

ROYAL BANK OF CANADA  
Form 424B2  
April 29, 2019

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Filed Pursuant to Rule 424(b)(2)  
Registration Statement No. 333-227001  
(To Prospectus dated September 7, 2018,  
Prospectus Supplement dated September 7, 2018 and  
Product Supplement EQUITY INDICES LIRN-1 dated  
September 25, 2018)

1,577,707 Date April 25, 2019  
US Settlement Date May 2, 2019  
\$ Maturity Date April 30, 2021  
principal  
amount  
per  
unit  
CUSIP  
No.  
78014F551

Leveraged Index Return Notes®  
Linked to an International Equity  
Index Basket

Maturity of approximately  
two years  
153.00% leveraged upside  
exposure to increases in the  
Basket

The Basket is comprised of  
the EURO STOXX 50® Index, the  
FTSE® 100 Index, the Nikkei  
Stock Average Index, the Swiss  
Market Index, the S&P/ASX 200  
Index, and the Hang Seng Index.  
The EURO STOXX 50® Index  
was given an initial weight of  
40.00%, each of the FTSE® 100  
Index and the Nikkei Stock  
Average Index was given an  
initial weight of 20.00%, each of  
the Swiss Market Index and the  
S&P/ASX 200 Index was given  
an initial weight of 7.50%, and the  
Hang Seng Index was given an  
initial weight of 5.00%

1-to-1 downside exposure to  
decreases in the Basket beyond a  
10.00% decline, with up to  
90.00% of your principal at risk

All payments occur at maturity and are subject to the credit risk of Royal Bank of Canada

No periodic interest payments

In addition to the underwriting discount set forth below, the notes include a hedging-related charge of \$0.075 per unit. See “Structuring the Notes”

Limited secondary market liquidity, with no exchange listing

The notes are unsecured debt securities and are not savings accounts or insured deposits of a bank. The notes are not insured or guaranteed by the Canada Deposit Insurance Corporation, the U.S. Federal Deposit Insurance Corporation (the “FDIC”), or any other governmental agency of Canada or the United States

The notes are being issued by Royal Bank of Canada (“RBC”). There are important differences between the notes and a conventional debt security, including different investment risks and certain additional costs. See “Risk Factors” beginning on page TS-7 of this term sheet and page PS-6 of product supplement EQUITY INDICES LIRN-1. The initial estimated value of the notes as of the pricing date is \$9.7212 per unit, which is less than the public offering price listed below. See “Summary” on the following page, “Risk Factors” beginning on page TS-7 of this term sheet and “Structuring the Notes” on page TS-29 of this term sheet for additional information. The actual value of your notes at any time will reflect many factors and cannot be predicted with accuracy.

None of the Securities and Exchange Commission (the “SEC”), any state securities commission, or any other regulatory body has approved or disapproved of these securities or determined if this Note Prospectus (as defined below) is truthful or complete. Any representation to the contrary is a criminal offense.

	<u>Per Unit Total</u>	
Public offering price	\$10.00	\$14,577,070.00
Underwriting discount	\$0.20	\$291,541.40
Proceeds, before expenses, to RBC	\$9.80	\$14,285,528.60

The notes:

Are Not FDIC Insured	Are Not Bank Guaranteed	May Lose Value
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Merrill Lynch & Co.

April 26, 2019

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Leveraged Index Return Notes®

Linked to an International Equity Index Basket, due April 30, 2021

Summary

The Leveraged Index Return Notes® Linked to an International Equity Index Basket, due April 30, 2021 (the “notes”) are our senior unsecured debt securities. The notes are not guaranteed or insured by the Canada Deposit Insurance Corporation or the FDIC or secured by collateral. The notes will rank equally with all of our other unsecured and unsubordinated debt. Any payments due on the notes, including any repayment of principal, will be subject to the credit risk of RBC. The notes are not bail-inable notes (as defined in the prospectus supplement). The notes provide you a leveraged return if the Ending Value of the Market Measure, which is the international equity index basket described below (the “Basket”), is greater than its Starting Value. If the Ending Value is less than the Starting Value but greater than or equal to the Threshold Value, you will receive the principal amount of your notes. If the Ending Value is less than the Threshold Value, you will lose a portion, which could be significant, of the principal amount of your notes. Any payments on the notes, will be calculated based on the \$10 principal amount per unit and will depend on the performance of the Basket, subject to our credit risk. See “Terms of the Notes” below.

The Basket is comprised of the EURO STOXX 50® Index, the FTSE® 100 Index, the Nikkei Stock Average Index, the Swiss Market Index, the S&P/ASX 200 Index, and the Hang Seng® Index (each a “Basket Component”). On the pricing date, the EURO STOXX 50® Index was given an initial weight of 40.00%, each of the FTSE® 100 Index and the Nikkei Stock Average Index was given an initial weight of 20.00%, each of the Swiss Market Index and the S&P/ASX 200 Index was given an initial weight of 7.50%, and the Hang Seng® Index was given an initial weight of 5.00%.

The economic terms of the notes (including the Participation Rate) are based on our internal funding rate, which is the rate we would pay to borrow funds through the issuance of market-linked notes and the economic terms of certain related hedging arrangements. Our internal funding rate is typically lower than the rate we would pay when we issue conventional fixed or floating rate debt securities. This difference in funding rate, as well as the underwriting discount and the hedging related charge described below, reduced the economic terms of the notes to you and the initial estimated value of the notes on the pricing date. Due to these factors, the public offering price you pay to purchase the notes is greater than the initial estimated value of the notes.

On the cover page of this term sheet, we have provided the initial estimated value for the notes. This initial estimated value was determined based on our and our affiliates’ pricing models, which take into consideration our internal funding rate and the market prices for the hedging arrangements related to the notes. For more information about the initial estimated value and the structuring of the notes, see “Structuring the Notes” on page TS-29.

