00%
100.00	0.00%	$14.10	41.00%
90.00	-10.00%	$11.00	10.00%
85.00	-15.00%	$11.50	15.00%
80.00	-20.00%	$12.00	20.00%
75.00	-25.00%	$12.50	25.00%
70.00	-30.00%	$13.00	-30.00%
60.00	-40.00%	$6.00	-40.00%
50.00	-50.00%	$5.00	-50.00%
25.00	-75.00%	$2.50	-75.00%
0.00	-100.00%	$0.00	-100.00%

* The Underlying Return excludes any cash dividend payments.

[1] The “total return” is the number, expressed as a percentage, that results from comparing the payment at maturity per $10.00 principal amount Security to the purchase price of $10.00 per Security.

What Are the Tax Consequences of the Securities?

U.S. Federal Income Tax Consequences

Set forth below, together with the discussion of U.S. federal income tax in the accompanying product prospectus supplement, prospectus supplement, and prospectus, is a summary of the material U.S. federal income tax consequences relating to an investment in the Securities. The following summary supplements and to the extent inconsistent with supersedes the discussion under the section entitled "Supplemental Discussion of U.S. Federal Income Tax Consequences" in the accompanying product prospectus supplement, the section entitled "Certain Income Tax Consequences" in the accompanying prospectus supplement, and the section entitled "Tax Consequences" in the accompanying prospectus, which you should carefully review prior to investing in the Securities.

In the opinion of our counsel, Morrison & Foerster LLP, it would generally be reasonable to treat a Security with terms described herein as a pre-paid cash-settled derivative contract in respect of the Underlying Basket for U.S. federal income tax purposes, and the terms of the Securities 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 Securities for all tax purposes in accordance with such characterization. If the Securities are so treated, a U.S. holder should generally recognize capital gain or loss upon the sale or maturity of the Securities in an amount equal to the difference between the amount a holder receives at such time and the holder's tax basis in the Securities. 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.

Alternative tax treatments are also possible and the Internal Revenue Service (the "IRS") might assert that a treatment other than that described above is more appropriate. In addition, the IRS has released a notice that may affect the taxation of holders of the Securities. According to the notice, the IRS and the U.S. Treasury Department are actively considering whether the holder of an instrument such as the Securities 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 Securities will ultimately be required to accrue income currently and this could be applied on a retroactive basis. The IRS 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 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.

Under Section 871(m) of the Code, a "dividend equivalent" payment is treated as a dividend from sources within the United States. Such payments generally would be subject to a 30% U.S. withholding tax if paid to a non-U.S. holder. Under U.S. Treasury Department regulations, payments (including deemed payments) with respect to equity-linked instruments ("ELIs") that are "specified ELIs" may be treated as dividend equivalents if such specified ELIs reference an interest in an "underlying security," which is generally any interest in an entity taxable as a corporation for U.S. federal income tax purposes if a payment with respect to such interest could give rise to a U.S. source dividend. However, the IRS has issued guidance that states that the U.S. Treasury Department and the IRS intend to amend the effective dates of the U.S. Treasury Department regulations to provide that withholding on dividend equivalent payments will not apply to specified ELIs that are not delta-one instruments and that are issued before January 1, 2021. Based on our determination that the Securities are not delta-one instruments, non-U.S. holders should not be subject to withholding on dividend equivalent payments, if any, under the Securities. However, it is possible that the Securities could be treated as deemed reissued for U.S. federal income tax purposes upon the occurrence of certain events affecting the Underlying Basket or the Securities (for example, upon an Underlying Index rebalancing), and following such occurrence the Securities 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 Basket or the Securities should consult their tax advisors as to the application of the dividend equivalent withholding tax in the context of the Securities 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 Securities.

The accompanying product prospectus supplement notes that FATCA withholding on payments of gross proceeds from a sale or redemption of the Securities will only apply to payments made after December 31, 2018. That discussion is modified to reflect regulations proposed by the U.S. Treasury Department in December 2018 indicating an intent to eliminate the requirement under FATCA of withholding on gross proceeds of the disposition of financial instruments. The U.S. Treasury Department has indicated that taxpayers may rely on these proposed regulations pending their finalization. Prospective investors are urged to consult with their own tax advisors regarding the possible implications of FATCA on their investment in the Securities.

Please see the discussion under the section entitled “Supplemental Discussion of U.S. Federal Income Tax Consequences” in the accompanying product prospectus supplement for a further discussion of the U.S. federal income tax consequences of an investment in the Securities.

Canadian Federal Income Tax Consequences

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

Information About the Underlying Indices

We have derived all information contained in this document regarding each Underlying Index, 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, its 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 the relevant Underlying Index. None of us, UBS or RBCCM accepts any responsibility for the calculation, maintenance or publication of any Underlying Index or any successor index.

The EURO STOXX 50® Index

The SX5E was created by STOXX, which is currently owned by Deutsche Börse AG. Publication of the SX5E began in February 1998, based on an initial SX5E level of 1,000 at December 31, 1991.

Composition and Maintenance

The SX5E is composed of 50 component stocks of market sector leaders from within the 19 EURO STOXX® Supersector indices, which represent the Eurozone portion of the STOXX Europe 600® Supersector indices.

The composition of the SX5E is reviewed annually, based on the closing stock data on the last trading day in August. The component stocks are announced on the first trading day in September. Changes to the component stocks are implemented on the third Friday in September and are effective the following trading day. Changes in the composition of the SX5E are made to ensure that the SX5E includes the 50 market sector leaders from within the SX5E.

The free float factors for each component stock used to calculate the SX5E, as described below, are reviewed, calculated, and implemented on a quarterly basis and are fixed until the next quarterly review.

The SX5E is also reviewed on an ongoing basis. Corporate actions (including initial public offerings, mergers and takeovers, spin-offs, delistings, and bankruptcy) that affect the SX5E composition are immediately reviewed. Any changes are announced, implemented, and effective in line with the type of corporate action and the magnitude of the effect.

Calculation of the SX5E

The SX5E is calculated with the "Laspeyres formula," which measures the aggregate price changes in the component stocks against a fixed base quantity weight. The formula for calculating the SX5E value can be expressed as follows:

$$\text{Index} = \frac{\text{Free float market capitalization of the index}}{\text{Adjusted base date market capitalization of the index}} \times 1{,}000$$

The "free float market capitalization of the SX5E" is equal to the sum of the products of the closing price, market capitalization, and free float factor for each component stock as of the time the SX5E is being calculated.

The SX5E is also subject to a divisor, which is adjusted to maintain the continuity of the SX5E values across changes due to corporate actions, such as the deletion and addition of stocks, the substitution of stocks, stock dividends, and stock splits.

License Agreement

We have entered into a non-exclusive license agreement with STOXX providing for the license to us and certain of our affiliated or subsidiary companies, in exchange for a fee, of the right to use indices owned and published by STOXX (including the SX5E) in connection with certain securities, including the Securities offered hereby.

The license agreement between us and STOXX requires that the following language be stated in this document:

STOXX has no relationship to us, other than the licensing of the SX5E and the related trademarks for use in connection with the Securities. STOXX does not:

- sponsor, endorse, sell, or promote the Securities;
- recommend that any person invest in the Securities offered hereby or any other securities;
- have any responsibility or liability for or make any decisions about the timing, amount, or pricing of the Securities;
- have any responsibility or liability for the administration, management, or marketing of the Securities; or
- consider the needs of the Securities or the holders of the Securities in determining, composing, or calculating the SX5E, or have any obligation to do so.

