DEUTSCHE BANK AKTIENGESELLSCHAFT
Form 424B2
August 31, 2018

Underlying Supplement No. 1

To prospectus dated August 20, 2018 and Series A notes prospectus supplement dated August 20, 2018 and warrants prospectus supplement dated August 20, 2018, each as may be amended

Registration Statement No. 333-226421

Dated August 31, 2018
Securities Act of 1933, Rule 424(b)(2)

Notes, Securities or Warrants Linked to an Index and/or an Exchange Traded Fund, or a Basket of Indices and/or Exchange Traded Funds

Deutsche Bank AG may from time to time offer and sell notes or securities, as part of our Global Notes, Series A, or warrants (collectively, the "**securities**"), in each case, linked to one or more indices and/or exchange traded fund, or a basket of indices and/or exchange traded funds, or other underlying assets. This underlying supplement describes some of the potential indices and exchange traded funds to which the securities may be linked, as well as related matters concerning the relationship, if any, between Deutsche Bank AG and the sponsor or publisher of the index, indices and/or exchange traded fund(s), as applicable. Additional specific terms of any securities that we offer, including any additions or changes to the terms specified in the product supplement relating to your securities or the description of the index, indices and/or exchange traded fund(s) contained in this underlying supplement, will be described in a separate free writing prospectus, term sheet or pricing supplement, which we refer to generally as a "**pricing supplement**." Any relevant pricing supplement, including any free writing prospectus, should be read in connection with this underlying supplement, the relevant product supplement and the accompanying prospectus and Series A notes prospectus supplement or warrants prospectus supplement, as applicable. If there is any inconsistency between the terms described in the relevant pricing supplement and those described in this underlying supplement or in the accompanying prospectus, prospectus supplement or product supplement, the terms described in the relevant pricing supplement will be controlling.

Underlying Indices and Exchange Traded Funds: The Bloomberg Commodity Index^{SM}, the CAC 40® Index, the CBOE S&P 500 BuyWrite Index^{SM}, the CNX Nifty Index, the DAX® Index, the FTSE™ 100 Index, the FTSE MIB Index, the FTSE China 50 Index, the Hang Seng Indices, the IBEX 35® Index, the JPX-Nikkei Index 400, the KOSPI 200 Index, the MDAX® Index, the MSCI Indices, the NASDAQ-100® Index, the Nikkei 225 Index, the NYSE Arca Gold Miners Index, the PHLX Semiconductor Sector Index^{SM},the Russell Indices, the S&P Dow Jones Indices, the STOXX Indices, the Swiss Market Index, the Tokyo Stock Price Index, the Tokyo Stock Exchange TOPIX Banks Index, the iShares® Exchange Traded Funds, the VanEck Vectors ETF Trust, the Invesco QQQ^{SM}, the Select Sector SPDR Exchange Traded Funds, the Select Industry SPDR Exchange Traded Funds, the SPDR® S&P 500® ETF Trust, the SPDR® S&P MidCap 400® ETF Trust, the United States Oil Fund, LP and the Vanguard FTSE Emerging Markets ETF.

Investing in the securities involves risks not associated with an investment in conventional securities. See "Risk Factors" beginning on page 19 of the accompanying prospectus and page 5 of the accompanying Series A notes prospectus supplement or page 3 of the accompanying warrant prospectus supplement, as applicable, "Risk Factors" in the relevant product supplement and "Selected Risk Considerations" in the relevant pricing supplement for risks related to an investment in the securities.

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

The securities are not deposits or savings accounts and are not insured or guaranteed by the Federal Deposit Insurance Corporation or any other U.S. or foreign governmental agency or instrumentality.

August 31, 2018

ADDITIONAL INFORMATION ABOUT THE SECURITIES

You should read this underlying supplement together with the prospectus dated August 20, 2018, as supplemented by the prospectus supplement dated August 20, 2018, relating to our Series A global notes, or the prospectus supplement dated August 20, 2018, relating to our warrants, and any relevant product supplement and pricing supplement that we may file with the SEC from time to time, which contains a description of the terms of particular categories of securities or the specific terms of your securities.

Our Central Index Key, or CIK, on the SEC website is 0001159508. As used in this underlying supplement, "**we**," "**us**" or "**our**" refers to Deutsche Bank AG, including, as the context requires, acting through one of its branches.

You should carefully consider, among other things, the risk considerations set forth in accompanying prospectus and prospectus supplement and the relevant product supplement and pricing supplement, as the securities involve risks not associated with conventional debt securities. We urge you to consult your investment, legal, tax, accounting and other advisers before deciding to invest in the securities.

This underlying supplement describes some of the potential indices and/or exchange traded funds to which the securities may be linked and the relationship, if any, between Deutsche Bank AG and the sponsor or publisher of the indices or exchange traded funds. If there is any inconsistency between the terms described in the relevant pricing supplement and those described in this underlying supplement, the terms described in the relevant pricing supplement will be controlling. Any relevant pricing supplement should also be read in connection with this underlying supplement, the relevant product supplement, if any, and the accompanying prospectus and prospectus supplement.

In this underlying supplement, when we refer to the "**securities**," we mean certain securities, notes or warrants that may be offered by Deutsche Bank AG from time to time linked to one or more indices, exchange traded funds or other underlying assets. Also, references to the "**accompanying prospectus**" and "**prospectus supplement**" mean, respectively, the accompanying prospectus dated August 20, 2018 and the prospectus supplement dated August 20, 2018, relating to our Series A global notes, or the prospectus supplement dated August 20, 2018, relating to our warrants, as applicable, of Deutsche Bank AG, and references to "**relevant product supplement**" refer to the relevant product supplement that we may file from time to time relating to the particular category of your securities. References to the "**relevant pricing supplement**" mean the pricing supplement and any free writing prospectus that describe the specific terms of your securities.

Specific Terms Will Be Described in Relevant Pricing Supplements

The specific terms of your securities will be described in the relevant pricing supplement, including any additions or changes to the terms specified in the relevant product supplement or the description of the relevant index, indices or exchange traded fund(s) set forth in this underlying supplement.

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Indices

The Bloomberg Commodity Index[SM]

We have derived all information contained in this underlying supplement regarding the Bloomberg Commodity Index[SM] (the "**BCOM Index**"), including, without limitation, its make-up, method of calculation and changes in its components from publicly available information, and we have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by, UBS Securities LLC ("UBS") and Bloomberg Finance L.P. UBS and Bloomberg Finance L.P. have no obligation to continue to publish the BCOM Index, and may discontinue publication of the BCOM Index at any time in their sole discretion.

On July 1, 2014, Bloomberg Finance L.P. became responsible for the governance, calculation, distribution and licensing of the BCOM Index. The BCOM Index was renamed from the Dow Jones–UBS Commodity Index[SM] to the Bloomberg Commodity Index[SM] and the ticker changed from "DJUBS" to "BCOM." UBS has maintained its ownership, but Bloomberg Finance L.P. calculates the BCOM Index on behalf of UBS. Material changes or amendments to the index methodology are subject to approval by the Bloomberg Index Oversight Committee in consultation, if practicable, with UBS.

The Bloomberg Commodity Index 3 Month Forward[SM]

The Bloomberg Commodity Index 3 Month Forward[SM] is a forward month version of the Bloomberg Commodity Index[SM] (the "**BCOM Index**"). The Underlying is calculated on an excess return basis using the same methodology as the BCOM Index except that the contracts used in calculating the Underlying are delivered three months later than the corresponding contracts used to calculate the BCOM Index.

General

The BCOM Index was established in July 1998 to provide a liquid and diversified benchmark for commodity investments. The BCOM Index is currently composed of 22 exchange traded futures contracts on physical commodities. A commodity futures contract is an agreement that provides for the purchase and sale of a specified type and quantity of a commodity during a stated delivery month for a fixed price. Of the 24 commodities eligible for inclusion in the BCOM Index, the 20 commodities for 2018 that compose the BCOM Index (each an "**Index Commodity**" and collectively, the "**Index Commodities**"): Aluminum, Crude Oil (Brent and WTI), Coffee, Copper, Corn, Cotton, Gold, Lean Hogs, Live Cattle, Natural Gas, Nickel, Silver, Soybean Meal, Soybean Oil, Soybeans, Sugar, Unleaded Gasoline, ULS Diesel, Wheat (soft and hard red winter) and Zinc. Futures contracts on the BCOM

Index are currently listed for trading on the Chicago Board of Trade (the "**CBOT**"), the Commodities Exchange division of the New York Mercantile Exchange ("**COMEX**"), the New York Mercantile Exchange ("**NYMEX**"), the Chicago Mercantile Exchange ("**CME**"), the London Metals Exchange ("**LME**") and the Intercontinental Exchange ("**ICE**") (U.S. and Europe).

The BCOM Index is calculated on an excess return basis and on a total return basis. The former reflects the return of underlying commodity futures price movements only, while the latter reflects the return on fully collateralized positions in the underlying commodity futures. The Bloomberg Commodity Index Excess Return^{SM} and the Bloomberg Commodity Index Total Return^{SM} are reported by Bloomberg Finance L.P. under the ticker symbols "BCOM" and "BCOMTR," respectively.

Methodology

The BCOM Index tracks what is known as a rolling futures position, which is a position where, on a periodic basis, futures contracts on physical commodities specifying delivery on a nearby date must be sold and futures contracts on physical commodities that have not yet reached the delivery period must be purchased. An investor with a rolling futures position is able to avoid delivering underlying physical commodities while maintaining exposure to those commodities. The rollover for each BCOM Index component occurs over a period of five BCOM Business Days each month according to a pre-determined schedule.

The methodology for determining the composition and weighting of the BCOM Index and for calculating its level is subject to modification by Bloomberg Finance L.P. at any time.

A "**BCOM Business Day**" means a day on which the sum of the BCOM Index percentages (as described below under "—Annual Reweighting and Rebalancing of the BCOM Index") for the Index Commodities that are open for trading is greater than 50%.

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The BCOM Index was created using the following four main principles

Economic Significance: To achieve a fair representation of a diversified group of commodities to the world economy, the BCOM Index uses both liquidity data and U.S. dollar-weighted production data in determining the relative quantities of included commodities. The BCOM Index primarily relies on liquidity data, or the relative amount of trading activity of a particular commodity, as an important indicator of the value placed on that commodity by financial and physical market participants. The BCOM Index also relies on production data as a useful measure of the importance of a commodity to the world economy.

Diversification: In order to avoid the BCOM Index being subjected to micro-economic shocks in one commodity or sector, diversification rules have been established and are applied annually in order to maintain diversified commodities exposure over time. Additionally, the BCOM Index is rebalanced annualy on a price-percentage basis in order to maintain diversified commodities exposure over time.

Continuity: The BCOM Index is intended to provide a stable benchmark so that there is reasonable confidence that historical performance data is based on a structure that bears some resemblance to both the current and future composition of the BCOM Index.

Liquidity: The explicit inclusion of liquidity as a weighting factor helps to ensure that the BCOM Index can accommodate substantial investment flows.

Designated Contracts for each Index Commodity

A futures contract known as a designated contract is selected for each of the 24 commodities eligible for inclusion in the BCOM Index. With the exception of several LME contracts, crude oil and wheat, where there exists more than one futures contract with sufficient liquidity to be chosen as a designated contract for an eligible commodity, the futures contract that is traded in North America and denominated in U.S. dollars has been chosen. Bloomberg L.P. may in the future select more than one designated contract for additional commodities or may select designated contracts that are traded outside of the United States or in currencies other than the U.S. Dollar. For example, in the event that changes in regulations concerning position limits materially affect the ability of market participants to replicate the BCOM Index in the underlying futures markets, it may become appropriate to include multiple designated contracts for one or more commodities (in addition to crude oil and wheat) to enhance liquidity. The termination or replacement of a futures contract on an established exchange occurs infrequently. If a designated contract were to be terminated or replaced, a comparable futures contract would be selected, if available, to replace that designated contract. The 24 commodities eligible for inclusion in the BCOM Index are traded on the LME, CBOT, COMEX, NYMEX, CME, LME, ICE Europe and ICE U.S., and are as follows:

Commodity	Designated Contract	Exchange	Units	Price quote
Aluminum	High Grade Primary Aluminum	LME	25 metric tons	USD/metric ton
Brent Crude Oil	Brent Crude Oil	ICE Europe	1,000 barrels	USD/barrel
Cocoa	Cocoa	ICE U.S.	10 metric tons	USD/metric ton
Coffee	Coffee “C”	ICE U.S.	37,500 lbs	U.S. cents/pound
Copper	Copper	COMEX*	25,000 lbs	U.S. cents/pound
Corn	Corn	CBOT	5,000 bushels	U.S. cents/bushel
Cotton	Cotton	ICE U.S.	50,000 lbs	U.S. cents/pound
Gold	Gold	COMEX	100 troy oz.	USD/troy oz.
Lead	Refined Standard Lead	LME	25 metric tons	USD/metric ton
Lean Hogs	Lean Hogs	CME	40,000 lbs	U.S. cents/pound
Live Cattle	Live Cattle	CME	40,000 lbs	U.S. cents/pound
Natural Gas	Henry Hub Natural Gas	NYMEX	10,000 mmbtu	USD/mmbtu
Nickel	Primary Nickel	LME	6 metric tons	USD/metric ton
Platinum	Platinum	NYMEX	50 troy oz.	USD/troy oz
Silver	Silver	COMEX	5,000 troy oz.	U.S. cents/troy oz.
Soybean Meal	Soybean Meal	CBOT	100 short tons	USD/short ton

Soybean Oil	Soybean Oil	CBOT	60,000 lbs	U.S. cents/pound
Soybeans	Soybeans	CBOT	5,000 bushels	U.S. cents/bushel
Sugar	World Sugar No. 11	ICE U.S.	112,000 lbs	U.S. cents/pound
Tin	Refined Tin	LME	5 metric tons	USD/metric ton
ULS Diesel	ULS Diesel	NYMEX	42,000 gallons	U.S. cents/gallon
Unleaded Gasoline	RBOB	NYMEX	42,000 gallons	U.S. cents/gallon
Wheat (Chicago)	Soft Wheat	CBOT	5,000 bushels	U.S. cents/bushel
Kansas (KC HRW)	Hard Red Winter Wheat	CBOT	5,000 bushels	U.S. cents/bushel
WTI Crude Oil	Light, Sweet Crude Oil	NYMEX	1,000 barrels	USD/barrel
Zinc	Special High Grade Zinc	LME	25 metric tons	USD/metric ton

* The BCOM Index uses the copper contract traded on the COMEX for copper contract prices and LME copper contract volume data in determining the weighting for the BCOM Index.

Commodity Groups

For purposes of applying the diversification rules discussed above and below, the commodities available for inclusion in the BCOM Index are assigned to "Commodity Groups." The Commodity Groups, and the commodities currently included in each Commodity Group, are as follows:

Commodity Group	Commodities	Commodity Group	Commodities
Energy	Crude Oil (WTI and Brent) Natural Gas Unleaded Gasoline ULS Diesel	Livestock	Live Cattle Lean Hogs
Industrial Metals	Aluminum Copper Nickel Zinc Lead** Tin**	Precious Metals	Gold Silver Platinum**
Grains	Corn Soybean Meal Soybean Oil Soybeans Wheat (Chicago and KC HRW)	Softs	Coffee Cotton Sugar Cocoa**

** Out of the 24 commodities available for inclusion annually in the BCOM Index, only those four commodities marked in the table above with asterisks are currently not included in the BCOM Index.

Annual Reweighting and Rebalancing of the BCOM Index

The BCOM Index is reweighted and rebalanced each year in January on a price-percentage basis. The annual weightings for the BCOM Index are determined each year in the third or fourth quarter of the year and are published as promptly as practicable following the calculation. The annual weightings are implemented in January of the effective year.

The relative weightings of the component commodities included in the BCOM Index are determined annually according to both liquidity and U.S. dollar-adjusted production data in two-thirds and one-third shares, respectively. For each commodity designated for potential inclusion in the BCOM Index, liquidity is measured by the commodity liquidity percentage (the "**CLP**") and production by the commodity production percentage (the "**CPP**"). The CLP for each

commodity is determined by taking a five-year average of the product of the trading volume and the historic U.S. dollar value of the designated contract for that commodity, and dividing the result by the sum of the products for all commodities which were designated for potential inclusion in the BCOM Index. The CPP is determined for each commodity by taking a five-year average of annual world production figures, adjusted by the historic U.S. dollar value of the designated contract, and dividing the result by the sum of the production figures for all the commodities which were designated for potential inclusion in the BCOM Index. The CLP and CPP are then combined (using a ratio of 2:1) to establish the Commodity Index Percentage (the "**CIP**") for each commodity. The CIP is then adjusted in accordance with the diversification rules described below in order to determine the commodities which will be included in the BCOM Index and their respective percentage weights.

To ensure that no single commodity or commodity sector dominates the BCOM Index, the following diversification rules are applied to the annual reweighting and rebalancing of the BCOM Index:

- No related group of commodities (e.g., energy, precious metals, livestock or grains) may constitute more than 33% of the BCOM Index;
- No single commodity (e.g., natural gas, silver) may constitute more than 15% of the BCOM Index;
- No single commodity, together with its derivatives (e.g., WTI Crude Oil and Brent Crude Oil, together with ULS diesel and unleaded gasoline), may constitute more than 25% of the BCOM Index; and
- No single commodity (e.g., natural gas, silver) may constitute less than 2% of the BCOM Index, as liquidity allows.

Following the annual reweighting and rebalancing of the BCOM Index in January, the percentage of any single commodity or group of commodities at any time prior to the next reweighting or rebalancing will fluctuate and may exceed or be less than the percentages set forth above.

Following application of the diversification rules discussed above, the CIPs are incorporated into the BCOM Index by calculating the new unit weights for each Index Commodity. Near the beginning of each new calendar year, the CIPs, along with the settlement prices on that date for the BCOM Index components, are used to determine the commodity index multiplier (the "**CIM**") for each Index Commodity. The CIM is used to achieve the percentage weightings of the Index Commodities, in dollar terms, indicated by their respective CIPs. After the CIMs are calculated, they remain fixed throughout the year. As a result, the observed price percentage of each Index Commodity will float throughout the year, until the CIMs are reset the following year based on new CIPs.

Computation of the Bloomberg Commodity Index^{SM}

The BCOM Index is calculated by Bloomberg Finance L.P. by applying the impact of the changes to the prices of the BCOM Index components (based on their relative weightings). Once the CIMs are determined as discussed above, the calculation of the BCOM Index is a mathematical process whereby the CIMs for the BCOM Index components are multiplied by the prices for the BCOM Index components. These products are then summed. The percentage change in this sum is then applied to the prior level of the BCOM Index to calculate the current level of the BCOM Index level. The BCOM Index is calculated on an excess return and on a total return basis.

Index Calculation Disruption Events

The BCOM Index is a futures-based index. From time to time, BCOM Market Disruption Events can occur in trading futures contracts on various commodity exchanges. "**BCOM Market Disruption Event**" means:

(a) the termination or suspension of, or material limitation or disruption in the trading of any futures contract used in the calculation of the BCOM Index on that day;

(b) the settlement price of any futures contract used in the calculation of the BCOM Index reflects the maximum permitted price change from the previous day's settlement price;

(c) the failure of an exchange to publish official settlement prices for any futures contract used in the calculation of the BCOM Index; or

(d) with respect to any futures contract used in the calculation of the BCOM Index that trades on the LME, a BCOM Business Day on which the LME is not open for trading.

The existence of a BCOM Market Disruption Event shall be determined by Bloomberg L.P.

If a BCOM Market Disruption Event occurs during the "**Hedge Roll Period**" (defined herein as the fifth through the ninth BCOM Business Day of each month) in any month other than January affecting any Index Commodity, then the daily roll of the relevant designated contract for such Index Commodity will be postponed until the next available BCOM Business Day on which a BCOM Market Disruption Event does not occur, and the calculation of the BCOM Index will be adjusted to reflect this.

If a BCOM Market Disruption Event occurs during the Hedge Roll Period scheduled for January of each year affecting any Index Commodity, then the rolling or rebalancing of the relevant designated contract for such Index Commodity will occur in all cases over five BCOM Business Days on which no BCOM Market Disruption Event exists at a rate of 20% per day for every BCOM Business Day following a BCOM Market Disruption Event until the extended Hedge Roll Period is complete.

If a BCOM Market Disruption Event occurs on a determination date of the CIM in respect of the applicable futures contract for an Index Commodity that is caused by a "limit event" (as defined by the applicable futures exchange), Bloomberg L.P. will use the current day's settlement price of such futures contract to determine the new CIM with respect to such Index Commodity. If a Market Disruption Event occurs due to an exhange's failure to produce a settlement price of such futures contract, then the settlement prices used to calculate the CIMs for such year will be from the first prior BCOM Business Day on which a BCOM Market Disruption Event had not occurred in any such futures contracts.

The CAC 40® Index

We have derived all information contained in this pricing supplement regarding the CAC 40® Index (the "**CAC Index**"), including, without limitation, information concerning its make-up, method of calculation and changes in its components, from publicly available information. We have not participated in the preparation of, or verified, such information. Such information reflects the policies of, and is subject to change by, Euronext N.V. ("**Euronext**"), the sponsor of the CAC Index. The CAC Index is calculated, maintained and published by Euronext. Euronext has no obligation to continue to publish, and may discontinue or suspend the publication of, the CAC Index at any time.

The CAC Index is calculated in euros and is reported by Bloomberg L.P. under the ticker symbol "CAC."

The CAC Index is a free float market capitalization weighted index that reflects the performance of the 40 largest and most actively traded shares listed on the Euronext Paris. Euronext is responsible for the day-to-day management of the CAC Index and is also responsible for decisions regarding the interpreting the rules governing the CAC Index. The Conseil Scientifique acts as an independent supervisor of the CAC Index and is responsible for monitoring the selection of constituents for the CAC Index and ensuring that the index offers a reliable and representative view of the market. The base date for the CAC Index is December 31, 1987 and the base value of the CAC Index was 1,000.

Index Eligibility

The universe of eligible constituents for the CAC Index is defined as companies that have been admitted for listing on Euronext Paris' regulated market. The CAC Index consists of companies with Euronext Paris as their market of reference, as well as companies with a market of reference other than Euronext Paris that may qualify for continued inclusion based on:

1) the significant presence (relative to the size of the group) of business assets and/or head-office activities in France, and/or employment of significant numbers of staff in France;

2) significant trading volumes on related derivative instruments in Paris; or

3) the company's inclusion in the universe of eligible constituents for the CAC Index on January 1, 2014, in so far as criteria (1) and/or (2) above are still applicable.

If a company changes its market of reference to a market of reference other than Euronext Paris as a result of a merger or similar situation, such company will continue to be eligible for inclusion in the CAC Index. At each annual review, Conseil Scientifique retains the right to decide on the eligibility of the new entity based on criteria (1) and/or (2) above. If a company changes its market of reference for other reasons, such company may become ineligible for inclusion in the CAC Index at the next annual review, regardless of considerations based on criteria (1) and/or (2) above.

In addition, the shares of the following companies are *excluded* from the CAC Index:

- holding companies of companies admitted to listing on Euronext Paris;
- companies whose shares are allocated to the recovery box or penalty bench;
- shares quoted in currencies other than euro;
- shares not traded continuously;
- warrants, rights and other derivative securities.

The constituents of the CAC Index are not required to fulfil a minimum free float criterion.

Index Composition and Reviews

The general aim of each quarterly and annual composition and review of the CAC Index is to ensure that the selection and weighting of the constituents of the CAC Index continue to reflect the underlying market or market segment it represents.

Ranking

Eligible companies are selected for inclusion in the CAC Index based on a combination of two rankings:

- the value of regulated turnover (the value of turnover traded via the Euronext electronic order book as well as the value of turnover from off-exchange transactions within the scope of Euronext's regulatory environment, such as block trades and the like) observed over a 12-month period; and
- the free float adjusted market capitalization on the Review Cut-Off Date (as defined below).

As only one listing – the most active one – is permitted per company, the listing representing the company's ordinary shares is generally used.

Liquidity Screening

At each annual review, the shares of a company must have a free float adjusted annual trading velocity of at least 20%. In other words, their regulated trading volume should represent at least 20% of the free float adjusted total number of shares issued by the company listed on Euronext Paris, calculated over the course of the full 12-month period relevant for the review. Velocity is calculated on a daily basis by *dividing* the number of shares traded by the number of shares listed. These daily figures are added up to calculate the annual velocity. At quarterly reviews, the minimum free float adjusted velocity is 30%, while for current constituents a minimum of 10% is required.

The free float percentage that is used in the velocity calculation is based on outstanding capital *less* shareholdings exceeding 5% (except where such interests are held by collective investment schemes, mutual funds, pension funds, certain insiders, government entities or the company itself) on the Review Cut-Off Date, rounded up to the nearest 5% multiple. However, the free float percentage used in the velocity calculation shall always be at least 25%.

In order to preserve a tradable constitution of the CAC Index, Euronext performs an extensive liquidity analysis. This analysis mainly consists of the trading volume relative to the available share capital observed over the preceding year as well as the last quarter. In case of a demerger, the velocity prior to such event is assumed to apply for all resulting entities. In case of a merger, Euronext will take into account the velocity of the merging entities prior to such event as well as the velocity of the merged entity in deciding whether the company meets the free float velocity threshold.

Quarterly and Annual Review

The CAC Index is designed to reflect the general trends in the trading of shares listed on Euronext Paris. Changes in the constituents of the CAC Index are made on a quarterly basis and reflect the changes in size and turnover of the companies eligible for inclusion in the CAC Index. Euronext and Conseil Scientifique may exceptionally decide to deviate from the outcome of the rankings if this is in the interest of the users of the CAC Index. Guiding principles for such a decision are tradability of the CAC Index, minimizing index turnover and representativeness.

The cut-off date for each periodic review of the CAC Index is after the market close of the last Friday of August (for each annual review), February, May and November (for each quarterly review) (the "**Review Cut-Off Date**"). The date on which, after the market close, the changes relating to a periodical review are being effectuated in the CAC Index portfolio is after the market close of the third Friday of September (for each annual review), March, June and December (for each quarterly review) (the "**Review Effective Date**").

At each periodic review, Euronext will propose to the Conseil Scientifique selections and changes to the CAC Index based on a combination of the rankings on free float adjusted market capitalization and turnover. The 35 highest ranking companies are selected for inclusion in the CAC Index. A buffer zone, where current constituents have priority over companies that currently do not form part of the CAC Index, consists of the companies ranked 36th through 45th.

At each annual review, the number of shares included in the CAC Index will be updated with the number of shares listed on the Review Cut-Off Date, taking into account adjustments due to corporate actions (as described below). All free float factors are updated at the annual review, with the free float rounded up to the next 5% bracket and determined on the basis of the information relevant at the Review Cut-Off Date.

A maximum weighting of 15% is applied to each constituent of the CAC Index at the annual review. The assessment and new capping coefficients are based on the date on which, after the close, the full details are announced regarding the composition of the CAC Index that will come into effect after the Review Effective Date. This includes the numbers of shares, free float factors and capping factors of all companies included in the new CAC Index portfolio (the "**Review Composition Announcement Date**"). Capping factors are not updated at quarterly reviews for companies that continue to be included in the CAC Index.

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- At each quarterly review, both the number of shares included in the CAC Index and the free float factor will be updated if (i) the free float factor on the Review Cut-Off date deviates by 10% or more from the free float factor currently applied in the CAC Index (2 or more bands) and/or (ii) the number of shares listed on the Review Cut-Off Date deviates by more than 20% from the current number of shares included in the CAC Index. In case of an update, the new numbers of shares are based on the number of shares listed on the Review Cut-Off Date, taking into account adjustments due to corporate actions (as described below). The new free float factors are determined on the basis of the information relevant at the Review Cut-Off Date.

Euronext may decide not to update the number of shares at a quarterly review for companies after a merger or similar situation. In addition, in the case where the free float adjusted number of shares changes for companies with a capping factor less than 1, Euronext will recalculate the capping factor such that the capped free float adjusted number of shares remains unchanged at the quarterly review.

For companies, if any, to be added to the CAC Index at a quarterly review, the weightings in terms of number of shares in the CAC Index and free float are determined based on the Review Cut-Off Date, while the capping factor is determined based on the Review Composition Announcement Date. The weight of companies that are added is subject to a maximum of 15%.

In the event of a takeover or other exceptional circumstances, Euronext has the right to revise the selection from the time the announcement is published up to the Review Composition Announcement Date.

Euronext will not change the outcome of the review for events that happen after the Review Composition Announcement Date. Corporate actions happening before the Review Effective Date will lead to an update of the new composition that is in line with the treatment described below.

Index Calculation

The CAC Index is calculated on a price return basis. The calculation is based on the current free float adjusted market capitalization (measured based on outstanding capital *less* shareholdings exceeding 5%, except where such interests are held by collective investment schemes, mutual funds, pension funds, certain insiders, government entities or the company itself) *divided by* the divisor. The free float percentages are rounded up to 5% bands. The divisor was determined on the initial capitalization base of the CAC Index and the base level. The divisor is adapted as a result of corporate actions and composition changes. The base currency of the CAC Index is the euro ("**Base Currency**").

Share prices that are quoted in other currencies than the Base Currency will be converted to the Base Currency using the last known exchange rate observed on Reuters. Closing prices will be converted based on the most recent

WM/Reuters spot rates, which are published each business day around 17:00 CET.

The CAC Index is calculated according to the below formula:

where:

t is the time of calculation.

N is the number of constituent equities in the CAC Index.

$Q_{i,t}$ is the number of shares of equity *i* included in the CAC Index on day *t*.

$F_{i,t}$ is the free float factor of equity *i*.

$f_{i,t}$ is the capping factor of equity *i*.

$C_{i,t}$ is the price of equity *i* on day *t*.

$X_{i,t}$ is the current exchange rate on day *t*.

d_t is the divisor of the CAC Index on day *t*.

In the event that part of the constituents of the CAC Index are reserved, suspended from trading or if technical problems prohibit normal trading, values of the CAC Index will continue to be calculated and published. For those

constituent stocks that are not available for trading, the last known value will be used when determining values of the CAC Index.

Notwithstanding the previous paragraph, Euronext always retains the right to delay the publication of the opening level of the CAC Index. Furthermore, Euronext always retains the right to suspend the publication of the level of the CAC Index or to mark the level of the CAC Index indicative if it believes that circumstances prevent the proper calculation of the CAC Index. If prices are cancelled, the CAC Index will not be recalculated unless Euronext decides otherwise.

If, after the market opens, the CAC Index remains in pre-opening during the entire trading session, the reference closing level of the CAC Index will be calculated on the basis of the most recent traded prices, or the most recent reference price (possibly adjusted to account for corporate actions, as described below).

Corporate Actions

The CAC Index may be adjusted in order to maintain continuity of the level and composition of the CAC Index. The underlying aim is that the CAC Index continues to reflect as closely as possible the value of the underlying portfolio.

Adjustments take place in reaction to events that occur with constituents in order to mitigate or eliminate the effect of that event on the CAC Index.

Removal of Constituents

A constituent will be removed from the CAC Index if it has appeared that the liquid trading will be significantly affected due to a takeover, merger, bankruptcy or has ceased to be a viable constituent as defined by the rules. The constituent in question will either be removed or will be replaced by the acquiring company. If a company is removed from the CAC Index, the divisor will be adapted to maintain the level of the CAC Index.

In the event of a bid in cash, the target company will be removed from the CAC Index. In the event of a merger, acquisition or similar situation where the bid is made in the form of shares, the target company will be replaced by the company taking over; *provided* that this company complies with the requirements for inclusion in the CAC Index as described above. The removal or replacement will take place after the close of the first (full) business day after the offer is declared unconditional or successful. The replacement of the shares of the relevant constituent of the CAC

Index by the shares of the company that continues to be traded will be executed on the basis of the bid ratio.

In case of a mixed bid of cash and shares, Euronext will treat the bid as a share bid if the share part amounts to at least 75% of the offer price, on the day of the publication of the terms of the offer. The replacement of the shares of the relevant constituent of the CAC Index by the shares of the company that continues to be traded will be executed on the basis of the bid ratio. The divisor will be adapted only for the cash part of the offer price.

Euronext reserves the right to apply a specific treatment in non-standard situations including, but not limited to:

- competing bids with differing closing dates or structures; and
- offers made without the intention to gain full control.

A separate announcement detailing the specific treatment will be issued timely to the market.

If a constituent of the CAC Index is suspended, Euronext will consider whether the constituent should be removed or not within five trading days. If it is decided to maintain the constituent, a further reassessment date will be set. Euronext reserves the right to take action before that date if new developments give reason to do so.

In case a constituent of the CAC Index is removed following suspension, it will be removed from the CAC Index as soon as possible and on a day announced by Euronext. The company will be removed from the CAC Index after the close of the markets, assuming a price of zero unless Euronext sets a different price, where possible supported by an objective source.

If it has been announced that a constituent of the CAC Index will be delisted from Euronext, it will be removed from the CAC Index as soon as possible and on a day announced by Euronext. The company will be removed from the CAC Index based on either the last known price established during regular daytime trading or on a price determined by Euronext, whereby the company may also be removed at a price of zero.

Removing assuming a price of zero implies no divisor change because of the removal. If another price is set, the

divisor will change based on the removal of the value of that company from the CAC Index portfolio when applying that price.

In the event that the trading in shares is suspended, the last known price established during regular daytime trading will be used.

Split Up / Spin-Off

In the event that a company included in the CAC Index is split up, the companies resulting from the split, including the original company where appropriate, will continue to be included in the CAC Index; *provided* they still qualify as an eligible company in their own right. The CAC Index may then temporarily consist of fewer, or more, than the standard number of constituents until the next periodical review takes place.

For purposes of the CAC Index, a split up is taken to mean a legal demerger, a spin-off or another situation which Euronext deems to be similar.

In case the shareholder of the company which was originally included in the CAC Index does not automatically receive shares in a company which is created as a result of the split up, this company is considered to be a newly listed company. The removal of any non-qualifying company resulting from a split up will take place after the close of the first day of trading in the shares of that company. If all companies resulting from the split are to be removed, the removal will take place at the close of the last trading day before the split.

Dividends

The CAC Index will be adjusted for dividends that are special. The following criteria will be applied to decide whether a dividend should be considered a special dividend:

- the declaration by a company of a dividend additional to those dividends declared as part of the company’s normal results and dividend reporting cycle (merely an adjustment to the timing of the declaration of a company's expected dividend would *not* be considered as a special dividend circumstance); or

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the identification of an element of a dividend paid in line with a company's normal results and dividend reporting cycle as an element that is unambiguously additional to the company's normal payment.

For the purpose of clarification, no adjustment will be made for the following situations:

- payment of ordinary dividends, irrespective of how they are financed;
- issue of redeemable shares or any other entitlement in lieu of an ordinary dividend; or
- unexpected increase or decrease, resumption or cessation or change in frequency to an ordinary dividend.

The adjustment of the CAC Index takes place by a reduction of the closing price of the share in question. Subsequently the divisor will be adapted in order to maintain the level of the CAC Index. The adjustments will be based on gross amounts.

Rights Issues and Other Rights

In the event of a rights issue, the new shares will be included in the CAC Index on the ex-date of the rights issue and an adjusted closing price will be applied as calculated by Euronext. The adjustment will be made based on the shares currently in the CAC Index. The divisor will be adapted in such a way that the level of the CAC Index remains the same.

The new shares are only added if (i) less than 0.4 share is issued for every share that is currently held and (ii) the new shares are fungible with the existing line of shares (*e.g.*, no dividend disadvantage). Otherwise the CAC Index is adjusted based on the value of the rights only. The CAC Index will be adjusted only if the rights represent a positive value.

The CAC Index will also be adjusted if a value can be attributed to a subscription right for convertible bonds, bonds with warrants or warrants with preferential rights for shareholders or similar situations. If the value cannot be attributed straightforward, Euronext may also decide to include the detached instrument for one day and adjust the CAC Index at the close based on the closing price for that subscription right on that day.

Bonus Issues, Stock Splits and Reverse Stock Splits

For bonus issues, stock splits and reverse stock splits, the number of shares included in the CAC Index will be adjusted in accordance with the ratio given in the corporate action. The divisor will not be changed because of this. Euronext may regard a bonus issue as the issue of an entitlement in lieu of an ordinary dividend and therefore treat this in accordance with the adjustment of special dividends.

Changes in Number of Shares or Free Float

In between the reviews the number of shares included in the CAC Index and free float factors will remain unchanged.

Partial Tender Offers On Own Shares

For partial tender offers, Euronext will adjust the divisor of the CAC Index if the premium represents more than 5% of the share price of the close on the penultimate day before the ex-date (the day prior to the last day before the ex-day). The premium is calculated as the difference between the offered price and the closing price, *multiplied by* the percentage of the share capital targeted in the offer. If the divisor is adjusted, the number of shares in the CAC Index will be adjusted as well.