Terms of the Notes

Issuer:	Royal Bank of Canada (“RBC”)
Principal Amount:	\$10.00 per unit
Term:	Approximately two years
Market Measure:	An international equity index basket comprised of the EURO STOXX 50® Index (Bloomberg symbol: “SX5E”), the FTSE® 100 Index (Bloomberg symbol: “UKX”), the Nikkei Stock Average Index (Bloomberg symbol: “NKY”), the Swiss Market Index (Bloomberg symbol: “SMI”), the S&P/ASX 200 Index (Bloomberg symbol: “AS51”) and the Hang Seng® Index (Bloomberg symbol: “HSI”). Each Basket Component is a price return index.
Starting Value:	100.00
Ending Value:	The average of the values of the Basket on each calculation day occurring during the Maturity Valuation Period (as defined below). The scheduled calculation days are subject to postponement in the event of Market Disruption Events, as described beginning on page PS-18 of product supplement EQUITY INDICES LIRN-1.
Threshold Value:	90.00 (90.00% of the Starting Value).
Participation	153.00%

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Rate:

Maturity

Valuation April 20, 2021, April 21, 2021, April 22, 2021, April 23, 2021 and April 27, 2021

Period:

Fees and Charges: The underwriting discount of \$0.20 per unit listed on the cover page and the hedging related charge of \$0.075 per unit described in "Structuring the Notes" on page TS-29.

Calculation Agent: Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S").

Redemption Amount Determination

On the maturity date, you will receive a cash payment per unit determined as follows:

Capped Leveraged Index  
Return Notes® TS-2

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Leveraged Index Return Notes®

Linked to an International Equity Index Basket, due April 30, 2021

The terms and risks of the notes are contained in this term sheet and in the following:

Product supplement EQUITY INDICES LIRN-1 dated September 25, 2018:

<https://www.sec.gov/Archives/edgar/data/1000275/000114036118039041/form424b5.htm>

Series H MTN 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/1000275/000121465918005973/196181424b3.htm>

These documents (together, the “Note Prospectus”) have been filed as part of a registration statement with the SEC, which may, without cost, be accessed on the SEC website as indicated above or obtained from MLPF&S by calling 1-800-294-1322. Before you invest, you should read the Note Prospectus, including this term sheet, for information about us and this offering. Any prior or contemporaneous oral statements and any other written materials you may have received are superseded by the Note Prospectus. Capitalized terms used but not defined in this term sheet have the meanings set forth in product supplement EQUITY INDICES LIRN-1. Unless otherwise indicated or unless the context requires otherwise, all references in this document to “we,” “us,” “our,” or similar references are to RBC.

Investor Considerations

You may wish to consider an investment in the notes if:

You anticipate that the value of the Basket will increase from the Starting Value to the Ending Value.

You are willing to risk a loss of principal and return if the value of the Basket decreases from the Starting Value to an Ending Value that is below the Threshold Value.

You are willing to forgo the interest payments that are paid on conventional interest bearing debt securities.

You are willing to forgo dividends or other benefits of owning the stocks included in the Basket Components.

You are willing to accept a limited or no market for sales prior to maturity, and understand that the market prices for the notes, if any, will be affected by various factors, including our actual and perceived creditworthiness, our internal funding rate and fees and charges on the notes.

You are willing to assume our credit risk, as issuer of the notes, for all payments under the notes, including the Redemption Amount.

The notes may not be an appropriate investment for you if:

You believe that the value of the Basket will decrease from the Starting Value to the Ending Value or that it will not increase sufficiently over the term of the notes to provide you with your desired return.

You seek 100% principal repayment or preservation of capital.

You seek interest payments or other current income on your investment.

You want to receive dividends or other distributions paid on the stocks included in the Basket Components.

You seek an investment for which there will be a liquid secondary market.

You are unwilling or are unable to take market risk on the notes or to take our credit risk as issuer of the notes.

We urge you to consult your investment, legal, tax, accounting, and other advisors before you invest in the notes.

Leveraged Index Return Notes®

Linked to an International Equity Index Basket, due April 30, 2021

Hypothetical Payout Profile and Examples of Payments at Maturity

Leveraged Index Return Notes®

This graph reflects the returns on the notes, based on the Participation Rate of 153% and the Threshold Value of 90% of the Starting Value. The green line reflects the returns on the notes, while the dotted gray line reflects the returns of a direct investment in the stocks included in the Basket Components, excluding dividends.

This graph has been prepared for purposes of illustration only.

The following table and examples are for purposes of illustration only. They are based on hypothetical values and show hypothetical returns on the notes. They illustrate the calculation of the Redemption Amount and total rate of return based on the Starting Value of 100, the Threshold Value of 90, the Participation Rate of 153% and a range of hypothetical Ending Values. The actual amount you receive and the resulting total rate of return will depend on the actual Ending Value and whether you hold the notes to maturity. The following examples do not take into account any tax consequences from investing in the notes.

For recent hypothetical historical values of the Basket, see “The Basket” section below. For recent actual levels of the Basket Components, see “The Basket Components” section below. Each Basket Component is a price return index and as such the Ending Value will not include any income generated by dividends paid on the stocks included in any of the Basket Components, which you would otherwise be entitled to receive if you invested in those stocks directly. In addition, all payments on the notes are subject to issuer credit risk.