STOXX will not have any liability in connection with the Securities. Specifically:

- STOXX does not make any warranty, express or implied, and disclaims any and all warranty concerning:

the results to be obtained by the Securities, the holders of the Securities or any other person in connection with the use of the SX5E and the data included in the SX5E;

- the accuracy or completeness of the SX5E and its data;
- the merchantability and the fitness for a particular purpose or use of the SX5E and its data;
- STOXX will have no liability for any errors, omissions, or interruptions in the SX5E or its data; and
- Under no circumstances will STOXX be liable for any lost profits or indirect, punitive, special, or consequential damages or losses, even if STOXX knows that they might occur.

The licensing agreement between us and STOXX is solely for their benefit and our benefit, and not for the benefit of the holders of the Securities or any other third parties

Historical Information

The following graph sets forth the closing levels of the SX5E from January 1, 2009 through March 29, 2019, as reported by Bloomberg Financial Markets. The historical performance of the SX5E should not be taken as an indication of future performance. We cannot give you assurance that the performance of the SX5E will result in the return of any of your initial investment.

The FTSE® 100 Index

The FTSE® 100 Index (Bloomberg ticker "UKX Index") is a market capitalization-weighted index of the 100 most highly capitalized U.K.-listed blue chip companies traded on the London Stock Exchange. The FTSE® 100 Index was developed with a base level of 1,000 as of December 30, 1983. It is calculated, published and disseminated by FTSE International Limited ("FTSE"), a company owned by the London Stock Exchange Plc (the "Exchange"). Additional information on the FTSE® 100 Index is available from the following website: www.ftse.com/uk. We are not incorporating by reference the website or any material it includes in this document. FTSE is under no obligation to continue to publish the FTSE® 100 Index and may discontinue publication of the FTSE® 100 Index at any time.

The FTSE® 100 is a market capitalization-weighted index of the 100 most highly capitalized U.K.-listed blue chip companies traded on the London Stock Exchange. FTSE divides the 100 companies included in the FTSE® 100 Index into 19 sectors: Oil & Gas, Chemicals, Basic Resources, Construction & Materials, Industrial Goods & Services, Automobiles & Parts, Food & Beverage, Personal & Household Goods, Health Care, Retail, Media, Travel & Leisure, Telecommunications, Utilities, Banks, Insurance, Real Estate, Financial Services and Technology.

Index Composition and Selection Criteria

The FTSE® 100 Index consists of the 100 largest U.K.-listed blue chip companies, based on full market capitalization, that pass screening tests for price and liquidity. The FTSE® 100 Index is reviewed on a quarterly basis in March, June, September and December based on data from the close of business on the Tuesday before the first Friday of the review month. The FTSE Europe, Middle East & Africa Regional Advisory Committee (the "Committee"), meets quarterly to approve the constituents of the index. These meetings are held on the Wednesday before the first Friday in March, June, September and December. Any constituent changes are implemented after the close of business on the third Friday of the review month (i.e., effective Monday), following the expiration of the London International Financial Futures and Options Exchange futures and options contracts.

Eligibility Standards

Only "premium listed" equity shares, as defined by the Financial Conduct Authority in its Listing Rules Sourcebook, are eligible for inclusion in the FTSE® 100 Index. Eligible stocks must pass price and liquidity screens before being included in the index. Additionally, a stock must have a free float (as described below) of greater than 5%.

Price Screen — With regard to the price screen, the Committee must be satisfied that an accurate and reliable price exists for purposes of determining the market value of a company. To be eligible for inclusion in the FTSE® 100 Index, a stock must have a full listing on the London Stock Exchange with a Sterling-denominated price on SETS (SETS is the London Stock Exchange's trading service for UK blue chip securities).

Liquidity Screen — With regard to liquidity, each eligible stock is tested for liquidity annually in June by calculating its median daily trading per month. When calculating the median of daily trades per month of any security, a minimum of five trading days in each month must exist, otherwise the month is excluded from the test. Liquidity is tested from the first business day in May of the previous year to the last business day of April. The median trade is calculated by ranking each daily trade total and selecting the middle-ranking day. Any period of suspension is not included in the test. The liquidity test is applied on a pro-rata basis where the testing period is less than 12 months. A stock not presently included in the FTSE® 100 Index that does not turnover at least 0.025% of its shares in issue (after application of any investability weightings)

based on its median daily trade per month in at least ten of the 12 months prior to the annual index review in June will not be eligible for inclusion until the next annual review. An existing constituent failing to trade at least 0.015% of its shares in issue (after the application of any investability weightings) based on its median daily trade per month for at least eight of the 12 months prior to the annual index review will be removed from the FTSE® 100 Index and will not be eligible for inclusion until the next annual review. New issues will become eligible for inclusion in the index at the quarterly review following their issuance provided that they have a minimum trading record of at least 20 trading days prior to the review date and that they have turned over at least 0.025% of their shares in issue (after the application of any investability weightings) based on their median daily trade per month since listing.

Market Capitalization Ranking — Eligible stocks that pass the price and liquidity screens are ranked by the Committee according to their market capitalization before the application of any adjustments based on the extent to which the shares are publicly traded. Only the quoted equity capital of a constituent company will be included in the calculation of its market capitalization. Where a company has two or more classes of equity, secondary lines will be included in the calculation of the market capitalization of the company only if those lines are significant and liquid. The Committee will add a stock to the FTSE® 100 Index at the quarterly review if it has risen to 90th place or above on the full market capitalization rankings and will delete a stock at the quarterly review if it has fallen to 111th place or below on these rankings. Market capitalization rankings are calculated using data as of the close of business on the day before the review.

100 Constituent Limitation — The FTSE® 100 Index always contains 100 constituents. If a greater number of companies qualify to be inserted in the index than qualify to be removed, the lowest ranking constituents of the index will be removed so that the total number of stocks remains at 100 following inclusion of those that qualify to be inserted. Likewise, if a greater number of companies qualify to be removed than to be inserted at the quarterly review, securities of the highest ranking companies that are then not included in the FTSE® 100 Index will be inserted to match the number of companies being removed, in order to maintain the total at 100.

Index Calculation

The FTSE® 100 Index is a market capitalization weighted index. This means that the price movement of a larger company (that is, one representing larger percentage of the index) will have a greater effect on the level of the index than will the price movement of a smaller company (that is, one representing a smaller percentage of the index).

The value of the FTSE® 100 Index is represented by a fraction, (a) the numerator of which is the sum of the product of (i) the price of each component stock, (ii) the number of shares issued for each such component and (iii) a free float factor for each such component (described more fully below), and (b) the denominator of which is a divisor. The divisor represents the total issued share capital of the index on the base date; the divisor may be adjusted as necessary to allow for changes in issued share capital of individual securities without distorting the index.