The CBOE S&P 500 BuyWrite Index℠

We have derived all information contained in this underlying supplement regarding the CBOE S&P 500 BuyWrite Index℠ (the "**BXM Index**"), including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. We have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by, the Chicago Board Options Exchange, Incorporated (the "**CBOE**"). The BXM Index was developed, and is calculated, maintained and published, by the CBOE. The CBOE has no obligation to continue to publish, and may discontinue publication of, the BXM Index.

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

General

The BXM Index is a benchmark index designed to track the performance of a hypothetical buy-write strategy on the S&P 500® Index. Announced by the CBOE in April 2002, the BXM Index was developed by the CBOE in cooperation with Standard & Poor's ("**S&P**"). The BXM Index is a passive total return index based on (1) buying an S&P 500 stock index portfolio, and (2) "writing" (or selling) the near-term S&P 500® Index "covered" call option, generally on the third Friday of each month.

Design of the BXM Index

The BXM Index measures the total rate of return of a hypothetical "covered call" strategy applied to the S&P 500® Index." This strategy, which the CBOE refers to as the "BXM covered call strategy," consists of a hypothetical portfolio consisting of a "long" position indexed to the S&P 500® Index on which are deemed sold a succession of one-month, at-the-money call options on the S&P 500® Index listed on the CBOE. The CBOE refers to this hypothetical portfolio as the "covered S&P 500® Index portfolio." The BXM Index provides a benchmark measure of the total return performance of this hypothetical portfolio. Dividends paid on the component stocks underlying the S&P 500® Index and the dollar value of option premium deemed received from the sold call options are functionally "re-invested" in the covered S&P 500® Index portfolio. The BXM Index is based on the cumulative gross rate of return of the covered S&P 500® Index portfolio since the inception of the BXM Index on June 30, 1986, when it was set to an initial value of 92.21.

The BXM covered call strategy requires that each S&P 500® Index call option in the hypothetical portfolio be held to maturity, which is generally the third Friday of each month. The call option is settled against the Special Opening

Quotation (or "**SOQ**," ticker "SET") of the S&P 500® Index used as the final settlement price of S&P 500® Index call options. The SOQ is a special calculation of the S&P 500® Index that is compiled from the opening prices of component stocks underlying the S&P 500® Index. The SOQ calculation is performed when all 500 stocks underlying the S&P 500® Index have opened for trading, and is usually determined before 11:00 a.m. EST. The final settlement price of the call option at maturity is the greater of zero and the difference between the SOQ minus the strike price of the expiring call option.

Subsequent to the settlement of the expiring call option, a new at-the-money call option expiring in the next month is then deemed written, or sold, a transaction commonly referred to as a "roll." The strike price of the new call option is the strike price of the S&P 500® Index call option listed on the CBOE with the closest strike price above the last value of the S&P 500® Index reported before 11:00 a.m. EST. For example, if the last S&P 500® Index value reported before 11:00 a.m. EST is 1,301.10 and the closest listed S&P 500® Index call option strike price above 1,301.10 is 1,305, then the 1,305 strike S&P 500® Index call option is selected as the new call option to be incorporated into the BXM Index. The long S&P 500® Index component and the short call option component are held in equal notional amounts, i.e., the short position in the call option is "covered" by the long S&P 500® Index component.

Once the strike price of the new call option has been identified, the new call option is deemed sold at a price equal to the volume-weighted average of the traded prices ("**VWAP**") of the new call option during the two-hour period beginning at 11:30 a.m. EST. The CBOE calculates the VWAP in a two-step process: first, the CBOE excludes trades in the new call option between 11:30 a.m. and 1:30 p.m. EST that are identified as having been executed as part of a "spread," and then the CBOE calculates the weighted average of all remaining transaction prices of the new call option between 11:30 a.m. and 1:30 p.m. EST, with weights equal to the fraction of total non-spread volume transacted at each price during this period. The source of the transaction prices used in the calculation of the VWAP is CBOE's Market Data Retrieval ("**MDR**") System. If no transactions occur in the new call option between 11:30 a.m. and 1:30 p.m. EST, then the new call option is deemed sold at the last bid price reported before 1:30 p.m. EST. The value of option premium deemed received from the new call option is functionally "re-invested" in the portfolio.

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Calculation of the BXM Index

The BXM Index is calculated by the CBOE once per day at the close of trading for the respective components of the covered S&P 500® Index portfolio. The BXM Index is a chained index, i.e., its value is equal to 100 times the cumulative product of gross daily rates of return of the covered S&P 500® Index portfolio since the inception date of the BXM Index. On any given day, the BXM Index is calculated as follows:

$$BXM_t = BXM_{t-1}(1+R_t)$$

where R_t is the daily rate of return of the covered S&P 500® Index portfolio. This rate includes ordinary cash dividends paid on the stocks underlying the S&P 500® Index that trade "ex-dividend" on that date.

On each trading day excluding roll dates, the daily gross rate of return of the BXM℠ equals the change in the value of the components of the covered S&P 500® Index portfolio, including the value of ordinary cash dividends payable on component stocks underlying the S&P 500® Index that trade "ex-dividend" on that date, as measured from the close in trading on the preceding trading day. The gross daily rate of return is equal to:

$$1+R_t = (S_t + Div_t - C_t)/(S_{t-1} - C_{t-1}),$$

where, S_t is the closing value of the S&P 500® Index at date t, Div_t represents the ordinary cash dividends payable on the component stocks underlying the S&P 500® Index that trade "ex-dividend" at date t expressed in S&P 500® Index points and C_t is the arithmetic average of the last bid and ask prices of the call option reported before 4:00 p.m. EST at date t. S_{t-1} is the closing value of the S&P 500® Index on the preceding trading day and C_{t-1} is the average of the last bid and ask prices of the call option reported before 4:00 p.m. EST on the preceding trading day.

On roll dates, the gross daily rate of return is compounded from three gross rates of return, the gross rate of return from the previous close to the time the SOQ is determined and the expiring call is settled; the gross rate of return from the SOQ to the initiation of the new call position and the gross rate of return from the time the new call option is deemed sold to the close of trading on the roll date, expressed as follows:

$$1+R_t = (1+R_a) \text{ x } (1+R_b) \text{ x } (1+R_c),$$

where:

$1+R_a = (S^{SOQ} + Div_t - C_{settle})/(S_{t-1} - C_{t-1})$;

$1+R_b = S^{VWAV} / S^{SOQ}$; and

$1+R_c = (S_t - C_t) /(S^{VWAV} - C_{VWAP})$.

In this equation, R_a is the rate of return of the covered S&P 500® Index portfolio from the previous close of trading through the settlement of the expiring call option. S^{SOQ} is the Special Opening Quotation used in determining the settlement price of the expiring call option. As previously defined, Div_t represents dividends on S&P 500® Index component stocks determined in the same manner as on non-roll dates and C_{settle} is the final settlement price of the expiring call option. S_{t-1} and C_{t-1} are determined in the same manner as on non-roll dates.

R_b is the rate of return of the un-covered S&P 500® Index portfolio from the settlement of the expiring option to the time the new call option is deemed sold. S^{VWAV} is the volume-weighted average value of the S&P 500® Index based on the same time and weights used to calculate the VWAP in the new call option.

R_c is the rate of return of the covered S&P 500® Index portfolio from the time the new call option is deemed sold to the close of trading on the roll date. As defined above, S^{VWAV} is the volume-weighted average value of the S&P 500® Index based on the same time and weights used to calculate the VWAP in the new call option. C_{VWAP} is the volume-weighted average trading price of the new call option between 11:30 a.m. and 12:00 p.m. EST, and C_t refers to the average bid/ask quote of the new call option reported before 4:00 p.m. EST on the roll date.

The CNX Nifty Index

We have derived all information contained in this underlying supplement regarding the CNX Nifty Index ("**CNX Nifty**"), including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. We have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by, the India Index Services and Products Ltd. ("**IISL**"). The CNX Nifty was developed, and is calculated, maintained and published, by the IISL. The IISL has no obligation to continue to publish, and may discontinue publication of, the CNX Nifty.

CNX Nifty is reported by Bloomberg L.P. under the ticker symbol "NIFTY."

General

CNX Nifty is a float-adjusted market-capitalization-weighted index for India and the headline index on the National Stock Exchange of India Ltd. ("**NSE**"). It includes 50 of the approximately 1,600 companies listed on the NSE, captures approximately 65% of its float-adjusted market capitalization and is intended to reflect the performance of the Indian stock market. CNX Nifty tracks the behavior of a portfolio of blue chip companies, the largest and most liquid Indian securities. It covers major sectors of the Indian economy and offers investment managers exposure to the Indian market in one efficient portfolio. The index has been trading since April of 1996 and is well suited for benchmarking, index funds and index-based derivatives. The base period for CNX Nifty is November 3, 1995, which marked the completion of one year of operations of NSE's Capital Market Segment. The base value of the index has been set at 1,000, and a base capital of Rupees 2.06 trillion.

Standards for Selection and Maintenance

CNX Nifty is maintained by IISL's Index Policy Committee. This Index Policy Committee is involved in the policy and guidelines for managing the CNX Nifty. Additionally, the IISL's Index Maintenance Subcommittee makes all decisions on additions and deletions of companies in the CNX Nifty. The CNX Nifty is reviewed semiannually with four weeks' notice given to the market before making changes to index constituents.

The criteria for index additions include:

- *Liquidity*. Each security should have traded at an average impact cost of 0.50% or less during the last six months for 90% of the observations (impact cost is the cost of executing a transaction in a security in proportion to its index weight, measured by market capitalization at any point in time);

- *Float-Adjusted Market Capitalization*. Each company must have at least twice the float-adjusted market capitalization of the current smallest index constituent during the last six months;

- *Float.* Each company should have at least 10% of stock available to investors (i.e. stock not held by the promoters and associated entities of such companies) during the last six months;

- *Domicile.* The company must be domiciled in India and trade on the NSE; and

- *Eligible Securities.* All common shares listed on the NSE (which are of an equity and not of a fixed income nature) are eligible for inclusion in CNX Nifty. Convertible stock, bonds, warrants, rights and preferred stock that provide a guaranteed fixed return are not eligible.

In addition, a company which enters the market with an IPO, can be reviewed for inclusion in the index if it meets the above criteria for three months instead of six months. Companies may be deleted due to mergers, acquisitions or spin-offs.

Rebalancing. Index maintenance plays a crucial role in ensuring the stability of the index, as well as in meeting its objective of being a consistent benchmark of the Indian equity markets. IISL has constituted an Index Policy Committee, which is involved in the policy and guidelines for managing the CNX Nifty index. The Index Maintenance Subcommittee makes all decisions on additions and deletions of companies in the index.

Changes in the index level reflect changes in the total market capitalization of the index which are caused by stock price movements in the market. They do not reflect changes in the market capitalization of the index, or of the individual stocks, that are caused by corporate actions such as dividend payments, stock splits, distributions to shareholders, mergers or acquisitions. When a stock is replaced by another stock in the index, the index divisor is adjusted so the change in index market value that results from the addition and deletion does not change the index level.

The index is calculated real-time on all days that the NSE is open.

Corporate Actions. Maintaining CNX Nifty includes monitoring and completing the adjustments for company additions and deletions, share changes, stock splits, stock dividends and stock price adjustments due to restructurings or spin-offs. Some corporate actions, such as stock splits and stock dividends, require simple changes in the common shares outstanding and the stock prices of the companies in the index. Other corporate actions, such as share issuances, change the market value of an index and require a divisor adjustment to prevent the value of the index from changing.

Adjusting the divisor for a change in market value leaves the value of the index unaffected by the corporate action. This helps keep the value of the index accurate as a barometer of stock market performance and ensures that the movement of the index does not reflect the corporate actions of the companies in it. Divisor adjustments are made after the close of trading and after the calculation of the closing value of the index. Any change in the index divisor also affects corresponding sub-indices and divisors. Each sub-index is maintained in the same manner as the headline index.

Corporate actions such as splits, stock dividends, spin-offs, rights offerings and share changes are applied on the ex-date.

Calculation of CNX Nifty

CNX Nifty ($\boldsymbol{I_n}$) is computed by dividing the total market capitalization of the index component securities as of current date ($\boldsymbol{MC_n}$) by the total market capitalization of the same securities as of initial date ($\boldsymbol{MC_1}$) multiplied by the index value as of initial date ($\boldsymbol{I_1}$):

$I_n = (I_1 \text{ x } MC_n)/MC_1$

where MC_n = Total index market capitalization as of the current date, and

where:

Q_i = Number of shares outstanding (of the i^{th} issue) as of the current date;

P_n = Security price of the i^{th} issue as of the current date; and

N = Total number of component securities used in the index calculation.

Index Governance

A professional team at IISL manages CNX Nifty. There is a three-tier governance structure comprising the board of directors of IISL, the Index Policy Committee and the Index Maintenance Subcommittee.

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The DAX® Index

We have derived all information contained in this underlying supplement regarding the DAX® Index (the "DAX® Index"), including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. We have not participated in the preparation of, or verified, such information. Such information reflects the policies of, and is subject to change by, Deutsche Börse AG. The DAX® Index was developed, and is calculated, maintained and published by Deutsche Börse AG. Deutsche Börse AG has no obligation to continue to publish, and may discontinue publication of, the DAX® Index.

The DAX® Index (Price Return) is reported by Bloomberg L.P. under the ticker symbol "DAXK."

General

The DAX® Index is a stock index calculated, published and disseminated by Deutsche Börse AG that tracks the performance of the 30 largest and most actively traded companies listed on the FWB® Frankfurt Stock Exchange (the "FWB"). The DAX® Index has a base level of 1,000 as of December 30, 1987.

The DAX® Index is capital-weighted, meaning the weight of any individual issue is proportionate to its respective share in the overall capitalization of all index component issuers. The weight of any single company is capped at 10% of the capitalization of the DAX® Index, measured quarterly. The DAX® Index is a price index, which measures the actual price performance and is only adjusted for income from subscription rights and special distributions.

Composition and Maintenance

The DAX® Index uses free float shares in the index calculation, which excludes shares held by 5% shareholders (other than shareholdings of (i) asset managers and trust companies, (ii) funds and pension funds and (iii) investment companies or foreign investment companies in their respective special fund assets, insofar as the shares are held as part of short-term investment strategies and the size of a shareholding does not exceed 25% of a company's share capital) and certain other shares that may be limited in their liquidity.

To be included or to remain in the DAX® Index, companies have to satisfy certain prerequisites. All classes of shares must:

- be listed in the "prime standard" segment of the FWB;
- be traded continuously on FWB's electronic trading system, Xetra®; and
- have a free float of at least 10% of the outstanding shares.

Moreover, the companies included in the DAX® Index must have their legal or operating headquarters in Germany. A company's operating headquarters is defined as the headquarters of the executive management or the headquarters of the administrative management. Alternatively, Foreign companies must either have a registered office in Germany (this can also be an operating headquarters) or have at least 33% of its total turnover within the European Union or the European Free Trade Association transacted via the FWB over the last 12 months and its legal headquarters in the European Union or in an European Free Trade Association state.

With the respective prerequisites being satisfied, component stocks are selected for the DAX® Index according to two quantitative criteria:

- order book volume on Xetra® and in FWB's floor trading (within the preceding 12 months); and
- free float market capitalization on the last trading day of each month.

The market capitalization is determined using the average of the volume-weighted average price of the last 20 trading days prior to the last day of the month.

Ordinary adjustments to the DAX® Index are made once each year in September, based on the following criteria:

- Regular Exit (40/40 rule): a company may be replaced in the DAX® Index if its ranking in either order book volume or free float market capitalization is worse than 40, provided that there is an advancing issue ranking 35 or better in both criteria.

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- Regular Entry (30/30 rule): a company may be included in the DAX® Index if it ranks 30 or better in both order book volume and market capitalization, provided there is an index component with a ranking worse than 35 in at least one criterion.

Furthermore, under the "fast-entry" and "fast-exit" rules, which are applied in March, June, September and December:

- Fast Exit (45/45 rule): a company is replaced in the DAX® Index if its ranking in either order book volume or market capitalization is worse than 45, provided that an advancing issue ranks 35 or better in both criteria (35/35). If no such issue exists, the successor is determined by applying the criteria (35/40) and (35/45) successively. If no suitable issue can be found, the company with the highest turnover from those companies with a free float market capitalization rank of 35 or less is determined as the successor.

- Fast Entry (25/25 rule): a company is included in the DAX® Index if it ranks 25 or better in both order book volume and market capitalization. In return, the company with a ranking worse than 35 in one criterion and the lowest market capitalization is removed. Where no such company exists, the respective company issue with the lowest market capitalization is removed from the DAX® Index instead.

Taking all these criteria into account, Deutsche Börse AG's working committee for equity indices submits proposals to the management board of Deutsche Börse AG to leave the current index composition unchanged, or to effect changes, as applicable. The final decision as to whether or not to replace an index component stock is taken by the management board of Deutsche Börse AG. Any replacements are publicly announced by Deutsche Börse AG.

Adjustments to the index composition are also made for extraordinary circumstances, such as insolvency or the weighting of a component stock exceeding 10% and its annualized 30-day volatility exceeding 250%.

Calculation

The DAX® Index is weighted by market capitalization; however, only freely available and tradable shares are taken into account. The DAX® Index is a price index, which measures the actual price performance and is only adjusted for income form subscription rights and special distributions.

The level of the DAX® Index is based on share prices reported in the Xetra® system. The level of the DAX® Index is calculated according to the Laspeyres formula, which measures the aggregate price changes in the component stocks

against the initial December 30, 1987 level of 1,000. The weighting of any individual component stock within in the DAX® Index is limited to 10%, measured quarterly.

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The FTSE™ 100 Index

We have derived all information contained in this underlying supplement regarding the FTSE™ 100 Index (the "**FTSE Index**"), including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. We have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by, FTSE Russell. The FTSE Index is calculated, maintained, and published by FTSE Russell. FTSE Russell has no obligation to continue to publish, and may discontinue publication of, the FTSE Index.

The FTSE Index is reported by Bloomberg L.P. under the ticker symbol "UKX."

General

The FTSE Index measures the composite price performance of stocks of the largest 100 companies (determined on the basis of market capitalization) traded on the London Stock Exchange (the "**LSE**"). The FTSE Index was first calculated on January 3, 1984 with an initial base level index value of 1,000 points. Publication of the FTSE Index began in February 1984.

Composition of the FTSE Index

The FTSE Index is a market-capitalization weighted index of UK-listed blue chip companies. The FTSE Index measures the performance of stocks of the largest 100 companies (determined on the basis of market capitalization) traded on the LSE that pass screening for size and liquidity. The 100 companies included in the FTSE Index (the "**FTSE Underlying Stocks**") are selected from premium listed equity shares which have been admitted to trading on the LSE with a sterling denominated price on SETS, have been assigned UK nationality by FTSE and meet a liquidity threshold based on public float, accuracy and reliability of prices, size and number of trading days. The FTSE Underlying Stocks are selected from this group by selecting the 100 companies with the largest market value capitalization. Where there are multiple lines of equity capital in a company, all are included and priced separately, provided that the secondary line's full market capitalization (i.e. before the application of any investability weightings) is greater than 25% of the full market capitalization of the company's principal line and the secondary line satisfies the eligibility rules and screens in its own right in all respects. A list of the issuers of the FTSE Underlying Stocks is available from FTSE.

Companies are required to have greater than 5% of the company's 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

in order to be eligible for index inclusion. Companies already included in the FTSE Index have a 5 year grandfathering period to comply or they will be removed from the FTSE Index in September 2022.

Standards for Selection and Maintenance

The FTSE Index is overseen by FTSE Russell. The FTSE Russell Europe, Middle East & Africa Regional Equity Advisory Committee, which is made up of senior market practitioners, was established to assist in the oversight of the FTSE Index. FTSE Russell is also responsible for the index review process. FTSE Russell reviews the FTSE Underlying Stocks quarterly in March, June, September and December in order to maintain continuity in the index level. The index reviews will be based on data from the close of business on the Tuesday before the first Friday of the review month. Any constituent changes will be implemented after the close of business on the third Friday of the review month (i.e. effective Monday), following the expiry of the ICE Futures Europe futures and options contract. The results of the periodic review will be shown to the FTSE Russell Europe, Middle East & Africa Regional Equity Advisory Committee at their next quarterly meeting.

Changes to the constituents can be prompted by new listings on the exchange, corporate actions (e.g., mergers and acquisitions) or an increase or decrease in a market capitalization. The FTSE Underlying Stocks may be replaced, if necessary, in accordance with deletion/addition rules which provide generally for the removal and replacement of a stock from the FTSE Index if such stock is delisted or its issuer is subject to a takeover offer that has been declared wholly unconditional or it has ceased to be a viable component of the FTSE Index. To maintain continuity, a stock will be added at the quarterly review if it has risen to 90th place or above and a stock will be deleted if at the quarterly review it has fallen to 111th place or below, in each case ranked on the basis of market capitalization.

A constant number of constituents will be maintained for the FTSE index. Where a greater number of companies qualify to be inserted in the FTSE Index than those qualifying to be deleted, the lowest ranking constituents presently included in the FTSE Index will be deleted to ensure that an equal number of companies are inserted and deleted at the periodic review. Likewise, where a greater number of companies qualify to be deleted than those qualifying to be inserted,

the securities of the highest ranking companies which are presently not included in the index will be inserted to match the number of companies being deleted at the periodic review.

Companies that are large enough to be constituents of the FTSE Index but do not pass the liquidity test are excluded. At the next annual review the companies are re-tested against all eligibility screens.

Calculation of the FTSE Index

The FTSE Index is calculated by (i) multiplying the per share price of each stock included in the FTSE Index by the number of outstanding shares, (ii) calculating the sum of all these products (such sum being hereinafter the "**FTSE Aggregate Market Value**") as of the starting date of the FTSE Index, (iii) dividing the FTSE Aggregate Market Value by a divisor which represents the FTSE Aggregate Market Value on the base date of the FTSE Index and which can be adjusted to allow changes in the issued share capital of individual underlying stocks including the deletion and addition of stocks, the substitution of stocks, stock dividends and stock splits to be made without distorting the FTSE Index and (iv) multiplying the result by 1,000. Because the FTSE Index is weighted based on its constituent stocks' free float adjusted market capitalizations, movements in share prices of companies with relatively larger market capitalization will have a greater effect on the level of the entire FTSE Index than will movements in share prices of companies with relatively smaller market capitalization.

The FTSE MIB Index

We have derived all information contained in this pricing supplement regarding the FTSE MIB Index, including, without limitation, information concerning its make-up, method of calculation and changes in its components, from publicly available information. We have not participated in the preparation of, or verified, such information. Such information reflects the policies of, and is subject to change by, FTSE Russell, the sponsor of the FTSE MIB Index. The FTSE MIB Index is calculated, maintained and published by FTSE Russell. FTSE Russell has no obligation to continue to publish, and may discontinue or suspend the publication of, the FTSE MIB Index at any time.

The FTSE MIB Index is calculated in euros and is reported by Bloomberg L.P. under the ticker symbol "FTSEMIB."

General

The FTSE MIB Index is the primary benchmark index for the Italian equity market and represents the large capitalization component of the FTSE Italia All-Share Index. Capturing approximately 80% of the domestic market capitalization, the FTSE MIB Index measures the performance of 40 most liquid and capitalized stocks selected by the FTSE Italia Index Policy Committee that are listed on *Borsa Italiana's* (Blt) MTA and MIV markets and seeks to replicate the broad sector weights of the Italian stock market.

The base value of the FTSE MIB Index was set at the level of the MIB 30 Index at the close of trading on October 31, 2003 (10,644). Historical values for the FTSE MIB Index have been back calculated to December 31, 1997 (24,402). The FTSE MIB Index is calculated on a real-time basis in EUR.

Composition of the FTSE MIB Index

The FTSE MIB Index constituent shares are selected from the broad Italian equity universe, to ensure the index best represents the Italian equity markets. All stocks traded on the BIt MTA and MIV markets, except for savings shares (*azioni di risparmio*) and preferred shares, are eligible for inclusion in the FTSE MIB Index. Savings or preferred shares, however, may be eligible if the ordinary shares of a company are not listed or have consistently less liquidity than the savings or preferred shares. Foreign listed companies can be included if they have complied with BIt requirements in terms of dissemination of information. Companies whose business is that of holding equity and other investments (*e.g.*, investment trusts) that are classified as belonging to the Equity Investment Instruments Subsector within the ICB, and non-equity investment vehicles that are classified as belonging to the Non-Equity Investment Instruments Subsector within the ICB are not eligible for inclusion.

Standards for Selection and Maintenance

In order to identify a candidate pool for Index constituent selection, stocks are examined using the following general criteria:

Market Capitalization. The float-adjusted market capitalization is determined through an Investable Weight Factor (IWF). Shares with a free float of 5% or below are not eligible for inclusion in the index.

Minimum Voting Rights. Companies assigned a developed market nationality are required to have greater than 5% of the company's voting rights in the hands of unrestricted shareholders or they will be deemed ineligible for index inclusion. Existing constituents with a developed market nationality who do not currently meet the above requirement have a 5 year grandfathering period to comply. If subsequently they continue to fail the minimum voting rights requirement they will be removed from the FTSE MIB Index at the September 2022 review.

Liquidity. Liquidity is measured by the stock's 6-month value traded in euro on BIt order book markets and number of days traded.

Shares Outstanding. The primary source of information for Italian share is the Borsa Italiana Official List.

The quarterly review of constituents takes place in March, June, September and December of each year and changes will be applied after close of business on the third Friday of the review month. The underlying universe for the FTSE MIB Index is all stocks trading on the BIt MTA and MIV markets (except for preferred and saving shares). The FTSE MIB Index will consist of the 40 most liquid and capitalized stocks listed on the BIt MTA and MIV markets. Foreign listed companies are eligible for inclusion in the FTSE MIB Index if they comply with BIt requirements in terms of

dissemination of information. The selection procedure is based on size (free float adjusted market capitalization) and liquidity (six months turnover). FTSE Russell, with the support of the FTSE Italia Index Series Technical Committee, is responsible for the implementation of the algorithm and will decide whether special circumstances would warrant making an exceptional change to the index constituents.

The constituents of the FTSE MIB Index are capped at 15% at the time of the quarterly reviews. Capping procedures are run on the Monday following the second Friday of March, June, September and December, they are based on Friday closing prices and they are implemented after the closing of trading of the third Friday of March, June, September and December. Any constituents whose weights are greater than 15% are capped at 15%. The weights of all lower ranking constituents are increased correspondingly. The weights of lower ranking constituents are then checked and if they exceed 15%, they are also capped at 15%. This process is repeated until no constituent weight exceeds 15%. The weight of each stock in the FTSE MIB Index is evaluated in terms of its adjusted market capitalization versus the FTSE MIB Index, and will be re-evaluated at each quarterly review.

The maintenance of the FTSE MIB Index consists of corporate actions, periodic revisions to the FTSE MIB Index and changes due to a vacancy created by the deletion of a constituent of the FTSE MIB Index. The maintenance activity is carried out by FTSE Russell with the objective of minimizing the turnover among the FTSE MIB Index constituents.

In the event of an Index change or corporate action resulting in a change to shares in issue or free float that affects the market capitalization of the FTSE MIB Index, the divisor is adjusted to ensure continuity of the FTSE MIB Index. The number of constituents in the FTSE MIB Index is analyzed at each quarterly review (March, September, June and December) to assess whether the FTSE MIB Index adequately represents the market. If FTSE Russell, with the support of the FTSE Italia Index Series Technical Committee, decides the number of constituents needs to be changed, a change will be made after providing the market with ample notice.

Calculation of the FTSE MIB Index

The FTSE MIB Index uses prices from actual trades on the MTA and MIV electronic share trading platform of the BIt during official market hours. The last FTSE MIB Index value is calculated using closing auction prices or, if there is no closing auction price for a particular constituent, the last price traded as at the end of the continuous trading phase. BIt's reference price plays no part in the FTSE MIB Index calculation.

The FTSE MIB Index is calculated using a base-weighted aggregate methodology. This means the level of an index reflects the total float-adjusted market value of all of the constituent stocks relative to a particular base period. The total market value of a company is determined by *multiplying* the price of its stock by the number of shares in issue (net of treasury shares) after adjusting for float. An indexed number is used to represent the result of this calculation in order to make the value easier to work with and track over time.

The FTSE MIB Index value I_t, at time t, is calculated using the following formula:

$I_t = M_t / D_t$

Where

M_t is the total free float adjusted market capitalization at time t, equal to:

$M_t = {}_i\, p_{it} \times q_{it} \times IWF_{it}$

p_{it} is the last traded price, at time t, of the i^{th}-share. Where the shares of one of the constituents are suspended, the FTSE MIB Index is calculated using the price of the latest trade concluded before the suspension.

q_{it} is the number of shares in the FTSE MIB Index. The number of shares in issue for the security i^{th}, net of treasury shares.

IWF_{it} is the Investable Weighting Factor (adjusted for capping) for the i^{th} share.

D_t is the value of the FTSE MIB Index divisor at time *t*.

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The FTSE China 50 Index

We have derived all information contained in this underlying supplement regarding the FTSE China 50 Index, including, without limitation, their make-up, method of calculation and changes in its components, from publicly available information. We have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by FTSE Russell. FTSE China 50 Index is calculated, maintained and published by FTSE Russell. FTSE Russell has no obligation to continue to publish, and may discontinue publication of, the FTSE China 50 Index.

The FTSE China 50 Index is reported by Bloomberg L.P. under the ticker symbol "XINOI."

General

The FTSE China 50 Index is designed to represent the performance of the mainland Chinese market that is available to international investors.

Composition of the FTSE China 50 Index

The FTSE China 50 Index is currently based on the 50 largest and most liquid Chinese stocks (called "H" shares, "Red Chips" and "P Chips"), listed and trading on the Stock Exchange of Hong Kong Ltd. ("**HKSE**"). "H" shares are securities of companies incorporated in the People's Republic of China and listed on the HKSE. They can only be traded by Chinese investors under the Qualified Domestic Institutional Investors Scheme. There are no restrictions for international investors. "Red Chip" shares are securities of companies incorporated outside the People's Republic of China and traded on the HKSE. A Red Chip company has at least 30% of its shares in aggregate held directly or indirectly by Mainland China state entities and at least 50% of its revenue or assets derived from mainland China. "P Chip" shares are securities of companies incorporated outside the People's Republic of China and traded on the HKSE. A P Chip company is controlled by Mainland China individuals, with the establishment and origin of the company in Mainland China and at least 50% of its revenue or assets derived from mainland China.

Standards for Selection and Maintenance

Currently, only H-shares, P Chip and Red Chip shares are eligible for inclusion in the FTSE China 50 Index. All classes of equity in issue are eligible for inclusion in the FTSE China 50 Index, subject to certain restrictions,

however, each constituent must also be a constituent of the FTSE All-World Index. Companies whose business is that of holding equity and other investments (e.g., Investment Trusts) are not eligible for inclusion.

Securities must be sufficiently liquid to be traded, therefore the following criteria, among others, are used to ensure that illiquid securities are excluded:

- *Price*. There must be an accurate and reliable price for the purposes of determining the market value of a company.

- *Liquidity*. Each security is tested for liquidity on a semi-annual basis in March and September by calculation of its monthly median daily trading volume as part of the FTSE All-World Index review. When calculating the median of daily trading volume of any security for a particular month, a minimum of 5 trading days in that month must exist, otherwise the month will be excluded from the test. For each month, the daily trading volume for each security is calculated as a percentage of the shares in issue for that day adjusted by the free float at the review cutoff date. These daily values are then ranked in descending order and the median is taken by selecting the value for the middle ranking day if there is an odd number of days and the mean of the middle two if there is an even number of days. Daily totals with zero trades are included in the ranking; therefore a security that fails to trade for more than half of the days in a month will have a zero median trading volume for that month. Any period of suspension will not be included in the test. The liquidity test will be applied on a pro-rata basis where the testing period is less than 12 months.

- *New Issues*. New issues which do not have a twelve month trading record must have a minimum three month trading record when reviewed. They must turnover at least 0.05% of their free float adjusted shares based on their median daily trading volume each month on a pro-rata basis since listing.

To assist in the oversight of the indexes FTSE Russell has established the FTSE Russell Asia Pacific Regional Equity Advisory Committee.

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The quarterly review of the FTSE China 50 Index constituents takes place in March, June, September and December. The constituents are reviewed using data from the close of business on the Monday following the third Friday in February, May, August and November. Where there is a market holiday in either China or Hong Kong on the Monday following the third Friday, the close of business on the last trading day prior to the Monday after the third Friday, where both markets are open, will be used. Any constituent changes will be implemented after the close of business on the third Friday of March, June, September and December. The rules for inserting and deleting companies at the quarterly review are designed to provide stability in the selection of constituents of the FTSE China 50 Index while ensuring that the FTSE China 50 Index continues to be representative of the market by including or excluding those companies which have risen or fallen significantly.

A company will be inserted into the FTSE China 50 Index at the quarterly review if it rises to 40th position or above and deleted at the periodic review if it halls to 61st position or below when the eligible companies are ranked by full market capitalization (before the application of any investability weightings).

Capping is applied to the constituents of the FTSE China 50 Index at each review so that (i) all companies that have a weight greater than 4.5% in aggregate are no more than 38% of the FTSE China 50 Index and (ii) no individual company in the index has a weight greater than 9% of the FTSE China 50 Index.

Computation of the FTSE China 50 Index

The FTSE China 50 Index is calculated using the following formula:

where,

- $i=1,2,\ldots,N$
- N is the number of securities in the FTSE China 50 Index
- p_i is the latest trade price of the component security (or the price at the close of the FTSE China 50 Index on the previous day)

- e_i is the exchange rate required to convert the security's currency into the FTSE China 50 Index's base currency

- s_i is the number of shares of in issue used by FTSE Russell for the security

- f_i is the investability weighting factor to be applied to a security to allow amendments to its weighting, expressed as a number between 0 and 1, where 1 represents a 100% free float. This factor is published by FTSE Russell.

- c_i is the capping factor to be applied to a security to correctly weight that security in the FTSE China 50 Index. This factor maps the investable market capitalization of each stock to a notional market capitalization for inclusion in the FTSE China 50 Index.

- d is the divisor, a figure that represents the total issued share capital of the FTSE China 50 Index at the base date, which may be adjusted to allow for changes in the issued share capital of individual securities without distorting the FTSE China 50 Index. The capping factor serves to limit the weight of any individual company to no more than 9% of the FTSE China 50 Index and to limit the aggregate weight of all companies that have a weight greater than 4.5% to no more than 38% of the FTSE China 50 Index.

The FTSE China 50 Index uses actual trade prices for securities with local stock exchange quotations and Reuters real-time spot currency rates for its calculations.

Free float restrictions are calculated using available published information rounded to 12 decimal places. Companies with a free float of 5% or below are excluded from the FTSE China 50 Index.

Foreign ownership limits, if any, are applied after calculating the free float restriction. Where the presence of foreign ownership restrictions creates a limit on foreign ownership that is more restrictive than the calculated free float for a

company, the precise foreign ownership limit is used in place of the free float for the purposes of calculating the company's investability weight. If the foreign ownership limit is less restrictive or equal to the free float restriction, the free float restriction is applied.

The FTSE China 50 Index is periodically reviewed for changes in free float. These reviews coincide with the quarterly reviews of the FTSE China 50 Index. Implementation of any changes takes place at the close of trading on the third Friday in March, June, September and December. A constituent's free float is also reviewed and adjusted if necessary (i) by identifying information which necessitates a change in free float weighting, (ii) following a corporate event or (iii) following the expiry of a lock-in clause. If the corporate event includes a corporate action which affects the FTSE China 50 Index, any 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 is applied as soon as practicable after the corporate event.

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The Hang Seng Indices

We have derived all information contained in this underlying supplement regarding the Hang Seng® Index (the "**HSI Index**") and the Hang Seng China Enterprises Index (the "**HSCE Index**"), including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. We have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by, Hang Seng Indexes Company Limited (formerly HSI Services Limited) ("**HSIL**"), a wholly owned subsidiary of Hang Seng Bank. The HSI Index and the HSCE Index are calculated, maintained and published by HSIL. HSIL has no obligation to continue to publish, and may discontinue publication of, these indices.

The Hang Seng® Index

The HSI Index was launched on November 24, 1969 as a free float adjusted market capitalization weighted index consisting of companies from The Stock Exchange of Hong Kong Ltd. (the "**HKEX**"). The components of the index are divided into four sub-indices: commerce and industry, finance, utilities, and properties. The index was developed with a base level of 100 as of July 31, 1964 and is designed to be an indicator of the performance of the Hong Kong stock market.