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Leveraged Index Return Notes®

Linked to an International Equity Index Basket, due April 30, 2021

Ending Value	Percentage Change from the Starting Value to the Ending Value	Redemption Amount per Unit	Total Rate of Return on the Notes
0.00	-100.00%	\$1.000	-90.00%
50.00	-50.00%	\$6.000	-40.00%
80.00	-20.00%	\$9.000	-10.00%
90.00 <sup>(1)</sup>	-10.00%	\$10.000	0.00%
94.00	-6.00%	\$10.000	0.00%
95.00	-5.00%	\$10.000	0.00%
97.00	-3.00%	\$10.000	0.00%
100.00 <sup>(2)</sup>	0.00%	\$10.000	0.00%
102.00	2.00%	\$10.306	3.06%
105.00	5.00%	\$10.765	7.65%
110.00	10.00%	\$11.530	15.30%
120.00	20.00%	\$13.060	30.60%
130.00	30.00%	\$14.590	45.90%
140.00	40.00%	\$16.120	61.20%
150.00	50.00%	\$17.650	76.50%
160.00	60.00%	\$19.180	91.80%

(1) This is the Threshold Value.

(2) The Starting Value was set to 100.00 on the pricing date.

Capped Leveraged Index  
Return Notes® TS-5

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Leveraged Index Return Notes®

Linked to an International Equity Index Basket, due April 30, 2021

Redemption Amount Calculation Examples

Example 1

The Ending Value is 80.00, or 80.00% of the Starting Value:

Starting Value: 100.00

Threshold Value: 90.00

Ending Value: 80.00

Redemption Amount per unit

Example 2

The Ending Value is 95.00, or 95.00% of the Starting Value:

Starting Value: 100.00

Threshold Value: 90.00

Ending Value: 100.00

Redemption Amount per unit = \$10.00, the principal amount, since the Ending Value is less than the Starting Value but equal to or greater than the Threshold Value.

Example 3

The Ending Value is 150.00, or 150.00% of the Starting Value:

Starting Value: 100.00

Ending Value: 150.00

= \$17.65 Redemption Amount per unit

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Leveraged Index Return Notes®

Linked to an International Equity Index Basket, due April 30, 2021

Risk Factors

There are important differences between the notes and a conventional debt security. An investment in the notes involves significant risks, including those listed below. You should carefully review the more detailed explanation of risks relating to the notes in the “Risk Factors” sections beginning on page PS-6 of product supplement EQUITY INDICES LIRN-1, page S-1 of the MTN prospectus supplement, and page 1 of the prospectus identified above. We also urge you to consult your investment, legal, tax, accounting, and other advisors before you invest in the notes. Depending on the performance of the Basket as measured shortly before the maturity date, your investment may result in a loss; there is no guaranteed return of principal.

Your return on the notes may be less than the yield you could earn by owning a conventional fixed or floating rate debt security of comparable maturity.

Payments on the notes are subject to our credit risk, and actual or perceived changes in our creditworthiness are expected to affect the value of the notes. If we become insolvent or are unable to pay our obligations, you may lose your entire investment.

Your investment return may be less than a comparable investment directly in the stocks included in the Basket Components.

The initial estimated value of the notes is an estimate only, determined as of a particular point in time by reference to our and our affiliates’ pricing models. These pricing models consider certain assumptions and variables, including our credit spreads, our internal funding rate on the pricing date, mid-market terms on hedging transactions, expectations on interest rates and volatility, price-sensitivity analysis, and the expected term of the notes. These pricing models rely in part on certain forecasts about future events, which may prove to be incorrect.

The public offering price you pay for the notes exceeds the initial estimated value. If you attempt to sell the notes prior to maturity, their market value may be lower than the price you paid for them and lower than the initial estimated value. This is due to, among other things, changes in the value of the Basket, our internal funding rate, and the inclusion in the public offering price of the underwriting discount and the hedging related charge, all as further described in “Structuring the Notes” on page TS-29. These factors, together with various credit, market and economic factors over the term of the notes, are expected to reduce the price at which you may be able to sell the notes in any secondary market and will affect the value of the notes in complex and unpredictable ways.

The initial estimated value does not represent a minimum or maximum price at which we, MLPF&S or any of our affiliates would be willing to purchase your notes in any secondary market (if any exists) at any time. The value of your notes at any time after issuance will vary based on many factors that cannot be predicted with accuracy, including the performance of the Basket, our creditworthiness and changes in market conditions.

A trading market is not expected to develop for the notes. Neither we nor MLPF&S is obligated to make a market for, or to repurchase, the notes. There is no assurance that any party will be willing to purchase your notes at any price in any secondary market.

Our business, hedging and trading activities, and those of MLPF&S and our respective affiliates (including trades in shares of companies included in the Basket Components), and any hedging and trading activities we, MLPF&S or our respective affiliates engage in for our clients’ accounts, may affect the market value and return of the notes and may create conflicts of interest with you.

Changes in the level of one Basket Component may be offset by changes in the level of the other Basket Components. Due to the different Initial Component Weights, changes in the level of some Basket Components will have a more substantial impact on the value of the Basket than similar changes in the levels of the other Basket Components.

The index sponsors may adjust each Basket Component in a way that affects its level, and the index sponsors have no obligation to consider your interests.

You will have no rights of a holder of the securities represented by the Basket Components, and you will not be entitled to receive securities or dividends or other distributions by the issuers of those securities.

While we, MLPF&S or our respective affiliates may from time to time own securities of companies included in the Basket Components, we, MLPF&S and our respective affiliates do not control any company included in the Basket Components, and have not verified any disclosure made by any other company.

Your return on the notes and the value of the notes may be affected by exchange rate movements and factors affecting the international securities markets, specifically changes in the countries represented by the Basket Components. In addition, you will not obtain the benefit of any increase in the value of the currencies in which the securities included in the Basket Components trade against the U.S. dollar, which you would have received if you had owned the securities represented by the Basket Components during the term of your notes, although the levels of the Basket Components may be adversely affected by general exchange rate movements in the market.

There may be potential conflicts of interest involving the calculation agent, which is MLPF&S. We have the right to appoint and remove the calculation agent.