As noted above, a free float factor is applied to each index component. By employing this approach, FTSE uses the investable market capitalization, not the total market capitalization, of each constituent to determine the value of the FTSE® 100 Index. Investable market capitalization depends on free float. The following are excluded from free float: shares directly owned by state, regional, municipal and local governments (excluding shares held by independently managed pension schemes for governments); shares held by sovereign wealth funds where each holding is 10% or greater of the total number of shares in issue (if the holding subsequently decreases below 10%, the shares will be excluded from free float until the holding falls below 7%); shares held by directors, senior executives and managers of the company, and by their family and direct relations, and by companies with which they are affiliated; shares held within employee share plans; shares held by public companies or by non-listed subsidiaries of public companies; shares held by founders, promoters, former directors, founding venture capital and private equity firms, private companies and individuals (including employees) where the holding is 10% or greater of the total number of shares in issue (if the holding subsequently decreases below 10%, the shares will be excluded from free float until the holding falls below 7%); all shares where the holder is subject to a lock-in clause (for the duration of that clause, after which free float changes resulting from the expiration of a lock-in clause will be implemented at the next quarterly review subsequent to there being a minimum of 20 business days between the expiration date of such lock-in clause and the index review date); shares held for publicly announced strategic reasons, including shares held by several holders acting in concert; and shares that are subject to ongoing contractual agreements (such as swaps) where they would ordinarily be treated as restricted.

The FTSE® 100 Index is recalculated whenever errors or distortions occur that are deemed to be significant. Users of the FTSE® 100 Index are notified through appropriate media.

Index Maintenance

The FTSE® 100 Index is reviewed quarterly for changes in free float. A stock's free float is also reviewed and adjusted if necessary following certain corporate events. Following a takeover or merger involving one or more index constituents, the free float restrictions will be based on restricted holdings in the successor company and will be implemented when the offer has completed (or lapsed) unless it directly reflects a corporate action independent of and not conditional on the takeover or merger completing or lapsing. If the corporate event includes another corporate action that affects the index, a change in free float is implemented at the same time as the corporate action. If there is no corporate action, the change in free float will be applied at the next quarterly review. Following the application of an initial free float restriction, a stock's free float will only be changed if its rounded free float moves more than three percentage points above or below the existing rounded free float. Companies with a free float of above 99% and of 15% or below will not be subject to the three percentage points threshold.

At each quarterly review, the Committee publishes a Reserve List containing the six highest ranking non-constituents of the FTSE® 100 Index. The Reserve List will be used in the event that one or more constituents are deleted from the index during the period up to the next quarterly review. If a merger or takeover results in one index constituent being absorbed by another constituent, the resulting company will remain a constituent and a vacancy will be created. This vacancy will be filled by selecting the highest ranking security in the Reserve List as at the close of the FTSE® 100 Index calculation two days prior to the deletion and related index adjustment. If an index constituent is taken over by a non-constituent company, the original constituent will be removed and replaced by the highest ranking non-constituent on the Reserve List. Any eligible company resulting from the takeover will be eligible to become the replacement company if it is ranked higher than any other company on the Reserve List. If a constituent company is split to form two or more companies, then the resulting companies will be eligible for inclusion as FTSE® 100 Index constituents, based on their respective full market capitalizations (before the application of any investability weightings), provided that they qualify in all other respects. Any eligible company resulting from a split that has no available market price after 20 business days will be removed. If a split results in the inclusion of an ineligible non-equity security, such security will remain in the FTSE® 100 Index for two trading days and then be removed. If a constituent is delisted or ceases to have a firm quotation, it will be removed from the list of constituents and be replaced by the

highest ranking eligible company from the Reserve List as at the close of the index calculation two days prior to the deletion.

Capitalization Adjustments

A premium listed secondary line of a company will be considered for index inclusion if its total market capitalization before the application of any adjustments based on the extent to which the shares are publicly traded, is greater than 25% of the total market capitalization of the company's principal line and the secondary line is eligible, in its own right. Should the total market capitalization of a secondary line fall below 20% of the total market capitalization of the company's principal line at an annual review, the secondary line will be deleted from the FTSE® 100 Index unless its total market capitalization remains above the qualification level for continued inclusion as a constituent of the FTSE® 100 Index at that review. Where a company has partly paid shares, these shares, together with the outstanding call(s), are both included in the FTSE® 100 Index. Warrants to purchase ordinary shares and convertible securities are not included in the FTSE® 100 Index until they are exercised or converted.

Share Weighting Changes — For the purposes of computing the FTSE® 100 Index, the number of shares in issue for each constituent security is expressed to the nearest share and, to prevent a large number of insignificant weighting changes, the number of shares in issue for each constituent security is amended only when the total shares in issue held within the index system changes by more than 1% on a cumulative basis. Changes will be made quarterly after the close of business on the third Friday of March, June, September and December. The data for these changes will be taken from the close of business on the third Wednesday of the month prior to the review month.

If a corporate action is applied to a constituent which involves a change in the number of shares in issue, the change in shares will be applied simultaneously with the corporate action. If accumulated changes in the number of shares in issue add up to 10% or more or when an accumulated share change represents $2 billion of a company's total market capitalization, they are implemented between quarters. If an adjustment is made, it will be applied for the first time at the next review in March of the following year. All adjustments are made before the start of the index calculation on the day concerned, unless market conditions prevent this.

Shares in Issue Increase — When a company increases the number of shares it has in issue, the market capitalization of that company increases and the total market capitalization will rise accordingly. The index divisor is adjusted to maintain a constant index value.

Weighting Amendments — The market capitalization of a company is adjusted to take account of various corporate actions. To prevent the value of the FTSE® 100 Index from changing due to such an event, all corporate actions which affect the market capitalization of the FTSE® 100 Index require an offsetting divisor adjustment. By adjusting the divisor, the value of the FTSE® 100 Index remains constant before and after the event. Below is a summary of the more frequent corporate actions and their resulting adjustment.

Type of Corporate Action	Adjustment	Adjustment to Divisor
Issue of new shares	Share weighting increased	Yes
Share repurchase	Share weighting decreased	Yes
Bonus issued or stock split	Share weighting multiplied by four. Share price divided by four	No

Rights Issues — A rights issue is where a company raises new capital by offering shareholders additional shares at a set ratio with a discount to the market price. The rights become attached to the shares on a set date—the ex-date. On this date, the price of the company's underlying shares will fall by the value of the rights. The effect of the rights issue is to increase the market capitalization of the company by the value of the additional shares created by the rights issue less the value of the fall in the share price. The share weighting of the company and index divisor are also adjusted to prevent the index falling in line with the reduction in the share price on the ex-date.

In the event that the market price is equal to or below the rights offer price at the close of business immediately before trading ex-dividend, no adjustments will be made. In this circumstance, any resulting new shares will only be added to the index weighting once the take-up proportion is known and together with any associated change to the company's free float. If the rights issue is highly dilutive and the ratio is greater than ten to one, FTSE will include the new shares on a separate temporary line to reflect the market value of the right (together with a temporary line fixed at the value of the outstanding rights subscription price) until the end of the subscription period, at which point the temporary lines will be deleted and the new shares will be merged into the existing share line. In the event the rights issue involves

non-equity and the value of the right cannot be determined, there will be no adjustment to the parent stock on the ex-date. The rights line will be included in the index at a value of zero on the ex-date (with no inclusion of the cash call value). If the rights line trades, it will be deleted at the market price after two days. If it does not trade, it will be deleted at a value of zero.