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

Standards for Selection and Maintenance

Only companies and real estate investment trusts with a primary listing on the main board of the HKEX are eligible as constituents of the HSI Index. Mainland China enterprises that have an H-share listing in Hong Kong are eligible for inclusion in the HSI Index only if the company has no unlisted share capital. If a company has two classes of listed shares, each class of shares will be considered separately.

To be eligible for selection, a company:

- must be among those companies that constitute the top 90% of the total market capitalization of all eligible shares listed on the HKEX (market capitalization is expressed as an average of the past 12 months);

- must be among those companies that constitute the top 90% of the total turnover of all eligible shares listed on the HKEX (turnover is aggregated and individually assessed for eight quarterly sub-periods over the past 24 months); and

- should normally have a listing history of at least 24 months on the HKEX or meet the requirements of the following guidelines: for newly listed large-cap stocks, the minimum listing time required for inclusion in the stock universe for the HSI Index review is as follows:

Average Market Capitalization Ranking at Time of Review	**Minimum Listing History**
Top 5	3 Months
6-15	6 Months
16-20	12 Months
21-25	18 Months
Below 25	24 Months

Companies meeting all eligibility requirements will be considered for inclusion and their candidacy will be assessed on the following criteria:

- the market value and turnover ranking of the company;
- the representation of the sub-sectors within the HSI Index directly reflecting that of the market; and
- the financial performance of the company.

The number of constituents is fixed at 50.

The Hang Seng China Enterprises Index

The HSCE Index was launched on August 8, 1994 as a free float adjusted market capitalization weighted index consisting of 50 Mainland securities listed in Hong Kong. With the launch of the 200-stock Hang Seng Composite Index (the "**HSCI**") on October 3, 2001, the HSCE Index became part of the Hang Seng Composite Index Series (the "**HSCI**

Series"). Since then, the HSCE Index serves as a benchmark that reflects the overall performance of Mainland securities listed in Hong Kong.

The HSCE Index is reported by Bloomberg L.P. under the ticker symbol "HSCEI."

Standards for Selection and Maintenance

All Mainland securities primarily listed on the main board of the HKEX are eligible to be included in the HSCE Index, excluding stocks that are secondary listings, preference shares, debt securities, mutual funds and other derivatives. A Mainland security is defined as a Hong Kong-listed security that has at least 50% of its sales revenue (or profit or assets, if relevant) derived from Mainland China. Mainland securities include H-shares, Red-chips and P-chips. H-shares are Hong Kong listed shares, traded in Hong Kong dollars, of Chinese Mainland companies. Red-chips are Mainland securities with a minimum of 30% of its shareholdings held by a Mainland entity or entities (including state-owned organizations and provincial or municipal authorities of Mainland China). P-chips are Mainland securities that are not classified as an H-share or Red-chip. In addition, to be eligible for selection in the HSCE Index: H-shares, Red-chips and P-chips (1) should be listed for at least one month, three years and six years, respectively, by the review cut-off date; and (2) such stock must satisfy the turnover screening requirements. In order to pass the turnover requirements, stocks that are already included in the HSCE Index must have a turnover velocity of at least 0.1% for at least 10 out of the past 12 months. In the case that an existing stock fails the turnover requirements, each failing month will be examined. If the aggregate turnover in a failing month is among the top 90% of the total market, the stock will nonetheless satisfy the turnover requirements for that particular month, and the month can be considered in determining if a stock passes the overall turnover requirements. To be added to the HSCE Index, a stock must have a turnover velocity of at least 0.1% for at least 10 out of the past 12 months and for each of the most recent three months. Turnover velocity is calculated by dividing the median of the daily traded shares during a specific calendar month by the free float adjusted issued shares at the end of that month. In addition, Red-chips and P-chips must satisfy certain price volatility and financial requirements.

The HSCE Index is reviewed quarterly with data cut-off dates as of the end of March, June, September and December each year. The number of constituent stocks is fixed at 50: 40 H-shares and a total of 10 Red-chips and P-chips. From the eligible stocks, final selections are made using the following methodology:

(1) all eligible H-share stocks are ranked by (i) full market capitalization, in terms of average month-end market capitalization in the past 12 months and (ii) free float adjusted market capitalization, in terms of 12-month average market capitalization after free float adjustment;

(2) the combined market capitalization ranking for each eligible stock is determined as the weighted average of the full market capitalization ranking and the free float adjusted market capitalization ranking, where each rank has a 50% weight; and

(3) the 40 H-share stocks that have the highest combined market capitalization ranking are selected as the constituents of the HSCE Index, subject to the following buffer zone rule. Existing constituents ranked 49th or lower will be removed from the HSCE Index while non-constituent stocks ranked 32nd or above will be included. In case the number of incoming stocks is greater than the number of outgoing constituents, constituents with the lowest combined market capitalization rank will be removed from the HSCE Index in order to maintain the number of constituents at 40. If the number of incoming stocks is smaller than the number of outgoing constituents, stocks with the highest combined market capitalization rank will be added to the HSCE Index in order to maintain the number of constituents at 40.

(4) in the case that the weighted average calculated in (2) of two stocks is identical, a higher rank will be assigned to the stock with the greater full market capitalization.

The same methodology, other than the buffer zone rule, is used to select the top 10 eligible Red-chip and P-chip stocks. Throughout the transition period (from March 2018 rebalancing to March 2019 rebalancing), constituent selection was performed once at the beginning of the transition period. The data cut-off date was December 31, 2017. An inclusion factor will be applied to Red-chip and P-chip constituents to gradually increase the weightings of such constituents in each of the five rebalancings that will take place during the transition period.

Calculation of the Hang Seng Indices

Both the HSI Index and the HSCE Index are calculated using a free float adjusted market capitalization weighted methodology with a 10% cap on individual stock weightings.

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The formula for the index calculation is shown below:

$$\text{current index} = \frac{\text{current aggregate free float adjusted market capitalization of constituents}}{\text{yesterday's aggregate free float adjusted market capitalization of constituents}} \times \text{yesterday's closing index}$$

$$= \frac{S\ (P_t \times IS \times FAF \times CF)}{S\ (P_{t-1} \times IS \times FAF \times CF)} \times \text{yesterday's closing index}$$

where:

P_t : current price at day t;

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

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

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

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

Both the HSI Index and the HSCE Index are price return indices without adjustments for cash dividends or warrant bonuses.

Free float Adjustments. Shares held by any entities (excluding custodians, trustees, mutual funds and investment companies) that control more than 5% of the shareholdings are considered as non-free float and are excluded from the index calculation. These include strategic holdings (holdings by governments and affiliated entities or any other entities that hold substantial shares in the company would be considered as non-free float unless otherwise proved), directors' and management holdings (holdings by directors, members of the board committee, principal officers or founding members), corporate cross holdings (holdings by publicly traded companies or private firms or institutions) and lock-up shares (shareholdings with a publicly disclosed lock-up arrangement). Lock-up shares with trading restrictions are classified as non-free float, regardless of the shareholding percentage.

The free float adjusted factor represents the proportion of shares that is free floated as a percentage of the issued shares. The free float adjusted factor is rounded up to the nearest 1% if it is less than 10%; otherwise, it is rounded to the nearest 5%. For companies with more than one class of shares, the free float adjusted factor is calculated separately for each class of shares.

Cap Factor. A cap factor ("CF") is calculated quarterly, such that no individual constituent in an index will have a weighting exceeding a cap level of 10% on the index capping date.

Rebalancing of the Hang Sang Indices

The HSI Index and the HSCE Index are reviewed quarterly with data cut-off dates of the end of March, June, September and December of each year. The decision whether to remove a suspended constituent from the HSI Index or the HSCE Index and replace it with an appropriate candidate is determined in the regular index review. Companies with high shareholding concentrations, as announced by the Securities and Futures Commission of Hong Kong, will not be eligible for inclusion.

Effective dates of constituent changes will be the next trading day after the first Friday of March, June, September and December. If that Friday falls on a public holiday, it will be postponed to the next Friday, subject to the final decision made by HSIL. Under normal circumstances, at least seven trading days' notice will be given for any constituent changes before the effective dates.

Updating of the issued shares, adjustment of the free float adjusted factor and calculation of the cap factor are undertaken quarterly, after market close on the first Friday in March, June, September and December. In addition, the issued shares will be updated simultaneously with the index adjustment for corporate actions, such as bonus issues, rights issues, stock splits and stock consolidations. Ad hoc rebalancing will be conducted if a constituent's issued shares and/or free float adjusted factor is substantially different from the production data. The HSI Index and the HSCE Index will

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also be recapped in the event of constituent changes if the newly added component weighs higher than the index cap level.

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The IBEX 35® Index

We have derived all information contained in this underlying supplement regarding the IBEX 35® Index (the "**IBEX Index**"), including, without limitation, information concerning its make-up, method of calculation and changes in its components, from publicly available information. We have not participated in the preparation of, or verified, such information. Such information reflects the policies of, and is subject to change by, Sociedad de Bolsas, S.A. ("**Sociedad de Bolsas**"), the sponsor of the IBEX Index. The IBEX Index is calculated, maintained and published by Sociedad de Bolsas. Sociedad de Bolsas has no obligation to continue to publish, and may discontinue or suspend the publication of, the IBEX Index at any time.

The IBEX Index is composed of the 35 most liquid securities listed on the Spanish Stock Exchange Interconnection System (the "**SIBE**") of the four Spanish stock exchanges: the Barcelona Stock Exchange; the Bilbao Stock Exchange; the Madrid Stock Exchange; and the Valencia Stock Exchange. The IBEX Index had a base value of 3,000 at the close of trading on December 29, 1989.

The IBEX Index is calculated in euros and is reported by Bloomberg L.P. under the ticker symbol "IBEX."

Index Composition

The IBEX Index is composed of the 35 securities listed on the SIBE that were most liquid during the applicable control period. The control period for the constituents included in the IBEX Index is, for ordinary and follow-up reviews, the six-month interval prior to the date of such review. With respect to extraordinary reviews, the control period is that decided by the IBEX Committee (as described below) at that time.

The IBEX Committee will take into account the following liquidity factors:

- the trading volume in euros in the order-driven market (the SIBE market segment of the Joint Stock Exchange System known as the Main Trading Market);

- the quality of that trading volume, considering:

a) trading volume during the control period that is the result of transactions involving a change in the stable shareholding structure of the company, was traded by the same market member in a small number of transactions, or

traded during a time period regarded by the Indexes Management Secretariat within the Sociedad de Bolsas (the "**Manager**) as not representative or suffers such a decline as to cause the Manager to consider that the stock's liquidity has been seriously affected;

b) the characteristics and amount of the transactions made in the market;

c) the statistics for the trading volume and characteristics of the trading; and

d) the quality of bid-ask spreads, turnover and other liquidity measures applied at the discretion of the IBEX Committee; and

· suspension of quotation or trading during a time period considered significant by the IBEX Committee.

The IBEX Committee will also take into account whether the security is sufficiently stable, bearing in mind the use of the IBEX Index as the underlying index for derivatives trading, as well as an efficient replication of the same. It will also take into account the disclosure of the company´s dividend policy to the shareholders, including relevant dates for the determination of the ex-dividend date, as well as providing timely and accurate information about any modification to the policy, due to the special relevance in the price formation process of the securities and the correct valuation of the derivatives instruments related to the index.

In addition, for a stock to be included in the IBEX Index, its average capitalization in the IBEX Index must be greater than 0.30% of the average index capitalization during the control period. For this reason, the average capitalization of the stock computable in the IBEX Index will be understood to be the arithmetic mean, adjusted by the corresponding free float factor according to the free float band, resulting from multiplying the number of shares of the securities admitted for listing in each one of the trading sessions of the control period by the closing price of the security in each one of these sessions.

At ordinary reviews, the IBEX Committee may decide to remove a constituent stock from the IBEX Index when its

average capitalization computable in the IBEX Index is lower than 0.30% of the average index capitalization during the control period.

When a security is first listed on the SIBE and the IBEX Committee determines that it should be included in the IBEX Index, it may decide to include that security in the IBEX Index without having to wait for the necessary requirements to be met during the control period, with the attendant exclusion of another security for reasons of liquidity. Under these circumstances, a minimum requirement of a certain number of completed trading days will be established, which will be at least one-third of those included in the control period, except if the stock has an index computable capitalization among the top twenty in the IBEX Index.

The IBEX Committee will in all instances make the IBEX Index inclusion or exclusion decisions it deems appropriate with respect to any security, with consideration for special circumstances not described above.

The IBEX Committee

Sociedad de Bolsas has appointed the members of the Technical Advisory Committee (the "**IBEX Committee**"), which is in charge of the IBEX Index. The functions of the IBEX Committee are:

- to supervise the calculation of the IBEX Index and help ensure that it is carried out by the Manager in accordance with the technical regulations for the composition and calculation of the IBEX Index;
- to ensure the proper operation of the IBEX Index for use as an underlying index for trading in financial derivatives;
- to study and approve the rebalancing of the IBEX Index when it deems appropriate and at least every three months; and
- to report any modification of the technical regulations for the composition and calculation of the IBEX Index.

The IBEX Committee holds ordinary meetings twice a year, in the first and second calendar half-year periods, in order to rebalance the IBEX Index for the following period. Follow-up meetings are also held twice a year, in the quarterly periods not coinciding with the calendar half-year periods. At follow-up meetings, the components of the IBEX Index will be modified only if any of the stocks showed a significant change in its liquidity such that rebalancing the IBEX Index for the following period is advisable. All other meetings will be held on an extraordinary basis.

IBEX Committee decisions made at ordinary and follow-up meetings are published no later than 48 hours after the meeting and come into effect the following trade day after the third Friday of the month. Decisions taken at an extraordinary meeting are published and come into effect in accordance with the specific decisions taken at the meeting.

Index Calculation

The formula used in the calculation of the index value is:

where:

t is the time when the IBEX Index is calculated.

i is the company included in the IBEX Index.

S_i is the number of computable shares of company *i* for calculating the level of the IBEX Index.

P_i is the price of the shares of company *i* included in the IBEX Index at time (*t*);

Cap_i is the capitalization of company *i* included in the IBEX Index, which is calculated as S_i *times* P_i;

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is the aggregate capitalization of all companies included in the IBEX Index; and

Jis the amount used to adjust the value of the IBEX Index due to capital increases, etc. (the "(**J**) **adjustment**")

The (J) adjustment represents the capitalization adjustment required to assure continuity of the IBEX Index and is introduced in connection with certain corporate events (defined under "— Adjustments for Transactions Affecting the Constituents of the IBEX Index" below), as well as in ordinary, follow up and extraordinary reviews of the IBEX Index. The function of the (J) adjustment is to assure that the IBEX Index value is not altered by such corporate events. The value of the (J) adjustment reflects the capitalization difference of the IBEX Index before and after the adjustment.

Price

As a general reference, the price is that at which the last transaction was completed on the SIBE. Nonetheless:

- the closing price of the securities will be the price established in the regulations for trading on the SIBE;

- where a security is suspended from trading for whatever reason (*e.g.*, a takeover bid), the valid price to be used for the calculation of the IBEX Index will be the price at which the last transaction was made prior to the suspension of the security in question. Following the close of the market, the closing price will be calculated in accordance with the preceding bullet; and

- in market stress situations that affect all or part of the constituent securities, the IBEX Index will be calculated as established in the preceding paragraphs.

In addition, the Manager may, in exceptional circumstances, propose to the IBEX Committee a solution different from those indicated above, bearing in mind the relevant circumstances of each case.

Number of Shares

In general, the number of each company's shares used for calculation of the IBEX Index value will depend on its free float. This number will vary whenever corporate events take place involving constituents in the IBEX Index, assuming

compliance with "— Adjustments for Transactions Affecting the Constituents of the IBEX Index" below. These adjustments to the IBEX Index will be made on the basis of the number of shares the Manager objectively deems appropriate at the time. This number will be made public and included in the IBEX Index announcements.

The free float will be deemed complementary to block ownership capital. For purposes of calculating block ownership capital, and pursuant to the data that appears in the *Registry of the Comisión Nacional del Mercado de Valores* (the "**CNMV**"), the following will be taken into account:

- direct shareholdings *greater than* or *equal to* 3% of the share capital; and

- direct shareholdings held by members of the board of directors, regardless of the size of the shareholding.

The IBEX Committee will take this data into account even when the owner appearing in the CNMV is a nominee, unless the latter informs the CNMV in the appropriate manner that these shareholdings, taken individually, amount to less than 3% of capital.

The IBEX Committee will also take into account:

- the relevant facts that have been officially disclosed to the CNMV before the end of the control period of every ordinary review, follow-up review or extraordinary review, as the case may be, and that affect the calculation of the free float on dates close to the application of the decisions of the IBEX Committee; and

- any other circumstance in the composition of the shareholding registered at the CNMV that has any influence over the efficient replication of the IBEX Index, taking into account, as the case may be, the indirect shareholdings declared.

The number of each company's shares used for calculation of the IBEX Index will be adjusted by a free float factor as shown in the following table:

Free Float Factor to be applied (according to the Free Float Band)	
Free Float Band	**Free Float Factor**
Less than or *equal to* 10%	10%
Greater than 10% but *less than* or *equal to* 20%	20%
Greater than 20% but *less than* or *equal to* 30%	40%
Greater than 30% but *less than* or *equal to* 40%	60%
Greater than 40% but *less than* or *equal to* 50%	80%
Greater than 50%	100%

Changes to each company's free float will be updated as follows:

- at the ordinary reviews of the IBEX Committee; and

- at the follow-up meetings, *only if* the new free float corresponding to the stock has changed in at least two tranches above or below the current factor at the time of the review, according to the table above.

As a result of exceptional circumstances, in order to achieve an efficient replication of the IBEX Index, the IBEX Committee may, at any time, change the free float factor of a stock, with prior notification.

Additionally, in order to achieve an efficient replication of the IBEX Index, the IBEX Committee may use a number less than the number of the issued shares to calculate the value of the IBEX Index, bearing in mind criteria such as a significant dispersion of trading on more than one market, liquidity or any other criterion it deems appropriate, which will be published sufficiently in advance.

There is a maximum weighting of 20% allowed for each component at each IBEX Index review. In the case that any constituent's weight rises significantly between reviews and exceeds the 20% limit, the Manager may propose that the IBEX Committee perform an adjustment to the IBEX Index to reestablish a maximum weight of 20%. These adjustments to the individual weights shall be effective the same day on which the ordinary reviews are effective.

Adjustments for Transactions Affecting the Constituents of the IBEX Index

The aim of the adjustments to the IBEX Index is to ensure, to the extent possible and in a simple manner, that the IBEX Index reflects the performance of a portfolio composed of the same shares that make up the IBEX Index.

The adjustments to the IBEX Index, carried out by the Manager, are:

- calculated on their corresponding date depending on their nature,
- introduced once the market is closed and at the closing price of each security,
- effective as of the start of trading the next trading day,

so as to ensure that the value of the IBEX Index is not altered in any way.

Should a transaction take place with one or more constituents of the IBEX Index that requires an adjustment not contemplated within the technical regulations for the composition and calculation of the IBEX Index, or should the adjustment described below not be consistent with the purpose of the IBEX Index, the Manager may propose to the IBEX Committee that a new adjustment be made or any other action that is consistent with the purpose of the IBEX Index.

Ordinary Dividends and Similar Shareholder Remunerations

Ordinary dividends and other types of shareholder remuneration similar to ordinary dividend payments will not be adjusted in the IBEX Index. These are deemed to be: (a) the beginning of a periodic and recurring payment; (b) the change of a periodic and recurring dividend payment for another item of the same nature; and (c) the periodic and recurring charging of shareholder remuneration against equity accounts.

Capital Increases

The IBEX Index will be adjusted whenever one of the companies included in the IBEX Index carries out a capital increase with preferential subscription rights. These adjustments will be effective from the day on which the shares begin to trade ex-subscription right on the SIBE. On that date, and for purposes of the IBEX Index calculation, the number of shares in that company will be increased on the assumption that the increase is going to be totally subscribed and, simultaneously, the (J) adjustment (described in "— Index Calculation" above) will be introduced.

Increases in company capital where, as a result of the kind of transaction involved, the general shareholders' meeting decides to eliminate preferential subscription rights, will be included in the IBEX Index at the time they are admitted to the SIBE. The (J) adjustment will be made for the amount of the capital increase.

If, as a result of capital increases made without preferential subscription rights, the new shares admitted account for less than 1% of the total number of company shares used to calculate the value of the IBEX Index, the adjustment will be made every six months at the same time as the ordinary review of the IBEX Index composition.

Additionally, every six months, and at the same time as the ordinary review of the IBEX Index composition, an adjustment will be made for the differences between the number of shares included in the IBEX Index of companies which carried out capital increases during the control period and the number of shares actually subscribed in those capital increases.

Reductions of Capital and Other Equity Accounts

The IBEX Index will be adjusted whenever any company included in the IBEX Index reduces its capital by cancelling shares. These adjustments will be effective on the day the shares are excluded from the SIBE. On that date, for purposes of the calculation of the IBEX Index, the number of shares of the company will be reduced and, simultaneously, the (J) adjustment will be introduced for the amount of the reduction.

The IBEX Index will be adjusted whenever any company included in the IBEX Index reduces its share premium reserve or other equivalent equity accounts, with a distribution of the amount of the reduction to the shareholders, and that transaction is not equivalent to the payment of an ordinary dividend. These adjustments will be effective on the day the amount distributed to the shareholders is reflected in the SIBE. On that date, for purposes of the calculation of the IBEX Index, the amount will be discounted and, simultaneously, the (J) adjustment will be introduced for the amount of the reduction.

Issue of Convertible or Exchangeable Financial Instruments

The IBEX Index is not adjusted as a consequence of the issue of financial instruments that are convertible or exchangeable on the issue date. Nonetheless, every six months, coinciding with the ordinary review of the IBEX Index, those shares converted or exchanged by the holders of those instruments during the previous six months will be included.

Without effect to that stated above, if, as a result of an issue of convertible or exchangeable instruments or of a conversion into shares of an issue of convertible or exchangeable instruments, a substantial alteration in the listed price or number of issued shares should occur, the Manager may propose the corresponding adjustment in the price or number of shares to the IBEX Committee before the following ordinary review of the IBEX Index takes place.

Variation in the Par Value

The IBEX Index will be adjusted whenever a company included in the IBEX Index reduces the par value of its shares and distributes the resulting amount to the shareholders, and that transaction is not equivalent to the payment of an ordinary dividend. These adjustments will be effective on the day the amount distributed to the shareholders is reflected in the SIBE. On that date, for purposes of the calculation of the IBEX Index, the amount of the reduction will be discounted and, simultaneously, the (J) adjustment will be introduced for the amount of the reduction.

The IBEX Index will be adjusted whenever a company included in the IBEX Index carries out a share split or a regrouping of shares by altering the par value of its shares. These adjustments will be effective on the day the transaction is reflected in the SIBE, applying, where appropriate, the relevant (J) adjustment.

Mergers and Acquisitions

In the event of mergers and acquisitions in which the acquiring company is included in the IBEX Index and the acquired company is not, the IBEX Index will be adjusted considering the transaction, where applicable, as a capital

increase (according to "— Capital Increases" above).

Where the acquiring company is not included in the IBEX Index and the acquired company is, unless otherwise decided by the IBEX Committee, the IBEX Index will be adjusted on the date of the acquisition by modifying the aggregate capitalization of all companies included in the IBEX Index (described under "— Index Composition" above) to *exclude* the capitalization of the acquired company and *include* the capitalization of the next most liquid security in the opinion of the IBEX Committee. Where both companies (the acquiring and the acquired) are included in the IBEX Index, the IBEX Index will be adjusted on the date of the acquisition (as described under "— Index Composition" above) to *exclude* the capitalization of the acquired company and *include* the next most liquid security in the opinion of the IBEX Committee.

In those cases where the acquiring company trades significantly on more than one market, including the SIBE, the capitalization of the merged company for purposes of its weighting in the IBEX Index will be calculated initially by the relative value of the public offer over the total capitalization of the resulting company and, after a period of control, the IBEX Committee may establish another criterion that guarantees sufficient efficiency in the replication of the IBEX Index.

Without prejudice to the foregoing, if as a result of a merger or acquisition involving companies of which one is part of the IBEX Index, the resulting company is quoted on the SIBE and meets all requirements necessary for inclusion in the IBEX Index, the Manager may propose the company's inclusion in the IBEX Index to the IBEX Committee.

Segregation of Equity or Spin-Off of Companies with Shareholder Remuneration

The IBEX Index will be adjusted whenever a company included in the IBEX Index carries out a segregation of equity or spins off a company with shareholder remuneration. These adjustments will be effective from the day on which the operation is reflected in the SIBE. On that date, for purposes of calculating the IBEX Index, the amount of this operation will be discounted and, simultaneously, the (J) adjustment will be introduced for the amount of the reduction.

If, as a result of a segregation of equity or company spin-off, it is not possible to establish the impact on the share price in order to make the corresponding (J) adjustment, the IBEX Index will be adjusted on the date of the operation. This adjustment will consist of the temporary exclusion of that company from the IBEX Index. Once the first day of trading after a segregation of equity or company spin-off has concluded, the IBEX Committee may, as appropriate, once again include the company at its closing price.

Without prejudice to the foregoing, if as a result of an equity segregation or company spin-off, the company no longer meets the necessary requirements for inclusion in the IBEX Index, the Manager may propose the company's exclusion to the IBEX Committee.

Extraordinary Dividends and Other Shareholder Remunerations Not Equivalent to Ordinary Dividends

Extraordinary dividends and other types of shareholder remuneration not equivalent to ordinary dividend payments will be adjusted by the amount of the dividend or remuneration considered exceptional and non-periodic. These adjustments will be effective from the day on which the transaction is reflected in the SIBE. On that date, for purposes of calculating the IBEX Index, the amount of this transaction will be discounted and, simultaneously, the (J) adjustment will be entered for the amount of the reduction.

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The JPX-Nikkei Index 400

We have derived all information contained in this underlying supplement regarding the JPX-Nikkei Index 400, including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, the Japan Exchange Group, Inc. ("**JPX**"), Tokyo Stock Exchange, Inc. ("**TSE**," collectively, the "**JPX Group**") and Nikkei Inc. ("**Nikkei**," and together with the JPX Group, the "**Index Provider**"). The JPX-Nikkei Index 400 was developed by the Index Provider and is calculated, maintained and published by the Index Provider.

General

The JPX-Nikkei Index 400 is composed of 400 Japanese common stocks listed on the TSE First Section, Second Section, Mothers (Market Of The High-growth and EmeRging Stocks) or JASDAQ market. Constituents are selected by the Index Provider based on market capitalization, trading value, return on equity and other factors.

Publication of the JPX-Nikkei Index 400 began on January 6, 2014, based on an initial index value of 10,000 on August 30, 2013.

The JPX-Nikkei Index 400 is calculated in both price return and total return versions and is calculated in yen. The level of the JPX-Nikkei Index 400 is computed and published every second via TSE's Market Information System and is reported to securities companies across Japan and available worldwide through computerized information networks.

The JPX-Nikkei Index 400 is reported by Bloomberg L.P. under the ticker symbol "JPNK400." Due to the time zone difference, on any normal trading day the TSE will close prior to the opening of business in New York City on the same calendar day. Therefore, the closing level of the JPX-Nikkei Index 400 on a trading day will generally be available in the United States by the opening of business on the same calendar day.

Constituent Selection

The stocks composing the JPX-Nikkei Index 400 are reviewed annually based on the selection criteria applied as of the base selection date. The initial base selection date for the JPX-Nikkei Index 400 was June 28, 2013. For subsequent annual reviews, the base selection date will be the final business day of June of each year. The calculation of the JPX-Nikkei Index 400 using the new constituents will begin on the final business day of August. The selection

process and criteria are as follows:

(1) In order to be eligible for the JPX-Nikkei Index 400, a stock must be a common stock whose main market is the TSE First Section, Second Section, Mothers or JASDAQ market as of the base selection date (for dual-listed foreign stocks, as a general rule, only when their trading value at TSE in the most recent year from the base selection date is greater than that on their other listed exchanges). Issues other than common stocks may be treated as eligible for inclusion in the JPX-Nikkei Index 400 if they are regarded as equivalent to common stocks and their inclusion is deemed particularly necessary by the Index Provider. The JPX-Nikkei Index 400 does not currently include any non-common stocks.

(2) Stocks are excluded from selection if they fall under any of the following criteria:

- listed for less than three years on the base date (excluding cases of a company which underwent technical listing and was listed for three or more years prior to delisting);
- non-disclosure of the latest earnings reports or internal control reports, except in cases that the Index Provider deems to be unavoidable;
- the company's liabilities are in excess of its assets during any of the past three fiscal years;
- the company has an operating loss in each of the past three fiscal years;
- the company has a net loss in each of the past three fiscal years;
- the company's financials have disclosed doubt regarding its ability to continue as a going concern;
- disclosure of insufficient internal controls or it is not possible to release appraisal of internal controls in the internal control report pertaining to the most recent earnings

period;

·the stock has been designated as a security to be delisted or security on alert; or

·certain listing violations have occurred over the past year.

(3) To construct the JPX-Nikkei Index 400, the top 1,000 market capitalization issues shall be selected in descending order from the 1,200 issues with the highest trading value in the three years from the base selection date. In cases of mergers and acquisitions during the relevant period, the trading value of the surviving company following the merger or the new parent company following the stock swap shall be used prior to such merger/stock swap. In cases of technical listing via succession due to corporate consolidation (stock transfer), merger involving the establishment of a new company or corporate split, the trading value of the company which the Index Provider deems the subject of the corporate action pertaining to such technical listing shall be used prior to the technical listing.

(4) Each stock is scored by (a) three-year average return on equity (weighted 40%), (b) three-year cumulative operating profit (weighted 40%) and (c) market capitalization on the base selection date (weighted 20%).

(5) 400 stocks are selected by the final ranking with the scores calculated above in (4) and the qualitative scores determined as of the base selection date using the following criteria: at least one-third or a minimum of three directors appointed as independent outside directors, the release of the most recent earnings report according to international financial reporting standards and the release of English language earnings information via TDnet. The final score for each stock equals the sum of the score calculated above in (4) plus the score from the qualitative factors. Stocks are ranked from highest to lowest based on their final scores, with the exception that stocks with negative three-year average return on equity and whose most recent return on equity are negative or that have negative three-year cumulative operating profit shall be ranked lowest. In the event of a tie in final scores, the stock with the higher market capitalization is ranked higher. The top 400 stocks based on their rankings are selected for inclusion in the JPX-Nikkei Index 400.

Index Calculation

The JPX-Nikkei Index 400 is calculated using free float adjusted market value weighting and is denominated in points (as a decimal figure) rounded to the second decimal place. The JPX-Nikkei Index 400 is calculated by dividing the current free float adjusted market value (the "**Current Market Value**") by the market value on the base date (the "**Base Market Value**"). The market value is the sum of the number of shares of each constituent multiplied by that

constituent's stock price.

The calculation of the JPX-Nikkei Index 400 can be represented by the following formula:

$$\text{Index} = \frac{\text{Current Market Value}}{\text{Base Market Value}} \times \text{Base Point}$$

The number of shares of each constituent is determined by multiplying the total number of listed shares by the free float weight ratio following cap-adjustment. The weight of each constituent is capped at 1.5%, and if any constituent exceeds that weight, it is adjusted downwards at the time of the annual review. The free float weight is the percentage of listed shares deemed to be available for trading in the market. The free float weight is determined by excluding the estimated number of listed shares that are deemed not to be available for trading in the market, using publicly available documents. The shares that are treated as non-free float shares are, among others, shares held by specified types of major shareholders and shares held by board members and other representatives. The free float weights are reviewed annually for each index constituent, with the announcement and effective date for each index constituent occurring on a quarterly basis, depending upon the relevant company's earnings release schedule. In addition to this annual review, the Index Provider may also adjust a company's free float weight to reflect extraordinary events.

In order to maintain continuity, the Base Market Value is adjusted from time as a result of an increase or decrease in constituent issues, capital raising or similar events other than market fluctuations. Such events include, but are not limited to: new listings, delistings, new share issues either through public offerings or through rights offerings to shareholders, issuance of shares as a consequence of exercise of convertible bonds or warrants or mergers, acquisitions, consolidations, company splits or other similar changes in corporate structure.

The KOSPI 200 Index

We have derived all information contained in this underlying supplement regarding the KOSPI 200 Index, including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. We have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by, Korea Exchange ("**KRX**"), the publisher of the KOSPI 200 Index. The KOSPI 200 Index is calculated, maintained and published by KRX. KRX is under no obligation to continue to publish, and may discontinue publication of, the KOSPI 200 Index.

The KOSPI 200 Index is reported by Bloomberg L.P. under the ticker symbol "KOSPI2."

General

The KOSPI 200 Index is a capitalization-weighted index of 200 Korean blue-chip stocks that is intended to represent 90% of the total market capitalization of the Korea Stock Exchange ("**KSE**"). The companies listed on the KOSPI 200 Index are classified into the following nine sectors: (1) energy, (2) materials, (3) industrials, (4) customer discretionary, (5) customer staples, (6) health care, (7) financials and real estate, (8) information technology and telecommunication services and (9) utilities.

Standards for Selection and Maintenance

KRX chooses companies for inclusion in the KOSPI 200 Index with an aim of accurately representing overall market movement. KRX may from time to time, in its sole discretion, add companies to, or delete companies from, the KOSPI 200 Index to achieve this objective. The KOSPI 200 Index selects stocks of companies that belong to one of the nine industry groups.

KRX selects the constituent stocks of the KOSPI 200 Index on an annual basis ("regular rebalancing") and from time to time in response to mergers, delistings or other administrative reviews affecting individual constituent stocks ("special rebalancing"). Regular rebalancing decisions are made on the basis of data collected from May of the previous year through April of the year of the rebalancing and are implemented immediately following the last trading day for June futures and options contracts on the KOSPI 200 Index.

For purposes of the regular rebalancing, KRX first ranks the stocks in the nine industry groups by average daily market capitalization, and selects the number of stocks needed to include 80% of that industry group's one-year market capitalization. That first process determines the number of stocks that will be selected from each industry group for the upcoming year. The companies in each industry group are also ranked by their one-year average daily trading value, as a measure of liquidity. If any of the stocks initially selected on the basis of market capitalization does not rank in the top 85% on the basis of one-year average daily trading value, it is excluded from KOSPI 200 Index and the next highest ranked stock by market capitalization that also meets the 85% liquidity test is included.

In order to maintain the continuity of the KOSPI 200 Index, a stock selected in accordance with the above criteria that is not currently in the KOSPI 200 Index must rank within the top 90% by market capitalization of those companies in its industry group in order to become a constituent of the KOSPI 200 Index. Conversely, a current constituent of the KOSPI 200 Index that is not selected in accordance with the above criteria will, nevertheless, remain in the KOSPI 200 Index so long as its market capitalization would not rank below 110% of the market capitalization of those companies selected from its industry group through that year's regular rebalancing process.

If the number of the selected stocks is more or less than 200 stocks after applying both of the two buffer rules stated above, the KOSPI 200 Index adds or excludes stocks by the method stated below to reach a total of 200 stocks:

- less than 200 stocks: stocks are added in descending order of market capitalization among unselected stocks on the shortlist which meet the liquidity requirement irrespective of sector classification

- more than 200 stocks: stocks are excluded in ascending order of market capitalization among selected stocks unless the number of constituents of each sector is less than 90% of current constituents of each sector

Any stock not selected for inclusion in the KOSPI 200 Index as the basis of the regular rebalancing methodology that is also among the 50 largest companies in the Korean market by market capitalization over the last 15 trading days may be considered for inclusion by the KOSPI maintenance committee.

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Stocks scheduled to be delisted, stocks designated as having an administrative issue, stocks of real estate investment companies, stocks of ship investment companies, stocks of investment & financing companies, stocks listed on the KOSPI 200 Index less than one year and stocks whose free float rate is under 10% are ineligible to become constituent stocks of the KOSPI 200 Index.

Special rebalancing occurs from time to time when events such as a constituent stock's designation as administrative stock, or a merger or delisting occurs with respect to a constituent stock. Special rebalancing is carried out by choosing a stock from a replacement list prepared beforehand in a priority order by industry group.

Calculation of the KOSPI 200 Index

The KOSPI 200 Index is computed by multiplying (i) the market capitalization as of the calculation time divided by the market capitalization as of the base date (the "**KOSPI 200 Base Market Capitalization**"), by (ii) 100. The base date of the KOSPI 200 Index is January 3, 1990 with a base index of 100. Market capitalization is obtained by multiplying the number of listed common shares of the constituents, the price of the concerned common shares and the free float rate of the concerned common shares. If the number of listed shares increases due to rights offering, bonus offering or stock dividend, which accompany ex-right or ex-dividend, such increase is included in the number of listed shares on the ex-right date or ex-dividend date.