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Leveraged Index Return Notes®

Linked to an International Equity Index Basket, due April 30, 2021

The U.S. federal income tax consequences of the notes are uncertain, and may be adverse to a holder of the notes. See “Summary of U.S. Federal Income Tax Consequences” below and “U.S. Federal Income Tax Summary” on page PS-30 of product supplement EQUITY INDICES LIRN-1. For a discussion of the Canadian federal income tax consequences of investing in the notes, see “Tax Consequences—Canadian Taxation” in the prospectus dated September 7, 2018.

Other Terms of the Notes

Market Measure Business Day

The following definition shall supersede and replace the definition of a “Market Measure Business Day” set forth in product supplement EQUITY INDICES LIRN-1.

A “Market Measure Business Day” means a day on which:

- each of the Eurex (as to the EURO STOXX 50® Index), the London Stock Exchange (as to the FTSE® 100 Index), the Tokyo Stock Exchange (as to the Nikkei Stock Average Index), the SIX Swiss Exchange (as to the Swiss Market Index), the Australian Stock Exchange (as to the S&P/ASX 200 Index), and the Stock Exchange of Hong Kong (as to the Hang Seng® Index) (or any successor to the foregoing exchanges) are open for trading; and
- (B) the Basket Components or any successors thereto are calculated and published.

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Return Notes® TS-8

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## Leveraged Index Return Notes®

Linked to an International Equity Index Basket, due April 30, 2021

## The Basket

The Basket is designed to allow investors to participate in the percentage changes in the levels of the Basket Components from the Starting Value to the Ending Value of the Basket. The Basket Components are described in the section “The Basket Components” below. Each Basket Component was assigned an initial weight on the pricing date, as set forth in the table below.

For more information on the calculation of the value of the Basket, please see the section entitled Description of the LIRNS—Basket Market Measures” beginning on page PS-20 of product supplement EQUITY INDICES LIRN-1. For each Basket Component, the Initial Component Weight, the closing level, the Component Ratio and the initial contribution to the Basket value were as follows:

Basket Component	Bloomberg Symbol	Initial Component Weight	Closing Level <sup>(1)</sup>	Component Ratio <sup>(2)</sup>	Initial Basket Value Contribution
EURO STOXX 50® Index	SX5E	40.00%	3,491.92	0.01145502	40.00
FTSE® 100 Index	UKX	20.00%	7,434.13	0.00269029	20.00
Nikkei Stock Average Index	NKY	20.00%	22,307.58	0.00089656	20.00
Swiss Market Index	SMI	7.50%	9,694.06	0.00077367	7.50
S&P/ASX 200 Index	AS51	7.50%	6,385.646	0.00117451	7.50
Hang Seng Index	HSI	5.00%	29,549.800	0.00016921	5.00
				Starting Value	100.00

With the exception of the S&P/ASX 200 Index, these were the closing levels of the Basket Components on the (1) pricing date. The closing level of the S&P/ASX 200 Index was determined on April 26, 2019, because the pricing date was not a Market Measure Business Day for this Basket Component.

Each Component Ratio equals the Initial Component Weight of the relevant Basket Component (as a percentage) (2) multiplied by 100, and then divided by the closing level of that Basket Component on the applicable date and rounded to eight decimal places.

The calculation agent will calculate the Ending Value of the Basket by summing the products of the closing level for each Basket Component on each calculation day during the Maturity Valuation Period and the Component Ratio applicable to such Basket Component. If a Market Disruption Event occurs as to any Basket Component on any scheduled calculation day, the closing level of that Basket Component will be determined as more fully described beginning on page PS-21 of product supplement EQUITY INDICES LIRN-1 in the section “Description of the LIRNS--Basket Market Measures—Ending Value of the Basket.”

Capped Leveraged Index  
Return Notes® TS-9

Leveraged Index Return Notes®

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While actual historical information on the Basket did not exist before the pricing date, the following graph sets forth the hypothetical daily historical performance of the Basket from January 1, 2008 through the pricing date (or April 26, 2019, in the case of the AS51). The graph is based upon actual daily historical levels of the Basket Components, hypothetical Component Ratios based on the closing levels of the Basket Components determined as of December 31, 2007, and a Basket value of 100.00 as of that date. This hypothetical historical data on the Basket is not necessarily indicative of the future performance of the Basket or what the value of the notes may be. Any hypothetical historical upward or downward trend in the value of the Basket during any period set forth below is not an indication that the value of the Basket is more or less likely to increase or decrease at any time over the term of the notes.

Hypothetical Historical Performance of the Basket

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Leveraged Index Return Notes®

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The Basket Components

All disclosures contained in this term sheet regarding the Basket Components, including, without limitation, their make-up, method of calculation, and changes in their components, have been derived from publicly available sources. The information reflects the policies of, and is subject to change by each of STOXX Limited (“STOXX”) with respect to the EURO STOXX 50® Index (the “SX5E”), FTSE International Limited (“FTSE”) with respect to the FTSE 100 Index (the “UKX”), Nikkei Inc. (“Nikkei”) with respect to the Nikkei Stock Average Index (the “NKY”), the Geneva, Zurich, SIX Group Ltd., certain of its subsidiaries, and the Management Committee of the SIX Swiss Exchange (the “SIX Exchange”), with respect to the Swiss Market Index (the “SMI”), S&P Dow Jones Indices LLC (“S&P”), a division of S&P Global, with respect to the S&P/ASX 200 Index (the “AS51”), and HSI Services Limited (“HSIL”) with respect to the Hang Seng® Index (the “HSI”) (STOXX, FTSE, Nikkei, S&P, Six Exchange and HSIL together, the “index sponsors”). The index sponsors have no obligation to continue to publish, and may discontinue or suspend the publication of any Basket Component at any time. The consequences of any index sponsor discontinuing publication of a Basket Component are discussed in the section entitled “Description of the LIRNS—Discontinuance of an Index” in product supplement EQUITY INDICES LIRN-1. None of us, the calculation agent, or MLPF&S accepts any responsibility for the calculation, maintenance, or publication of any Basket Component 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.