Market Disruption

If there is a system problem or situation in the market that is judged by FTSE to affect the quality of the constituent prices at any time when an index is being calculated, the index will be declared indicative (e.g. normally where a "fast market" exists in the equity market). The message "IND" will be displayed against the index value calculated by FTSE. The Committee must be satisfied that an accurate and reliable price for the purposes of determining the market value of a company exists. The Committee may exclude a security from the FTSE® 100 Index should it consider that an "accurate and reliable" price is not available.

If any event leads to an error in the index value of the FTSE® 100 Index that is greater than three basis points at the local country index level, then the FTSE® 100 Index will generally be recalculated, subject to discovery, within one month of the event. Where an alternative approach is available, FTSE may, at its sole discretion, choose not to recalculate.

License Agreement

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Historical Information

The following graph sets forth the closing levels of the UKX from January 1, 2009 through March 29, 2019, as reported by Bloomberg Financial Markets. The historical performance of the UKX should not be taken as an indication of future performance. We cannot give you assurance that the performance of the UKX will result in the return of any of your initial investment.

The Nikkei 225 Index

The NKY was developed by Nikkei Inc. and is calculated, maintained and published by Nikkei Digital Media, Inc. a wholly owned subsidiary of Nikkei Inc. The Nikkei 225 is reported by Bloomberg L.P. under the symbol "NKY." The NKY is a stock index that measures the composite price performance of selected Japanese stocks. The formal name of the NKY is the Nikkei Stock Average. The NKY is based on 225 underlying stocks (the "Nikkei Underlying Stocks") trading on the Tokyo Stock Exchange ("TSE") representing a broad cross-section of Japanese industries. All 225 Nikkei Underlying Stocks are stocks listed in the First Section of the TSE. Stocks listed in the First Section of the TSE are among the most actively traded stocks on the TSE. Nikkei Inc. rules require that the 75 most liquid issues (one-third of the component count of the NKY) be included in the NKY. Nikkei Inc. was first calculated and published the NKY in 1970; prior to 1970, the TSE calculated the NKY.

The 225 companies included in the NKY are divided into six sector categories: Technology, Financials, Consumer Goods, Materials, Capital Goods/Others and Transportation and Utilities. These six sector categories are further divided into 36 industrial classifications as follows:

- Technology — Pharmaceuticals, Electrical Machinery, Automobiles, Precision Machinery, Telecommunications;
- Financials — Banks, Miscellaneous Finance, Securities, Insurance;
- Consumer Goods — Marine Products, Food, Retail, Services;
- Materials — Mining, Textiles, Paper and Pulp, Chemicals, Oil, Rubber, Ceramics, Steel, Nonferrous Metals, Trading House;
- Capital Goods/Others — Constructions, Machinery, Shipbuilding, Transportation Equipment, Miscellaneous Manufacturing, Real Estate; and
- Transportation and Utilities — Railroads and Buses, Trucking, Shipping, Airlines, Warehousing, Electric Power, Gas.

Calculation of the NKY

The NKY is a modified, price-weighted index (i.e., a Nikkei Underlying Stock's weight in the NKY is based on its price per share rather than the total market capitalization of the issuer) which is calculated by (i) multiplying the per share price of each Nikkei Underlying Stock by the corresponding weighting factor for such Nikkei Underlying Stock (a "Weight Factor"), (ii) calculating the sum of all these products and (iii) dividing such sum by a divisor (the "Divisor"). The Divisor was initially set at 225 for the date of May 16, 1949 (the date on which the TSE was reopened after World War II) using historical numbers from that date. The Divisor is subject to periodic adjustments as set forth below. Each Weight Factor is computed by dividing ¥50 by the presumed par value of the relevant Nikkei Underlying Stock, so that the share price of each Nikkei Underlying Stock when multiplied by its Weight Factor corresponds to a share price based on a uniform par value of ¥50. The stock prices used in the calculation of the NKY are those reported by a primary market for the Nikkei Underlying Stocks (currently the TSE). The level of the NKY is calculated once every 15 seconds during TSE trading hours.

In order to maintain continuity in the NKY in the event of certain changes due to non-market factors affecting the Nikkei Underlying Stocks, such as the addition or deletion of stocks, substitution of stocks, stock splits or distributions of assets to stockholders, the Divisor used in calculating the NKY is adjusted in a manner designed to prevent any instantaneous change or discontinuity in the level of the NKY. Thereafter, the Divisor remains at the new value until a further adjustment is necessary as the result of another change. As a result of such change affecting any Nikkei Underlying Stock, the Divisor is adjusted in such a way that the sum of all share prices immediately after such change multiplied by the applicable Weight Factor and divided by the new Divisor (i.e., the level of the NKY immediately after such change) will equal the level of the NKY immediately prior to the change.

Standards for Listing and Maintenance

A Nikkei Underlying Stock may be deleted or added by Nikkei Inc. Any stock becoming ineligible for listing in the First Section of the TSE due to any of the following reasons will be deleted from the Nikkei Underlying Stocks: (i) bankruptcy of the issuer, (ii) merger of the issuer with, or acquisition of the issuer by, another company, (iii) delisting of such stock, (iv) transfer of such stock to the "Seiri-Post" because of excess debt of the issuer or because of any other reason or (v) transfer of such stock to the Second Section. In addition, a component stock transferred to the "Kanri-Post" (Posts for stocks under supervision) becomes a candidate for deletion. Nikkei Underlying Stocks with relatively low liquidity, based on trading value and rate of price fluctuation over the past five years, may be deleted by Nikkei Inc. Upon deletion of a stock from the Nikkei Underlying Stocks, Nikkei Inc. will select a replacement for such deleted Nikkei Underlying Stock in accordance with certain criteria. In an exceptional case, a newly listed stock in the First Section of the TSE that is recognized by Nikkei Inc. to be representative of a market may be added to the Nikkei Underlying Stocks. In such a case, a newly listed stock in the First Section of the TSE that is recognized by Nikkei Inc. to be representative of a market may be added to the Nikkei Underlying Stocks. In such a case, an existing Nikkei Underlying Stock with low trading volume and deemed not to be representative of a market will be deleted by Nikkei Inc.

A list of the issuers of the Nikkei Underlying Stocks constituting the NKY is available from the Nikkei Economic Electronic Databank System and from the Stock Market Indices Data Book published by Nikkei Inc. Nikkei Inc. may delete, add or substitute any stock underlying the NKY.

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In addition, the Nikkei Index Sponsor gives no assurance regarding any modification or change in any methodology used in calculating the NKY and is under no obligation to continue the calculation, publication and dissemination of the NKY.

License Agreement

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Nikkei determines, composes and calculates the NKY without regard to the Securities. Nikkei has no obligation to take into account your interest, or that of anyone else having an interest, in the Securities in determining, composing or calculating the NKY. Nikkei is not responsible for, and has not participated in the determination of, the terms, prices or amount of the Securities and will not be responsible for, or participate in, any determination or calculation regarding the principal amount of the Securities payable at maturity. Nikkei has no obligation or liability in connection with the administration, marketing or trading of the Securities.

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Historical Information

The following graph sets forth the closing levels of the NKY from January 1, 2009 through March 29, 2019, as reported by Bloomberg Financial Markets. The historical performance of the NKY should not be taken as an indication of future performance. We cannot give you assurance that the performance of the NKY will result in the return of any of your initial investment.