Share prices refer to the market price established during the regular trading session. If no trading took place on such day, the quotation price is used and if no quotation price is available, the closing price of the most recent trading day is used.

In order to maintain the consistency of the KOSPI 200 Index, the market capitalization and the KOSPI 200 Base Market Capitalization can be readjusted. Readjustment includes changing the KOSPI 200 Base Market Capitalization when there is an event, such as a distribution of rights or dividends, that affects the stock price, in order to equalize the stock price index on the day before the event and the stock price index on the day of the event.

Index Governance

The Futures and Options Index Maintenance Committee (the "**KOSPI Committee**") is charged with reviewing matters relating to calculation and management of the KOSPI 200 Index. The KOSPI Committee is composed of 10 members who are chosen as representatives of institutional investors and securities related institutions, legal and accounting professions, and professors and researchers. The KOSPI Committee is responsible for matters relating to the calculation method of the KOSPI 200 Index; matters relating to selection and rebalancing of the KOSPI constituent

stocks; matters relating to establishment, amendment and abolishment of the criteria for selection of the KOSPI 200 Index constituent stocks; and any other matters that are requested by the chief executive officer of KRX.

Regular meetings of the KOSPI Committee are held in May of each year for the purpose of realigning the constituent stocks, but a special meeting can be called if need arises.

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THE MDAX® Index

We have derived all information contained in this underlying supplement regarding the MDAX® Index (the "**MDAX Index**"), including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information, and we have not participated in the preparation of, or verified, such information. Such information reflects the policies of, and is subject to change by, Deutsche Börse AG. The MDAX Index is calculated, maintained and published by Deutsche Börse AG. Deutsche Börse AG has no obligation to continue to publish, and may discontinue publication of, the MDAX Index.

The MDAX Index is calculated in euros and the total return version is reported by Bloomberg L.P. under the ticker symbol "MDAX."

The MDAX Index currently is a stock index calculated, published and disseminated by Deutsche Börse AG that measures the performance of the shares of 50 mid-cap companies from classic sectors (i.e., sectors other than technology sectors) that are listed on the FWB® Frankfurt Stock Exchange (the "**FWB"**) and, in terms of market capitalization and stock exchange trading volume, rank below the DAX® Index. The DAX® Index is comprised of the 30 largest and most actively traded companies listed on the FWB. The MDAX Index has a base level of 1,000 as of December 30, 1987.

Deutsche Börse AG announced on May 18, 2018 that (i) the tech and classic sectoral separation in the MDAX Index will be eliminated and (ii) the number of stocks in the MDAX Index will rise from 50 to 60. The new rules will be applied starting from September 2018.

The MDAX Index is capital-weighted, meaning the weight of any individual issue is proportionate to its respective share in the overall capitalization of all index component issuers. Only freely available and tradable shares are taken into account. The weight of any single company is capped at 10% of the capitalization of the MDAX Index, measured quarterly. The total return version of the MDAX Index reinvests all income from dividend and bonus payments in the MDAX portfolio.

Composition and Maintenance

The MDAX Index uses free-float shares in the index calculation, which excludes shares held by 5% shareholders (other than (i) asset managers and trust companies, (ii) investment funds and pension funds and (iii) capital investment companies or foreign investment companies pursuing short-term investment strategies and whose shareholding does not exceed 25% of a company's share capital) and certain other shares that may be limited in their liquidity.

To be included or to remain in the MDAX Index, companies have to satisfy certain prerequisites. All classes of shares must:

· be listed in the "prime standard" segment of the FWB;

· be traded continuously on FWB's electronic trading system, Xetra®;

· have a free float of at least 10% of the outstanding shares; and

· belong to a sector or subsector that is assigned to the classic (i.e., non-technology) area.

Moreover, the companies included in the MDAX Index must have their registered office or operational headquarters in Germany. A company's operating headquarters is defined as the location of management or company administration, in part or in full. Alternatively, a company must have the major share of its stock exchange turnover on the FWB and its juristic headquarters in the European Union or in a European Free Trade Association state.

If a company has its operating headquarters in Germany, but not its registered office, this must be publicly identified by the company. The primary trading turnover requirement is met if at least 33% of aggregate turnover over the last twelve months took place on the FWB, including Xetra®.

With the respective prerequisites being satisfied, component stocks are selected for the MDAX Index according to two quantitative criteria:

- order book turnover on Xetra® and in FWB's floor trading (within the preceding 12 months); and

- free-float market capitalization on the last trading day of each month.

The market capitalization is determined using the average of the volume-weighted average price of the last 20 trading days prior to the last day of the month.

Ordinary adjustments to the MDAX Index are made each year in March and September, based on the following criteria:

- Regular Exit (60/60 rule): a company can be removed from the MDAX Index if it has a turnover ranking worse than 60 or a market capitalization ranking worse than 60. A company can be added to the MDAX Index that has a better turnover or a better market capitalization ranking compared to the company being deleted. If more than one candidate is available, the decision will be primarily based on the market capitalization. However, the company must still fulfill the regular entry thresholds. If no such candidate exists, the largest company by market capitalization will be added; and

- Regular Entry (50/50 rule): a company can be included in the MDAX Index if it has a minimum turnover ranking of 50 and a minimum market capitalization ranking of 50. A company can be removed from the MDAX Index that has a worse turnover or a worse market capitalization ranking compared to the company included. If more than one candidate is available, the decision will be primarily based on the market capitalization.

Furthermore, under the "fast-entry" and "fast-exit" rules, which are applied in March, June, September and December:

- Fast Entry (45/45 rule): a company can be included in the MDAX Index if it has a minimum turnover ranking of 45 and a minimum market capitalization ranking of 45. A company can be removed from the MDAX Index that has a worse turnover or a worse market capitalization ranking compared to the company included. If more than one candidate is available, the decision will be primarily based on the market capitalization; and

- Fast Exit (65/65 rule): a company can be removed from the MDAX Index if it has a turnover ranking worse than 65 or a market capitalization ranking worse than 65. A company can be added to the MDAX Index that has a better turnover or a better market capitalization ranking compared to the company being deleted. However, the company must still fulfill the fast-entry thresholds. If more than one candidate is available, the decision will be primarily based on the market capitalization. If no candidate exists, the largest company by market capitalization will be added.

Taking all these criteria into account, Deutsche Börse AG's working committee for equity indices submits proposals to the management board of Deutsche Börse AG to leave the current index composition unchanged, or to effect changes,

as applicable. The final decision as to whether or not to replace an index component stock is taken by the management board of Deutsche Börse AG. Any replacements are publicly announced by Deutsche Börse AG.

Adjustments to the index composition are also made for extraordinary circumstances, such as insolvency or the weighting of a component stock exceeding 10% and its annualized 30-day volatility exceeding 250%.

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The MSCI Indices

We have derived all information contained in this underlying supplement regarding the MSCI EAFE® Index, the MSCI Europe Index, the MSCI Emerging Markets Index℠, the MSCI Brazil Index, the MSCI Brazil 25/50 Index, the MSCI Singapore Index, the MSCI Taiwan Index℠, the MSCI AC Far East ex Japan Index and the MSCI World Index (each an "**MSCI Index**," and together, the "**MSCI Indices**"), including, without limitation, the make-up, method of calculation and changes in each MSCI Index's components, from publicly available information. We have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by, MSCI. The MSCI Indices are calculated, maintained and published by MSCI. MSCI has no obligation to continue to publish, and may discontinue publication of, any of the MSCI Indices.

The current index calculation methodology used to formulate the MSCI Indices (and which is also used to formulate the indices included in the MSCI Global Index Series) (the "**MSCI Global Investable Market Indices Methodology**") was implemented as of June 1, 2008.

For a discussion on the construction of the MSCI Indices, see below under "—Constructing the MSCI Indices."

The MSCI EAFE® Index

The MSCI EAFE® Index is a free float-adjusted market capitalization index intended to measure the performance of large- and mid-capitalization companies in certain developed markets outside of North America. The MSCI EAFE® Index launched on March 31, 1986. The MSCI EAFE® Index includes components from all countries in Europe, Australasia and the Far East that are designated by MSCI as Developed Markets ("**DMs**"). The MSCI EAFE® Index currently consists of the following 21 developed market country indices: Australia, Austria, Belgium, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland and the United Kingdom. The MSCI EAFE® Index covers approximately 85% of the free float-adjusted market capitalization in each country.

The U.S. dollar price return version of the MSCI EAFE® Index is reported by Bloomberg L.P. under the ticker symbol "MXEA."

The MSCI Europe Index

The MSCI Europe Index is a free float-adjusted market capitalization index that is designed to measure the performance of large- and mid-capitalization companies in the developed markets in Europe. The MSCI Europe Index launched on March 31, 1986. The MSCI Europe Index currently consists of the following 15 developed market country indices: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom. The MSCI Europe Index covers approximately 85% of the free float-adjusted market capitalization across the European developed markets.

The euro price return version of the MSCI Europe Index is reported by Bloomberg L.P. under ticker symbol "MXEU."

The MSCI Emerging Markets Index[SM]

The MSCI Emerging Markets Index[SM] (the "**MSCI EM Index**") is a free float-adjusted market capitalization index that is designed to measure the performance of large- and mid-capitalization companies in global emerging markets. The MSCI EM Index launched on January 1, 2001. The MSCI EM Index currently consists of the following 24 emerging market country indices: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Qatar, Russia, South Africa, Taiwan, Thailand, Turkey and the United Arab Emirates. Effective June 2018, the MSCI EM Index includes large-capitalization shares traded on mainland Chinese exchanges, referred to as A shares. In June 2018, MSCI announced that it will include the MSCI Saudi Arabia Index in the MSCI EM Index and reclassify the MSCI Argentina Index from Frontier Markets ("**FM**") to Emerging Markets ("**EM**") status. Inclusion of the MSCI Saudi Arabia Index and MSCI Argentina Index in the MSCI EM Index will begin in May 2019. The MSCI EM Index covers approximately 85% of the free float-adjusted market capitalization in each country.

The MSCI EM Index includes components from all countries covered by the MSCI International Equity Indices that are designated by MSCI as EMs. Each of the emerging markets component country indices is a sampling of equity securities across industry groups in such country's equity markets. In order to maintain the representativeness of the

MSCI EM Index, structural changes to the MSCI EM Index as a whole may be made by adding or deleting emerging markets component country indices and the related emerging markets component securities.

The U.S. dollar price return version of the MSCI Emerging Markets Index is reported by Bloomberg L.P. under the ticker symbol "MXEF."

MSCI Brazil Index

The MSCI Brazil Index is a free float-adjusted market capitalization index that is designed to measure the performance of large- and mid-capitalization companies in the Brazilian equity market. The MSCI Brazil Index launched on January 1, 2001. The MSCI Brazil Index covers approximately 85% of the Brazilian equity universe.

The Brazilian real price return version of the MSCI Brazil Index is reported by Bloomberg L.P. under the ticker symbol "MXBR."

MSCI Brazil 25/50 Index

The MSCI Brazil 25/50 Index is a free float-adjusted market capitalization index that is designed to measure the performance of large- and mid-capitalization companies in the Brazilian equity market. The MSCI Brazil 25/50 Index launched on November 22, 2012. The MSCI Brazil 25/50 Index is intended to replicate certain investment limits that are imposed on regulated investment companies under the current U.S. Internal Revenue Code by applying a capping methodology that limits the weight of any single issuer to a maximum of 25% of the MSCI Brazil 25/50 Index and limiting the sum of the weights of all issuers representing more than 5% of the MSCI Brazil 25/50 Index to a maximum of 50% of the weight of the MSCI Brazil 25/50 Index in the aggregate. The MSCI Brazil 25/50 Index covers approximately 85% of the free float-adjusted market capitalization in Brazil.

The Brazilian real price return version of the MSCI Brazil 25/50 Index is reported by Bloomberg L.P. under the ticker symbol "MXBR2550."

MSCI Singapore Index

The MSCI Singapore Index[SM] is a free float-adjusted market capitalization index that is designed to measure the performance of large- and mid-capitalization companies in the Singaporean equity market. Securities listed on the Singapore Stock Exchange are eligible for inclusion in the MSCI Singapore Index[SM]. The MSCI Singapore Index[SM] launched on March 31, 1986. The MSCI Singapore Index[SM] covers approximately 85% of the free float-adjusted market capitalization of the Singapore equity universe.

The Singapore dollar price return version of the MSCI Singapore Index is reported by Bloomberg under ticker symbol "MXSG."

MSCI Taiwan Index[SM]

The MSCI Taiwan Index[SM] is a free float-adjusted market capitalization index that is designed to measure the performance of large- and mid-capitalization companies in the Taiwan equity market. The MSCI Taiwan Index[SM] launched on July 31, 1989. The MSCI Taiwan Index[SM] covers approximately 85% of the free float-adjusted market capitalization of the Taiwan equity universe.

The New Taiwan dollar price return version of the MSCI Taiwan Index is reported by Bloomberg Financial Markets under ticker symbol "TAMSCI."

MSCI AC Far East ex Japan Index

The MSCI AC Far East ex Japan Index is a free float-adjusted market capitalization index that is designed to measure the performance of large- and mid-capitalization companies in certain countries in the Far East, excluding Japan. The MSCI AC Far East ex Japan Index launched on May 31, 1990. The MSCI AC Far East ex Japan Index consists of the following developed and emerging market country indices: China, Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan and Thailand. The MSCI AC Far East ex Japan Index covers approximately 85% of the free float-adjusted market capitalization in each country.

The U.S. dollar price return version of the MSCI AC Far East ex Japan Index is reported by Bloomberg under the ticker symbol "MXFEJ."

MSCI World Index

The MSCI World Index is a free float-adjusted market capitalization index that is designed to measure the performance of large- and mid-capitalization companies in certain developed equity markets. The MSCI World Index launched on March 31, 1986. The MSCI World Index consists of the following 23 developed equity indices: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom and the United States. The MSCI World Index covers approximately 85% of the free float-adjusted market capitalization in each country.

The MSCI Daily Total Return Net World USD Index is a total return version of the MSCI World Index whose index level reflects net dividends, meaning that it measures the market performance in terms of both price performance and income from dividend payments, net of certain withholding taxes. MSCI calculates withholding taxes using the highest applicable withholding tax rate applicable to non-resident institutional investors who do not benefit from double taxation treaties. Under such methodology, dividends, net the amount withheld, are notionally reinvested in the MSCI Daily Total Return Net World USD Index on the day the relevant security is quoted ex-dividend. The amount reinvested does not include tax credits.

The MSCI Daily Total Return Net World USD Index is reported by Bloomberg under the ticker symbol “NDDUWI.”

Constructing the MSCI Indices

Each MSCI Index is a member of the MSCI Global Investable Market Index family, calculated, maintained and published by MSCI. The current index calculation methodology used to formulate each MSCI Index, the MSCI Global Investable Market Indices Methodology, was implemented as of June 1, 2008. The MSCI Global Investable Market Indices Methodology involves the following steps:

Defining the Equity Universe

MSCI begins with securities listed in countries included in the MSCI Global Investable Market Indices. As of the date of this underlying supplement, 23 countries are classified as DMs and 24 countries as EMs. Following the May 2019 changes discussed above in “—MSCI EM Index,” 26 counties will be classified as EMs. All listed equity securities, including real estate investment trusts and certain income trusts in Canada are eligible for inclusion in the equity universe. Limited partnerships, limited liability companies, and business trusts, which are listed in the U.S. and are not structured to be taxed as limited partnerships, are likewise eligible for inclusion in the equity universe. Conversely,

mutual funds, ETFs, equity derivatives and most investment trusts are not eligible for inclusion in the equity universe. Each company and its securities are classified in only one country. Preferred shares that exhibit characteristics of equity securities are eligible.

Determining the Market Investable Equity Universe for Each Market

The equity universe in each market is derived by (i) identifying eligible listings for each security in the equity universe as described below and (ii) applying certain investability screens, such as minimum market capitalization, free float, liquidity, permitted foreign holding, length of trading and, for securities subject to a foreign ownership limit, proportion of shares still available to foreign investors relative to the maximum allowed (referred to as "foreign room"), to individual companies and securities in the equity universe of that market. Some investability requirements are applied at the individual security level and some at the overall company level, represented by the aggregation of individual securities of the company. As a result, the inclusion or exclusion of one security does not imply the automatic inclusion or exclusion of other securities of the same company.

A security may have a listing in the country where it is classified (a "local listing") and/or in a different country (a "foreign listing"). Securities may be represented by either a local listing or a foreign listing in the equity universe. A security may be represented by a foreign listing if the following conditions are met:

- The securities are classified in a country that meets the "Foreign Listing Materiality Requirement." To meet the Foreign Listing Materiality Requirement, the aggregate market capitalization of all securities represented by foreign listings should represent at least (i) 5% of the free float-adjusted market capitalization of the relevant MSCI Country Investable Market Index and (ii) 0.05% of the free float-adjusted market capitalization of the MSCI All Country World Index Investable Market Index. As of the May 2018 semi-annual index review, Argentina, Bahrain, Botswana, China, Hong Kong, Israel, Kazakhstan, Mauritius, Netherlands, Panama, Peru, Russia (but only selected listings in London and New York) and Ukraine meet the Foreign Listing Materiality Requirement.

- The security's foreign listing must be traded on an eligible stock exchange of: (i) a DM country if the security is classified in a DM country, or (ii) a DM country or an EM country if the security is classified in an EM country, or (iii) a DM or an EM or a FM country if the security is classified in a FM country.

Determining Market Capitalization Size-Segments for Each Market

In each market, MSCI creates an Investable Market Index, Standard Index, Large-Capitalization Index, Mid-Capitalization Index and Small-Capitalization Index (the "**Size-Segment Indices**"). The Standard Index is the aggregation of the Large-Capitalization Index and the Mid-Capitalization Index. The Investable Market Index is the aggregation of the Standard Index and the Small-Cap Index. In order to create size components that can be meaningfully aggregated into composites, individual market size segments balance the following two objectives:

- achieving global size integrity by ensuring that companies of comparable and relevant sizes are included in a given size segment across all markets in the composite universe;

- achieving consistent market coverage by ensuring that each market's size segment is represented in its proportional weight in the composite universe.

In order to enhance the replicability of Size-Segment Indices, additional size-segment investability requirements are set for the Investable Market Indices and the Standard Indices. These investability requirements include minimum free float market capitalization and minimum foreign room. Companies that do not meet these investability screens are not included in any of the indices within the MSCI Global Investable Market Index family.

Applying Index Continuity Rules for the Standard Index

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

Classifying Securities under the Global Industry Classification Standard

All securities in the equity universe are assigned to the industry that best describes their business activities. To this end, MSCI has designed, in conjunction with S&P Global, the Global Industry Classification Standard (the "**GICS**").

The GICS entails four levels of classification: (1) sector; (2) industry groups; (3) industries; (4) sub-industries. Under the GICS, each company is assigned uniquely to one sub-industry according to its principal business activity. Therefore, a company can belong to only one industry grouping at each of the four levels of the GICS.

Constructing and Calculating the Individual MSCI Global Investable Market Indices

After companies are allocated to their respective size segments and securities are reviewed for complying with the final size segment requirements, the final list of constituents for each Segment Index is determined. The MSCI Investable Market Indices are composed of the MSCI Standard Indices and the MSCI Small Capitalization Indices. The MSCI Standard Indices are further subdivided into the MSCI Large Capitalization and the MSCI Mid Capitalization Indices.

Two or more market indices can be combined to form composite indices. Market indices can be grouped either on the basis of market classification definition, geographical regions, economic regions or other criteria. For example, by combining all market indices from each market classification, i.e. developed, emerging and frontier markets, the index sponsor obtains the MSCI World, the MSCI Emerging Markets and the MSCI Frontier Markets Indices respectively for each size-segment.

Each MSCI Global Investable Market Index is market capitalization weighted adjusted by free float, meaning that each component security is included in the index are at the value of their free public float, as measured based on its foreign inclusion factor (the "**Foreign Inclusion Factor**"). In cases where other foreign investment restrictions exist that materially limit the ability of international investors to freely invest in a particular equity market, sector or security, a limited investability factor may also be applied to the free float to insure that the investability objectives of the indices can be achieved.

MSCI defines the Foreign Inclusion Factor of a security as the proportion of shares outstanding that are deemed to be available for purchase in the public equity markets by international investors. To determine the Foreign Inclusion Factor of a security, MSCI considers the limitations on the investment opportunities for international investors including: strategic stakes in a company held by private or public shareholders whose investment objective indicates that the shares held are not likely to be available in the market, limits on the proportion of a security's share capital authorized for purchase by non-domestic investors or other foreign investment restrictions which materially limit the ability of foreign investors to freely invest in a particular equity market, sector or security.

A component security's Foreign Inclusion Factor is (i) rounded up to the closest 5% for component securities with free float equal to or exceeding 15% or (ii) rounded up to the closest 1% for component securities with free float less than 15%. For example, a component security with a free float of 23.2% will be included in the index at 25% of its market capitalization. Typically, securities with a Foreign Inclusion Factor of 15% or less will not be eligible for inclusion in MSCI's indices.

For a security that is subject to a foreign ownership limit to be included in an MSCI Global Investable Market Index at its entire free float-adjusted market capitalization, the proportion of shares still available to foreign investors relative to the maximum allowed, the foreign room, must be at least 25%. If a security's foreign room is less than 25% and equal to or higher than 15%, the Foreign Inclusion Factor for that security will be adjusted downward. Securities will not be eligible for inclusion in the equity universe if the foreign room is less than 15%.

Once the Foreign Inclusion Factor has been determined for a security, the security's total market capitalization is then adjusted by such Foreign Inclusion Factor, resulting in the free float-adjusted market capitalization figure for the security. Market capitalization weighting, combined with a consistent target of capturing 99% of free float-adjusted market capitalization, aims to ensure that each country's weight in the index approximates its weight in the total universe of DMs and EMs.

Index Maintenance

The MSCI Global Investable Market Indices are maintained with the objective of reflecting, on a timely basis, the evolution of the underlying equity markets. In maintaining the MSCI Global Investable Market Indices, emphasis is also placed on its continuity, replicability and minimizing index turnover. Among other things, maintaining the MSCI Global Investable Market Indices involves making: additions to and deletions from the index, changes in number of shares and changes in Foreign Inclusion Factors as a result of updated free float estimates.

MSCI classifies index maintenance in three broad categories. The first consists of ongoing event-related changes, such as mergers and acquisitions, which are generally implemented in the indices at the time of event. The second category consists of quarterly index reviews, aimed at promptly reflecting other significant market events. The third category consists of semi-annual full index reviews that systematically re-assess the various dimensions of the equity universe for all markets simultaneously and are conducted on a fixed semi-annual timetable.

Ongoing event-related changes to the indices are the result of mergers, acquisitions, spin-offs, bankruptcies, reorganizations and other similar corporate events. They can also result from capital reorganizations in the form of rights issues, bonus issues, public placements and other similar corporate actions that take place on a continuing basis. These changes are reflected in the MSCI Global Investable Market Indices at the time of the event. All changes resulting from corporate events are announced prior to their implementation, provided all necessary information on

the event is available.

The quarterly index review process is designed to ensure that the indices continue to be an accurate reflection of evolving equity markets. This is achieved by a timely reflection of significant market driven changes that were not captured in the index at the time of their actual occurrence but are significant enough to be reflected before the next semi-annual index review. Quarterly index reviews may result in additions or deletions due to migration to another Size Segment Index, additions of new investable companies to the Standard Index, deletions of companies from the Investable Market Indices due to low liquidity and changes in Foreign Inclusion Factor and in number of shares. Changes in the number of shares are generally small and result from, for example, exercise of options or warrants, conversion of convertible bonds or other instruments or share buybacks. The implementation of changes resulting from quarterly index reviews occurs as of the close of the last business day of each February and August. The results of the quarterly index reviews are announced at least two weeks prior to their implementation.

The objective of the semi-annual index review is to systematically reassess the various dimensions of the equity universe for all markets simultaneously. During each semi-annual index review, the equity universe is updated and the minimum size guidelines are recalculated for each segment market. Then, the following index maintenance activities are undertaken for each market: updating the market investable equity universe; recalculating the global minimum size references and global minimum size ranges; reassessing the number of companies in each segment and the market size-segment cutoffs; assigning companies to the size-segments; and assessing conformity with the final size-segment investability requirements. The results of the semi-annual index reviews are announced at least two weeks in advance of their effective implementation dates as of the close of the last business day of May and November.

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Market Reclassifications

During an annual market classification review, MSCI analyzes and seeks feedback on those markets it has placed under review for potential market reclassification, based on extensive discussions with the investment community. MSCI examines each country's economic development, size, liquidity and market accessibility in order to be classified in a given investment market (i.e. stand-alone, frontier, emerging or developed market). Each June, MSCI communicates its conclusions from discussions with the investment community on the list of countries under review and announces the new list of countries, if any, under review for potential market reclassification in the upcoming cycle.

The NASDAQ-100® Index

We have derived all information contained in this underlying supplement regarding the NASDAQ-100® Index (the "**NASDAQ Index**"), including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. We have not participated in the preparation of, or verified, such publicly available information. The NASDAQ Index was developed by, and is calculated, maintained and published by Nasdaq, Inc. ("**Nasdaq**"). Nasdaq has no obligation to continue to publish, and may discontinue publication of, the NASDAQ Index.

The NASDAQ Index is reported by Bloomberg L.P. under the ticker symbol "NDX."

General

The NASDAQ Index includes 100 of the largest domestic and international non-financial securities listed on the Nasdaq Stock Market based on market capitalization. The index reflects companies across major industry groups that may include computer hardware and software, telecommunications, retail/wholesale trade and biotechnology. It does not contain securities of financial companies including investment companies.

The NASDAQ Index was launched on January 31, 1985, with a base index value of 250.00. On January 1, 1994, the base index value was reset to 125.00. Current information regarding the market value of the NASDAQ Index is available from Nasdaq.

The NASDAQ Index share weights of the constituent stocks of the NASDAQ Index at any time are based upon the total shares outstanding in each of those constituent stocks and are additionally subject, in certain cases, to rebalancing. Accordingly, each constituent stock's influence on the level of the NASDAQ Index is directly proportional to the value of its NASDAQ Index share weight.

Standards for Selection and Maintenance

Initial Eligibility Criteria

To be eligible for initial inclusion in the NASDAQ Index, a security must be listed on the Nasdaq Stock Market and meet the following criteria:

- the issuer of the security's primary U.S. listing must be exclusively on the Nasdaq Global Select Market or the Nasdaq Global Market (unless the security was dually listed on another U.S. market prior to January 1, 2004 and has continuously maintained that listing);
- the security must be of a non-financial company;
- the security may not be issued by an issuer currently in bankruptcy proceedings;
- the security must have an average daily trading volume on the Nasdaq Stock Market of at least 200,000 shares (measured annually during the ranking review process);
- if the issuer of the security is organized under the laws of a jurisdiction outside the U.S., then such security must have listed options on a recognized options market in the U.S. or be eligible for listed-options trading on a recognized options market in the U.S. (as measured annually during the ranking review process);
- the issuer of the security may not have entered into a definitive agreement or other arrangement which would result in the security no longer being NASDAQ Index eligible;
- the issuer of the security may not have annual financial statements with an audit opinion that is currently withdrawn; and
- the security must have "seasoned" on the Nasdaq Stock Market, NYSE or NYSE American (generally, a company is considered to be seasoned if it has been listed on a market for at least three full months, excluding the first month of the initial listing).

Beginning in December 2014, Nasdaq modified the NASDAQ Index methodology to allow for inclusion of all an issuer's share classes that meet the initial eligibility criteria.

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Continued Eligibility Criteria

In addition, to be eligible for continued inclusion in the NASDAQ Index, the following criteria apply:

- the issuer of the security's primary U.S. listing must be exclusively on the Nasdaq Global Select Market or Nasdaq Global Market (unless the security was dually listed on another U.S. market prior to January 1, 2004 and has continuously maintained that listing);
- the security must be issued by a non-financial company;
- the security may not be issued by an issuer currently in bankruptcy proceedings;
- the security must have an average daily trading volume of at least 200,000 shares in the previous three month trading period (measured annually during the ranking review process);
- if the issuer of the security is organized under the laws of a jurisdiction outside the U.S., then such security must have listed options on a recognized options market in the U.S. or be eligible for listed-options trading on a recognized options market in the U.S.;
- the issuer must have an adjusted market capitalization equal to or exceeding 0.10% of the aggregate adjusted market capitalization of the NASDAQ Index at each month end. In the event a company does not meet this criterion for two consecutive month ends, it will be removed from the NASDAQ Index effective after the close of trading on the third Friday of the following month; and
- the issuer of the security may not have annual financial statements with an audit opinion that is currently withdrawn.

These NASDAQ Index eligibility criteria may be revised from time to time by Nasdaq without regard to the securities.

Annual Ranking Review

The NASDAQ Index securities are evaluated on an annual basis, except under extraordinary circumstances which may result in an interim evaluation, as follows (this evaluation is referred to herein as the "**Ranking Review**"). Securities listed on the Nasdaq Stock Market which meet the applicable eligibility criteria are ranked by market value. NASDAQ Index-eligible securities which are already in the NASDAQ Index and which are ranked in the top 100

eligible securities (based on market capitalization) are retained in the NASDAQ Index. A security that is ranked 101 to 125 is also retained, provided that such security was ranked in the top 100 eligible securities as of the previous Ranking Review or was added to the NASDAQ Index subsequent to the previous Ranking Review. Securities not meeting such criteria are replaced. The replacement securities chosen are those NASDAQ Index-eligible securities not currently in the NASDAQ Index that have the largest market capitalization. The data used in the ranking includes end of October Nasdaq market data and is updated for total shares outstanding submitted in a publicly filed SEC document via EDGAR through the end of November.

Generally, the list of annual additions and deletions is publicly announced via a press release in the early part of December, and replacements are made effective after the close of trading on the third Friday in December. Moreover, if at any time during the year a NASDAQ Index security no longer meets the continued eligibility criteria, or is otherwise determined by Nasdaq to become ineligible for continued inclusion in the NASDAQ Index, the security will be replaced with the largest market capitalization security not currently in the NASDAQ Index and meeting the NASDAQ Index eligibility criteria listed above.

In addition to the Ranking Review, Nasdaq has adopted the following weight adjustment procedures with respect to certain corporate actions. Changes arising from stock splits, stock dividends and certain spin-offs and rights offerings are made effective in the NASDAQ Index on the ex-date of such corporate action. If the change in total shares outstanding arising from other corporate actions is greater than or equal to 10%, the change will be made as soon as practicable. Otherwise, if the change in total shares outstanding is less than 10%, then all such changes are accumulated and made effective at one time on a quarterly basis after the close of trading on the third Friday in each of March, June, September and December. In any case, the index share weights for such NASDAQ Index securities are adjusted by the same percentage amount by which the total shares outstanding have changed in such NASDAQ Index securities.

Calculation of the NASDAQ Index

The NASDAQ Index is a modified market capitalization weighted index. The value of the NASDAQ Index equals the aggregate value of the NASDAQ Index share weights of each of the NASDAQ Index securities multiplied by each such

security's last sale price on the Nasdaq Stock Market, which may be the Nasdaq official closing price (the "**Last Sale Price**"), and divided by the divisor of the NASDAQ Index. The divisor serves the purpose of scaling such aggregate value to a lower order of magnitude which is more desirable for NASDAQ Index reporting purposes. If trading in a NASDAQ Index security is halted on its primary listing market, the most recent Last Sale Price for that security is used for all index computations until trading on such market resumes. Likewise, the most recent Last Sale Price is used if trading in a security is halted on its primary listing market before the market is open.

The formula for index value is as follows:

Aggregate Adjusted Market Value / Divisor

The formula for the divisor is as follows:

Start of Day Aggregate Adjusted Market Value / Previous Day Index Value

Three versions of the NASDAQ Index in U.S. dollars are calculated – a price return index, a total return index and a notional net total return index.

- The price return index in U.S. dollars (Nasdaq: NDX) is calculated without regard to ordinary cash dividends on NASDAQ Index securities.

- The total return index in U.S. dollars (Nasdaq: XNDX) reinvests ordinary cash dividends on the ex-date. The total return index was synchronized to the value of the price return index at the close on March 4, 1999.

- The notional net total return index in U.S. dollars (Nasdaq: XNDXNNR) is designed to reflect a net total return index reinvesting 70% of cash dividends, and factors in a deduction based on an indicative 30% tax rate. The notional net total return index was synchronized to the value of the total return index at the close on October 7, 2011.

All three versions of the NASDAQ Index reflect extraordinary cash distributions.

The NASDAQ Index is calculated during the trading day based on the Last Sale Price and are disseminated once per second from 09:30:01 to 17:16:00 Eastern Time (ET). The closing value of the NASDAQ Index may change up until

17:15:00 ET due to corrections to the Last Sale Price of the NASDAQ Index securities.

Rebalancing of the NASDAQ Index

On a quarterly basis, coinciding with the quarterly scheduled NASDAQ Index share adjustment procedures, the NASDAQ Index will be rebalanced if it is determined that: (1) the current weight of the single largest market capitalization NASDAQ Index constituent is greater than 24% and (2) the "collective weight" of those NASDAQ Index constituents whose individual current weights are in excess of 4.5%, when added together, exceed 48% of the NASDAQ Index. In addition, a special rebalancing of the NASDAQ Index may be conducted at any time if it is determined necessary to maintain the integrity of the NASDAQ Index.

If either one or both of these weight distribution requirements are met upon quarterly review or it is determined that a special rebalancing is required, a weight rebalancing will be performed.

First, relating to weight distribution requirement (1) above, if the current weight of the single largest NASDAQ Index constituent exceeds 24%, then the weights of all stocks greater than 1% (each, a "**Large Stock**") will be scaled down proportionately towards 1% by enough for the adjusted weight of the single largest NASDAQ Index constituent to be set to 20%.

Second, relating to weight distribution requirement (2) above, for those NASDAQ Index constituents whose individual current weights or adjusted weights in accordance with the preceding step are in excess of 4.5%, if their "collective weight" exceeds 48%, then the weights of all Large Stocks will be scaled down proportionately towards 1% by just enough for the "collective weight," so adjusted, to be set to 40%.

The aggregate weight reduction among the Large Stocks resulting from either or both of the above rescalings will then be redistributed to those stocks less than or equal to 1% (each, a "**Small Stock**") in the following iterative manner.

In the first iteration, the weight of the largest Small Stock will be scaled upwards by a factor which sets it equal to the average NASDAQ Index weight of 1%. The weights of each of the smaller remaining Small Stocks will be scaled up by the same factor reduced in relation to each stock's relative ranking among the Small Stocks such that the smaller the

NASDAQ Index security in the ranking, the less the scale-up of its weight. This is intended to reduce the market impact of the weight rebalancing on the smallest constituents in the NASDAQ Index.

In the second iteration, the weight of the second largest Small Stock, already adjusted in the first iteration, will be scaled upwards by a factor which sets it equal to the average NASDAQ Index weight of 1%. The weights of each of the smaller remaining Small Stocks will be scaled up by this same factor reduced in relation to each stock's relative ranking among the Small Stocks such that, once again, the smaller the stock in the ranking, the less the scale-up of its weight.

Additional iterations will be performed until the accumulated increase in weight among the Small Stocks exactly equals the aggregate weight reduction among the Large Stocks from rebalancing in accordance with weight distribution requirement (1) and/or weight distribution requirement (2).

Then, to complete the rebalancing procedure, once the final percent weights of each NASDAQ Index constituent are set, the NASDAQ Index share weights will be determined anew based upon the last sale prices and aggregate capitalization of the NASDAQ Index at the close of trading on the last day in February, May, August and November. Changes to the NASDAQ Index share weights will be made effective after the close of trading on the third Friday in March, June, September and December and an adjustment to the NASDAQ Index divisor is made to ensure continuity of the NASDAQ Index.

Ordinarily, new rebalanced weights will be determined by applying the above procedures to the current NASDAQ Index share weights. However, Nasdaq may from time to time determine rebalanced weights, if necessary, by applying the above procedure to the actual current market capitalization of the NASDAQ Index components. In such instances, Nasdaq would announce the different basis for rebalancing prior to its implementation.

During the quarterly rebalancing, data is cutoff as of the previous month end and no changes are made to the NASDAQ Index from that cutoff until the quarterly share change effective date with the single exception for corporate actions with an ex-date.