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The following graph shows the daily historical performance of the SX5E in the period from January 1, 2008 through April 25, 2019. We obtained this historical data from Bloomberg L.P. We have not independently verified the accuracy or completeness of the information obtained from Bloomberg L.P. On the pricing date, the closing level of the SX5E was 3,491.92.

Historical Performance of the EURO STOXX 50® Index

This historical data on the SX5E is not necessarily indicative of the future performance of the SX5E or what the value of the notes may be. Any historical upward or downward trend in the level of the SX5E during any period set forth above is not an indication that the level of the SX5E is more or less likely to increase or decrease at any time over the term of the notes.

Before investing in the notes, you should consult publicly available sources for the levels of the SX5E.

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 notes 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 notes. STOXX does not:

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

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

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

• the results to be obtained by the notes, the holders of the notes 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 notes or any other third parties.

Capped Leveraged Index  
Return Notes® TS-12

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## Leveraged Index Return Notes®

Linked to an International Equity Index Basket, due April 30, 2021

### The FTSE® 100 Index

The FTSE® 100 Index (the “UKX”) 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 UKX 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 UKX is available from the following website: [www.ftse.com/uk](http://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 UKX and may discontinue publication of the UKX at any time.

### Index Composition and Selection Criteria

The UKX 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 UKX 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 UKX. 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 UKX, 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 UKX 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 UKX 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. In addition, in order to be included in the UKX, a company is required to have greater than 5% of its voting rights (aggregated across all of its equity securities, including, where identifiable, those that are not listed or trading) in the hands of unrestricted shareholders. Current constituents of this index that who do not meet this requirement will have until the September 2022 review to meet the requirement; otherwise they will be removed from the UKX.

**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 UKX 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 UKX 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 UKX will be inserted to match the number of companies being removed, in order to maintain the total at 100.

#### Index Calculation

The UKX 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).

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The value of the UKX 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 UKX. 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 UKX is recalculated whenever errors or distortions occur that are deemed to be significant. Users of the UKX are notified through appropriate media.

#### Index Maintenance

The UKX 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 UKX. 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 UKX 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 UKX 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 UKX 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 UKX unless its total market capitalization remains above the qualification level for continued inclusion as a constituent of the UKX at that review. Where a company has partly paid shares, these shares, together with the outstanding call(s), are both included in the UKX. Warrants to purchase ordinary shares and convertible securities are not included in the UKX until they are exercised or converted.

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Share Weighting Changes — For the purposes of computing the UKX, 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 UKX from changing due to such an event, all corporate actions which affect the market capitalization of the UKX require an offsetting divisor adjustment. By adjusting the divisor, the value of the UKX 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 the 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 UKX 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 UKX that is greater than three basis points at the local country index level, then the UKX 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.

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The following graph shows the daily historical performance of the UKX in the period from January 1, 2008 through April 25, 2019. We obtained this historical data from Bloomberg L.P. We have not independently verified the accuracy or completeness of the information obtained from Bloomberg L.P. On the pricing date, the closing level of the UKX was 7,434.13.

Historical Performance of the FTSE® 100 Index

This historical data on the UKX is not necessarily indicative of the future performance of the UKX or what the value of the notes may be. Any historical upward or downward trend in the level of the UKX during any period set forth above is not an indication that the level of the UKX is more or less likely to increase or decrease at any time over the term of the notes.

Before investing in the notes, you should consult publicly available sources for the levels of the UKX.

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## Leveraged Index Return Notes®

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### The Nikkei Stock Average 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 index 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.

#### Property Rights and Disclaimers

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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.

The following graph shows the daily historical performance of the NKY in the period from January 1, 2008 through April 25, 2019. We obtained this historical data from Bloomberg L.P. We have not independently verified the accuracy or completeness of the information obtained from Bloomberg L.P. On the pricing date, the closing level of the NKY was 22,307.58.

#### Historical Performance of the Nikkei Stock Average Index

This historical data on the NKY is not necessarily indicative of the future performance of the NKY or what the value of the notes may be. Any historical upward or downward trend in the level of the NKY during any period set forth above is not an indication that the level of the NKY is more or less likely to increase or decrease at any time over the term of the notes.

Before investing in the notes, you should consult publicly available sources for the levels of the NKY.

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

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The Swiss Market Index

The Swiss Market Index (the “SMI”):

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 SMI 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.

Index Composition and Selection Criteria

The SMI 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 SMI.

The SMI 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 SMI 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 SMI 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 SMI are no longer fulfilled. As a general rule, extraordinary acceptances into the SMI 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 SMI with five trading days’ prior notice if the circumstances permit such notice.

Number of Shares and Free Float. The securities included in the SMI 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 SMI because it does not confer voting rights.

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The number of securities in the SMI 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 SMI, 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 SMI after five trading days' notice.

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

**Capped Weightings and Intra-Quarter Breaches.** The weight of any index constituent that exceeds a weight of 18% within the Swiss Market Index is reduced to that value at each ordinary quarterly adjustment date by applying a capping factor to the calculation of such constituent's free float market capitalization. A constituent's number of shares and free float figure are used to determine its capping factor. The excess weight (the difference of the original weight minus the capped weight) is distributed proportionally across the other index constituents. The constituents are also capped to 18% as soon as two index constituents exceed a weight of 20% (an "intra-quarter breach"). If an intra-quarter breach is observed after the close of the markets, the new capping factors are implemented after the close of the following trading day. The weights of the largest components are therefore set again to be approximately 18% at the subsequent market open. In order to achieve a capped weighting while attempting to not cause market distortion, a stepwise reduction is conducted based on the ordinary quarterly index adjustment reviews to ensure that no change in the weight (as a result of capping) from one review to the next exceeds 3%. The transition period is in effect until no component has a weight larger than 18%. In the case of an intra-quarter breach where two index constituents exceed 20%, the weights are limited to the last defined weights as of the prior review.