Swiss Market Index

The Swiss Market Index (Bloomberg ticker "SMI Index"):

¨was first launched with a base level of 1,500 as of June 30, 1988; and

..is sponsored, calculated, published and disseminated by SIX Group Ltd., certain of its subsidiaries, and the Management Committee of the SIX Swiss Exchange (the "SIX Exchange").

The Swiss Market Index is a price return float-adjusted market capitalization-weighted index of the 20 largest stocks traded on the Swiss Stock Exchange. The Management Committee of SIX Swiss Exchange is supported by an Index Commission (advisory board) in all index-related matters, notably in connection with changes to the index rules and adjustments, additions and exclusions outside of the established review and acceptance period. The Index Commission meets at least twice annually.

Sector designations are determined by the index sponsor using criteria it has selected or developed. Index sponsors may use very different standards for determining sector designations. In addition, many companies operate in a number of sectors, but are listed in only one sector and the basis on which that sector is selected may also differ. As a result, sector comparisons between indices with different index sponsors may reflect differences in methodology as well as actual differences in the sector composition of the indices.

Index Composition and Selection Criteria

The Swiss Market Index is comprised of the 20 highest ranked stocks traded on the Swiss Stock Exchange that have a free float of 20% or more and that are not investment companies. The equity universe is largely Swiss domestic companies; however, in some cases, foreign issuers with a primary listing on the Swiss Stock Exchange or investment companies that do not hold any shares of any other eligible company and that have a primary listing on the Swiss Stock Exchange may be included.

The ranking of each security is determined by a combination of the following criteria:

..average free-float market capitalization (compared to the capitalization of the entire Swiss Stock Exchange index family), and

¨cumulative on order book turnover (compared to the total turnover of the Swiss Stock Exchange index family).

Each of these two factors is assigned a 50% weighting in ranking the stocks eligible for the Swiss Market Index.

The Swiss Market Index is reconstituted annually after prior notice of at least two months on the third Friday in September after the close of trading.

The reconstitution is based on data from the previous July 1 through June 30. Provisional interim selection (ranking) lists are also published following the end of the third, fourth and first financial quarters.

In order to reduce turnover, an index constituent will not be replaced unless it is ranked below 23 or, if it is ranked 21 or 22, if another share ranks 18 or higher. If a company has primary listings on several exchanges and less than 50% of that company's total turnover is generated on the Swiss Stock Exchange, it will not be included in the Swiss Market Index unless it ranks at least 18 or better on the selection list on the basis of its turnover alone (i.e., without considering its free float).

Index Maintenance

Constituent Changes. In the case of major market changes as a result of capital events such as mergers or new listings, the Management Committee of SIX Swiss Exchange can decide at the request of the Index Commission that a security should be admitted to the Swiss Market Index outside the annual review period as long as it clearly fulfills the criteria for inclusion. For the same reasons, a security can also be excluded if the requirements for admission to the Swiss Market Index are no longer fulfilled. As a general rule, extraordinary acceptances into the Swiss

Market Index take place after a three-month period on a quarterly basis after the close of trading on the third Friday of March, June, September and December (for example, a security listed on or before the fifth trading day prior to the end of November cannot be included until the following March). An announced insolvency is deemed to be an extraordinary event and the security will be removed from the Swiss Market Index with five trading days' prior notice if the circumstances permit such notice.

Number of Shares and Free Float. The securities included in the Swiss Market Index are weighted according to their free float. This means that shares deemed to be in firm hands are subtracted from the total market capitalization of that company. The free float is calculated on the basis of outstanding shares. Issued and outstanding equity capital is, as a rule, the total amount of equity capital that has been fully subscribed and wholly or partially paid in and documented in the Commercial Register. Not counting as issued and outstanding equity capital are the approved capital and the conditional capital of a company. The free float is calculated on the basis of listed shares only. If a company offers several different categories of listed participation rights, each is treated separately for purposes of index calculation. Shares held deemed to be in firm hands are shareholdings that have been acquired by one person or a group of persons in companies domiciled in Switzerland and which, upon exceeding 5%, have been reported to the SIX Exchange. Shares of persons and groups of persons who are subject to a shareholder agreement which is binding for more than 5% of the listed shares or who, according to publicly known facts, have a long-term interest in a company, are also deemed to be in firm hands.

For the calculation of the number of shares in firm hands, the SIX Exchange may also use other sources than the reports submitted to it. In particular, the SIX Exchange may use data gained from issuer surveys that it conducts itself. In general, shares held by custodian nominees, trustee companies, investment funds, pension funds and investment companies are deemed free-floating regardless whether a report has been made to the SIX Exchange. The SIX Exchange classifies at its own discretion persons and groups of persons who, because of their area of activity or the absence of important information, cannot be clearly assigned.

The free-float rule applies only to bearer shares and registered shares. Capital issued in the form of participation certificates ("Partizipationsscheine") and bonus certificates ("Genussscheine") is taken into full account in calculating the Swiss Market Index because it does not confer voting rights.

The number of securities in the Swiss Market Index and the free-float factors are adjusted after the close of trading on four adjustment dates per year, the third Friday of March, June, September and December. Such changes are pre-announced at least one month before the adjustment date, although the index sponsor reserves the right to take account of recent changes before the adjustment date in the actual adjustment, so the definite new securities are announced five trading days before the adjustment date.

In order to avoid frequent slight changes to the weighting and to maintain the stability of the Swiss Market Index, any extraordinary change of the total number of outstanding securities or the free float will only result in an extraordinary adjustment if it exceeds 10% and 5% respectively and is in conjunction with a corporate action.

After a takeover, the index sponsor may, in exceptional cases, adjust the free float of a company upon publication of the end results after a five-day notification period or may exclude the security from the relevant index family. When an insolvency has been announced, an extraordinary adjustment will be made and the affected security will be removed from the Swiss Market Index after five trading days' notice.

The index sponsor reserves the right to make an extraordinary adjustment, in exceptional cases, without observing the notification period.

Index Calculation

The index sponsor calculates the Swiss Market Index using the "Laspeyres formula," with a weighted arithmetic mean of a defined number of securities issues. The formula for calculating the index value can be expressed as follows:

$$\text{Swiss Market Index (SMI}^{®}\text{)} = \frac{\text{Free Float Market Capitalization of the Swiss Market Index}}{\text{Divisor}}$$

The "free float market capitalization of the SMI®" is equal to the sum of the product of the last-paid price, the number of shares, the free-float factor and, if a foreign stock is included, the current CHF exchange rate as of the time the index value is being calculated. The index value is calculated in real time and is updated whenever a trade is made in a component stock. Where any Swiss Market Index component stock price is unavailable on any trading day, the index sponsor will use the last reported price for such component stock. Only prices from the SIX Exchange's electronic order book are used in calculating the Swiss Market Index.

Divisor Value and Adjustments

The divisor is a technical number used to calculate the index and is adjusted to reflect changes in market capitalization due to corporate events.

Below are common corporate events and their impact on the divisor of the index.