Nasdaq may, from time to time, exercise reasonable discretion as it deems appropriate in making adjustments to ensure NASDAQ Index integrity.

The Nikkei 225 Index

We have derived all information contained in this underlying supplement regarding the Nikkei 225 Index (the "**Nikkei Index**"), including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. We have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by Nikkei Inc. (known as Nihon Keizai Shimbun, Inc. prior to January 1, 2007). The Nikkei Index was developed, and is calculated, maintained and published, by Nikkei Inc. Nikkei Inc. has no obligation to continue to publish, and may discontinue publication of, the Nikkei Index.

The Nikkei Index is reported by Bloomberg L.P. under the ticker symbol "NKY."

General

The Nikkei Index measures the composite price performance of selected Japanese stocks. As of the date of this underlying supplement, the Nikkei Index is based on 225 constituent stocks trading on the Tokyo Stock Exchange ("**TSE**") representing a broad cross-section of Japanese industries. All 225 constituent 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 Nikkei Index) be included in the Nikkei Index. Nikkei Inc. first calculated and published the Nikkei Index in 1970.

Composition of the Nikkei Index

The 225 companies included in the Nikkei Index 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 and auto parts, precision machinery, telecommunications;
- Financials—banking, other financial services, securities, insurance;
- Consumer goods—fishery, food, retail, services;

- Materials—mining, textiles and apparel, paper and pulp, chemicals, petroleum, rubber, glass and ceramics, steel, nonferrous metals, trading companies;

- Capital goods/others—construction, machinery, shipbuilding, transportation equipment, other manufacturing, real estate; and

- Transportation and utilities—railroads and buses, land transport, marine transport, air transport, warehousing, electric power, gas.

Standards for Selection and Maintenance

Nikkei Inc. makes changes to the Nikkei Index's constituents via annual periodic reviews and extraordinary replacements. Non-ordinary shares such as ETFs, REITs, preferred stocks and tracking stocks are excluded from the Nikkei Index. Constituent stocks are reviewed once a year at the beginning of October. Deletions and additions are announced before the effective date with some notification period. The purpose of this review is to maintain the market representativeness of the constituents. Stocks with high market liquidity are added and those with low liquidity are deleted. Furthermore, sector balance (in terms of the number of constituents) is considered in order to take into account changes in industry structure.

Liquidity is assessed by trading volume and "magnitude of price fluctuation by volume" which is calculated as:

(High price / Low price) / Volume

The top 450 stocks listed on the TSE First Section in terms of liquidity are selected to form the "high liquidity group." Those constituents not in the high liquidity group are deleted and non-constituent stocks which are in the top 75 of the high liquidity group are added. The sector balance is then adjusted, based on the liquidity scores discussed above, to reach the final 225 constituent stocks.

The "appropriate number" of constituents for each sector is defined to be half the number of stocks in that sector. After the liquidity-based adjustments, discussed above, a rebalancing is conducted if any of the sectors are over- or under-represented. The degree of representation is evaluated by comparing the actual number of constituents in the sector against the appropriate number for that sector.

For over-represented sectors, current constituents in the sector are deleted in the order of liquidity (lowest liquidity first) to correct the coverage. For under-represented sectors, non-constituent stocks are added from the high liquidity group in the order of liquidity (high liquidity first) to correct the shortage.

A Nikkei constituent 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 constituent stocks: (i) designated to "securities to be delisted" (i.e. "Seiri Meigara") or delisted due to bankruptcy, (ii) delisted due to corporate restructuring such as a merger, share exchange or share transfer, (iii) designated to "securities to be delisted" or delisted due to excess debt or other reasons or (iv) transfer of such stock to the Second Section. In addition, a constituent stock transferred to the "Kanri Meigara" (stocks under supervision) is in principle a candidate for deletion. However, the decision to delete such candidates will be made by examining the sustainability and the probability of delisting in the individual case.

When a constituent stock is deleted from the Nikkei Index as outlined in the preceding paragraph, a new stock will be selected and added, in principle, from the same sector of the high liquidity group in order of liquidity. Notwithstanding the foregoing, the following rules may apply depending on the timing and circumstances of the deletion: (i) when such deletion is scheduled close to the periodic review, additional stocks may be selected as part of the periodic review process and (ii) when multiple deletions are scheduled in a season other than the periodic review, additions may be selected using the sector balancing rules outlined above.

As a general rule, for both the periodic review and the extraordinary replacement rules, additions and deletions are made effective on the same day in order to keep the number of constituent stocks at 225. However, under the circumstances outlined below, when an addition cannot be made on the same day as a deletion, the Nikkei Index may be calculated with fewer than 225 constituent stocks. In this case, the divisor is adjusted to ensure continuity.

The first instance when the Nikkei Index may be calculated with fewer than 225 constituent stocks is when a stock is delisted by reason of share exchange or transfer and the succeeding company becomes listed a short period of time later. The second instance is when a stock is deleted due to a sudden announcement of bankruptcy, or is designated as a “security to be delisted” for the same reason, and there is not sufficient time to add a new constituent stock on the same day.

Calculation of the Nikkei Index

The Nikkei Index is a modified price-weighted index (i.e., a stock’s weight in the Nikkei Index is based on its price per share rather than the total market capitalization of the issuer) where the sum of the constituent stock prices, adjusted by the presumed par value, is divided by a divisor. It is calculated by (i) converting the constituent stocks that do not have a par value of 50 yen to 50 yen par value, as described below, (ii) calculating the sum of the share prices of each constituent stock and (iii) dividing such sum by a divisor. Most listed companies in Japan have a par value of 50 yen. All companies included in the Nikkei Index are given an equal weighting based on a par value of 50 yen. Stocks with irregular

par values are modified to reflect a 50 yen par value. For example, a stock with a 500 yen par value will have its share price divided by 10 to give a 50 yen par value price. Since July 18, 2017, the level of the Nikkei Index has been calculated every 5 seconds during TSE trading hours.

In order to maintain continuity in the Nikkei Index in the event of certain changes due to non-market factors affecting the constituent 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 Nikkei Index is adjusted in a manner designed to prevent any instantaneous change or discontinuity in the level of the Nikkei Index. 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 constituent 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 Nikkei Index immediately after such change) will be equal to the level of the Nikkei Index immediately prior to the change.

The NYSE Arca Gold Miners Index

We have derived all information contained in this underlying supplement regarding the NYSE Arca Gold Miners Index, including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information, and we have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by, the ICE Data Indices, LLC ("**IDI**"). The NYSE Arca Gold Miners Index was developed by the NYSE American (formerly the American Stock Exchange) and is calculated, maintained and published by IDI. IDI has no obligation to continue to publish, and may discontinue the publication of, the NYSE Arca Gold Miners Index.

The NYSE Arca Gold Miners Index is reported by Bloomberg under the ticker symbol "GDM."

General

The NYSE Arca Gold Miners Index is a modified market capitalization weighted index designed to measure the performance of highly capitalized publicly traded companies involved in the mining of gold and silver ore. The NYSE Arca Gold Miners Index includes common stocks, American Depository Receipts and Global Depository Receipts of selected companies that are involved in mining for gold and silver ore and that are listed for trading and electronically quoted on a major stock market that is accessible by foreign investors, which specifically includes those companies classified as being cross listed. Only companies with market capitalization greater than $750 million, an average daily trading volume of at least 50,000 shares over the past three months, an average daily value traded of at least $1 million over the past three months and at least 50% of the revenues from gold mining and related activities are eligible for inclusion in the NYSE Arca Gold Miners Index.

Index Calculation

The NYSE Arca Gold Miners Index is calculated using a modified market capitalization weighting methodology. The NYSE Arca Gold Miners Index is weighted based on the market capitalization of each of the component securities, modified to conform to the following asset diversification requirements, which are applied in conjunction with the scheduled quarterly adjustments to the NYSE Arca Gold Miners Index:

(1) the weight of any single component security may not account for more than 20% of the total value of the NYSE Arca Gold Miners Index;

(2) the component securities are split into two subgroups — "**Large**" and "**Small**," which are ranked by their unadjusted market capitalization weight in the NYSE Arca Gold Miners Index. Large stocks are defined as having a starting NYSE Arca Gold Miners Index weight greater than or equal to 5%. Small securities are defined as having a starting NYSE Arca Gold Miners Index weight below 5%; and

(3) the final aggregate weight of those component securities which individually represent more than 4.5% of the total value of the NYSE Arca Gold Miners Index may not account for more than 45% of the total NYSE Arca Gold Miners Index value.

At the time of the scheduled quarterly rebalance of the NYSE Arca Gold Miners Index, the weights for the components stocks (taking into account expected component changes and share adjustments), are modified in accordance with the following diversifications rules.

Diversification Rule 1: If any component security exceeds 20% of the total value of the NYSE Arca Gold Miners Index, then all stocks greater than 20% of the NYSE Arca Gold Miners Index are reduced to represent 20% of the value of the NYSE Arca Gold Miners Index. The aggregate amount by which all component securities are reduced is redistributed proportionately across the remaining stocks that represent less than 20% of the NYSE Arca Gold Miners Index value. After this redistribution, if any other stock then exceeds 20%, the stock is set to 20% of the NYSE Arca Gold Miners Index value and the redistribution is repeated. If there is no component stock over 20% of the total value of the NYSE Arca Gold Miners Index to start, then Diversification Rule 1 is not executed.

Diversification Rule 2: The components are sorted into two groups, Large and Small. Large components are those with a starting index weight of 5% or greater and Small components are those that are under 5% (after any adjustments for Diversification Rule 1). If there are no components that classify as Large components after Diversification Rule 1 is run, then Diversification Rule 2 is not executed. Alternatively, if the starting aggregate weight of the Large components after Diversification Rule 1 is run is not greater than 45% of the starting NYSE Arca Gold Miners Index weight, then Diversification Rule 2 is not executed.

If Diversification Rule 2 is indeed executed, then the Large group and Small group in aggregate will represent 45% and 55%, respectively, of the final NYSE Arca Gold Miners Index weight. The weight of each of the Large stocks will be scaled down proportionately with a floor of 5% so that the aggregate weight of the Large components will be reduced to represent 45% of the NYSE Arca Gold Miners Index. If any Large component stock falls below a weight equal to the

product of 5% and the proportion by which the stocks were scaled down following this distribution, then the weight of such stock is set equal to the product of 5% and the components with weights greater than 5% will be reduced proportionately. The weight of each of the Small components will be scaled up proportionately from the redistribution of the Large components. If any Small component stock exceeds a weight equal to the product of 4.5% and the proportion by which the stocks were scaled down following this distribution, then the weight of such stock is set equal to 4.5%. The redistribution of weight to the remaining stocks is repeated until the entire amount has been redistributed.

Index Maintenance

The NYSE Arca Gold Miners Index is rebalanced quarterly to ensure that the selection and weightings of the constituents continues to reflect as closely as possible the index's objective of measuring the performance of highly capitalized companies involved in the mining of gold and silver ore. Components will be removed from the NYSE Arca Gold Miners Index during the quarterly review if (i) the market capitalization falls below $450 million, (ii) the average daily volume for the previous three months is lower than 30,000 shares and the average daily value traded for the previous three months is lower than $600,000 or, (iii) the component's revenues derived from gold mining and related activities fall below 40%. IDI may at any time and from time to time change the number of stocks comprising the NYSE Arca Gold Miners Index by adding or deleting one or more stocks, or replacing one or more stocks contained in the NYSE Arca Gold Miners Index with one or more substitute stocks of its choice, if in IDI's discretion such addition, deletion or substitution is necessary or appropriate to maintain the quality and/or character of the NYSE Arca Gold Miners Index. Such component changes are reviewed by the index's governance committee to ensure that they are made objectively, without bias and in accordance with applicable law and regulation and IDI's policies and procedures. Changes to the NYSE Arca Gold Miners Index compositions and/or the component share weights in the NYSE Arca Gold Miners Index typically become effective at the open of the first trading after the third Friday of March, June, September and December.

The PHLX Semiconductor Sector^{SM} Index

We have derived all information contained in this underlying supplement regarding the PHLX Semiconductor Sector^{SM} Index (the "**PHLX Index**"), including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. We have not participated in the preparation of, or verified, such publicly available information. The PHLX Index was developed by, and is calculated, maintained and published by Nasdaq, Inc. ("**Nasdaq**"). Nasdaq has no obligation to continue to publish, and may discontinue publication of, the PHLX Index.

The PHLX Index is reported by Bloomberg L.P. under the ticker symbol "SOX."

General

The PHLX Index is a modified capitalization-weighted index that is designed to track the performance of a set of companies that are engaged in the design, distribution, manufacture and sale of semiconductors. The level of the PHLX Index equals the aggregate value of the share weights for each of the securities included in the PHLX Index (the "**Index Weights**") *multiplied by* each such security's last sale price on its primary U.S. listing market and *divided by* the divisor of the PHLX Index (adjustments to the divisor are described below.) The divisor serves the purpose of scaling the level of the PHLX Index to a lower order of magnitude, which is more desirable for reporting purposes. The PHLX Index was initially calculated on December 1, 1993 at a base level of 100.00, as adjusted.

The level of the PHLX Index is calculated in accordance with the following formula:

$$\frac{\text{Aggregate Adjusted Market Value}}{\text{Divisor}}$$

The PHLX Index is a price return index, which is ordinarily calculated without regard to cash dividends on securities included in the PHLX Index, but does reflect extraordinary cash dividends.

Index Eligibility

Only specific types of securities are eligible for inclusion in the PHLX Index, including common stock, ordinary shares, american depository receipts, and shares of beneficial interest or limited partnership interests. Only one class of security is eligible for inclusion per issuer; if an issuer has multiple securities, the security with the largest market capitalization will be selected for possible inclusion. In addition, to be eligible for inclusion in the PHLX Index, a security must:

- be listed on The NASDAQ Stock Market ("**NASDAQ**"), the New York Stock Exchange ("**NYSE**") or NYSE American;
- be issued by a company whose primary business is involved in the design, distribution, manufacture and sale of semiconductors as classified under the Industry Classification Benchmark ("**ICB**") code 9576 published by FTSE International Limited;
- have a minimum market capitalization of at least $100 million;
- have traded at least 1.5 million shares in each of the last six months;
- have listed options on a recognized options market in the U.S. (or be eligible for listed-options trading on such a market);
- be issued by a company that is not currently in bankruptcy proceedings;
- be issued by a company that has not entered into a definitive agreement (or other arrangement) that would likely result in the security no longer being eligible for inclusion;
- be issued by a company that has currently withdrawn an audit opinion from its annual financial statements; and
- have "seasoned" on a recognized market for at least 3 months.

The securities included in the PHLX Index are evaluated annually in September, at which time the above eligibility criteria are applied using market data as of the end of July. Eligible securities that satisfy the criteria are then ranked by market capitalization. The top 30 securities ranked by market capitalization are included in the PHLX Index. Security additions and deletions are made effective after the close of trading on the third Friday in September.

Additionally, if, at any time other than during such annual review, a security included in the PHLX Index is determined to have become ineligible for continued inclusion in the PHLX Index, or at the end of January, April, July or October does not have a last sale price of $3.00, such security will be replaced with the largest market capitalization security not currently included in the PHLX Index that satisfies the above eligibility criteria as well as the $3.00 last sale price. Ordinarily, a security will be removed from the PHLX Index at its last sale price. If, however, at the time of its removal a security is halted from trading on its primary U.S. listing market and an official closing price cannot readily be determined, then such security may, in Nasdaq's discretion, be removed at a zero price. The zero price will be applied to such security after the close of the market but prior to the time that the official closing level of the PHLX Index is disseminated.

Index Maintenance

Changes in the level of the PHLX Index and/or the Index Weights that are driven by corporate events, such as stock dividends, stock splits and certain spin-offs and rights issuances, are adjusted on the ex-date. If the change in total shares outstanding arising from other corporate actions is greater than or equal to 10%, the change is made as soon as practicable. Otherwise, if the change in total shares outstanding is less than 10%, then all such changes are accumulated through the end of February, May, August and November and made effective at one time on a quarterly basis after the close of trading on the third Friday in March, June, September and December, respectively. The Index Weights are adjusted by the same percentage amount by which the total shares outstanding have changed.

A special cash dividend announced by the listing exchange will result in an adjustment to the last sale price of a security included in the PHLX Index prior to market open on the ex-date for the special amount distributed. A special dividend may also be referred to as extra, extraordinary, non-recurring, one-time, unusual, etc.

Ordinarily, whenever there is a change in Index Weights, a change in a security included in the PHLX Index or a change in the price of such a security due to spin-offs, rights issuances or special cash dividends as mentioned above, the divisor is adjusted to ensure that there is no discontinuity in the level of the PHLX Index that might otherwise be caused by any such change. All changes are announced in advance and are reflected in the PHLX Index prior to the opening of markets on the effective date.

Index Rebalancing

The PHLX Index employes a modified market capitalization weighting methodology. On a quarterly basis, the PHLX Index is rebalanced such that (1) the maximum weight of any security included in the PHLX Index does not exceed 8% and (2) no more than five securities are at that cap. The excess weight of any capped security is distributed proportionally across the remaining securities included in the PHLX Index. If, after redistribution, any of the five highest-ranked securities included in the PHLX Index are weighted below 8%, those securities are not capped. Next,

any remaining securities included in the PHLX Index in excess of 4% are capped at 4% and the excess weight is redistributed proportionally across the remaining securities included in the PHLX Index. The process is repeated, if necessary, to derive the final weights.

The modified market capitalization weighting methodology is applied to the capitalization of each security included in the PHLX Index, using the last sale price of the security at the close of trading on the last trading day in February, May, August and November. Index Weights are then calculated by *multiplying* the weight of the security derived above by the new level of the PHLX Index and *dividing* the modified market capitalization for each security included in the PHLX Index by its corresponding last sale price. The changes become effective after trading on the third Friday in March, June, September and December.

Nasdaq may, from time to time, exercise reasonable discretion as it deems appropriate in order to ensure the integrity of the PHLX Index.

The Russell Indices

We have derived all information contained in this underlying supplement regarding the Russell 3000® Index, Russell 3000® Growth Index, Russell 3000® Value Index, Russell 2000® Index, Russell 2000® Growth Index, Russell 2000® Value Index, Russell 1000® Index, Russell 1000® Growth Index and the Russell 1000® Value Index (each a "**Russell Index**", and together, the "**Russell Indices**"), including, without limitation, their make-up, method of calculation and changes in their components, from publicly available information. We have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by FTSE Russell. FTSE Russell has no obligation to publish, and may discontinue the publication of, the Russell Indices.

For a discussion on the construction and methodology of the Russell Indices, see below under "Russell U.S. Equity Indices Construction and Methodology."

The Russell 3000® Index

The Russell 3000® Index measures the performance of the largest 3,000 U.S. companies representing approximately 98% of the investable U.S. equity market. The Russell 3000® Index is intended to provide a comprehensive, unbiased and stable barometer of the broad market and is completely reconstituted annually to ensure new and growing equities are reflected.

The Russell 3000® Index is reported by Bloomberg L.P. under the ticker symbol "RAY."

The Russell 3000® Growth Index

The Russell 3000® Growth Index measures the performance of the broad growth segment of the U.S. equity universe. It includes those Russell 3000 companies with higher price-to-book ratios and higher forecasted growth values. All component stocks of the Russell 3000® Growth Index are traded on a major U.S. stock exchange. The index is reconstituted annually to ensure new and growing equities are included and that the represented companies continue to reflect growth characteristics.

The Russell 3000® Growth Index is reported by Bloomberg L.P. under the ticker symbol "RAG."

The Russell 3000® Value Index

The Russell 3000® Value Index measures the performance of the broad value segment of U.S. equity value universe. It includes those Russell 3000 companies with lower price-to-book ratios and lower forecasted growth values. All component stocks of the Russell 3000® Value Index are traded on a major U.S. stock exchange. The index is reconstituted annually to ensure new and growing equities are included and that the represented companies continue to reflect value characteristics.

The Russell 3000® Value Index is reported by Bloomberg L.P. under the ticker symbol "RAV."

The Russell 2000® Index

The Russell 2000® Index measures the performance of the small-cap segment of the U.S. equity universe. The Russell 2000® Index is a subset of the Russell 3000® Index representing approximately 10% of the total market capitalization of that index. It includes approximately 2000 of the smallest securities based on a combination of their market capitalization and current index membership. The Russell 2000® Index is reconstituted annually to ensure larger stocks do not distort the performance and characteristics of the true small-cap opportunity set.

The Russell 2000® Index is reported by Bloomberg L.P. under the ticker symbol "RTY."

The Russell 2000® Growth Index

The Russell 2000® Growth Index measures the performance of the small-cap growth segment of the U.S. equity universe. It includes those Russell 2000 companies with higher price-to-book ratios and higher forecasted growth values. All component stocks of the Russell 2000® Growth Index are traded on a major U.S. stock exchange. The index is reconstituted annually to ensure larger stocks do not distort the performance and characteristics of the true small-cap opportunity set and that the represented companies continue to reflect growth characteristics.

The Russell 2000® Growth Index is reported by Bloomberg L.P. under the ticker symbol "RUO."

The Russell 2000® Value Index

The Russell 2000® Value Index measures the performance of small-cap value segment of the U.S. equity universe. It includes those Russell 2000 companies with lower price-to-book ratios and lower forecasted growth values. All component stocks of the Russell 2000® Value Index are traded on a major U.S. stock exchange. The index is reconstituted annually to ensure larger stocks do not distort the performance and characteristics of the true small-cap opportunity set and that the represented companies continue to reflect value characteristics.

The Russell 2000® Value Index is reported by Bloomberg L.P. under the ticker symbol "RUJ."

The Russell 1000® Index

The Russell 1000® Index measures the performance of the large-cap segment of the U.S. equity universe. It is a subset of the Russell 3000® Index and includes approximately 1,000 of the largest securities based on a combination of their market cap and current index membership. The Russell 1000 represents approximately 92% of the U.S. market. The Russell 1000® Index is reconstituted annually to ensure new and growing equities are reflected.

The Russell 1000® Index is reported by Bloomberg L.P. under the ticker symbol "RIY."

The Russell 1000® Growth Index

The Russell 1000® Growth Index measures the performance of the large-cap growth segment of the U.S. equity universe. It includes those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values. All component stocks of the Russell 1000® Growth Index are traded on a major U.S. stock exchange. The index is reconstituted annually to ensure new and growing equities are included and that the represented companies continue to reflect growth characteristics.

The Russell 1000® Growth Index is reported by Bloomberg L.P. under the ticker symbol "RLG."

The Russell 1000® Value Index

The Russell 1000® Value Index measures the performance of the large-cap value segment of the U.S. equity universe. It includes those Russell 1000 companies with lower price-to-book ratios and lower expected growth values. All component stocks of the Russell 1000® Value Index are traded on a major U.S. stock exchange. The index is reconstituted annually to ensure new and growing equities are included and that the represented companies continue to reflect value characteristics.

The Russell 1000® Value Index is reported by Bloomberg L.P. under the ticker symbol "RLV."

Russell U.S. Equity Indices Construction and Methodology

All Russell U.S. equity indices are subsets of the Russell 3000E™ Index, the broadest U.S. index that contains the largest 4,000 U.S. companies. Sub-indices in the Russell 3000E™ Index are broken out by market capitalization and style. The members of the Russell 3000E™ Index and its subsets are determined each year during annual reconstitution and enhanced quarterly with the addition of initial public offerings ("**IPOs**").

Quarterly Initial Public Offerings

Eligible IPOs are added to Russell U.S. Indices quarterly on the rank day (with additions becoming effective on the third Friday of the month following the month of the related rank day). FTSE Russell adds IPOs each quarter to ensure that new additions to the institutional investing opportunity set are reflected in Russell's representative indices. FTSE Russell focuses on IPOs each quarter because it is important to reflect market additions between reconstitution periods. Companies filing an initial public offering registration statement (or the local equivalent when outside the U.S.) and listing within the same quarter on an eligible US exchange are reviewed for eligibility regardless of previous trading activity.

Defining Eligible Securities

U.S. Incorporated Companies. All companies that are determined to be part of the U.S. equity market are included in the Russell Indices.

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Home-country indicators (HCIs). If a company incorporates in, has a stated headquarters location in, and also trades on a standard exchange in the same country (ADRs and ADSs are not eligible), the company is assigned to its country of incorporation. If any of the three criteria do not match, FTSE Russell then defines three home country Indicators ("HCIs"). The HCIs are as follows:

- country of incorporation;
- country of headquarters;
- country of the most liquid exchange as defined by two-year average daily dollar trading volume (ADDTV) from all exchanges within a country.

After the HCIs are defined, the next step in the country assignment involves an analysis of assets by location. FTSE Russell cross-compares the primary location of the company's assets with the three HCIs. If the primary location of assets matches any of the HCIs, then the company is assigned to its primary asset location.

If there is not enough information to determine a company's primary country of assets, FTSE Russell uses the primary location of the company's revenue for the same cross-comparison and assigns the company to the appropriate country in a similar fashion. FTSE Russell uses an average of two years of assets or revenues data for analysis to reduce potential turnover.

If conclusive country details cannot be derived from assets or revenue, FTSE Russell assigns the company to the country in which its headquarters are located unless the country is a Benefit Driven Incorporation (BDI) country. If the country in which its headquarters are located is a BDI country, the company is assigned to the country of its most liquid stock exchange. The BDI countries are: Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Bonaire, British Virgin Islands, Cayman Islands, Channel Islands, Cook Islands, Curacao, Faroe Islands, Gibraltar, Guernsey, Isle of Man, Jersey, Liberia, Marshall Islands, Panama, Saba, Sint Eustatius, Sint Maarten, and Turks and Caicos Islands.

If a company is designated as a Chinese "N Share", it will not be considered for inclusion within the Russell US Indices. An "N Share" company is controlled by Mainland Chinese entities, companies or individuals. It must be incorporated outside of China and traded on the New York Stock Exchange, the NASDAQ exchange, or the NYSE American with a majority of its revenue or assets derived from the People's Republic of China.

Trading Requirements. All securities eligible for inclusion in Russell indices must trade on an eligible U.S. exchange. Bulletin board, pink sheet or over-the-counter ("OTC") traded securities are not eligible for inclusion, including

securities for which prices are displayed on the FINRA Alternative Display Facility.

Exchange and Segment requirements. In construction of its equity indexes, FTSE Russell reviews each exchange considering closing mechanism, regulatory requirements for each exchange segment, settlement, trading rules and recognition of the exchange by the governing regulatory body. Following review of US exchanges, the following markets are deemed eligible**:** BATS, IEX, NYSE, NYSE American, NASDAQ, ARCA.

Minimum Closing Price. A stock must have a close price at or above $1.00 (on its primary exchange) on rank day in May to be considered eligible for inclusion. In order to reduce unnecessary turnover, if an existing member's closing price is less than $1.00 on rank day in May, it will be considered eligible if the average of the daily closing prices (from its primary exchange) during the 30 days prior to the rank day is equal to or greater than $1.00. If an existing index member does not trade on the rank day in May, it must price at $1.00 or above on another eligible U.S. exchange to remain eligible. A stock added during the quarterly IPOs process is considered a new index addition, and therefore must have a close price on its primary exchange at or above $1.00 on the last day of the IPO eligibility period in order to qualify for index inclusion.

Minimum Total Market Capitalization. Companies with a total market capitalization less than $30 million are not eligible for inclusion in Russell U.S. Indices.

Minimum Available Shares/Float Requirement. Companies with only a small portion of their shares available in the marketplace are not eligible for the Russell Indices. Companies with 5% of their shares available or less will be removed from eligibility. When unavailable shares are determined to be 94.5% or greater, this figure will be rounded to 95% .

Company Structure. Companies structured in the following ways are excluded from inclusion in Russell indices: royalty trusts, U.S. limited liability companies, closed-end investment companies (companies required to report Acquired Fund Fees and Expenses, as defined by the SEC, including Business Development Companies, are not eligible for

inclusion), blank-check companies, special-purpose acquisition companies ("**SPACs**"), and limited partnerships. Exhange Traded Funds (ETFs) and mutual funds are also excluded.

UBTI. Companies that produce unrelated business taxable income (UBTI) are restricted from ownership for tax-exempt investors. In recognition of this, FTSE Russell screens all REIT's and Publicly Traded Partnerships (PTP's), removing any security from eligibility that generates or has historically generated UBTI and has not taken steps to block UBTI to equity holders. Information used to confirm UBTI impact includes the following publicly available sources: 10-K, SEC Form S-3, K-1, company annual report, dividend notices or company website.

Shares Excluded. The following share types are not eligible for inclusion: preferred and convertible preferred stock, redeemable shares, participating preferred stock, warrants, rights, depositary receipts, installment receipts and trust receipts.

Deadline for Inclusion. Stocks must be listed on the rank day in May and Russell must have access to documentation on that date supporting the company's eligibility for inclusion. This includes corporate description, verification of incorporation, number of shares outstanding and other information needed to determine eligibility. IPOs will be considered for inclusion on a quarterly basis.

Minimum Voting Rights. Companies assigned a developed market nationality are required to have greater than 5% of the company's 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 or they will be deemed ineligible for index inclusion. Existing constituents who do not currently meet the above requirement have a five-year grandfathering period to comply. If subsequently they continue to fail the minimum voting rights requirement they will be removed from the Russell Indices at the September 2022 review.

Defining Membership by Size (Market Capitalization)

FTSE Russell calculates the total market capitalization of each security to determine whether it is large enough for inclusion in one or more of the Russell Indices. Total market capitalization is determined by multiplying total outstanding shares by the market price as of the rank day in May for those securities being considered at annual reconstitution.

Determining Total Shares Outstanding. Common stock, non-restricted exchangeable shares and partnership units/membership interests (in certain cases) are used to calculate a company's total market capitalization. Exchangeable Shares are shares which may be exchanged at any time, at the holder's option, on a one-for-one basis for

common stock. Membership or partnership units/interests represent an economic interest in a limited liability company or limited partnership. FTSE Russell includes membership or partnership units/interests as part of total market capitalization when the company in question is merely a holding company of an underlying entity that issues membership or partnership units/interests and when these membership units are the company's sole asset. In these cases, total market capitalization will be calculated based on 100% of the value of all membership interests.

Any other form of shares – such as preferred or convertible preferred stock, redeemable shares, participating preferred stock, warrants, rights, installment receipts or trust receipts – are excluded from the calculation. If multiple share classes of common stock exist, they are combined to determine total shares outstanding. In cases where the common stock share classes act independently of each other (e.g., tracking stocks), each class is considered for inclusion separately.

Determining Price. During annual reconstitution, the last price traded on the primary exchange on the rank day in May is used to determine market capitalization.

Corporate actions impacting reconstitution ranking. For merger and spin-off transactions that are effective between rank day in May and the Friday prior to annual reconstitution in June, the market capitalizations of the impacted securities are recalculated and membership is reevaluated as of the effective date of the corporate action. For corporate events that occur during the final week of reconstitution (during which reconstitution is finalized Friday after U.S. market close), market capitalizations and memberships will not be reevaluated. Non index members that have been considered ineligible as of rank day will not be reevaluated in the event of a subsequent corporate action that occurs between rank day and the reconstitution effective date.

Reconstitution. If an eligible company trades under multiple share classes, FTSE Russell will review each share class independently for U.S. index inclusion. Share classes in addition to the primary share class (pricing vehicle) that meet the following minimum size, liquidity and float requirements will also be eligible:

- Size: must have a total market cap larger than that of the smallest company in the Russell 3000E™ Index.

- Liquidity: ADDTV (Average Daily Dollar Trading Value) must exceed that of the global median, which is determined each reconstitution rank day by ranking all securities in investable countries by ADDTV. As of reconstitution 2017, the global median ADDTV was USD 170,000.

- Float: must have greater than 5% of shares available in the marketplace.

For reconstitution ranking purposes, all share classes for a company, including unlisted shares will be aggregated and considered total shares outstanding. Total shares are multiplied by the primary exchange close price of the pricing vehicle and used to determine the company's total market capitalization for the purpose of ranking of companies and determination of index membership. If no volume exists on the primary exchange on the rank day, the last trade price from an eligible secondary exchange will be used where volume exists (using the lowest last trade price above $1 if multiple secondary markets exist). Rank will be determined based on cumulative market capitalization. As of reconstitution 2016, share classes not qualifying for eligibility independently will not be aggregated with the pricing vehicle within the available shares calculation.

For companies with multiple share classes, the pricing vehicle will be designated as the share class with the highest two-year trading volume as of the rank day in May. In the absence of two years' worth of data, all available data will be used for this determination. If the difference between trading volumes for each share class is less than 20%, the share class with the most available shares outstanding will be used as the pricing vehicle.

Initial Public Offerings. IPOs are added to Russell's U.S. index family on the basis of total market capitalization ranking within the market-adjusted capitalization breaks established during the most recent reconstitution. Country assignment determination is made using data provided in prospectuses or other filings. Market adjustments to the capitalization breaks are made using the returns of the broad market Russell 3000E™ Index. Eligible IPOs will be added to the Russell growth/value indices using their industry's average style probability established at the latest reconstitution.

In order to be added during a quarter outside of reconstitution, IPOs must meet all Russell Index eligibility requirements. Additionally, IPOs must meet the following criteria on the rank day for the quarterly additions: (1) it is priced and traded; and (2) it ranks larger in total market capitalization than the market-adjusted smallest company in the Russell 3000E™ Index as of the latest June reconstitution.

Determining Index Membership. Once the market capitalization for each security is determined by use of total shares and price (as described above), each security is placed in the appropriate Russell market capitalization-based index. The largest 4,000 securities become members of the Russell 3000E™ Index. If eligible securities total less than 4,000, the Russell 3000E™ and Russell Microcap® Index will include all eligible securities. The other index capitalization breaks remain unchanged. All remaining indices are a subset of this index. A market capitalization breakpoint is determined by the break between the companies below.

Index	Companies Included (based on descending total market capitalization)
Russell 3000E™ Index	Companies #1 – 4,000 or 100% of the eligible securities
Russell 3000® Index	Companies #1 – 3,000
Russell Top 50 Mega Cap Index	Companies #1 – 50
Russell Top 200® Index	Companies #1 – 200
Russell Top 500® Index	Companies # 1 – 500
Russell 1000® Index	Companies #1 – 1,000
Russell Midcap® Index	Companies #201 – 1,000
Russell 2000® Index	Companies #1,001 – 3,000
Russell 2500® Index	Companies #501 – 3,000
Russell Microcap® Index	Companies #2,001 – 4,000

After the initial market capitalization breakpoints are determined by the ranges listed above, new members are assigned on the basis of the breakpoints, and existing members are reviewed to determine if they fall within a cumulative 5% market cap range around these new market capitalization breakpoints. If an existing member's market cap falls within this cumulative 5% of the market capitalization breakpoint, it will remain in its current index rather than be moved to a different market capitalization-based Russell index. Companies that fall on the edge of market capitalization breakpoints are often still within a manager's opportunity set, since they have not significantly grown or declined in market capitalization.

Exceptions: There will be no percentile banding at the bottom of the Russell 3000® Index (stock 3,000) or the Russell 3000E™ Index (stock 4,000) and no percentile banding for the Top 50 Mega Cap (banding is applied to the Top 200 (5%) and the Top 500 (5%)). In addition, due to the small market cap percentage, the Russell Microcap® Index will be banded at 1% around stock 2,000.

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Steps in calculating percentile ranges of the new index:

- Sort the Russell 3000E™ Index members in descending order by total market capitalization.

- Calculate the total market capitalization of the Russell 3000E™ Index by summing all members' total market capitalizations.

- Calculate percentiles for each company in the Russell 3000E™ Index by dividing the cumulative market cap associated with each member by the total market cap of the Russell 3000E™ Index.

- Calculate a range of five percentiles around the newly determined market cap breakpoints, by subtracting, and then adding, 2.5% from/to the calculated percentile of the market cap breakpoint.

Adjustments to Members' Shares Outstanding (Float)

After membership is determined, a security's shares are adjusted to include only those shares available to the public. This is often referred to as "free float." The purpose of this adjustment is to exclude from market calculations the capitalization that is not available for purchase and is not part of the investable opportunity set. Stocks in the Russell U.S. Indices are weighted by their available (also called float-adjusted) market capitalization, which is calculated by multiplying the primary closing price by the available shares. Adjustments to shares are reviewed at reconstitution, during quarterly update cycles, and for major corporate actions such as mergers .

Determining Style

FTSE Russell uses a non-linear probability method to assign stocks to the growth and value style valuation indices. FTSE Russell uses three variables in the determination of growth and value. For value, book-to-price ("**B/P**") ratio is used, while for growth, two variables — Institutional Broker's Estimate System ("**I/B/E/S**") forecast medium-term growth (2-year) and sales per share historical growth (5-year) are used. The term "probability" is used to indicate the degree of certainty that a stock is value or growth, based on its relative B/P ratio, I/B/E/S forecast medium-term growth (2 year) and sales per share historical growth (5 year). This method allows stocks to be represented as having both growth and value characteristics, while preserving the additive nature of the indices.