## Index Calculation

The index sponsor calculates the SMI 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:

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

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 SMI 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 SMI.

## 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.

Capped Leveraged Index  
Return Notes® TS-20

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Leveraged Index Return Notes®

Linked to an International Equity Index Basket, due April 30, 2021

The following graph shows the daily historical performance of the SMI in the period from January 1, 2008 through April 25, 2019. We obtained this historical data from Bloomberg L.P. We have not independently verified the accuracy or completeness of the information obtained from Bloomberg L.P. On the pricing date, the closing level of the SMI was 9,694.06.

Historical Performance of the Swiss Market Index

This historical data on the SMI is not necessarily indicative of the future performance of the SMI or what the value of the notes may be. Any historical upward or downward trend in the level of the SMI during any period set forth above is not an indication that the level of the SMI is more or less likely to increase or decrease at any time over the term of the notes.

Before investing in the notes, you should consult publicly available sources for the levels of the SMI.

License Agreement

The notes 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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Capped Leveraged Index  
Return Notes® TS-21

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### Leveraged Index Return Notes®

Linked to an International Equity Index Basket, due April 30, 2021

The S&P/ASX 200 Index

The S&P®/ASX 200 Index (the “AS51”):

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 AS51 includes 200 companies and covers approximately 80% of the Australian equity market by market capitalization. As discussed below, the AS51 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 AS51. Hybrid stocks, bonds, warrants, preferred stock that provides a guaranteed fixed return and listed investment companies are not eligible for inclusion.

The AS51 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 AS51 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 AS51 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 AS51 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

All stocks in the index are assigned an IWF, which is an adjustment factor that accounts for the publicly available shares of a company.

The IWF ranges between 0 and 1, and is calculated as 1 minus the percentage of shares held by strategic shareholders who possess 5% or more of issued shares. 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).

Capped Leveraged Index  
Return Notes® TS-22

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## Leveraged Index Return Notes®

Linked to an International Equity Index Basket, due April 30, 2021

### 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 AS51, provided that liquidity hurdles are met.

In order to limit the level of index turnover, eligible non-constituent securities will generally only be considered for index inclusion once a current constituent 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 AS51 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 AS51 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 AS51 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 AS51 is calculated using a base-weighted aggregate methodology. The value of the AS51 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 AS51 times the number of shares of such stock included in the AS51 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 AS51 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 AS51 does not reflect the corporate actions of the individual companies that comprise the AS51. The table below summarizes the types of index adjustments and indicates whether the corporate action will require a divisor adjustment:

Capped Leveraged Index  
Return Notes® TS-23

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## Leveraged Index Return Notes®

Linked to an International Equity Index Basket, due April 30, 2021

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 AS51	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 AS51 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 AS51 for that day.

## Recalculation Policy

S&P reserves the right to recalculate and republish the S&P®/ASX 200 Index at its discretion in the event one of the following issues has occurred:

- incorrect or revised closing price of one or more constituent securities;
- missed corporate event;
- incorrect application of corporate action or index methodology;
- late announcement of a corporate event; or
- incorrect calculation or data entry error.

The decision to recalculate the index is made at the discretion of S&P's index manager and/or the ASX Committee, as further discussed below. The potential market impact or disruption resulting from the potential recalculation is considered when making any such decision. In the event of one of the above events, other than as described in the third bullet, the index manager may, at his or her discretion, recalculate the index without involving the ASX Committee. If such event is discovered beyond the two trading day period, the ASX Committee shall decide whether the index should be recalculated. In the event of an incorrect application of the methodology that results in the incorrect composition and/or weighting of index constituents, the ASX Committee shall determine whether or not to recalculate the index following specified guidelines. If the index is recalculated, it shall be done within a reasonable timeframe following the detection and review of the issue.

### Leveraged Index Return Notes®

Linked to an International Equity Index Basket, due April 30, 2021

The following graph shows the daily historical performance of the AS51 in the period from January 1, 2008 through April 26, 2019. We obtained this historical data from Bloomberg L.P. We have not independently verified the accuracy or completeness of the information obtained from Bloomberg L.P. On April 26, 2019, the closing level of the AS51 was 6,385.646.

### Historical Performance of the S&P/ASX 200 Index

This historical data on the AS51 is not necessarily indicative of the future performance of the AS51 or what the value of the notes may be. Any historical upward or downward trend in the level of the AS51 during any period set forth above is not an indication that the level of the AS51 is more or less likely to increase or decrease at any time over the term of the notes.

Before investing in the notes, you should consult publicly available sources for the levels of the AS51.

### 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](http://www.asx.com.au). We are not incorporating by reference the website or any material it includes in this document.

Capped Leveraged Index  
Return Notes® TS-25

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Leveraged Index Return Notes®

Linked to an International Equity Index Basket, due April 30, 2021

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:

$$\begin{aligned} \text{Current Index} &= \frac{\text{Current Aggregate Free Float-adjusted Market Capitalization of Constituents}}{\text{Yesterday's Aggregate Free Float-adjusted Market Capitalization of Constituents}} \times \text{Yesterday's Closing Index} \\ &= \frac{\sum (P_t \times IS \times FAF \times CF)}{\sum (P_{t-1} \times IS \times FAF \times CF)} \times \text{Yesterday's Closing Index} \end{aligned}$$

where:

P<sub>t</sub>: current price at day t;

P<sub>t-1</sub>: 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.