Event	Divisor Change?
Regular cash dividend	No
Repayments of capital through reduction of a share's par value	No
Special dividends, anniversary bonds and other extraordinary payments that, contrary to the company's usual dividend policy, are paid out or declared extraordinary.	Yes
Share dividends (company's own shares)	No
Share dividend (shares of another company)	Yes

The index sponsor reserves the right to respond to any other corporate events with divisor adjustments or, in extraordinary circumstances, to

depart from the provisions set forth above.

License Agreement

The Securities are not in any way sponsored, endorsed, sold or promoted by the SIX Swiss Exchange Ltd and the SIX Swiss Exchange Ltd makes no warranty or representation whatsoever, express or implied, either as to the results to be obtained from the use of the Swiss Market Index and/or the figure at which the Swiss Market Index stands at any particular time on any particular day or otherwise. However, the SIX Swiss Exchange Ltd shall not be liable (whether in negligence or otherwise) to any person for any error in the Swiss Market Index and the SIX Swiss Exchange Ltd shall not be under any obligation to advise any person of any error therein.

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Historical Information

The following graph sets forth the closing levels of the SMI from January 1, 2009 through March 29, 2019, as reported by Bloomberg Financial Markets. The historical performance of the SMI should not be taken as an indication of future performance. We cannot give you assurance that the performance of the SMI will result in the return of any of your initial investment.

The S&P®/ASX 200 Index

The S&P®/ASX 200 Index (Bloomberg ticker “AS51 Index”):

- was first launched in 1979 by the Australian Securities Exchange and was acquired and re-launched by its current index sponsor on April 3, 2000; and
- is sponsored, calculated, published and disseminated by S&P Dow Jones Indices LLC, a part of McGraw Hill Financial (“S&P”).

The S&P®/ASX 200 Index includes 200 companies and covers approximately 80% of the Australian equity market by market capitalization. As discussed below, the S&P®/ASX 200 Index is not limited solely to companies having their primary operations or headquarters in Australia or to companies having their primary listing on the Australian Securities Exchange (the “ASX”). All ordinary and preferred shares (if such preferred shares are not of a fixed income nature) listed on the ASX, including secondary listings, are eligible for the S&P®/ASX 200 Index. Hybrid stocks,

bonds, warrants, preferred stock that provides a guaranteed fixed return and listed investment companies are not eligible for inclusion.

The S&P®/ASX 200 Index is intended to provide exposure to the largest 200 eligible securities that are listed on the ASX by float-adjusted market capitalization. Constituent companies for the S&P®/ASX 200 Index are chosen based on market capitalization, public float and liquidity. All index-eligible securities that have their primary or secondary listing on the ASX are included in the initial selection of stocks from which the 200 index stocks may be selected. The float-adjusted market capitalization of companies is determined based on the daily average market capitalization over the last six months. The security's price history over the last six months, the latest available shares on issue and the investable weight factor (the "IWF"), are the factors relevant to the calculation of daily average market capitalization. The IWF is a variable that is primarily used to determine the available float of a security for ASX listed securities.

Information regarding the S&P®/ASX 200 Index (including information regarding the top ten components of this Underlying Index, the industries represented by the securities included in this Underlying Index and their respective weights and the countries represented by the securities included in this Underlying Index and their respective weights) may be found on S&P's website. That information is updated from time to time on that website. Please note that information included in that website is not included or incorporated by reference in this document.

Number of Shares

When considering the index eligibility of securities for inclusion or promotion into S&P/ASX indices, the number of index securities under consideration is based upon the latest available ASX quoted securities. For domestic securities (companies incorporated in Australia and traded on the ASX, companies incorporated overseas but exclusively listed on the ASX and companies incorporated overseas and traded on other markets but most of its trading activity is on the ASX), this figure is purely based upon the latest available data from the ASX.

Foreign-domiciled securities may quote the total number of securities on the ASX that is representative of their global equity capital; whereas other foreign-domiciled securities may quote securities on the ASX on a partial basis that represents their Australian equity capital. In order to overcome this inconsistency, S&P will quote the number of index securities that are represented by CHESS Depositary Interests ("CDIs") for a foreign entity. When CDIs are not issued, S&P will use the total securities held on the Australian register (CHESS and, where supplied, the issuer sponsored register). This quoted number for a foreign entity is representative of the Australian equity capital, thereby allowing the S&P®/ASX 200 Index to be increasingly reflective of the Australian market.

The number of CDIs or shares of a foreign entity quoted on the ASX can experience more volatility than is typically the case for ordinary shares on issue. Therefore, an average number on issue will be applied over a six-month period. Where CDI information is not supplied to the ASX by the company or the company's share register, estimates for Australian equity capital will be drawn from CHESS data and, ultimately, registry-sourced data.

IWF

The IWF represents the float-adjusted portion of a stock's equity capital. Therefore any strategic holdings that are classified as either corporate, private or government holdings reduce the IWF which, in turn, results in a reduction in the float-adjusted market capital.

The IWF ranges between 0 and 1, is calculated as 1 – Sum of the % held by strategic shareholders who possess 5% or more of issued shares, and is an adjustment factor that accounts for the publicly available shares of a company. A company must have a minimum IWF of 0.3 to be eligible for index inclusion.

S&P Dow Jones Indices identifies the following shareholders whose holdings are considered to be control blocks and are subject to float adjustment:

1. Government and government agencies;
2. Controlling and strategic shareholders/partners;
3. Any other entities or individuals which hold more than 5%, excluding insurance companies, securities companies and investment funds; and
4. Other restricted portions such as treasury stocks.

Liquidity Test

Only stocks that are regularly traded are eligible for inclusion. Eligible stocks are considered for index inclusion based on their stock median liquidity (median daily value traded divided by its average float-adjusted market capitalization for the last six months relative to the market capitalization weighted average of the stock median liquidities of the 500 constituents of the All Ordinaries index, another member of the S&P®/ASX index family.

Index Maintenance

S&P rebalances constituents quarterly to ensure adequate market capitalization and liquidity using the previous six months' data to determine index eligibility. Quarterly review changes take effect the third Friday of March, June, September and December. Eligible stocks are considered for index inclusion based on their float-adjusted market capitalization rank relative to the stated quota of 200 securities. For example, a stock that is currently in the S&P®/ASX 300 and is ranked at 175, based on float-adjusted market capitalization, within the universe of eligible securities may be considered for inclusion into the S&P®/ASX 200 Index, provided that liquidity hurdles are met.

In order to limit the level of index turnover, eligible securities will only be considered for index inclusion once another stock is excluded due to a sufficiently low rank and/or liquidity, based on the float-adjusted market capitalization. Potential index inclusions and exclusions need to satisfy buffer requirements in terms of the rank of the stock relative to a given index. The buffers are established to limit the level of index turnover that may take place at each quarterly rebalancing.

Between rebalancing dates, an index addition is generally made only if a vacancy is created by an index deletion. Index additions are made according to float-adjusted market capitalization and liquidity. An initial public offering is added to the S&P®/ASX 200 Index only when an appropriate vacancy occurs and is subject to proven liquidity for at

least two months. An exception may be made for extraordinary large offerings where sizeable trading volumes justify index inclusion.

Deletions can occur between index rebalancing dates due to acquisitions, mergers and spin-offs or due to suspension or bankruptcies. The decision to remove a stock from the S&P®/ASX 200 Index will be made once there is sufficient evidence that the transaction will be completed. Stocks that are removed due to mergers and acquisitions are removed from the S&P®/ASX 200 Index at the cash offer price for cash-only offers. Otherwise, the best available price in the market is used.