The process for assigning growth and value weights is applied separately to the stocks in the Russell 1000® Index and Russell 2000® Index and to the smallest 1,000 stocks in the Russell Microcap® index. Research indicates that on average, valuations of small stocks differ from those of large stocks. FTSE Russell believes that treating the Russell

1000, Russell 2000 and smallest Russell Microcap stocks separately prevents the possible distortion to relative valuations that may occur if the Russell 3000E™ Index is used as the base index.

For each base index (the Russell 1000® and Russell 2000®, and the smallest 1000 in Russell Microcap®), stocks are ranked by their B/P ratio, their I/B/E/S forecast medium-term growth (2 year) and sales per share historical growth (5 year). These rankings are converted to standardized units, where the value variable represents 50% of the score and the two growth variables represent the remaining 50%. They are then combined to produce a composite value score ("**CVS**"). Stocks are then ranked by their CVSs, and a probability algorithm is applied to the CVS distribution to assign growth and value weights to each stock. In general, a stock with a lower CVS is considered growth, a stock with a higher CVS is considered value and a stock with a CVS in the middle range is considered to have both growth and value characteristics, and is weighted proportionately in the growth and value index. Stocks are always fully represented by the combination of their growth and value weights; e.g., a stock that is given a 20% weight in a Russell value index will have an 80% weight in the same Russell growth index.

The 5% Rule. Roughly 70% of the available market capitalization is classified as all-growth or all-value. The remaining 30% of stocks have some portion of their market value in either the value or growth index, depending on their relative distance from the median value score. Since the percentage of capitalization between the first quartile and the third quartile is 50%, 50% of the capitalization would be found in both indices. The source for the disappearance of the 20% is FTSE Russell's decision to institute a small position cutoff rule. If a stock's weight is more than 95% in one style index, FTSE Russell increases its weight to 100% in that index. This rule eliminates many small weightings and makes passive management easier.

Banding Rule. In an effort to mitigate unnecessary turnover, FTSE Russell implements a banding methodology at the CVS level of the growth and value style algorithm. If a company's CVS change from the previous year is less than or equal to +/- 0.10 and if the company remains in the same core index (Russell 1000 or Russell 2000), then the CVS remains unchanged during the next reconstitution process. Keeping the CVS static for these companies does not mean the probability (growth/value) will remain unchanged in all cases due to the relation of a CVS score to the overall index. However, this banding methodology has proved to reduce turnover caused by smaller, less meaningful movements while

continuing to allow the larger, more meaningful changes to occur, signaling a true change in a company's relation to the market.

Market Capitalization of Growth and Value Indices. The market capitalization of the growth and value style indices may not each equal 50% of their base index. At first glance, this seems counterintuitive, since the methodology uses capitalization-weighted medians and quartiles, which in turn implies that 50% of the capitalization is above and 50% is below the median. However, asymmetry in the capitalization distributions within the second and third quartiles results in a skewed distribution of CVS. When CVS is normally distributed, 50% will be in each index.

Missing Values, Negative Values or Low Coverage. For valuation styles (growth and value), stocks with missing or negative values for B/P, or missing values for I/B/E/S (negative I/B/E/S medium-term growth is valid), or missing sales per share historical growth (5yr) (6 years of quarterly numbers are required), are allocated by using the mean value score of the base index (Russell 1000, Russell 2000, Russell Microcap) RGS (Russell Global Sectors) industry, subsector, or sector group into which the company falls. Each missing (or negative BP) variable is substituted with the industry, subsector or sector group independently. An industry must have five members or the substitution reverts to the subsector, and so forth to the sector. FTSE Russell believes this method produces the fewest distortions. In addition, a weighted value score is calculated for securities with low analyst coverage for I/B/E/S medium-term growth. For securities with coverage by a single analyst, 2/3 of the industry, subsector or sector group value score is weighted with 1/3 of the security's independent value score. For those securities with coverage by 2 analysts, 2/3 of the independent security's value score is used and only 1/3 of the industry, subsector or sector group is weighted. For those securities with at least three analysts contributing to the I/B/E/S medium-term growth, 100% of the independent security's value score is used.

Corporate Action-Driven Changes

Timing and Treatment of Corporate Actions. FTSE Russell applies corporate actions to its indices on a daily basis, both to reflect the evolution of securities and to ensure that the indices remain highly representative of the U.S. equity market. A company's index membership and its weight in the index can be impacted by these corporate actions. FTSE Russell uses a variety of reliable public sources to determine when an action is final, including a company's press releases and regulatory filings; local exchange notifications; and official updates from other data providers FTSE Russell deems trustworthy.

Prior to the completion of an action, FTSE Russell estimates the effective date of the corporate action on the basis of the same above sources. As new information becomes available, FTSE Russell may revise the anticipated effective date and terms of the corporate action, before ultimately confirming its effective date.

Depending upon the time an action is determined to be final, FTSE Russell either (1) applies the action before the open on the ex-date, or (2) applies the action providing appropriate notice, referred to as a "delayed action." The timing of when corporate actions are applied is critical for accurate market representation, and it impacts tracking for passive managers. FTSE Russell believes this methodology strikes the best balance between the two. The impact of the action and the effective date will be communicated to clients on a regular schedule, via the daily cumulative change files and the corporate action calendar.

For the purposes of index calculation, FTSE Russell generally applies the most recently available market prices to the index for corporate action adjustments. FTSE Russell will only use exchange provided estimates and price adjustments in the absence of market prices and if the exchange provided estimate is deemed to be appropriate. If FTSE Russell has confirmed the completion of a corporate action, scheduled to become effective subsequent to a rebalance; the event may be implemented in conjunction with the rebalance to limit turnover, providing appropriate notice can be given.

"No Replacement" Rule. Securities that leave an index for any reason (e.g., mergers, acquisitions or other similar corporate activities) are not replaced. Thus, the number of securities in the indices over the year will fluctuate according to corporate activity.

Mergers, Acquisitions and Tender Offers. Mergers and acquisitions (M&A) activity may result in changes to index membership as well as to the shares included within the index. Adjustments due to mergers and acquisitions are applied to the index after the action is determined to be final, typically after the close of the last trade date of the target company, with provision of appropriate notice. To avoid unnecessary delays, FTSE Russell may consider M&A transactions 'final', prior to shareholder approval, or prior to a delisting notice. FTSE Russell will consider prevailing shareholder sentiment, board/director recommendations, exchange notification, expected completion date, and stock price versus deal value when making this decision.

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In the event that a constituent is being acquired for cash or delisted subsequent to an index review, it will be removed from the index concurrent with the index review assuming that the event can be considered “final” and a minimum of two days’ notice can be provided. E.g., the last trade date of a constituent being acquired is confirmed for the day following the index review. The constituent will be removed from the index in conjunction with the index review, assuming that two days’ notice can be provided.

Tender offers are generally implemented immediately after all prerequisites (detailed below) have been achieved, with appropriate notice. When non-tradable Contingent Value Rights (CVRs) are included within the tender offer terms, FTSE Russell may consider a tender offer 'final' prior to the expiration date of the offer. Doing so minimizes the risk of index implementation moving into “delayed” status, and prevents managers who are passively investing in the index from receiving CVRs that do not carry a confirmed and realizable economic value. FTSE Russell will establish the likelihood of tender offer completion using confirmed tendered shares, board/director recommendations, exchange notifications, stock price versus deal value, and any other available information.

*Changes to Shares Outstanding and Free Float***.** To maintain representativeness and maximize the available investment opportunity for index managers, the Russell Indices will be reviewed quarterly for updates to shares outstanding and to free floats used within the index calculation. The changes will be implemented quarterly, on the third Friday of the month (after the close). The June reconstitution will continue to be implemented on the last Friday of June (unless the last Friday occurs on the 29th or 30th, when reconstitution will occur on the Friday prior).

In June the shares and free float updates will be implemented regardless of size (i.e. buffers will not be applied). The June updates will be implemented using data sourced primarily from company filings for all constituents, where appropriate. In March, September, and December, shares outstanding and free float will be updated to reflect the following:

• Changes greater than 1% for cumulative shares in issue changes

• Changes greater than 3% for cumulative free float changes, provided that, a constituent with a free float of 15% or below will not be subject to the 3% threshold and will instead be updated if the change is greater than 1%.

The March, September, and December updates will be triggered by vendor changes and confirmed appropriately with the cut-off for new information occurring on the third Wednesday of the month prior to the review month. Outside of the quarterly update cycle, shares and free float will be updated with at least two days’ notice if occasioned by primary or secondary offerings if:

• There is a $1 billion investable market cap change related to a primary or secondary offering measured by multiplying the change to index shares by the subscription price; or

• There is a resultant 5% change in index shares related to a primary or secondary offerings and a $250 million investable market cap change measured by multiplying the change to index shares by the subscription price.

The pricing date will serve as the trigger for implementation within the Russell U.S. indices; i.e. once FTSE Russell is aware that an offering has priced (confirmed via an appropriate publicly disclosed announcement or filing), the update will be implemented with two days' notice from market close (contingent on the thresholds described above being triggered). If discovery of the pricing date occurs more than two days after the pricing date, the update will be deferred until the next quarterly review. Free float and share changes resulting from corporate events will not be subject to the buffers as detailed above and will be implemented in line with the free float adjustments.

For primary offerings, there will be no change to the free float with any potential updates being deferred to the next quarterly review. For example, in the event an existing restricted shareholder is diluted as a consequence of the primary offering, any change to free float will be made at the next quarterly update subject to a review of the shareholder structure at that time.

For secondary offerings, if the shares being offered were previously restricted, entirely or partially, the free float will be adjusted accordingly; otherwise there will be no change to the free float with any potential updates being deferred to the next quarterly review. Where all the previously restricted shares are solely being offered to another restricted holder then there will be no change to free float. Secondary offerings are defined as share offerings of existing shares made directly by the company; by the company on behalf of selling shareholders; or offerings by shareholders themselves if the appropriate filings have been submitted.

Share and free float changes resulting from activity such as private placements, exercise of warrants and expiry of lock-ups, will be deferred to the next quarterly review.

The S&P Dow Jones Indices

We have derived all information contained in this underlying supplement regarding the Dow Jones Industrial Average®, the Dow Jones U.S. Financials Index, the Dow Jones U.S. Real Estate Index, the Dow Jones U.S. Select Regional Banks Index, S&P Composite 1500® Index, the S&P SmallCap 600® Index, S&P 500® Index, the S&P MidCap 400® Index, the S&P 100 Index, the S&P 500 Carbon Efficient Index, the S&P Select Industry Indices, the S&P Select Sector Indices, the S&P/ASX 200 Index and the S&P GSCI® Commodity Indices (each an "**S&P Dow Jones Index**," and together, the "**S&P Dow Jones Indices**"), including, without limitation, their make-up, method of calculation and changes in their components, from publicly available information. We have not participated in the preparation of, or verified, such publicly available information.

Such information reflects the policies of, and is subject to change by, S&P Dow Jones Indices LLC ("**S&P Dow Jones**"), a division of S&P Global. The Dow Jones Industrial Average®, the Dow Jones U.S. Financials Index, the Dow Jones U.S. Real Estate Index, the Dow Jones U.S. Select Regional Banks Index, the S&P Composite 1500® Index, the S&P SmallCap 600® Index, S&P 500® Index, the S&P MidCap 400® Index, the S&P 100 Index, the S&P 500 Carbon Efficient Index, the S&P Select Industry Indices, the S&P Select Sector Indices, the S&P/ASX 200 Index and the S&P GSCI® Commodity Indices are all calculated, maintained and published by S&P Dow Jones Indices. S&P Dow Jones have no obligation to continue to publish, and may discontinue publication of, these indices.

The Dow Jones Indices

The Dow Jones Industrial Average®

The Dow Jones Industrial Average® is a price-weighted index comprised of 30 common stocks selected at the discretion of the editors of The Wall Street Journal (the "**WSJ**"), which is published by S&P Dow Jones, as representative of the broad market of U.S. industry.

There are no pre-determined criteria for selection of a component stock except that component companies represented by the Dow Jones Industrial Average® should be established U.S. companies that are leaders in their industries. The Dow Jones Industrial Average® serves as an indicator that reflects the performance of the entire U.S. market, including such sectors as financial services, technology, retail, entertainment and consumer goods, and is not limited to traditionally defined industrial stocks. It does not include the transportation and utilities sectors. While stock selection is not governed by quantitative rules, a stock is typically added only if the company is deemed to have a strong reputation, demonstrates sustained growth and is of interest to a large number of investors. Companies should be incorporated and headquartered in the U.S, and a plurality of revenues should be derived from the U.S. Maintaining adequate sector representation within the index is also a consideration.

The Dow Jones Industrial Average® is maintained by the "**Averages Committee**", which is comprised of three representatives of S&P Dow Jones Indices and two representatives of the WSJ. The Averages Committee was created in 2010, when Dow Jones Indices became part of CME Group Index Services, LLC, a joint venture company owned 90% by CME Group Inc. and 10% by Dow Jones & Company.

Changes in the composition of the Dow Jones Industrial Average® are made on an as-needed basis entirely by the Averages Committee without consultation with the component companies represented in the Dow Jones Industrial Average®, any stock exchange, any official agency or us. In order to maintain continuity, changes to the component stocks included in the Dow Jones Industrial Average® tend to be rare and generally occur only after corporate acquisitions or other dramatic shifts in a component company's core business. When one component stock is replaced, the entire index is reviewed. As a result, multiple component changes may be implemented simultaneously. The component stocks of the Dow Jones Industrial Average® may be changed at any time for any reason.

The Dow Jones Industrial Average® is price-weighted rather than market capitalization-weighted. Therefore, the component stock weightings are affected only by changes in the stocks' prices, in contrast with the weightings of other indices that are affected by both price changes and changes in the number of shares outstanding. The value of the Dow Jones Industrial Average® is the sum of the primary exchange prices of each of the 30 common stocks included in the Dow Jones Industrial Average®, divided by a divisor. The divisor is changed in accordance with a mathematical formula to adjust for stock dividends, splits, spin-offs and other corporate actions such as rights offerings and extraordinary dividends. Normal cash dividends are not taken into account in the calculation of the Dow Jones Industrial Average®. The current divisor of the Dow Jones Industrial Average® is published daily in the WSJ and other publications. While this methodology reflects the current practice in calculating the Dow Jones Industrial Average®, no assurance can be given that S&P Dow Jones will not modify or change this methodology.

The Dow Jones U.S. Financials Index

The Dow Jones U.S. Financials Index measures the stock performance of U.S. companies in the financials industry. Dow Jones U.S. Financials Index components are drawn from the Banking, Insurance and Financial Services (including Real Estate) supersectors. The Dow Jones U.S. Financials Index is a subset of the Dow Jones U.S. Index which in turn is a subset of the Dow Jones Global Index, a benchmark family that follows stocks from 48 countries.

The Dow Jones U.S. Real Estate Index

The Dow Jones U.S. Real Estate Index measures the performance of the real estate sector of the United States equity market. Component companies include those that invest directly or indirectly through development, management or ownership of properties, and Real Estate Investment Trusts (REITs). REITs are passive investment vehicles that invest primarily in income-producing real estate or real estate related loans and interests.

The Dow Jones U.S. Real Estate Index is one of the 19 supersector indices that make up the Dow Jones U.S. Index (formerly known as the Dow Jones U.S. Total Market Index). The Dow Jones U.S. Real Estate Index is a subset of the Dow Jones U.S. Financials Index, which in turn is a subset of the Dow Jones U.S. Index. The Dow Jones U.S. Index is part of the Dow Jones Global Index, a benchmark family that targets 95% coverage of markets open to foreign investment, and tracks 48 countries.

The Dow Jones U.S. Select Regional Banks Index

The Dow Jones U.S. Select Regional Banks Index measures the performance of the regional bank sector of the United States equity market. The Dow Jones U.S. Select Regional Banks Index is a subset of the Dow Jones U.S. Bank Index. Small and mid-size banks are selected for inclusion based on their relative three-year average total assets as a percentage of the three-year average total assets held by all banks in the Dow Jones U.S. Bank Index.

The Dow Jones U.S. Select Regional Banks Index is one of the 19 supersector indices that make up the Dow Jones U.S. Index (formerly known as the Dow Jones U.S. Total Market Index). The Dow Jones U.S. Index is part of the Dow Jones Global Index, a benchmark family that targets 95% coverage of markets open to foreign investment, and tracks 48 countries.

Methodology of the Dow Jones U.S. Indices

The Dow Jones U.S. Financials Index, The Dow Jones U.S. Real Estate Index, and The Dow Jones U.S. Select Regional Banks Index, (the "**Dow Jones U.S. Indices**") are market capitalization-weighted indices in which only the shares of each company that are readily available to investors – the "float" – are counted. Dow Jones Index component candidates must be common shares or other securities that have the characteristics of common equities. All classes of common shares, both fully and partially paid, are eligible. Fixed-dividend shares and securities such as convertible notes, warrants, rights, mutual funds, unit investment trusts, closed-end fund shares, shares in limited partnerships and business development companies are not eligible. Temporary issues arising from corporate actions, such as "when-issued" shares, are considered on a case-by-case basis when necessary to maintain continuity in a company's index membership. REITs, listed property trusts and similar real-property-owning pass-through structures taxed as REITs by their domiciles are eligible; however, income-participating securities, which combine stock and debt ownership, are not eligible. Multiple classes of shares are included if each issue, on its own merit, meets the other eligibility criteria. Securities that have had more than ten non-trading days during the past quarter are excluded. Stocks in the top 95% of the index universe by free float market capitalization are selected as components of the Dow Jones U.S. Indices, subject to a 2% buffer for current and non-current stocks.

To be included in the Dow Jones U.S. Financials Index, the issuer of the component securities must be classified in the financials industry as maintained by the Global Industry Classification Standard ("**GICS**"). To be included in the Dow Jones U.S. Real Estate Index, the issuer of the component securities must be classified in the real estate sector as maintained by the GICS.

To be included in the Dow Jones U.S. Select Regional Banks Index, the issuer of the component securities must be classified in the regional banks subsector as maintained by the GICS.

The Dow Jones U.S. Indices are reconstituted annually in September with the exception of the Dow Jones U.S. Select Regional Banks Index, which is reconstituted annually in June. The process includes the review of all component stocks and their respective markets to determine eligibility according to the existing criteria. Component changes are implemented at the opening of trading on the Monday following the third Friday of September.

The shares outstanding in the Dow Jones U.S. Indices are also reviewed on a quarterly basis. Shares outstanding totals for component stocks are updated during the quarterly review, unless changes in shares outstanding are 5% or greater. However, changes in shares outstanding due to stock dividends, splits and certain other corporate actions also are applied after the close of trading on the day prior to the ex-date. Quarterly reviews are implemented during March, June, September and December. Similar to component changes, share changes become effective at the opening on the first Monday after the third Friday of the review month.

In addition to the scheduled annual and quarterly reviews, the Dow Jones U.S. Indices are reviewed on an ongoing basis. Changes in index composition and related weight adjustments are necessary whenever there are extraordinary events such as delistings, bankruptcies, mergers or takeovers involving index components. In these cases, each event will be taken into account as soon as it is effective. Whenever possible, the changes in the index components will be announced at least two business days prior to their implementation date. In the event that a component no longer meets the eligibility requirements, it will be removed from the Dow Jones U.S. Indices.

Background on the Global Industry Classification Standard

Standard & Poor's and MSCI jointly developed the GICS to establish a global standard for categorizing companies into sectors and industries. GICS was developed and is maintained by two leading global index providers. It has been specifically designed to classify companies globally – in both developed and developing economies. The GICS methodology has been commonly accepted as an industry analysis framework for investment research, portfolio management and asset allocation. The GICS classification system currently consists of 11 sectors, 24 industry groups, 68 industries and 157 sub-industries. The GICS sectors are: Consumer Discretionary, Consumer Staples, Energy, Financials, Health Care, Industrials, Information Technology, Materials, Telecommunication Services, Utilities and Real Estate. GICS was designed to classify a company according to its principal business activity. To make this determination, Standard & Poor's and MSCI Barra use revenues as a key measure of a company's business activity. Earnings and market perception, however, are also recognized as important and relevant information for classification purposes and are taken into account during the review process.

Calculation and Adjustments

Index Formula. Most of the S&P Dow Jones U.S. Indices are capitalization-weighted indices. Such indices are computed as follows:

which can be simplified as

$$Index_t = \frac{M_t}{D_t} \qquad D_t = \frac{B_t}{\text{Base Index Value'}}$$

where:

- D_t is the divisor at time t;
- n is the number of stocks in the index;
- $p_{i,0}$ is the closing level of stock i at the base date (December 31, 1991);
- $q_{i,0}$ is the number of shares of company i at the base date (December 31, 1991);
- $p_{i,t}$ is the price of stock i at time t;
- $q_{i,t}$ is the number of shares of company i at time t;
- C_t is the adjustment factor for the base date market capitalization;
- t is the time the index is computed;
- M_t is the market capitalization of the index at time t;
- B_t is the adjusted base date market capitalization of the index at time t.

Dividend payments are not taken into account in the price index, whereas dividend payments are reinvested in the index sample of the total return index. Any dividend considered a special dividend requires a divisor adjustment. The adjustment protects the index from the effects of changes in index composition and the impact of corporate actions.

Divisor Adjustments. Corporate actions affect the share capital of component stocks and therefore trigger increases or decreases in the index. To avoid distortion, the divisor of the index is adjusted accordingly. Changes in the index's market capitalization due to changes in the composition (additions, deletions or replacements), weighting (following quarterly reviews or changes of more than 5% in a single component's share number) or corporate actions (mergers, spinoffs, rights offerings, repurchase of shares, public offerings, return of capital, or special cash or stock distributions of other stocks) result in a divisor change to maintain the index's continuity. By adjusting the divisor, the index value retains its continuity before and after the event.

The following formula will be used for divisor adjustments. (Note: No divisor adjustments are necessary for stock splits, since market capitalization does not change and the share number and share price are adjusted prior to the opening of trading on the split's ex-date.)

where:

- D_t is the divisor at time t;
- D_{t+1} is the divisor at time $t+1$;
- $p_{i,t}$ is the stock price of company i at time t;
- $q_{i,t}$ is the number of shares of company i at time t;
- DMC_{t+1} is the new component's market capitalization and adjusted market capitalization (calculated with adjusted closing levels and shares effective at time $t+1$) or the market capitalization of companies to be deleted (calculated with closing levels and shares at time t). If the current trading price of an issue is unavailable, the previous trading session's closing level is used. However, if the issue is affected by any corporate action that requires an adjustment, then the adjusted price is used.

Adjustments for Corporate Actions. An index divisor may decrease (Ñ) or increase (D) or keep constant (n) when corporate actions occur for a component stock. Assuming shareholders receive "*B*" new shares for every "*A*" share held for the following corporate actions:

Divisor	Corporate Action	Adjustment Formula
Ñ	Cash dividend (applied for total return index only)	*adjusted price = closing level – dividend announced by company*
D	Special Cash dividend (applied for price and total return index)	*adjusted price = closing level – dividend announced by company*
		adjusted price = closing level × A/B
n	Split and Reverse Split	
		new number of shares = old number of shares × B/A
		adjusted price = (closing level × A + subscription price × B)/(A + B)
D	Rights Offering	
		new number of shares = old number of shares × (A + B)/A
		adjusted price = closing level × A/(A + B)
n	Stock Dividend	
		new number of shares = old number of shares × (A + B)/A
Ñ	Stock Dividend of a Different Company Security	*adjusted price = (closing level × A – price of different company security × B)/A*
		adjusted price = [closing level – dividend announced by company × (1 – withholding tax)] × A/B
Ñ	Return of Capital and Share Consolidation	
		new number of shares = old number of shares × B/A
Ñ	Repurchase Shares-Self-Tender	*adjusted price = (closing level – dividend announced by company) × A/B*

		new number of shares = old number of shares × B/A
		adjusted price = (price before tender × old number of shares) – (tender price × number of tendered shares) / *new number of shares*
		new number of shares = old number of shares – number of tendered shares
Ñ	Spinoff	*adjusted price = (closing level × A – price of spun – off shares × B)/A*
D	Combination Stock Distribution (Dividend or Split) and Rights Offering	Shareholders receive *B* new shares from the distribution and *C* new shares from the rights offering for every *A* shares held:
		if rights are applicable after stock distribution (one action applicable to other):
		adjusted price = closing level × A + subscription price × C × (1 + B/A) / *(A + B) × (1 + C/A)*
		new number of shares = old number of shares × [(A + B) × (1 + C/A)]/A
		if stock distribution is applicable after rights (one action applicable to other):
		adjusted price = closing level × A + subscription price × C / *(A + C) × (1 + B/A)*

		new number of shares = old number of shares × [(A + C) × (1 + B/A)]
		adjusted price $= \frac{\textit{closing level} \times A + \textit{subscription price} \times C}{}$
	Stock	$A + B + C$
D	Distribution and Rights (not mutually applicable)	
		new number of shares = old number of shares × (A + B + C)

Computation Precision. The Dow Jones U.S. Indices values are rounded to two decimal places and divisors are rounded to integers. Any values derived by the index calculation engine from a corporate action used for the divisor adjustments and index computations are rounded to seven decimal places.

The S&P U.S. Indices

The S&P Composite 1500® Index

The S&P Composite 1500® Index is intended to provide a benchmark for performance measurement of the large capitalization, medium capitalization and small capitalization segments of the U.S. equity markets. The S&P Composite 1500® Index combines the S&P 500® Index, the S&P MidCap 400® Index and the S&P SmallCap 600® Index (each of which are described below).

To be eligible for inclusion in the S&P Composite 1500® Index, a company must be a U.S. company with a market capitalization consistent with the ranges defined for the S&P 500®, the S&P MidCap 400® and the S&P SmallCap 600®. Moreover, the sum of the company's most recent four consecutive quarters' earnings and the most recent quarter's earnings must be positive, and the company must maintain a public float of at least 50%. In addition, the ratio of annual dollar value traded (defined as average closing price over the period multiplied by historical volume) to float adjusted market capitalization for the company should be 1.0 or greater and the company should trade a minimum of 250,000 shares in each of the six months leading up to the evaluation date. The Index Committee is responsible for evaluating and updating the sector representation in the S&P Composite 1500® Index based on activity in the U.S. economy.

The S&P SmallCap 600® Index

The S&P SmallCap 600® Index is intended to provide a benchmark for performance measurement of the small capitalization segment of the U.S. equity markets. It tracks the stock price movement of 600 companies with smaller sized market capitalizations, primarily ranging from $450 million to $2.1 billion. S&P chooses companies for inclusion in the S&P SmallCap 600® Index with an aim of achieving a distribution by broad industry grouping that approximates the distribution of these groupings in the common stock population of the small capitalization segment of the U.S. equity market. Relevant criteria employed by S&P Dow Jones include the viability of the particular company, the extent to which that company represents the industry group to which it is assigned, the extent to which the company's common stock is widely held and the market value and trading activity of the common stock of that company.

To be eligible for inclusion in the S&P SmallCap 600® Index, a company must be a U.S. company with a market capitalization in the range of $450 million to $2.1 billion. Moreover, the sum of the company's most recent four consecutive quarters' earnings and the most recent quarter's earnings must be positive, and the company must maintain a public float of at least 50%. In addition, the ratio of annual dollar value traded to float adjusted market capitalization for the company should be 1.0 or greater and the company should trade a minimum of 250,000 shares in each of the six months leading up to the evaluation date.

The S&P 500® Index

The S&P 500® Index is intended to provide a performance benchmark for the U.S. equity markets. The calculation of the level of the S&P 500® Index (discussed below in further detail) is based on the relative value of the aggregate market value of the common stocks of 500 companies as of a particular time as compared to the aggregate average market value of the common stocks of 500 similar companies during the base period of the years 1941 through 1943. The "market value" of any S&P 500® component stock is the product of the market price per share and the number of the then outstanding shares of such S&P 500® component stock.

The 500 companies are not the 500 largest companies listed on the New York Stock Exchange and not all 500 companies are listed on such exchange. S&P Dow Jones chooses companies for inclusion in the S&P 500® Index with an aim of achieving a distribution by broad industry groupings that approximates the distribution of these groupings in the common stock population of the U.S. equity market. S&P Dow Jones may from time to time, in its sole discretion, add companies to, or delete companies from, the S&P 500® Index to achieve the objectives stated above. Relevant criteria employed by S&P Dow Jones include the viability of the particular company, the extent to which that company represents the industry group to which it is assigned, the extent to which the company's common stock is widely-held and the market value and trading activity of the common stock of that company.

To be eligible for inclusion in the S&P 500® Index, a company must be a U.S. company with a market capitalization in excess of $6.1 billion. Moreover, the sum of the company's most recent four consecutive quarters' earnings and the most recent quarter's earnings must be positive, and the company must maintain a public float of at least 50%. In addition, the ratio of annual dollar value traded to float adjusted market capitalization for the company should be 1.0 or greater and the company should trade a minimum of 250,000 shares in each of the six months leading up to the evaluation date.

The S&P 500® Total Return Index

The S&P 500® Total Return Index is the total return version of the S&P 500® Index and is calculated in the same manner as the S&P 500® Index as described above; however, while the S&P 500® Index reflects changes in the prices of its underlying stocks, the S&P 500® Total Return Index reflects changes in both movements in stock prices and the reinvestment of the dividend income from its underlying stocks.

In calculating the S&P 500® Total Return Index, ordinary cash dividends are applied on the ex−dividend date. “Special dividends” are those dividends that are outside of the normal payment pattern established historically by the issuing corporation. These may be described by the corporation as “special,” “extra,” “year−end,” or “return of capital.” Whether a dividend is funded from operating earnings or from other sources of cash does not affect the determination of whether it is ordinary or special. “Special dividends” are treated as corporate actions with offsetting price and divisor adjustments; the S&P 500® Total Return Index reflects both ordinary and special dividends. The S&P 500® Total Return Index represents the total return earned in a portfolio that tracks S&P 500® Index and reinvests dividend income in the S&P 500® Total Return Index, not in the specific stock paying the dividend.

The S&P MidCap 400® Index

The S&P MidCap 400® Index is intended to provide a benchmark for performance measurement of the medium capitalization segment of the U.S. equity markets. It tracks the stock price movement of 400 companies with mid-sized market capitalizations, primarily ranging from $1.6 billion to $6.8 billion. S&P Dow Jones chooses companies for inclusion in the S&P MidCap 400® Index with an aim of achieving a distribution by broad industry grouping that approximates the distribution of these groupings in the common stock population of the medium capitalization segment of the U.S. equity market. Relevant criteria employed by S&P Dow Jones include the viability of the particular company, the extent to which that company represents the industry group to which it is assigned, the extent to which the company’s common stock is widely held and the market value and trading activity of the common stock of that company.

To be eligible for inclusion in the S&P MidCap 400® Index, a company must be a U.S. company with a market capitalization in the range of $1.6 billion to $6.8 billion. Moreover, the sum of the company’s most recent four consecutive quarters’ earnings and the most recent quarter’s earnings must be positive, and the company must maintain a public float of at least 50%. In addition, the ratio of annual dollar value traded to float adjusted market capitalization for the company should be 1.0 or greater and the company should trade a minimum of 250,000 shares in each of the six months leading up to the evaluation date.

The S&P 100 Index

The S&P 100 Index is a subset of the S&P 500® Index and is comprised of 100 leading U.S. stocks with exchange-listed options. Because the S&P 100 Index is derived from the S&P 500® Index, the S&P 100 Index stocks are also subject to the published S&P 500® criteria for additions and deletions. In addition, only companies included in the S&P 500® Index are eligible for inclusion in the S&P 100 Index. All stocks added to the S&P 100 Index must maintain exchange-listed options. Sector balance is considered in the selection of companies for the S&P 100 Index. S&P Dow Jones may from time to time, in its sole discretion, add companies to, or delete companies from, the S&P 100 Index to achieve the objectives stated above. Relevant criteria employed by S&P Dow Jones include the viability of the particular company, the extent to which that company represents the industry group to which it is assigned, the extent to which the company's common stock is widely-held and the market value and trading activity of the common stock of that company. S&P Dow Jones may remove a company that substantially violates one or more of the criteria for index inclusion from the S&P 100 Index.

The S&P 500 Carbon Efficient Index

The S&P 500 Carbon Efficient Index (the "**Carbon Efficient Index**") is designed to measure the performance of S&P 500® component companies while overweighting companies with lower levels of carbon emissions and underweighting companies with higher level of carbon emissions.

Eligibility Criteria

The Carbon Efficient Index constituents are members of the S&P 500® Index and have been assigned a recent Carbon Footprint (as defined below). Constituents with larger Carbon Footprints are assigned relatively higher ranks within their sectors versus those with lower Carbon Footprints. Each stock must be a member of the S&P 500®.

Carbon Footprint

The "**Carbon Footprint**" is calculated by Trucost plc ("**Trucost**") and is defined as a company's annual greenhouse gas ("**GHG**") emission assessment, expressed as tons of carbon dioxide equivalent ("**CO2e**") divided by its annual revenues. Trucost is an environmental research organization that collects and provides environmental data on companies and sectors in financial terms that measure the environmental impacts associated with their operations, supply chains and investment portfolios. Trucost reviews companies' annual reports, environmental and sustainability reports, public disclosures and corporate websites to make calculations of companies' Carbon Footprints. To make calculations for companies that have no such public disclosures, Trucost employs its proprietary Input-Output model that maps the GHG impacts of business activities in 464 sectors. Six GHGs are included in Trucost's analysis, all of which are defined by the Kyoto Protocol. The GHGs are calculated for each company and converted into tons of CO2e based on the appropriate factors in the Global Warming Potential ("**GWP**") index published by the Intergovernmental Panel on Climate Change. The Global Warming Potential index assesses the effect of the emissions of different gases over a 100-year time period, relative to the emission of an equal mass of carbon dioxide. GWP allows all the GHGs to be expressed in terms of CO2e. The smaller the Carbon Efficient Index constituents' Carbon Footprints are, the less their activities contribute to climate change and the lower the Carbon Efficient Index's exposure is to the rising costs of emitting carbon dioxide. The Carbon Footprint of a company is updated annually, approximately eight months following the company's fiscal year end. Any updates to a company's Carbon Footprint will be applied to the screening process described below at the next quarterly rebalancing. S&P 500® component companies that are not assigned a Carbon Footprint are not eligible for inclusion in the Carbon Efficient Index.

Constituent Weight Adjustments

Constituent weight adjustments are made to reduce the portfolio's overall exposure to carbon emissions versus that of the S&P 500®.

Index constituents are assigned a sector rank with respect to their Carbon Footprints. Constituents with larger Carbon Footprints are assigned relatively higher ranks within their sectors versus those with lower Carbon Footprints. In order to reduce turnover, only specific sectors are targeted for potential carbon-related weight adjustments. Sectors in which the range of constituent Carbon Footprints are above 500 are targeted. These sectors are deemed High Potential Markets.

Constituents in sectors where the range of constituent Carbon Footprints is 500 or less do not undergo weight adjustments. For these sectors, any carbon-related weight adjustments made would not warrant the increase in turnover that would occur. Generally, around half of the total number of sectors are deemed High Potential Markets.

Index Rebalancing

Rebalancing of the Carbon Efficient Index occurs annually, after the close of business on the third Friday of December. Each company's Carbon Footprint is researched annually, approximately eight months following the company's fiscal year end. Carbon Footprints are updated on an as-needed basis following corporate events (mergers and acquisitions, spin-offs, etc.) and underlying data point revisions. Any update to a company's Carbon Footprint is applied to the screening process at the subsequent annual rebalancing. Changes to a constituent's shares and IWF as a result of the quarterly updates are effective after the close on the third Friday in March, June, September and December. The rebalancing reference date is the third Friday of November. S&P 500® constituent level data used in the rebalancing process will include shares of the S&P 500® component companies that have been announced as part of the S&P 500® quarterly share rebalancing.

At its sole discretion, the index sponsor may elect to rebalance the Carbon Efficient Index between quarters if it determines that sufficient changes have occurred to the S&P 500® Index that require a rebalancing of the Carbon Efficient Index in order to minimize the tracking error with respect to the S&P 500® Index.

Additions and Deletions

*Additions***.** Index additions are generally made only during the quarterly rebalancing. Spin-offs, however, may necessitate the addition of the spun-off company to the Carbon Efficient Index. The spun-off company is added to the Carbon Efficient Index if the parent is a constituent at a zero price at the market close of the day before the ex-date (with no divisor adjustment). If the spun-off company is to remain in the parent universe index, it will subsequently remain in the corresponding Carbon Efficient Index. If the spun-off company is removed from the parent universe index after at least

one day of regular way trading (with a divisor adjustment), the corresponding Carbon Efficient Index will follow the same treatment.