Capped Leveraged Index  
Return Notes® TS-26

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### Leveraged Index Return Notes®

Linked to an International Equity Index Basket, due April 30, 2021

The following graph shows the daily historical performance of the HSI in the period from January 1, 2008 through April 25, 2019. We obtained this historical data from Bloomberg L.P. We have not independently verified the accuracy or completeness of the information obtained from Bloomberg L.P. On the pricing date, the closing level of the HSI was 29,549.80.

### Historical Performance of the Hang Seng® Index

This historical data on the HSI is not necessarily indicative of the future performance of the HSI or what the value of the notes may be. Any historical upward or downward trend in the level of the HSI during any period set forth above is not an indication that the level of the HSI is more or less likely to increase or decrease at any time over the term of the notes.

Before investing in the notes, you should consult publicly available sources for the levels of the HSI.

### License Agreement

The Hang Seng® Index (the “Index”) is published and compiled by Hang Seng Indexes Company Limited pursuant to a license from Hang Seng Data Services Limited. The mark(s) and name(s) of the Hang Seng® Index are proprietary to Hang Seng Data Services Limited. Hang Seng Indexes Company Limited and Hang Seng Data Services Limited have agreed to the use of, and reference to, the Index by Royal Bank of Canada, BUT NEITHER HANG SENG INDEXES COMPANY LIMITED NOR HANG SENG DATA SERVICES LIMITED WARRANTS OR REPRESENTS OR GUARANTEES TO ANY BROKER OR HOLDER OF THE SECURITIES OR ANY OTHER PERSON (i) THE ACCURACY OR COMPLETENESS OF THE INDEX AND ITS COMPUTATION OR ANY INFORMATION RELATED THERETO; OR (ii) THE FITNESS OR SUITABILITY FOR ANY PURPOSE OF THE INDEX OR ANY COMPONENT OR DATA COMPRISED IN IT; OR (iii) THE RESULTS WHICH MAY BE OBTAINED BY ANY PERSON FROM THE USE OF THE INDEX OR ANY COMPONENT OR DATA COMPRISED IN IT FOR ANY PURPOSE, AND NO WARRANTY OR REPRESENTATION OR GUARANTEE OF ANY KIND WHATSOEVER RELATING TO THE INDEX IS GIVEN OR MAY BE IMPLIED. The process and basis of computation and compilation 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 notes in any manner whatsoever by any broker, holder or other person dealing with the notes. Any broker, holder or other person dealing with the notes 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.



Leveraged Index Return Notes®

Linked to an International Equity Index Basket, due April 30, 2021

Supplement to the Plan of Distribution

Under our distribution agreement with MLPF&S, MLPF&S will purchase the notes from us as principal at the public offering price indicated on the cover of this term sheet, less the indicated underwriting discount.

We will deliver the notes against payment therefor in New York, New York on a date that is greater than two business days following the pricing date. Under Rule 15c6-1 of the Securities Exchange Act of 1934, trades in the secondary market generally are required to settle in two business days, unless the parties to any such trade expressly agree otherwise. Accordingly, purchasers who wish to trade the notes more than two business days prior to the original issue date will be required to specify alternative settlement arrangements to prevent a failed settlement.

The notes will not be listed on any securities exchange. In the original offering of the notes, the notes will be sold in minimum investment amounts of 100 units. If you place an order to purchase the notes, you are consenting to MLPF&S acting as a principal in effecting the transaction for your account.

MLPF&S may repurchase and resell the notes, with repurchases and resales being made at prices related to then-prevailing market prices or at negotiated prices, and these prices will include MLPF&S's trading commissions and mark-ups. MLPF&S may act as principal or agent in these market-making transactions; however, it is not obligated to engage in any such transactions. At MLPF&S's discretion, for a short, undetermined initial period after the issuance of the notes, MLPF&S may offer to buy the notes in the secondary market at a price that may exceed the initial estimated value of the notes. Any price offered by MLPF&S for the notes will be based on then-prevailing market conditions and other considerations, including the performance of the Basket and the remaining term of the notes. However, neither we nor any of our affiliates is obligated to purchase your notes at any price or at any time, and we cannot assure you that we, MLPF&S or any of our respective affiliates will purchase your notes at a price that equals or exceeds the initial estimated value of the notes.

The value of the notes shown on your account statement will be based on MLPF&S's estimate of the value of the notes if MLPF&S or another of its affiliates were to make a market in the notes, which it is not obligated to do. That estimate will be based upon the price that MLPF&S may pay for the notes in light of then-prevailing market conditions and other considerations, as mentioned above, and will include transaction costs. At certain times, this price may be higher than or lower than the initial estimated value of the notes.

The distribution of the Note Prospectus in connection with these offers or sales will be solely for the purpose of providing investors with the description of the terms of the notes that was made available to investors in connection with their initial offering. Secondary market investors should not, and will not be authorized to, rely on the Note Prospectus for information regarding RBC or for any purpose other than that described in the immediately preceding sentence.

Capped Leveraged Index  
Return Notes® TS-28

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Leveraged Index Return Notes®

Linked to an International Equity Index Basket, due April 30, 2021

Structuring the Notes

The notes are our debt securities, the return on which is linked to the performance of the Basket. As is the case for all of our debt securities, including our market-linked notes, the economic terms of the notes reflect our actual or perceived creditworthiness at the time of pricing. In addition, because market-linked notes result in increased operational, funding and liability management costs to us, we typically borrow the funds under these notes at a rate that is more favorable to us than the rate which we refer to as our internal funding rate, which is the rate that we might pay for a conventional fixed or floating rate debt security. This generally relatively lower internal funding rate, which is reflected in the economic terms of the notes, along with the fees and charges associated with market-linked notes, resulted in the initial estimated value of the notes on the pricing date being less than their public offering price.