Share numbers for all index constituents are updated quarterly and are rounded to the nearest thousand. The update to the number of issued shares will be considered if the change is at least 5% of the float adjusted shares or $100 million in value.

Share updates for foreign-domiciled securities will take place annually at the March rebalancing. The update to the number of index shares will only take place when the six-month average of CDIs or the Total Securities held in the Australian branch of issuer sponsored register (where supplied) and in CHESS, as of the March rebalancing, differs from the current index shares by either 5% or a market-cap dollar amount greater than A$ 100 million. Where CDI information is not supplied to the ASX by the company or the company's share register, estimates for Australian equity capital will be drawn from CHESS data and, ultimately, registry-sourced data.

Intra-quarter share changes are implemented at the effective date or as soon as reliable information is available; however, they will only take place in the following circumstances:

¨changes in a company's float-adjusted shares of 5% or more due to market-wide shares issuance;

¨rights issues, bonus issues and other major corporate actions; and

¨share issues resulting from index companies merging and major off-market buy-backs.

Share changes due to mergers or acquisitions are implemented when the transaction occurs, even if both of the companies are not in the same index and regardless of the size of the change.

IWFs are reviewed annually as part of the September quarterly review. However, any event that alters the float of a security in excess of 5% will be implemented as soon as practicable by an adjustment to the IWF.

The function of the IWF is also to manage the index weight of foreign-domiciled securities that quote shares on the basis of CDIs. Due to the volatility that is displayed by CDIs, unusually large changes in the number of CDIs on issue could result. Where this is the case, the IWF may be used to limit the effect of unusually large changes in the average number of CDIs (and, thereby, limit the potential to manipulate this figure). Where the Australian Index Committee sees fit to apply the IWF in this manner, the rationale for the decision will be announced to the market. This will be reviewed annually at the March-quarter index rebalancing date.

Index Calculation

The S&P®/ASX 200 Index is calculated using a base-weighted aggregate methodology. The value of the S&P®/ASX 200 Index on any day for which an index value is published is determined by a fraction, the numerator of which is the aggregate of the price of each stock in the S&P®/ASX 200 Index times the number of shares of such stock included in the S&P®/ASX 200 Index times that stock's IWF, and the denominator of which is the divisor, which is described more fully below.

In order to prevent the value of the S&P®/ASX 200 Index from changing due to corporate actions, all corporate actions may require S&P to make an index or divisor adjustment. This helps maintain the value of the index and ensures that the movement of the S&P®/ASX 200 Index does not reflect the corporate actions of the individual companies that comprise the S&P®/ASX 200 Index.

The table below summarizes the types of index adjustments and indicates whether the corporate action will require a divisor adjustment:

Type of Corporate Action	Index Treatment	Divisor Adjustment Required
Cash dividend	None	No
Special Cash Dividend	Price adjustment needed	Yes
Stock dividend and/or split	Shares are multiplied by and price is divided by the split factor	No
Stock dividend from class A shares into existing class B shares, both of which are included in the S&P®/ASX 200 Index	Adjustment for price of A; adjustment for shares in B	Yes
Stock dividend of different class, same company and is not included in the S&P®/ASX 200 Index	Price adjustment	Yes
Reverse split	Adjustment for price and shares	No
Rights offering	Adjustment for price and shares	Yes
Rights offering for a new line	Adjustment for price	Yes
New share issuance	Adjustment for shares	Yes
Reduction of capital	Share adjustment	Yes
New addition to index	Share adjustment	Yes
Deletion from index	Share adjustment	Yes
Merger (acquisition by index company for stock)	Share increase	Yes

In situations where an exchange is forced to close early due to unforeseen events, such as computer or electric power failures, weather conditions or other events, S&P will calculate the closing price of the indices based on (1) the closing prices published by the exchange or (2) if no closing price is available, the last regular trade reported for each security before the exchange closed. If the exchange fails to open due to unforeseen circumstances, S&P treats this closure as a standard market holiday. The S&P®/ASX 200 Index will use the prior day's closing prices and shifts any corporate actions to the following business day. If all exchanges fail to open or in other extreme circumstances, S&P may determine not to publish the S&P®/ASX 200 Index for that day.

S&P reserves the right to recalculate the S&P®/ASX 200 Index under certain limited circumstances. S&P may choose to recalculate and republish the S&P®/ASX 200 Index if it is found to be incorrect or inconsistent within two trading days of the publication of the level of the S&P®/ASX 200 Index for one of the following reasons:

1. incorrect or revised closing price;
2. missed corporate event;
3. late announcement of a corporate event; or
4. incorrect application of corporate action or index methodology.

Any other restatement or recalculation of the S&P®/ASX 200 Index is only done under extraordinary circumstances to reduce or avoid possible market impact or disruption, as solely determined by the Index Committee.

License Agreement

The S&P®/ASX 200 Index is published and maintained by the S&P Australian Index Committee (the "ASX Committee"), a team of representatives from both Standard & Poor's and the Australian Stock Exchange. The S&P®/ASX 200 Index is composed of the S&P®/ASX 100 stocks plus an additional 100 stocks selected by the ASX Committee. The S&P®/ASX 200 Index essentially covers large-cap and mid-cap stocks evaluated for liquidity and size. Additional information concerning the S&P®/ASX 200 Index may be obtained from the Australian Stock Exchange website at www.asx.com.au. We are not incorporating by reference the website or any material it includes in this document.

Historical Information

The following graph sets forth the closing levels of the AS51 from January 1, 2009 through March 29, 2019, as reported by Bloomberg Financial Markets. The historical performance of the AS51 should not be taken as an indication of future performance. We cannot give you assurance that the performance of the AS51 will result in the return of any of your initial investment.

The Hang Seng® Index

The HSI is reported by Bloomberg L.P. under the ticker symbol "HSI."

The HSI is calculated, maintained and published by HSIL, a wholly owned subsidiary of Hang Seng Bank, in concert with the HSI Advisory Committee and was first developed, calculated and published on November 24, 1969. The HSI is a free float-adjusted market capitalization weighted stock market index that is designed to reflect the performance of the Hong Kong stock market.

Only companies with a primary listing on the main board of the Stock Exchange of Hong Kong ("SEHK") are eligible as constituents of the HSI. Mainland China enterprises that have an H-share listing in Hong Kong will not be eligible for inclusion in the HSI unless the company has no unlisted share capital. In addition, to be eligible for selection, a company: (1) must be among those that constitute the top 90% of the total market value of all primary listed shares on the SEHK (the market value of a company refers to the average of its month-end market capitalizations for the past 12 months); (2) must be among those that constitute the top 90% of the total turnover of all primary listed shares on the SEHK in a sufficient number of measurement sub-periods (turnover is assessed over the last eight quarterly sub-periods: if a company was in the top 90% in any of the most recent four sub-periods, it receives two points; if it was in the top 90% in any of the latter four sub-periods, it receives one point. A company must attain a "score" of eight points to meet the turnover requirement); and (3) should normally have a listing history of 24 months (there are exceptions for companies that have shorter listing histories but large market values and/or high turnover scores). From the many eligible candidates, final selections are based on the following: (1) the market value and turnover rankings of the companies; (2) the representation of the sub sectors within the HSI directly reflecting that of the market; and (3) the financial performance of the companies.