*Deletions***.** A Carbon Efficient Index component company will be deleted from the Carbon Efficient Index when it is deleted from the S&P 500® Index. A company may also be deleted from the Carbon Efficient Index at the quarterly rebalancing when it does not meet the eligibility criteria on the rebalancing reference date.

Corporate actions (such as stock splits, stock dividends, spin-offs and rights offerings) are applied after the close of trading on the day prior to the ex-date.

If two Carbon Efficient Index component companies merge, or if a Carbon Efficient Index component company acquires a non-Carbon Efficient Index component company, and the post-merger combined entity remains within the S&P 500® Index, such post-merger company will remain in the Carbon Efficient Index until the next rebalancing when it will be reviewed according to the standard inclusion criteria. If a Carbon Efficient Index component company is acquired by a non-Carbon Efficient Index component company, the Carbon Efficient Index component company will be deleted from the Carbon Efficient Index and the post-merger company will not be included in the Carbon Efficient Index. The acquiring company may be added to the Carbon Efficient Index at the next rebalancing if it meets the inclusion criteria.

With respect to a post-merger company that will be included in the Carbon Efficient Index, if both pre-merger companies were Carbon Efficient Index component companies, the post-merger Carbon Efficient Index component company will be assigned the weight of the company deemed the acquirer by S&P Dow Jones. If only one of the pre-merger companies was a Carbon Efficient Index component company, the post-merger Carbon Efficient Index component company will be assigned the same weight as the pre-merger company that was previously in the Carbon Efficient Index.

If a Carbon Efficient Index component company spins off another company, the Carbon Efficient Index component company will remain in the Carbon Efficient Index as long as it remains in the S&P 500® Index. If the spun-off company is a member of the S&P 500® Index, it will be reviewed for inclusion in the Carbon Efficient Index at the next rebalancing.

Price Return and Total Return

While the price return version of the Carbon Efficient Index reflects changes in the prices of its underlying stocks, the total return version of the Carbon Efficient Index reflects changes in both movements in stock prices and the

reinvestment of the dividend income from its underlying stocks.

The S&P U.S. Index Methodology

The S&P Composite 1500® Index, the S&P SmallCap 600® Index, the S&P 500® Index, the S&P MidCap 400® Index, the S&P 100 Index, and the S&P 500 Carbon Efficient Index (the "**S&P U.S. Indices**") are based on a float-adjusted formula.

Under float adjustment, the goal is to distinguish between strategic shareholders and those shareholders whose investment depends on the stock's price. The share counts used in calculating the S&P U.S. Indices reflect only those shares that are available to investor shareholders whose investments depend on the stock's price as opposed to strategic (control) shareholders. Therefore, the float does not include all of a company's outstanding shares. Shareholders generally concerned with control include: officers and directors, private equity, venture capital & special equity firms, shares held for control by another publicly traded company, strategic partners, holders of restricted shares, ESOPs, employee and family trusts, foundations associated with the company, holders of unlisted share classes of stock, government entities at all levels (except government retirement or pension funds) and any individual person who controls a 5% or greater stake in a company as reported in regulatory filings.

Generally, treasury stock, stock options, restricted shares, equity participation units, warrants, preferred stock, convertible stock and rights are also not part of the float. Mutual funds, investment advisory firms, pension funds or foundations not associated with the company and investment funds in insurance companies, shares of a United States company traded in Canada as "exchangeable" shares, shares that trust beneficiaries may buy or sell without difficulty or significant additional expense beyond typical brokerage fees, and, if a company has multiple classes of stock outstanding, shares in an unlisted or non-traded class if such shares are convertible by shareholders to a listed class without undue delay and cost, are also part of the float.

For each stock, an investable weight factor ("**IWF**") is calculated by dividing the available float shares, defined as the total shares outstanding less shares held by the shareholders listed above where the group holdings exceed 5% of the outstanding shares, by the total shares outstanding. For companies with multiple classes of stock, the treatment varies across S&P Dow Jones indices depending on local market custom and conditions. In those indices which include multiple classes of stock, S&P Dow Jones will calculate the weighted average IWF for each stock using the proportion of the total company market capitalization of each share class as the weights. The result is reviewed to assure that when the weighted average IWF is applied to the class included in the S&P U.S. Indices, the shares to be purchased are not significantly larger than the available float for the included class.

Effective with the September 2015 rebalancing, S&P has transitioned the the S&P U.S. Indices and the S&P® Total Market Index to a multiple share class structure. The treatment of multiple share classes of stock varies across the S&P U.S. indices depending on local market custom and conditions. In those indices which include multiple share classes of stock – a company may have more than one share class line included in the index – each class is float-adjusted individually. This change has resulted in the S&P 500® Index having more than 500 share lines in the index but the index continues to have only 500 companies.

The S&P U.S. Indices are calculated using a base-weighted aggregate methodology: the level of the relevant S&P Index reflects the total market value of all component stocks relative to such S&P Index's base period. An indexed number is used to represent the results of this calculation in order to make the value easier to work with and track over time.

The daily calculation of the S&P U.S. Indices is computed by dividing the sum of the IWF multiplied by both the price and the total shares outstanding for each stock (*i.e.*, the aggregate market value) by the index divisor. By itself, the index divisor is an arbitrary number. However, in the context of the calculation of the S&P U.S. Indices, it is the only link to the original base period level of the S&P U.S. Indices. The index divisor keeps the S&P U.S. Indices comparable over time and is the manipulation point for all adjustments to the S&P U.S. Indices.

Index maintenance includes monitoring and completing the adjustments for company additions and deletions, rights issues, share buybacks and issuances and spinoffs. Changes to the S&P U.S. Indices are made on an as-needed basis. There is no annual or semi-annual reconstitution. Rather, changes in response to corporate actions and market developments can be made at any time. Constituent changes are typically announced one to five days before they are scheduled to be implemented.

To prevent the level of the S&P U.S. Indices from changing due to corporate actions, all corporate actions which affect the total market value of the S&P U.S. Indices require an index divisor adjustment. By adjusting the index divisor for the change in total market value, the level of the S&P U.S. Indices remains constant. This helps maintain the level of the S&P U.S. Indices as an accurate barometer of stock market performance and ensures that the movement of the S&P U.S. Indices does not reflect the corporate actions of individual companies in the S&P U.S. Indices. All the index divisor adjustments are made after the close of trading and after the calculation of the S&P U.S.

Indices. Some corporate actions, such as stock splits and stock dividends, require simple changes in the common shares outstanding and the stock prices of the companies in the S&P U.S. Indices and do not require index divisor adjustments.

The table below summarizes the types of the S&P Dow Jones Index maintenance adjustments and indicates whether or not an index divisor adjustment is required.

Type of Corporate Action	Adjustment Factor	Divisor Adjustment
Company added/deleted	Net change in market value determines divisor adjustment	Yes
Change in shares outstanding	Any combination of secondary issuance, share repurchase or buy back – share counts revised to reflect change.	Yes
Stock split	Share count revised to reflect new count. Divisor adjustment is not required since the share count and price changes are offsetting.	No
Spin-off	The spin-off is added to the index on the ex-date at a price of zero. Each individual index methodology will specify whether the spin-off will be eligible to remain in the index beyond the ex-date.	No
Change in IWF due to a corporate action or a purchase or	Increasing (decreasing) the IWF increases (decreases) the total market value of the index. The divisor change reflects the	Yes

sale by an inside holder	change in market value caused by the change to an IWF.	
Ordinary dividend	When a company pays an ordinary cash dividend, also referred to as a regular cash dividend, the index does not make any adjustments to the price or shares of the stock. As a result there are no divisor adjustments to the index. Ordinary dividends are only accounted for in the Total Return index level calculations.	No
Special dividend	When a company pays a special dividend the share price is assumed to drop by the amount of the dividend; the divisor adjustment reflects this drop in index market value.	Yes
Rights offering	Each shareholder receives the right to buy a proportional number of additional shares at a set (often discounted) price. The calculation assumes that the offering is fully subscribed. Divisor adjustment reflects increase in market cap measured as the shares issued multiplied by the price paid.	Yes

Stock splits and stock dividends do not affect the index divisor of the S&P U.S. Indices, because following a split or dividend both the stock price and number of shares outstanding are adjusted by S&P Dow Jones so that there is no change in the market value of the S&P Dow Jones component stock. Corporate actions (such as stock splits, stock dividends, spin-offs and rights offerings) are implemented after the close of trading on the day prior to the ex-date. Share changes resulting from exchange offers are made on the ex-date.

Each of the corporate events exemplified in the table requiring an adjustment to the Index Divisor has the effect of altering the Market Value of the S&P Dow Jones component stock and consequently of altering the aggregate Market Value of the S&P Dow Jones component stocks (the "**Post-Event Aggregate Market Value**"). In order that the level of the S&P Dow Jones Index (the "**Pre-Event Index Value**") not be affected by the altered Market Value (whether increase or decrease) of the affected component stock, a new Index Divisor ("*New Divisor*") is derived as follows:

$$\frac{\textit{Post - Event Aggregate Market Value}}{\textit{New Divisor}} = \textit{Pre - Event Index Value}$$

$$\textit{New Divisor} = \frac{\textit{Post - Event Aggregate Market Value}}{\textit{Pre - Event Index Value}}$$

A large part of the index maintenance process involves tracking the changes in the number of shares outstanding of each of the companies included in each S&P Dow Jones Index. Four times a year, on a Friday close to the end of each calendar quarter, the share totals of companies in the S&P U.S. Indices are updated as required by any changes in the number of shares outstanding. After the totals are updated, the index divisor is adjusted to compensate for the net change in the total market value of the index. In addition, changes in a company's total shares outstanding of 5% or more due to public offerings, tender offers, Dutch auctions or exchange offers are made as soon as reasonably possible. Other changes of 5% or more (for example, due to company stock repurchases, private placements, an

acquisition of a privately held company, redemptions, exercise of options, warrants, conversion of preferred stock, notes, debt, equity participations, at-the-market stock offerings or other recapitalizations) are made weekly, and are announced on Fridays for implementation after the close of trading the following Friday (one week later). If an exchange holiday/closure falls on a Friday, the weekly share change announcement will be made the day before the exchange holiday/closure.

The S&P Select Industry Indices

Each of the S&P Homebuilders Index, S&P Metals & Mining Index, the S&P Oil & Gas Exploration & Production Select Industry Index, and the S&P Regional Banks Index (each, a "**Select Industry Index**" and together the "**Select Industry Indices**") comprises companies included in the S&P 500® Index and selected based on a company's GICS classification, as well as a company's float-adjusted liquidity ratio (FALR), float-adjusted market capitalization and domicile.

The S&P® Homebuilders Select Industry Index

The S&P® Homebuilders Select Industry™ Index (the "**S&P Homebuilders Index**") is an equal-weighted index that is designed to measure the performance of the homebuilders sub-industry portion of the S&P® Total Market Index (the "**S&P TMI**"), a benchmark that measures the performance of the U.S. equity market. The S&P TMI offers broad market exposure to companies of all market capitalization, including all U.S. common equities listed on the NYSE (including NYSE Arca), the NYSE MKT, the NASDAQ Global Select Market, the NASDAQ Select Market and the NASDAQ Capital Market. Only U.S. companies are eligible for inclusion in the S&P TMI. The S&P Homebuilders Index includes companies in the following sub-industries: homebuilding, building products, home furnishings, home improvement retail, home furnishing retail and household appliances. Each of the component stocks in the S&P Homebuilders Index is a constituent company within the homebuilding sub-industry of the S&P TMI. The S&P Homebuilders Index is reported by Bloomberg under ticker symbol "SPSIHO." For information concerning the methodology of the S&P Homebuilders Index, please refer to "Methodology of the Select Industry Indices" below.

The S&P® Metals & Mining Select Industry Index

The S&P® Metals & Mining Select Industry™ Index (the "**S&P Metals & Mining Index"**) is an equal weighted index that is designed to measure the performance of the metals and mining sub-industry portion of the S&P TMI, a benchmark that measures the performance of the U.S. equity market. The S&P TMI offers broad market exposure to companies of all market capitalization, including all U.S. common equities listed on the NYSE (including NYSE Arca), the NYSE MKT, the NASDAQ Global Select Market, the NASDAQ Select Market and the NASDAQ Capital Market. Only U.S. companies are eligible for inclusion in the S&P TMI. The S&P Metals and Mining Index includes companies in the following sub-industries: aluminum, coal & consumable fuels, copper, diversified metals & mining, gold, precious metals & minerals, silver and steel. Each of the component stocks in the S&P Metals & Mining Index is a constituent company within the metals and mining sub-industry of the S&P TMI. The S&P Metals & Mining Index is reported by Bloomberg under ticker symbol "SPSIMM." For information concerning the methodology of the S&P Metals & Mining Index, please refer to "Methodology of the Select Industry Indices" below.

The S&P® Oil & Gas Exploration & Production Select Industry Index

The S&P® Oil & Gas Exploration & Production Select Industry Index (the "**S&P Oil & Gas Exploration & Production Index**") is an equally weighted index that is designed to measure the performance of the oil and gas exploration and production sub-industry portion of the S&P TMI, a benchmark that measures the performance of the U.S. equity market. The S&P TMI offers broad market exposure to companies of all market capitalization, including all common equities listed on the NYSE (including NYSE Arca), the NYSE MKT, the NASDAQ Global Select Market, the NASDAQ Select Market and the NASDAQ Capital Market. Only U.S. companies are eligible for inclusion in the S&P TMI. The S&P Oil & Gas Exploration & Production Index includes companies in the following sub-industries: integrated oil & gas, oil & gas exploration & production, oil & gas refining & marketing, oil & gas storage & transportation, and coal & consumable fuels. The S&P Oil & Gas Exploration & Production Index is reported by Bloomberg under the ticker symbol "SPSIOP." For information concerning the methodology of the S&P Oil & Gas Exploration & Production Index, please refer to "Methodology of the Select Industry Indices" below.

The S&P® Regional Banks Select Industry Index

The S&P® Regional Banks Select Industry Index (the "**S&P Regional Banks Index**") is an equal weighted index that is designed to measure the performance of the regional banks sub-industry group of the S&P TMI, a benchmark that measures the performance of the U.S. equity market. The S&P TMI offers broad market exposure to companies of all market capitalization, including all U.S. common equities listed on the NYSE (including NYSE Arca), the NYSE MKT, the NASDAQ Global Select Market, the NASDAQ Select Market and the NASDAQ Capital Market. Only U.S. companies are eligible for inclusion in the S&P TMI. Each of the component stocks in the S&P Regional Banks Index is a constituent company within the regional banks sub-industry group of the S&P TMI. The S&P Regional Banks Index is reported by

Bloomberg under the ticker symbol "SPSIRBK". For information concerning the methodology of the S&P Regional Banks Index, please refer to "Methodology of the Select Industry Indices" below.

Methodology of the Select Industry Indices

To be eligible for a Select Industry Index, at each quarterly rebalancing, a stock must satisfy the following criteria:

- Be a member of the S&P TMI.

- Be classified as a primary sub-industry stock for the respective index.

- Meet one of the following float-adjusted market capitalization and float-adjusted liquidity ratio requirements: (a) be a current constituent, have an float-adjusted market capitalization greater than or equal to US$ 300 million, and have a float-adjusted liquidity ratio greater than or equal to 50%; (b) have an float-adjusted market capitalization greater than or equal to US$ 500 million and a float-adjusted liquidity ratio greater than or equal to 90%; or (c) have an float-adjusted market capitalization greater than or equal to US$ 400 million and a float-adjusted liquidity ratio greater than or equal to 150%.

- In the event that fewer than 35 stocks are selected for each Select Industry Index using the eligible primary stocks, certain Select Industry Indices will select stocks for inclusion from a supplementary list of highly correlated sub-industries.

- Additionally, minimum float-adjusted market capitalization requirements may be relaxed for all Select Industry Indices to ensure that there are at least 22 stocks in each Select Industry Index as of each rebalancing effective date.

Some of the S&P Select Industry Indices have different market capitalization and float-adjusted liquidity ratio requirements.

Liquidity. The liquidity measurement used is a liquidity ratio, defined by dollar value traded over the previous 12 months divided by float-adjusted market capitalization as of the index-rebalancing date. The length of time to evaluate liquidity is reduced to the available trading period for IPOs or spin-offs that do not have 12 months of trading

history.

*Domicile***.** Only U.S. companies are eligible for inclusion in the Select Industry Indices.

*Takeover Restrictions***.** At the discretion of S&P Dow Jones, constituents with shareholder ownership restrictions defined in company bylaws may be deemed ineligible for inclusion in the relevant Select Industry Index. Ownership restrictions preventing entities from replicating the index weight of a company may be excluded from the eligible universe or removed from the relevant Select Industry Index.

*Turnover***.** At times a company may appear to temporarily violate one or more of the addition criteria. However, the addition criteria are for addition to the Select Industry Index, not for continued membership. As a result, an index constituent that appears to violate criteria for addition to the Select Industry Index will not be deleted unless ongoing conditions warrant an index change.

Timing of Changes. Select Industry Index rebalancings occur after the closing on the third Friday of the quarter ending month. The reference date for additions and deletions is after the closing of the last trading day of the previous month.

*Additions***.** Stocks are added between rebalancings only if a deletion in the Select Industry Index causes the stock count to fall below 22. In those cases, each stock deletion is accompanied with a stock addition. The new stock will be added to the Select Industry Index at the weight of the deleted stock.

Deletions. A stock is deleted from a Select Industry Index if the S&P TMI drops the stock. If a stock deletion causes the number of stocks in the relevant index to fall below 22, each stock deletion is accompanied with a corresponding stock addition. In the case of mergers involving two Select Industry Index constituents, the merged entity will remain in the Select Industry Index provided that it meets all general eligibility requirements. The merged entity will be added to the Select Industry Index at the weight of the stock deemed to be the surviving stock in the transaction (i.e. the surviving stock will not experience a weight change and its subsequent weight will not be equal to that of the pre-merger weight of the merged entities). In case of GICS changes, where a stock does not belong to a qualifying sub-industry after the classification change, it is removed from the relevant Select Industry Index at the next rebalancing.

Select Industry Index Construction and Calculations

The Select Industry Indices are initially equal-weighted, with adjustments to individual constituent weights to ensure concentration and liquidity requirements, and calculated by the divisor methodology**.** The initial divisors of the S&P Homebuilders Index, the S&P Metals and Mining Index, and the S&P Oil & Gas Exploration & Production Index are set to have a base index value of 1000 and a base date of December 17, 1999. The initial divisor of the S&P Regional Banks Index is set to have a base value of 1000 and a base date of June 20, 2003. The index value is simply the index market value divided by the index divisor:

Index Value = (Index Market Value) / Divisor
In order to maintain index series continuity, it is also necessary to adjust the divisor at each rebalancing.

$$(\text{Index Value})_{\text{before rebalance}} = (\text{Index Value})_{\text{after rebalance}}$$

Therefore,

$$(\text{Divisor})_{\text{after rebalance}} = (\text{Index Market Value})_{\text{after rebalance}} / (\text{Index Value})_{\text{before rebalance}}$$

At each quarterly rebalancing, companies are initially equally weighted, using closing prices as of the second Friday of the last month of the quarter as the reference price. Adjustments are then made to ensure that there are no stocks whose weight in the index exceeds the value that can be traded in a single day for a $2 billion portfolio with regard to the S&P Homebuilders Select Industry Index, the S&P Oil & Gas Exploration & Production Select Industry Index and the S&P Regional Banks Select Industry Index, and $1 billion with regard to the S&P Metals and Mining Select Industry Index. Theoretical portfolio values are reviewed annually. S&P Dow Jones calculates a maximum basket liquidity weight for each stock in the index using the ratio of its three-month median daily value traded to the relevant theoretical portfolio value. Each stock's weight in the index is then compared to its maximum basket liquidity weight and is set to the lesser of its maximum basket liquidity weight and its initial equal weight. All excess weight is redistributed across the index to the uncapped stocks. If necessary, a final adjustment is made to ensure that no stock in the index has a weight greater than 4.5%. This step of the iterative weighting process may force the weight of those stocks limited to their maximum basket liquidity weight to exceed that weight. In such cases, S&P Dow Jones will make no further adjustments. If any of the Select Industry Indices contains exactly 22 companies as of the rebalancing effective date, the index will be equally weighted without basket liquidity constraints.

Select Industry Index Maintenance

The membership of an S&P Select Industry Index is reviewed quarterly. Rebalancing occurs after the closing on the third Friday of the quarter ending month. The reference date for additions and deletions is after the closing of the last trading day of the previous month. Generally, no companies are added between rebalancings. However, a company will be deleted from a Select Industry Index if the S&P TMI drops the constituent. Unless a constituent deletion causes the number of companies in a Select Industry Index to fall below 22, no addition will be made to such Select Industry Index until the next rebalancing. At that time, the entire such Select Industry Index will be rebalanced based on all eligibility criteria, including the minimum number of companies. In case of GICS changes, where a company does not belong to the homebuilding sub-industry after the classification change, it is removed from such Select Industry Index at the next rebalancing.

The table below summarizes the types of index maintenance adjustments and indicates whether an index adjustment is required.

S&P TMI Action/Corporate Action	**Adjustment Made to Index**	**Divisor Adjustment?**
Constituent deletion	If the constituent is a member of the applicable Select Industry Index, it is dropped.	Yes

Constituent addition	Only in cases where the deletion causes the component count to fall below 22 stocks, then the drop is accompanied by an add assuming the weight of the dropped company. If a company is removed from an index at a price of $0.00, the company's replacement will be added to the index at the weight using the previous day's closing value, or the most immediate prior business day that the deleted stock was not valued at $0.00.	No, except in the case of stocks removed at $0.00
GICS change	None. If, after the GICS change, a company no longer qualifies to belong to the applicable Select Industry Index, it is removed at the next rebalancing.	No
Spin-off	In general, both the parent company and spin-off companies will remain in the index until the next index rebalancing, regardless of whether they conform to the theme of the index. When there is no market-determined price available for the spin, the spin is added to the index at zero price at the close of the day before the ex-date.	No
Rights Offering	The price is adjusted to the Price of the Parent Company minus (the Price of the Rights Subscription/Rights Ratio). The Index Shares change so that the company's weight remains the same as its weight before the rights offering.	No
Stock Dividend, Stock Split or Reverse Stock Split	The Index Shares are multiplied by and price is divided by the split factor.	No
Share Issuance or Share Repurchase	None.	No
Special Dividends	Price of the stock making the special dividend payment is reduced by the per share special dividend amount after the close of trading on the day before the dividend ex-date.	Yes

Total Return

Each Select Industry Index will have a total return counterpart, which assumes dividends are reinvested in the applicable Select Industry Index after the close on the ex-date. On any given date *t*:

$$\text{Total Return Multiplier}_t = [(\text{Total Return Index Value}_{t-1}) + (\text{Index Dividend Points}_t)] / (\text{Index Value}_{t-1})$$

$$\text{Total Return Index Value}_t = (\text{Total Return Index Value}_{t-1}) \times (\text{Total Return Multiplier}_t)$$

$$\text{Index Dividend Points}_t = (\text{Index Shares})_{i,t} \times (\textit{Ex-dividends})_{i,t} / \text{Divisor}_t$$

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The S&P Select Sector Indices

Each of the Communications Services Select Sector Index, the Consumer Discretionary Select Sector Index, the Consumer Staples Select Sector Index, the Energy Select Sector Index, the Financials Select Sector Index, the Health Care Select Sector Index, the Industrials Select Sector Index, the Materials Select Sector Index, the Real Estate Select Sector Index, the Technology Select Sector Index and the Utilities Select Sector Index (an "**Select Sector Index**," and together, the "**Select Sector Indices**") is derived from the S&P 500® Index. The stocks included in each Select Sector Index are selected from the universe of companies represented by the S&P 500® Index based on their GICS classification.

Communications Services Select Sector Index

The Communications Services Select Sector Index is intend to give investors an efficient, modified market capitalization-based way to track the movements of certain public companies that are components of the S&P 500® Index and are involved in the communications services industry. The Communications Services Index will only include companies involved in the telecommunication services industry. Effective after close of business September 28, 2018, the Communications Services Select Sector Index will also include the newly formed media & entertainment industry group.

The Consumer Discretionary Select Sector Index

The Consumer Discretionary Select Sector Index is intended to give investors an efficient, modified market capitalization-based way to track the movements of certain public companies that are components of the S&P 500® Index and are involved in the development and production of consumer discretionary products. The Consumer Discretionary Select Sector Index will include companies involved in automobiles and components, consumer durables and apparel, consumer services, and media and retailing industries. Effective after close of business September 28, 2018, the Consumer Discretionary Select Sector Index will no longer include the media industry group.

The Consumer Staples Select Sector Index

The Consumer Staples Select Sector Index is intended to give investors an efficient, modified market capitalization-based way to track the movements of certain public companies that are components of the S&P 500® Index and are involved in the development and production of consumer products. The Consumer Staples Select Sector Index will only include companies involved in the food & staples retailing, food, beverage & tobacco and household & personal products industries.

The Energy Select Sector Index

The Energy Select Sector Index is intended to give investors an efficient, modified market capitalization-based way to track the movements of certain public companies that are components of the S&P 500® Index and are involved in the development and production of energy products. The Energy Select Sector Index will only include companies involved in the energy equipment & services industry, and the oil, gas & consumable fuels industry.

The Financials Select Sector Index

The Financials Select Sector Index is intended to give investors an efficient, modified market capitalization-based way to track the movements of certain public companies that are components of the S&P 500® Index and are involved in the development and production of financial products. The Financials Select Sector Index will only include companies involved in banks, diversified financials, and insurance industry.

The Health Care Select Sector Index

The Health Care Select Sector Index is intended to give investors an efficient, modified market capitalization-based way to track the movements of certain public companies that are components of the S&P 500® Index and are health care related firms. The Health Care Select Sector Index will only include companies involved in the health care equipment & services industry and the pharmaceuticals, biotechnology & life sciences industry.

The Industrials Select Sector Index

The Industrials Select Sector Index is intended to give investors an efficient, modified market capitalization-based way to track the movements of certain public companies that are components of the S&P 500® Index and are industrials. The Industrials Select Sector Index will only include companies involved in the capital goods industry, commercial & professional services, and the transportation industry.

The Materials Select Sector Index

The Materials Select Sector Index is intended to give investors an efficient, modified market capitalization-based way to track the movements of certain public companies that are components of the S&P 500® Index and are in basic industries. The Materials Select Sector Index will only include companies involved in chemicals industry, construction materials industry, container & packaging industry, metals & mining industry, and paper & forest products.

The Real Estate Select Sector Index

The Real Estate Select Sector index is intended to give investors an efficient, modified market capitalization-based way to track the movements of certain public companies that are components of the S&P 500® index and are in the real estate industry. The Real Estate Select Sector Index will only include companies involved in equity real estate investment trusts (REITs) and the real estate & management & development industry.

The Technology Select Sector Index

The Technology Select Sector Index is intended to give investors an efficient, modified market capitalization-based way to track the movements of certain public companies that are components of the S&P 500® Index and are involved in the development and production of technology products. The Technology Select Sector Index will only include companies involved in the software & services industry, the technology hardware & equipment industry, and the semiconductors & semiconductor equipment industry.

The Utilities Select Sector Index

The Utilities Select Sector Index is intended to give investors an efficient, modified market capitalization-based way to track the movements of certain public companies that are components of the S&P 500® Index and are in the utilities industry. The Utilities Select Sector Index will only include companies involved in the electric, gas & water utilities, multi-utilities, and independent power and renewable electricity producers industries.

Selection Criteria

The Select Sector Indices are modified market capitalization-based indices intended to track the movements of companies that are components of the S&P 500® Index. The Select Sector Indices were all established with a value of 250 on June 30, 1998, with the exception of the Communications Services Select Sector Index and the Real Estate Select Sector Index, which were established on April 30, 2018 and August 17, 2018, respectively.

Each Select Sector Index was developed and is maintained in accordance with the following criteria:

- Each of the component stocks in a Select Sector Index is a constituent company of the S&P 500® Index.
- The eleven Select Sector Indices together will include all of the companies represented in the S&P 500® Index and each of the stocks in the S&P 500® Index will be allocated to one and only one of the Select Sector Indices.
- S&P Dow Jones assigns each constituent stock of the S&P 500® Index to a Select Sector Index based on the constituent's classification under the GICS.
- Each Select Sector Index is weighted based on the market capitalization of each of the component stocks, subject to a cap and the following procedures:

1. The rebalancing reference date is the second Friday of March, June, September and December.

2. With prices reflected on the rebalancing reference date, and membership, shares outstanding and IWFs as of the rebalancing effective date, each company is weighted by float-adjusted market capitalization. Modifications are made as defined below.

3. If any company has a weight greater than 24%, the company's float-adjusted market capitalization weight is capped at 23%, which allows for a 2% buffer. This buffer is meant to ensure that no company exceeds 25% as of the quarter-end diversification requirement date.

4. All excess weight is proportionally redistributed to all uncapped companies within the relevant index.

5. After this redistribution, if the float-adjusted market capitalization weight of any other company then breaches 23%, the process is repeated iteratively until no company breaches the 23% weight cap.

6. The sum of the companies with weights greater than 4.8% cannot exceed 50% of the total index weight. These caps are set to allow for a buffer below the 5% limit.

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7. If the rule in step 6 is breached, all companies are ranked in descending order of their float-adjusted market capitalization weights. The first company that causes the 50% limit to be breached has its weight reduced to 4.5%.

8. This excess weight is proportionally redistributed to all companies with weights below 4.5%. This is repeated iteratively until step 6 is satisfied.

9. Index share amounts are assigned to each constituent to arrive at the weights calculated above. Since index shares are assigned based on prices one week prior to rebalancing, the actual weight of each constituent at the rebalancing differs somewhat from these weights due to market movements.

10. If necessary, the reweighting process may take place more than once prior to the close on the last business day of March, June, September or December to ensure the Select Sector Indices conform to all diversification requirements.

Each Select Sector Index is calculated using the same methodology utilized by S&P Dow Jones in calculating the S&P 500® Index, using a base-weighted aggregate methodology. See “The S&P Index Methodology” and “The S&P 500® Index” above. The daily calculation of each Select Sector Index is computed by dividing the total market value of the companies in the Select Sector Index by a number called the index divisor.

Component stocks removed from and added to the S&P 500® Index will be deleted from and added to the appropriate Select Sector Index on the same schedule used by S&P Dow Jones for additions and deletions from the S&P 500® Index insofar as practicable.

The S&P/ASX 200 Index

The S&P/ASX 200 Index is designed to be the primary gauge for the Australian equity market. It is recognized as an investable benchmark in Australia. Upon its introduction in April 2000, the S&P/ASX 200 replaced the All Ordinaries index as the primary gauge for the Australian equity market. The S&P/ASX 200 measures the performance of the 200 largest index-eligible stocks listed on the Australian Securities Exchange (the "**ASX**") by float-adjusted market capitalization, and is widely considered Australia's benchmark index. The index is float-adjusted, covering approximately 80% of Australian equity market capitalization.

The S&P/ASX 200 Index is maintained by the S&P Australian Index Committee (the "**S&P/ASX Committee**"), a team of five members representing both S&P Dow Jones Indices and the Australian Stock Exchange.

Composition of the S&P/ASX 200 Index

The S&P/ASX 200 Index weights companies according to the GICS®, which creates uniform ground rules for replicable, custom-tailored, industry-focused portfolios. It also enables meaningful comparisons of sectors and industries across regions. Sector indices are available for the S&P/ASX 200 Index.

Standards for Listing and Maintenance

The Index Committee reviews constituents and rebalances them quarterly to ensure adequate market capitalization and liquidity. Both market capitalization and liquidity are assessed using the previous six months' worth of data. Quarterly review changes take effect the third Friday of March, June, September and December. The weighting of constituents in the S&P/ASX 200 Index is determined by the free float assigned to each stock by the Index Committee. Every index constituents' float adjustment is reviewed as part of the September quarterly review, unless an event alters the float of a security in excess of 5%. In such cases, the change will be implemented as soon as practicable.

The criteria for index additions include:

- *Listing*. Only securities listed in the ASX are considered for inclusion in any of the S&P/ASX indices;

- *Market Capitalization*. Companies are assessed based on the average of their previous 6-month day-end float-adjusted market capitalization;

- *Eligible Securities.* All common and equity preferred stocks are eligible for inclusion (convertible stock, bonds, warrants and preferred stock that provide a guaranteed fixed return are not eligible).

- *Public Float*. There must be public float of at least 30% for a stock to warrant inclusion in the S&P/ASX indices; and

- *Liquidity*. Only securities that are actively and regularly traded are eligible for inclusion in any S&P/ASX indices.

Companies will be removed from the S&P/ASX 200 Index if they substantially violate one or more of the criteria for index inclusion or if they are involved in a merger, acquisition or significant restructuring such that they no longer meet the inclusion criteria.

Rebalancing. Rebalancing of the S&P/ASX index series occurs on a regular basis. Both market capitalization and liquidity are assessed using the previous six months' worth of data to determine index eligibility. Shares and Investable Weight Factors ("**IWFs**") updates are also applied regularly.

Share Updates. The share count for all index constituents is updated quarterly and is rounded to the nearest thousand for all Australian indices. The update to the number of issued shares will be considered if the outstanding shares differ from total index shares by at least 5% or a market capitalization of $100 million Australian dollars ("**A$**"). 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;

- Right's issues, bonus issues and other major corporate actions and;

- Share issues resulting from index companies merging and major off-market buybacks.

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. Notification of intra-quarter changes to the number of issued shares will generally take place three business days prior to the index implementation date.

Calculation of the S&P/ASX 200 Index

The S&P/ASX 200 Index is calculated using a base-weighted aggregate methodology so that the level of an index reflects the total market value of all the component stocks relative to a particular base period. The total market value of a company is determined by multiplying the price of its stock by the number of shares available after float adjustment. An indexed number is used to represent the result of this calculation in order to make the value easier to work with and track over time. It is much easier to graph a chart based on indexed values than one based on actual market values.

Investable Weight Factor (IWF). A stock's weight in an index is determined by the float-adjusted market capitalization of the stock. This is a function of current index shares, the latest available stock price and the IWF. The IWF represents the float-adjusted portion of a stock's equity capital. Therefore any strategic holdings that are classified as either corporate, private or government holdings reduce the IWF which, in turn, results in a reduction in the float-adjusted market capital. Shares owned by founders, directors of the company, trusts, venture capitalists and other companies are also excluded. These are also deemed strategic holders, and are considered long-term holders of a stock's equity. Any strategic shareholdings that are greater than 5% of total issued shares are excluded from the relevant float.

On any given day, the index value is the quotient of the total available market capitalization of the index's constituents and its divisor. Continuity in index values is maintained by adjusting the divisor for all changes in the constituents' share capital after the base date. This includes additions and deletions to the index, rights issues, share buybacks and issuances, spin-offs, and adjustments in availability. The divisor's time series is, in effect, a chronological summary of all changes affecting the base capital of the index. The divisor is adjusted such that the index value at an instant just prior to a change in base capital equals the index value at an instant immediately following that change.

Index Governance

Index Committee. Each of the S&P global indices is the responsibility of an Index Committee that monitors overall policy guidelines and methodologies, as well as additions to and deletions from these indices. S&P chairs the S&P/ASX Index Committee, which is comprised of 5 members representing both S&P and the ASX.

Decisions made by the Index Committee include all matters relating to index construction and maintenance. The Index Committee meets regularly to review market developments and convenes as needed to address major corporate actions. It is the sole responsibility of the Index Committee to decide on all matters relating to methodology, maintenance, constituent selection and index procedures. The Index Committee makes decisions based on all publicly available information and discussions are kept confidential to avoid any unnecessary impact on market trading.

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The S&P GSCI® Commodity Indices

The S&P GSCI™ is the parent index of the GSCI™ Sector Indices and the GSCI™ Component Indices. We refer to the S&P GSCI™, the GSCI™ Sector Indices and the GSCI™ Component Indices collectively as the "**GSCI™ Indices.**" The methodolo for compiling the S&P GSCI™ Sector Indices and GSCI™ Component Indices is consistent with the methodology for compiling the S&P GSCI™.