At maturity, we are required to pay the Redemption Amount to holders of the notes, which will be calculated based on the \$10 per unit principal amount and will depend on the performance of the Basket. In order to meet these payment obligations, at the time we issue the notes, we may choose to enter into certain hedging arrangements (which may include call options, put options or other derivatives) with MLPF&S or one of its affiliates. The terms of these hedging arrangements are determined by seeking bids from market participants, including MLPF&S and its affiliates, and take into account a number of factors, including our creditworthiness, interest rate movements, the volatility of the Basket Components, the tenor of the notes and the tenor of the hedging arrangements. The economic terms of the notes and their initial estimated value depend in part on the terms of these hedging arrangements.

MLPF&S has advised us that the hedging arrangements will include a hedging related charge of approximately \$0.075 per unit, reflecting an estimated profit to be credited to MLPF&S from these transactions. Since hedging entails risk and may be influenced by unpredictable market forces, additional profits and losses from these hedging arrangements may be realized by MLPF&S or any third party hedge providers.

For further information, see “Risk Factors—General Risks Relating to the LIRNs” beginning on page PS-6 and “Use of Proceeds and Hedging” on page PS-15 of product supplement EQUITY INDICES LIRN-1.

MLPF&S Reorganization

The current business of MLPF&S is being reorganized into two affiliated broker-dealers: MLPF&S and a new broker-dealer, BofA Securities, Inc. (“BofAS”). MLPF&S will be assigning its rights and obligations as selling agent for the notes under our distribution agreement to BofAS effective on the “Transfer Date.” Effective on the Transfer Date, BofAS will be the new legal entity for the institutional services that are now provided by MLPF&S. As such, beginning on the Transfer Date, the institutional services currently being provided by MLPF&S, including acting as selling agent for the notes, acting as calculation agent for the notes, acting as principal or agent in secondary market-making transactions for the notes and entering into hedging arrangements with respect to the notes, are expected to be provided by BofAS. Accordingly, references to MLPF&S in this term sheet as such references relate to MLPF&S’s institutional services, such as those described above, should be read as references to BofAS to the extent these services are to be performed on or after the Transfer Date.

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Summary of Canadian Federal Income Tax Consequences

For a discussion of the material Canadian federal income tax consequences relating to an investment in the notes, please see the section entitled “Tax Consequences—Canadian Taxation” in the prospectus dated September 7, 2018.

Summary of U.S. Federal Income Tax Consequences

You should consider the U.S. federal income tax consequences of an investment in the notes, including the following:

There is no statutory, judicial, or administrative authority directly addressing the characterization of the notes.

You agree with us (in the absence of a statutory, regulatory, administrative, or judicial ruling to the contrary) to characterize and treat the notes for all tax purposes as pre-paid derivative contracts in respect of the Basket.

Under this characterization and tax treatment of the notes, a U.S. holder (as defined on page 41 of the prospectus) generally will recognize capital gain or loss upon the sale or maturity of the notes. This capital gain or loss generally will be long-term capital gain or loss if you held the notes for more than one year.

No assurance can be given that the Internal Revenue Service or any court will agree with this characterization and tax treatment.

Under current Internal Revenue Service guidance, withholding on “dividend equivalent” payments (as discussed in the product supplement), if any, will not apply to notes that are issued as of the date of this pricing supplement unless such notes are “delta-one” instruments.

The accompanying product supplement notes that FATCA withholding on payments of gross proceeds from a sale or redemption of the notes 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 notes.

You should consult your own tax advisor concerning the U.S. federal income tax consequences to you of acquiring, owning, and disposing of the notes, as well as any tax consequences arising under the laws of any state, local, foreign, or other tax jurisdiction and the possible effects of changes in U.S. federal or other tax laws. You should review carefully the discussion under the section entitled “U.S. Federal Income Tax Summary” beginning on page PS-30 of product supplement EQUITY INDICES LIRN-1.

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### Validity of the Notes

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

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

### Terms Incorporated in Master Global Security

The terms appearing under the captions "Summary—Terms of the Notes" and "Summary—Redemption Amount Determination" on page TS-2 above, the pricing date, settlement date and maturity date appearing on the cover page, and the applicable terms included in the documents listed under "Summary" on page TS-2 are incorporated into the master global security that represents the notes and is held by The Depository Trust Company.

### Where You Can Find More Information

We have filed a registration statement (including a product supplement, a prospectus supplement, and a prospectus) with the SEC for the offering to which this term sheet relates. Before you invest, you should read the Note Prospectus, including this term sheet, and the other documents that we have filed with the SEC, for more complete information about us and this offering. You may get these documents without cost by visiting EDGAR on the SEC website at [www.sec.gov](http://www.sec.gov). Alternatively, we, any agent, or any dealer participating in this offering will arrange to send you these documents if you so request by calling MLPF&S toll-free at 1-800-294-1322.

### Market-Linked Investments Classification

MLPF&S classifies certain market-linked investments (the "Market-Linked Investments") into categories, each with different investment characteristics. The following description is meant solely for informational purposes and is not intended to represent any particular Enhanced Return Market-Linked Investment or guarantee any performance. Enhanced Return Market-Linked Investments are short- to medium-term investments that offer you a way to enhance exposure to a particular market view without taking on a similarly enhanced level of market downside risk. They can be especially effective in a flat to moderately positive market (or, in the case of bearish investments, a flat to moderately negative market). In exchange for the potential to receive better-than market returns on the linked asset, you must generally accept market downside risk and capped upside potential. As these investments are not market downside protected, and do not assure full repayment of principal at maturity, you need to be prepared for the possibility that you may lose all or part of your investment.

“Leveraged Index Return Notes®” and “LIRN®” are the registered service marks of Bank of America Corporation, the parent company of MLPF&S.

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