Calculation of the HSI

The calculation methodology of the HSI is a free float-adjusted market capitalization weighting with a 10% cap on individual stocks. Under this calculation methodology, shares held by any entities (excluding custodians, trustees, mutual funds and investment companies) which control more than 5% of shares are excluded for index calculation:

- Strategic holdings (governments and affiliated entities or any other entities which hold substantial shares in the company would be considered as non-freefloat unless otherwise proved);
- Directors' and management holdings (directors, members of the board committee, principal officers or founding members);
- Corporate cross holdings (publicly traded companies or private firms / institutions); and
- Lock-up shares (shareholdings with a publicly disclosed lock-up arrangement).

A free float-adjusted factor representing the proportion of shares that is free floated as a percentage of the issued shares, is rounded up to the nearest multiple of 5% for the calculation of the HSI and is updated quarterly.

A cap of 10% on individual stock weightings is applied. A cap factor is calculated quarterly to coincide with the regular update of the free float-adjusted factor. Additional re-capping is performed upon constituent changes.

The formula for the index calculation is shown below:

$$\text{Current Index} = \frac{\text{Current Aggregate Free Float-adjusted Market Capitalization of Constituents}}{\text{Yesterday's Aggregate Free Float-adjusted Market Capitalization of Constituents}} \times \text{Yesterday's Closing Index}$$

$$= \frac{\sum (P_t \times IS \times FAF \times CF)}{\sum (P_{t-1} \times IS \times FAF \times CF)} \times \text{Yesterday's Closing Index}$$

where:

P_t: current price at day t;

P_{t-1}: closing price at day t-1;

IS: number of issued shares (in the case of H-share constituents, only the H-share portion is taken into calculation);

FAF: free float-adjusted factor, which is between 0 and 1; and

CF: cap factor, which is between 0 and 1.

License Agreement

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of the Index and any of the related formula or formulae, constituent stocks and factors may at any time be changed or altered by Hang Seng Indexes Company Limited without notice. TO THE EXTENT PERMITTED BY APPLICABLE LAW, NO RESPONSIBILITY OR LIABILITY IS ACCEPTED BY HANG SENG INDEXES COMPANY LIMITED OR HANG SENG DATA SERVICES LIMITED (i) IN RESPECT OF THE USE OF AND/OR REFERENCE TO THE INDEX BY ROYAL BANK OF CANADA IN CONNECTION WITH THE SECURITIES; OR (ii) FOR ANY INACCURACIES, OMISSIONS, MISTAKES OR ERRORS OF HANG SENG INDEXES COMPANY LIMITED IN THE COMPUTATION OF THE INDEX; OR (iii) FOR ANY INACCURACIES, OMISSIONS, MISTAKES, ERRORS OR INCOMPLETENESS OF ANY INFORMATION USED IN CONNECTION WITH THE COMPUTATION OF THE INDEX WHICH IS SUPPLIED BY ANY OTHER PERSON; OR (iv) FOR ANY ECONOMIC OR OTHER LOSS WHICH MAY BE DIRECTLY OR INDIRECTLY SUSTAINED BY ANY BROKER OR HOLDER OF THE SECURITIES OR ANY OTHER PERSON DEALING WITH THE SECURITIES AS A RESULT OF ANY OF THE AFORESAID, AND NO CLAIMS, ACTIONS OR LEGAL PROCEEDINGS MAY BE BROUGHT AGAINST HANG SENG INDEXES COMPANY LIMITED AND/OR HANG SENG DATA SERVICES LIMITED in connection with the Securities in any manner whatsoever by any broker, holder or other person dealing with the Securities. Any broker, holder or other person dealing with the Securities does so therefore in full knowledge of this disclaimer and can place no reliance whatsoever on Hang Seng Indexes Company Limited and Hang Seng Data Services Limited. For the avoidance of doubt, this disclaimer does not create any contractual or quasi-contractual relationship between any broker, holder or other person and Hang Seng Indexes Company Limited and/or Hang Seng Data Services Limited and must not be construed to have created such relationship.

Historical Information

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Supplemental Plan of Distribution (Conflicts of Interest)

We have agreed to indemnify UBS and RBCCM against liabilities under the Securities Act of 1933, as amended, or to contribute payments that UBS and RBCCM may be required to make relating to these liabilities as described in the prospectus supplement and the prospectus. We will agree that UBS may sell all or a part of the Securities that it will purchase from us to investors at the price to public listed on the cover hereof, or its affiliates at the price indicated on the cover of the pricing supplement, the document that will be filed under Rule 424(b)(2) containing the final pricing terms of the Securities.

UBS may allow a concession not in excess of the underwriting discount set forth on the cover of the pricing supplement to its affiliates for distribution of the Securities.

Subject to regulatory constraints and market conditions, RBCCM intends to offer to purchase the Securities in the secondary market, but it is not required to do so.

We or our affiliates may enter into swap agreements or related hedge transactions with one of our other affiliates or unaffiliated counterparties in connection with the sale of the Securities and RBCCM and/or an affiliate may earn additional income as a result of payments pursuant to the swap or related hedge transactions. See “Use of Proceeds and Hedging” in the accompanying product prospectus supplement UBS-IND-1.

The value of the Securities shown on your account statement may be based on RBCCM’s estimate of the value of the Securities if RBCCM or another of our affiliates were to make a market in the Securities (which it is not obligated to do). That estimate will be based upon the price that RBCCM may pay for the Securities in light of then prevailing market conditions, our creditworthiness and transaction costs. If so specified in the pricing supplement related to the Securities, for a period of approximately 15 months after the issue date, the value of the Securities that may be shown on your account statement may be higher than RBCCM’s estimated value of the Securities at that time. This is because the estimated value of the Securities will not include the underwriting discount and our hedging costs and profits; however, the value of the Securities shown on your account statement during that period may be a higher amount, potentially reflecting the addition of the underwriting discount and our estimated costs and profits from hedging the Securities. Any such excess is expected to decrease over time until the end of this period. After this period, if RBCCM repurchases your Securities, it expects to do so at prices that reflect their estimated value. This period may be reduced at RBCCM’s discretion based on a variety of factors, including but not limited to, the amount of the Securities that we repurchase and our negotiated arrangements from time to time with UBS.

For additional information as to the relationship between us and RBCCM, please see the section “Plan of Distribution—Conflicts of Interest” in the prospectus dated September 7, 2018.

Structuring the Securities

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

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

The lower implied borrowing rate is a factor that reduces the economic terms of the Securities to you. The initial offering price of the Securities also reflects the underwriting commission and our estimated hedging costs. These

factors result in the initial estimated value for the Securities on the Trade Date being less than their public offering price. See "Key Risks—The Initial Estimated Value of the Securities Will Be Less than the Price to the Public" above.

Terms Incorporated in Master Note

The terms appearing above under the caption "Indicative Terms of the Securities" and the provisions in the accompanying product prospectus supplement UBS-IND-1 dated September 7, 2018 under the caption "General Terms of the Securities," are incorporated into the master note issued to DTC, the registered holder of the Securities.