The S&P GSCI™ is designed as a benchmark for investment in the commodity markets and as a measure of commodity market performance over time. It is also designed as a tradable index that is readily accessible to market participants. In order to accomplish these objectives, the S&P GSCI™ is calculated primarily on a world production-weighted basis and comprises the principal physical commodities that are the subject of active, liquid futures markets. There is no limit on the number of contracts that may be included in the S&P GSCI™; any contract that satisfies the eligibility criteria and the other conditions specified in the methodology are included. This feature enhances the suitability of the S&P GSCI™ as a benchmark for commodity market performance and to reflect general levels of price movements and inflation in the world economy.

In order to reflect the performance of a total return investment in commodities, three separate but related indices have been developed based on the S&P GSCI™ — (1) the S&P GSCI™ Spot Index (referred to as the Price Return Index herein), which is based on price levels of the contracts included in the S&P GSCI™; (2) the S&P GSCI™ Excess Return Index, which incorporates the returns of the S&P GSCI™ Spot Index as well as the discount or premium obtained by "rolling" hypothetical positions in such contracts forward as they approach delivery; and (3) the S&P GSCI™ Total Return Index, which incorporates the returns of the S&P GSCI™ Excess Return Index and interest earned on hypothetical fully collateralized contract positions on the commodities included in the S&P GSCI™. S&P Dow Jones also calculates a number of sub-indices including the GSCI™ Sector Indices and the GSCI™ Component Indices.

S&P Dow Jones Indices calculates and publishes the closing levels of the S&P GSCI™ Price Return, Excess Return and Total Return Indices under the ticker symbols "SPGCCI," "SPGCCIP" and "SPGCCITR," respectively, as well as each of the sub-indices, continuously on each business day.

The S&P GSCI™ Sector Indices

The S&P GSCI™ Agriculture Index

The S&P GSCI™ Agriculture Index is a world production-weighted index of certain agricultural commodities in the world economy and, as of the date hereof, includes futures contracts for Wheat (Chicago and Kansas), Corn, Soybeans, Cotton, Sugar, Coffee and Cocoa. The S&P GSCI™ Agriculture Index excludes all other futures contracts included in the S&P GSCI™. The closing levels of the S&P GSCI™ Agriculture Index Price Return, Excess Return and Total Return are reported by Bloomberg under the ticker symbols “SPGCAG,” “SPGCAGP” and “SPGCAGTR,” respectively.

S&P GSCI™ Energy Index

The S&P GSCI™ Energy Index is a world production-weighted index of certain energy commodities in the world economy and, as of the date hereof, includes futures contracts for WTI Crude Oil, Brent Crude Oil, RBOB Gasoline, Heating Oil, Gas Oil and Natural Gas. The S&P GSCI™ Energy Index excludes all other futures contracts included in the S&P GSCI™. The closing levels of the S&P GSCI™ Energy Index Price Return, Excess Return and Total Return are reported by Bloomberg under the ticker symbols “SPGCEN,” “SPGCENP” and “SPGCENTR,” respectively.

S&P GSCI™ Grains Index

The S&P GSCI™ Grains Index is a world production-weighted index of certain grain commodities in the world economy and, as of the date hereof, includes futures contracts for Wheat (Chicago and Kansas), Corn and Soybeans. The S&P GSCI™ Grains Index excludes all other futures contracts included in the S&P GSCI™. The closing levels of the S&P GSCI™ Grains Index Price Return, Excess Return and Total Return are reported by Bloomberg under the ticker symbols “SPGCGR,” “SPGCGRP.” and “SPGCGRTR,” respectively.

S&P GSCI™ Industrial Metals Index

The S&P GSCI™ Industrial Metals Index is a world production-weighted index of certain industrial metals commodities in the world economy and, as of the date hereof, includes futures contracts for Aluminum, Copper, Lead, Nickel and Zinc. The S&P GSCI™ Industrial Metals Index excludes all other futures contracts included in the S&P GSCI™. The closing levels of the S&P GSCI™ Industrial Metals Index Price Return, Excess Return and Total Return are reported by

Bloomberg under the ticker symbols “SPGCIN,” “SPGCINP” and “SPGCINTR,” respectively.

S&P GSCI™ Livestock Index

The S&P GSCI™ Livestock Index is a world production-weighted index of certain livestock commodities in the world economy and, as of the date hereof, includes futures contracts for Live Cattle, Lean Hogs and Feeder Cattle. The S&P GSCI™ Livestock Index excludes all other futures contracts included in the S&P GSCI™. The closing levels of the S&P GSCI™ Livestock Index Price Return, Excess Return and Total Return are reported by Bloomberg under the ticker symbols “SPGCLV,” “SPGCLVP” and “SPGCLVTR,” respectively.

S&P GSCI™ Non-Energy Index

The S&P GSCI™ Non-Energy Index is a world production-weighted index of certain non-energy commodities in the world economy, and, as of the date hereof, includes futures contracts for all of the commodities included in the S&P GSCI™ except those for WTI crude oil, Brent Crude Oil, RBOB Gasoline, Heating Oil, Gasoil and Natural Gas. The S&P GSCI™ Non-Energy Index includes all other futures contracts included in the S&P GSCI™. The closing levels of the S&P GSCI™ Non-Energy Index Price Return, Excess Return and Total Return are reported by Bloomberg under the ticker symbols “SPGCNE,” “SPGCNEP” and “SPGCNETR,” respectively.

S&P GSCI™ Precious Metals Index

The S&P GSCI™ Precious Metals Index is a world production-weighted index consisting of two precious metals commodities in the world economy and, as of the date hereof, includes futures contracts for Gold and Silver. The S&P GSCI™ Precious Metals Index excludes all other futures contracts included in the S&P GSCI™. The closing levels of the S&P GSCI™ Precious Metals Index Price Return, Excess Return and Total Return are reported by Bloomberg under the ticker symbols “SPGCPM,” “SPGCPMP” and “SPGCPMTR,” respectively.

The S&P GSCI™ Component Indices

S&P GSCI™ Brent Crude Index

The S&P GSCI™ Brent Crude Index is composed entirely of Brent crude oil futures contracts. The S&P GSCI™ Brent Crude Index excludes all other futures contracts included in the S&P GSCI™. The closing levels of the S&P GSCI™ Brent Crude Index Price Return, Excess Return and Total Return are reported by Bloomberg under the ticker symbols "SPGCBR," SPGCBRP" and "SPGCBRTR," respectively.

S&P GSCI™ Copper Index

The S&P GSCI™ Copper Index is composed entirely of copper futures contracts. The S&P GSCI™ Copper Index excludes all other futures contracts included in the S&P GSCI™. The closing levels of the S&P GSCI™ Copper Index Price Return, Excess Return and Total Return are reported by Bloomberg under the ticker symbols "SPGCIC," "SPGCICP" and "SPGCICTR," respectively.

S&P GSCI™ Crude Oil Index

The S&P GSCI™ Crude Oil Index is composed entirely of WTI crude oil futures contracts. The S&P GSCI™ Crude Oil Index excludes all other futures contracts included in the S&P GSCI™. The closing levels of the S&P GSCI™ Crude Oil Index Price Return, Excess Return and Total Return are reported by Bloomberg under the ticker symbols "SPGCCL," "SPGCCLP" and "SPGCCLTR," respectively.

S&P GSCI™ Gold Index

The S&P GSCI™ Gold Index is composed entirely of gold futures contracts. The S&P GSCI™ Gold Index excludes all other futures contracts included in the S&P GSCI™. The closing levels of the S&P GSCI™ Gold Index Price Return, Excess Return and Total Return are reported by Bloomberg under the ticker symbols "SPGCGC," "SPGCGCP" and "SPGCGCTR," respectively.

S&P GSCI™ Natural Gas Index

The S&P GSCI™ Natural Gas Index is composed entirely of natural gas futures contracts. The S&P GSCI™ Natural Gas Index excludes all other futures contracts included in the S&P GSCI™. The closing levels of the S&P GSCI™ Natural Gas Index Price Return, Excess Return and Total Return are reported by Bloomberg under the ticker symbols "SPGCNG," "SPGCNGP" and "SPGCNGTR," respectively.

S&P GSCI™ Palladium Index

The S&P GSCI™ Palladium Index is composed entirely of palladium futures contracts. The S&P GSCI™ Palladium Index excludes all other futures contracts included in the S&P GSCI™. The closing levels of the S&P GSCI™ Palladium Index Price Return, Excess Return and Total Return are reported by Bloomberg under the ticker symbols "SPGCPA," "SPGCPAP" and "SPGCPATR," respectively.

S&P GSCI™ Platinum Index

The S&P GSCI™ Platinum Index is composed entirely of platinum futures contracts. The S&P GSCI™ Platinum Index excludes all other futures contracts included in the S&P GSCI™. The closing levels of the S&P GSCI™ Platinum Index Price Return, Excess Return and Total Return are reported by Bloomberg under the ticker symbols "SPGCPL," "SPGCPLP," and "SPGCPLTR," respectively.

S&P GSCI™ Silver Index

The S&P GSCI™ Silver Index is composed entirely of silver futures contracts. The S&P GSCI™ Silver Index excludes all other futures contracts included in the S&P GSCI™. The closing levels of the S&P GSCI™ Silver Index Price Return, Excess Return and Total Return are reported by Bloomberg under the ticker symbols "SPGCSI," "SPGCSIP" and "SPGCSITR," respectively.

Description of the GSCI™ Indices

Set forth below is a summary of the methodology used to calculate the GSCI™ Indices. The GSCI™ Indices are calculated in the same manner as the S&P GSCI™, except that (i) the daily contract reference price, contract production weights ("**CPW**") and roll weights (each as discussed below) used in such calculations are limited to those of the commodities included in the applicable index and (ii) each index has a separate normalizing constant (discussed below). The methodology for determining the composition and weighting of the GSCI™ Indices and for calculating their value is subject to modification in a manner consistent with the purposes of the GSCI™ Indices, as described below.

The Index Committee and the Index Advisory Panel

S&P Dow Jones has established an index committee (the "**Index Committee**") to oversee the daily management and operations of the S&P GSCI™, and it is responsible for all analytical methods and calculation in the indices. The Index Committee is comprised of full-time professional members of S&P Dow Jones staff. At each meeting, the Index Committee reviews any issues that may affect index constituents, statistics comparing the composition of the indices to the market, commodities that are being considered as candidates for addition to an index and any significant market events. In addition, the Index Committee may revise index policy covering rules for selecting commodities or other matters.

S&P Dow Jones considers information about changes to its indices and related matters to be potentially market moving and material. Therefore, all Index Committee discussions are confidential.

S&P Dow Jones has established a commodity index advisory panel (the "**Panel"**) to assist it in connection with the operation of the S&P GSCI™. The Panel meets on an annual basis and at other times at the request of the Index Committee. The principal purpose of the Panel is to advise the Index Committee with respect to, among other things, the calculation of the S&P GSCI™, the effectiveness of the S&P GSCI™ as a measure of commodity futures market performance and the need for changes in the composition or methodology of the S&P GSCI™. The Panel acts solely in an advisory and consultative capacity; the Index Committee makes all decisions with respect to the composition, calculation and operation of the S&P GSCI™.

Eligibility Criteria

In order to be included in the S&P GSCI™, a contract must:

- be in respect of a physical commodity and not a financial commodity;

- have a specified expiration or term or provide in some other manner for delivery or settlement at a specified time, or within a specified time period, in the future;

- at any given point in time, be available for trading at least five months prior to its expiration or such other date or time period specified for delivery or settlement;

- be traded on a trading facility (as defined below) that allows market participants to execute spread transactions, through a single order entry, between the pairs of contract expirations (defined below) included in the S&P GSCI™ that, at any given point in time, will be involved in the rolls to be effected in the next three roll periods (defined below);

- be denominated in U.S. dollars; and

- be traded on or through an exchange, facility or other platform (referred to as a "trading facility") that has its principal place of business or operations in a country that is a member of the Organization for Economic Cooperation and Development during the relevant annual calculation period or interim calculation period and that:

- makes price quotations generally available to its members or participants (and to S&P Dow Jones) in a manner and with a frequency that is sufficient to provide reasonably reliable indications of the level of the relevant market at any given point in time;

- makes reliable trading volume information available to S&P Dow Jones with at least the frequency required by S&P Dow Jones to make the monthly determinations;

- accepts bids and offers from multiple participants or price providers; and

- is accessible by a sufficiently broad range of participants.

With respect to inclusion in each of the GSCI™ Indices, a contract must be in respect to the physical commodity or commodities that are described by that specific index.

The price of the relevant contract that is used as a reference or benchmark by market participants (referred to as the "daily contract reference price") generally must have been available on a continuous basis for at least two years prior to the proposed date of inclusion in the S&P GSCI™. In appropriate circumstances, however, S&P Dow Jones may determine that a shorter time period is sufficient or that historical daily contract reference prices for such contract may be derived from daily contract reference prices for a similar or related contract.

At and after the time a contract is included in the S&P GSCI™, the daily contract reference price for such contract must be published between 10:00 a.m. and 4:00 p.m., New York City time, on each business day relating to such contract by the trading facility on or through which it is traded and must generally be available to all members of, or participants in, such facility (and to S&P Dow Jones) on the same day from the trading facility or through a recognized third-party data vendor. Such publication must include, at all times, daily contract reference prices for at least one expiration or settlement date that is five months or more from the date the determination is made, as well as for all expiration or settlement dates during such five-month period.

For a contract to be eligible for inclusion in the S&P GSCI™, volume data with respect to such contract must be available for at least the three months immediately preceding the date on which the determination is made. The following eligibility criteria apply:

- A contract that is not included in the S&P GSCI™ at the time of determination and that is based on a commodity that is not represented in the S&P GSCI™ at such time must, in order to be added to the S&P GSCI™ at such time, have an annualized total dollar value traded over the relevant period of at least $15 billion. The annualized total dollar value traded is equal to the total annualized quantity traded in the relevant contract over the period for which the calculation is made, expressed in physical units, multiplied by the average of the daily contract reference prices on the last day of each month during such period.

- A contract that is already included in the S&P GSCI™ at the time of determination and that is the only contract on the relevant commodity included in the S&P GSCI™ must, in order to continue to be included in the S&P GSCI™ after such time, have an annualized total dollar value traded over the relevant period of at least $5 billion and at least $10 billion during at least one of the three most recent annual periods used in making the determination.

- A contract that is not included in the S&P GSCI™ at the time of determination and that is based on a commodity on which there are one or more contracts already included in the S&P GSCI™ at such time must, in order to be added to the S&P GSCI™ at such time, have an annualized total dollar value traded over the relevant period of at least $30 billion.

- A contract that is already included in the S&P GSCI™ at the time of determination and that is based on a commodity on which there are one or more contracts already included in the S&P GSCI™ at such time must, in order to continue to be included in the S&P GSCI™ after such time, have an annualized total dollar value traded over the relevant period of at least $10 billion and at least $20 billion during at least one of the three most recent annual periods used in making the determination.

In addition:

- A contract that is already included in the S&P GSCI™ at the time of determination must, in order to continue to be included after such time, have a reference percentage dollar weight of at least 0.10%. The reference percentage dollar weight is determined by dividing the reference dollar weight of such contract by the sum of the reference dollar weights of all designated contracts. The reference dollar weight of a contract is determined by multiplying the CPW (defined above) of a contract by the average of its daily contract reference prices on the last day of each month during the relevant period. These reference percentage dollar weight amounts are summed for all contracts included in the S&P GSCI™ and each contract's percentage of the total is then determined.

- A contract that is not included in the S&P GSCI™ at the time of determination must, in order to be added to the S&P GSCI™ at such time, have a reference percentage dollar weight of at least 1.0%.

- In the event that two or more contracts on the same commodity satisfy the eligibility criteria, such contracts will be included in the S&P GSCI™ in the order of their respective total quantity traded during the relevant period (determined as the total quantity of the commodity underlying transactions in the relevant contract), with the contract having the highest total quantity traded being included first, except that no further contracts will be included if such inclusion would result in the portion of the S&P GSCI™ attributable to such commodity exceeding a particular level.

- If additional contracts could be included with respect to several commodities at the same time, that procedure is first applied with respect to the commodity that has the smallest portion of the S&P GSCI™ attributable to it at

the time of determination. Subject to the other eligibility criteria relating to the composition of the S&P GSCI™, the contract with the highest total quantity traded on such commodity will be included. Before any additional contracts on the same commodity or on any other commodity are included, the portion of the S&P GSCI™ attributable to all commodities is recalculated. The selection procedure described above is then repeated with respect to the contracts on the commodity that then has the smallest portion of the S&P GSCI™ attributable to it.

The contracts currently included in the S&P GSCI™ are all futures contracts traded on the New York Mercantile Exchange, Inc. ("NYMEX"), ICE Futures ("ICE"), ICE Futures UK ("ICE-UK"), ICE Futures U.S. ("ICE-US"), the Chicago Mercantile Exchange ("CME"), the Chicago Board of Trade ("CBOT"), Kansas City Board of Trade ("KBT"), the Commodities Exchange, Inc. ("COMEX") and the London Metal Exchange ("LME").

Contract Expirations

Because the S&P GSCI™ tracks actively traded contracts with scheduled expirations, it can only be calculated by reference to the prices of contracts for specified expiration, delivery or settlement periods, referred to as "contract expirations." The contract expirations included in the S&P GSCI™ for each commodity during a given year are designated by S&P Dow Jones, *provided* that each such contract must be an "active contract." An "active contract" for this purpose is a liquid, actively traded contract expiration, as defined or identified by the relevant trading facility or, if no such definition or identification is provided by the relevant trading facility, as defined by standard custom and practice in the industry.

If a trading facility deletes one or more contract expirations, the S&P GSCI™ will be calculated during the remainder of the year in which such deletion occurs based on the remaining contract expirations designated by S&P Dow Jones. If a trading facility ceases trading in all contract expirations relating to a particular contract, S&P Dow Jones may designate a replacement contract on the commodity. The replacement contract must satisfy the eligibility criteria for inclusion in the S&P GSCI™. To the extent practicable, the replacement will be effected during the next monthly review of the composition of the S&P GSCI™. If that timing is not practicable, S&P Dow Jones will determine the date of the replacement and will consider a number of factors, including the differences between the existing contract and the replacement contract with respect to contractual specifications and contract expirations.

Value of the S&P GSCI™

The commodity futures contracts included in the S&P GSCI™ change on a monthly basis because the futures contracts included in the S&P GSCI™ at any given time are required to be the commodity futures contracts traded on the related exchange with the closest expiration date (the "first nearby contract"). The S&P GSCI™ incorporates a methodology for rolling the current futures contract into the futures contract with the next closest expiration date (the "roll contract") each month. Assuming that markets are not disrupted or the limitations that regulate the amount of fluctuation in options

futures contract prices that may occur during a trading day have not been reached, the S&P GSCI™ gradually reduces the weighting of the first nearby contract and increases the weighting of the roll contract over a five S&P GSCI™ business day period, so that on the first day of the roll-over the first nearby contract represents 80% and the roll contract represents 20% of the S&P GSCI™, and on the fifth day of the roll-over period the roll contract represents 100% of the S&P GSCI™. An "S&P GSCI™ business day" is a day on which the S&P GSCI™ Indices are calculated, as determined by the NYSE Euronext Holiday & Hours schedule.

The value of the S&P GSCI™ on any given day is equal to the total dollar weight of the S&P GSCI™ divided by a normalizing constant that assures the continuity of the S&P GSCI™ over time. The total dollar weight of the S&P GSCI™ is the sum of the dollar weight of each of the underlying commodities. The dollar weight of each such commodity on any given day is equal to:

- the "daily contract reference price" (as discussed below),
- multiplied by the appropriate CPWs, and
- during a roll period, the appropriate "roll weights" (as discussed above).

The normalizing constant is recalculated on the fourth S&P GSCI™ business day of the calendar month in which new CPWs first become effective (*i.e.*, January or any other month in which a reweighting of the S&P GSCI™ is implemented). The new normalizing constant is equal to the previous normalizing constant multiplied by the "total dollar weight ratio." The numerator of the total dollar weight ratio is the sum of the products obtained by multiplying (a) the new CPW for each underlying commodity *times* (b) the daily contract reference price for such underlying commodity on such day. The denominator of the total dollar weight ratio is the sum of the products obtained by multiplying (a) the previous CPW for each underlying commodity *times* (b) the daily contract reference price for such underlying commodity on such day. The same "rolling" procedure used to roll the first nearby contract into the roll contract, described above, is used to implement the new normalizing constant and the new CPWs.

The daily contract reference price used in calculating the dollar weight of each commodity on any given day is the most recent daily contract reference price made available by the relevant trading facility, except that the daily contract reference price for the most recent prior day will be used if the exchange is closed or otherwise fails to publish a daily contract reference price on that day. In addition, if the trading facility fails to make a daily contract reference price available or publishes a daily contract reference price that, in the reasonable judgment of S&P Dow Jones, reflects manifest error, the relevant calculation will be delayed until the price is made available or corrected; *provided*, that, if the price is not made available or corrected by 4:00 p.m., New York City time, S&P Dow Jones may, if it deems such action to be appropriate under the circumstances, determine the appropriate daily contract reference price for the applicable futures contract in its reasonable judgment for purposes of the relevant S&P GSCI™ calculation.

Contract Daily Return

The contract daily return on any given S&P GSCI™ business day is equal to (a) the "total dollar weight obtained" on such day, divided by (b) the "total dollar weight invested" of the S&P GSCI™ on the preceding day, (c) minus one, which calculation represents the percentage change in the total dollar weight of the S&P GSCI™. The total dollar weight obtained is calculated as the total dollar weight of the S&P GSCI™ for such S&P GSCI™ business day using the CPWs and contract roll weights in effect on the preceding S&P GSCI™ business day and the daily contract reference prices used to calculate the S&P GSCI™ on the S&P GSCI™ business day on which the calculation is made. The total dollar weight invested on any given S&P GSCI™ business day is equal to the total dollar weight of the S&P GSCI™ on the preceding day.

The "roll weight" of each commodity reflects the fact that the positions in contracts must be liquidated or rolled forward into more distant contract expirations as they approach expiration. If actual positions in the relevant markets were rolled forward, the roll would likely need to take place over a period of days. Since the S&P GSCI™ is designed to replicate the performance of actual investments in the underlying contracts, the rolling process incorporated in the S&P GSCI™ also takes place over a period of days at the beginning of each month (referred to as the "roll period"). On each day of the roll period, the "roll weights" of the first nearby contract expiration on a particular commodity and the more distant contract expiration into which it is rolled are adjusted, so that the hypothetical position in the contract on the commodity that is included in the S&P GSCI™ is gradually shifted from the first nearby contract expiration to the more distant contract expiration.

If on any day during a roll period any of the following conditions exists, the portion of the roll that would have taken place on that day is deferred until the next day on which such conditions do not exist:

- no daily contract reference price is available for a given contract expiration;
- any such price represents the maximum or minimum price for such contract month, based on exchange price limits (referred to as a "Limit Price");

- the daily contract reference price published by the relevant trading facility reflects manifest error, or such price is not published by 4:00 p.m., New York City time—in that event, S&P Dow Jones may, but is not required to, determine a daily contract reference price and complete the relevant portion of the roll based on such price; except that if the trading facility publishes a price before the opening of trading on the next day, S&P Dow Jones will revise the portion of the roll accordingly; or

- trading in the relevant contract terminates prior to its scheduled closing time.

If any of these conditions exist throughout the roll period, the roll with respect to the affected contract will be effected in its entirety on the next day on which such conditions no longer exist.

The STOXX Indices

We have derived all information contained in this underlying supplement regarding the EURO STOXX 50® Index, EURO STOXX® Banks Index and STOXX® Europe 600 Index (each, a "**STOXX Index,**" and together the "**STOXX Indices**"), including, without limitation, their make-up, method of calculation and changes in their components, from publicly available information. We have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by STOXX Limited. The EURO STOXX 50® Index, EURO STOXX® Banks Index, and STOXX® Europe 600 Index are calculated, maintained and published by STOXX Limited. STOXX Limited has no obligation to continue to publish, and may discontinue publication of, the STOXX Indices.

The EURO STOXX 50® Index

The EURO STOXX 50 Index (the "**STOXX 50 Index**") was created by STOXX Limited, which is a wholly owned subsidiary of Deutsche Boerse AG. Publication of the STOXX 50 Index began on February 26, 1998, based on an initial index value of 1,000 on December 31, 1991. The STOXX 50 Index is disseminated on the STOXX Limited website.

The STOXX 50 Index 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 STOXX Europe 600® Supersector indices contain the 600 largest stocks traded on the major exchanges of 17 European countries. The 50 stocks currently in the STOXX 50 Index come from 11 Eurozone countries; Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain. The component stocks have a high degree of liquidity and represent the largest companies across all market supersectors. The STOXX 50 Index can be calculated as a price return index, gross return index and net return index.

The composition of the STOXX 50 Index is reviewed annually in September, based on the closing stock data on the last trading day in August. Changes to the component stocks are implemented on the third Friday in September and are effective the following trading day. For each of the 19 EURO STOXX Supersector indices, the stocks are ranked in terms of free-float market capitalization. The largest stocks are added to the selection list until the coverage is close to, but still less than, 60% of the free-float market capitalization of the corresponding EURO STOXX Total Market Indices (TMI) Supersector Index. If the next highest-ranked stock brings the coverage closer to 60% in absolute terms, then it is also added to the selection list. All current EURO STOXX 50® Index stocks are added to the selection list. All the stocks on the selection list are then ranked in terms of free-float market capitalization to produce the final index selection list. The largest 40 stocks on the selection list are selected; the remaining 10 stocks are selected from the largest remaining current stocks ranked between 41 and 60; if the number of stocks selected is still below 50, then the largest remaining stocks are selected until there are 50 stocks.

The free float factors for each component stock used to calculate the STOXX 50 Index, as described below, are reviewed, calculated and implemented on a quarterly basis and are fixed until the next quarterly review. The weighting cap factors are published on Wednesday two trading days prior to quarterly review using Tuesday's closing prices.

The component stocks of the STOXX 50 Index are reviewed on a monthly basis for deletion and quarterly basis for addition. Changes to the composition of the EURO STOXX 50 Index due to corporate actions (including mergers and takeovers, spin-offs, sector changes and bankruptcy) are announced immediately, implemented two trading days later and become effective on the next trading day after implementation.

The component stocks of the EURO STOXX 50 Index are subject to a "fast exit" rule. A component stock is deleted if it ranks 75 or below on the monthly selection list and it ranked 75 or below on the selection list of the previous month. The highest-ranked non-component stock will replace the exiting component stock. The EURO STOXX 50 Index is also subject to a "fast entry" rule. All stocks on the latest selection lists and initial public offering ("**IPO**") stocks are reviewed for a fast-track addition on a quarterly basis. A stock is added if it qualifies for the latest blue-chip selection list generated at the end of February, May, August or November and if it ranks within the lower buffer (between 1 and 25) on the selection list. If added, the stock replaces the smallest component stock.

A deleted stock is replaced immediately to maintain the fixed number of stocks. The replacement is based on the latest monthly selection list. In the case of a merger or takeover where a component stock is involved, the original component stock is replaced by the new component stock. In the case of a spin-off, if the original stock was a component stock, then each spin-off stock qualifies for addition if it lies within the higher buffer on the latest selection list. The largest qualifying spin-off stock replaces the original component stock, while the next qualifying spin-off stock replaces the lowest ranked component stock and likewise for other qualifying spin-off stocks.

The free float factors and outstanding number of shares for each component stock that STOXX Limited uses to calculate the EURO STOXX 50 Index, as described below, are reviewed, calculated and implemented on a quarterly basis and are fixed until the next quarterly review. Certain extraordinary adjustments to the free float factors and/or the number of outstanding shares are implemented and made effective more quickly. The timing depends on the magnitude of the change. Each component's weight is capped at 10% of the EURO STOXX 50 Index's total free float market capitalization. The free float factor reduces the component stock's number of shares to the actual amount available on the market. All holdings that are larger than five percent of the total outstanding number of shares and held on a long-term basis are excluded from the index calculation (including, but not limited to, stock owned by the company itself, stock owned by governments, stock owned by certain individuals or families and restricted shares).

The EURO STOXX 50 Index is reported by Bloomberg L.P. under the ticker symbol "SX5E."

The EURO STOXX® Banks Index

The EURO STOXX® Banks Index (the "**Banks Index**") was created by STOXX Limited. Publication of the STOXX Index began on June 15, 1998, based on an initial index value of 100 on December 31, 1991. The Banks Index is disseminated on the STOXX Limited website.

The Banks Index is derived from the EURO STOXX® Index. The EURO STOXX® Index is composed of the stocks from the STOXX® Europe 600 Index that have been issued by companies from 11 Eurozone countries: Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain. The Banks Index is composed of the EURO STOXX® Index companies in the banking sector. The Banks Index is one of 19 EURO STOXX® Supersector indices that compose the EURO STOXX® Index. The STOXX® Europe 600 Index contains the 600 largest European stocks by free float market capitalization. Each of the 19 EURO STOXX® Supersector indices contain the companies within the EURO STOXX® Index that fall within the relevant supersector, determined by reference to the Industry Classification Benchmark ("**ICB**"), an international system for categorizing companies that is maintained by FTSE International Limited. The Banks Index includes companies in the banks supersector, which tracks companies providing a broad range of financial services, including retail banking, loans and money transmissions. The composition of each of the EURO STOXX® supersector indices is reviewed quarterly, based on the closing stock data on the last trading day of the month following the implementation of the last quarterly index review. The component stocks are announced on the fourth Tuesday of the month immediately prior to the review implementation month. Changes to the component stocks are implemented after the close on the third Friday in each of March, June, September and December and are effective the following trading day.

The Banks Index is also reviewed on an ongoing basis. Corporate actions (including initial public offerings, mergers and takeovers, spin-offs, delistings and bankruptcy) that affect the Banks Index 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.

The Bank Index is reported by Bloomberg L.P. under the ticker symbol "SX7E."

The STOXX® Europe 600 Index

The STOXX® Europe 600 Index contains the 600 largest stocks by free float market capitalization traded on the major exchanges of 17 European countries: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom. The STOXX® Europe 600 Index is a price return index. The STOXX® Europe 600 Index is reported by Bloomberg L.P. under the ticker symbol "SXXP."

In order to be eligible for selection into the STOXX® Europe 600 Index, a company's most liquid stock must have a minimum liquidity of greater than one million euros measured over a 3-month average daily trading volume and is ranked in terms of free float market capitalization. From the list of eligible stocks, the largest 550 stocks qualify for selection. The remaining 50 stocks are selected from the largest remaining current components ranked between 551 and 750. If the number of stocks selected is still below 600, the largest remaining stocks are selected until there are enough stocks.

The composition of the STOXX® Europe 600 Index is reviewed quarterly, based on the closing stock data on the last trading day of the month following the implementation of the last quarterly index review. The component stocks are announced on the fourth Tuesday of the month immediately prior to the review implementation month. Changes to the

component stocks are implemented after the close on the third Friday in each of March, June, September and December and are effective the following trading day. Corporate actions (including initial public offerings, mergers and takeovers, spin-offs, delistings and bankruptcy) that affect the STOXX® Europe 600 Index 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. The free float factors and weighting cap factors for each component stock used to calculate the STOXX® Europe 600 Index are reviewed, calculated and implemented on a quarterly basis and are fixed until the next quarterly review.

Calculation of the STOXX Indices

The STOXX Indices are 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 a STOXX Index value at any time can be expressed as follows:

$$Index = \frac{free\ float\ market\ capitalization\ of\ the\ STOXX\ Index}{Divisor}$$

The "*free float market capitalization of the STOXX Index*" is equal to the sum of the products of the closing price, number of shares, free float factor and weighting cap factor for each component stock as of the time the STOXX Index is being calculated.

The divisor for the STOXX Index is adjusted to maintain the continuity of the STOXX Index values across changes due to corporate actions. The following is a summary of the adjustments to any component stock made for corporate actions and the effect of such adjustment on the divisor, where an index divisor may decrease ( ) or increase (Δ) or keep constant ( ) when corporate actions occur for a component stock. Assuming shareholders receive *"B"* new shares for every *"A"* share held for the following corporate actions:

Divisor	Corporate Action	Adjustment Formula
Ñ	Cash dividend (applied for return index only)	*adjusted price = closing price – dividend announced by company × (1 – withholding tax)*
Ñ	Special Cash dividend (applied for price return index only)	*adjusted price = closing price – dividend announced by company × (1 – withholding tax)*
n	Split and Reverse Split	*adjusted price = closing price × A/B*

new number of shares = old number of shares × B/A

If the subscription price is not available or equal to or greater than the closing price on the day before the effective date, then no adjustment is made. In case the share increase is larger or equal to 100% (B/A ≥ 1) the adjustment of the shares and weight factors are delayed until the new shares are listed.

D Rights Offering

adjusted price = (closing price × A + subscription price × B)/(A + B)

new number of shares = old number of shares × (A + B)/A

adjusted price = closing price × A/(A + B)

n Stock Dividend

new number of shares = old number of shares × (A + B)/A

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Divisor	Corporate Action	Adjustment Formula
		Stock dividends from treasury stocks will be adjusted as cash dividends.
Ñ	Stock Dividend (From Treasury Stock)	If treated as regular cash dividend, only the return indices are adjusted. If treated as extraordinary dividend, the price and the return indices are adjusted.
		adjusted close = close – close x B/(A + B)
Ñ	Stock Dividend of a Different Company Security	*adjusted price = (closing price × A – price of different company security × B)/A*
		adjusted price = [closing price – dividend announced by company × (1 – withholding tax)] × A/B
Ñ	Return of Capital and Share Consolidation	*new number of shares = old number of shares × B/A*
	Repurchase Shares/Self-Tender	*adjusted price = (price before tender × old number of shares) – (tender price × number of tendered shares)* / *new number of shares*
		new number of shares = old number of shares – number of tendered shares
Ñ	Spinoff	*adjusted price = (closing price × A – price of spun-off shares × B)/A*
D	Combination Stock Distribution (Dividend or Split) and Rights Offering	Shareholders receive *B* new shares from the distribution and *C* new shares from the rights offering for every *A* shares held. If *A* is not equal to one, all of the following new number of shares formulas need to be divided by *A*.
		If rights are applicable after stock distribution (one action applicable to other):

adjusted price = $\frac{\text{closing price} \times A + \text{subscription price} \times C \times (1 + B/A)}{(A + B) \times (1 + C/A)}$

new number of shares = old number of shares × [(A + B) × (1 + C/A)]/A

If stock distribution is applicable after rights (one action applicable to other):

adjusted price = $\frac{\text{closing price} \times A + \text{subscription price} \times C}{(A + C) \times (1 + B/A)}$

new number of shares = old number of shares × [(A + C) × (1 + B/A)]

D	Stock Distribution and Rights (not mutually applicable)	*adjusted price = $\frac{\text{closing price} \times A + \text{subscription price} \times C}{A + B + C}$* *new number of shares = old number of shares × (A + B + C)/A*

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The Swiss Market Index

We have derived all information contained in this underlying supplement regarding the Swiss Market Index ("**SMI®**"), including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. We have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by SIX Swiss Exchange Ltd ("**SSE**"). The SMI® is calculated, maintained and published by SSE. SSE has no obligation to continue to publish, and may discontinue publication of, the SMI®.

SMI® is reported by Bloomberg L.P. under the ticker symbol "SMI."

General

The SMI® represents approximately 85% of the free float capitalization of the Swiss equity market. The SMI® comprises the 20 largest and most liquid equities of the Swiss Performance Index® ("**SPI®**"). The SMI® was standardized on June 30, 1988 with an initial baseline value of 1,500 points. The SMI® is updated in real time after each transaction. The shortest interval is one second.

Standards for Admission and Exclusion

The composition of the SMI® is reviewed annually, and in order to ensure a high degree of continuity in the composition of the SMI®, the component stocks are subject to a special procedure for adding them to the SMI® or removing them based on free float market capitalization and liquidity. The resulting adjustments to the index are made regularly once a year.

Admission to and exclusion from the index composition will be made once a year after prior notice of at least two months on the third Friday in September after close of trading. The number of securities and free float shares are adjusted on four ordinary adjustment dates a year: the third Friday in March (after close of trading), the third Friday in June (after close of trading), the third Friday in September (after close of trading) and the third Friday in December (after close of trading).

Calculation of the SMI®

The SMI® is calculated according to the Laspeyres formula with the weighted arithmetic mean of a defined number of securities issues. The index level is calculated by dividing the market capitalizations of all securities included in the index by a divisor:

where t is current day; s is current time on day t; I_s is the current index level at time s; D_t is the divisor on day t; M is the number of issues in index; $p_{i,s}$ is the last-paid price of security i; $x_{i,t}$ is the number of shares of security i on day t; $f_{i,t}$ is the free float for security i on day t; $K_{i,t}$ is the capping factor for security i on day t; and r_s is the current CHF exchange rate at time s.

Free float is calculated on the basis of outstanding shares and is adjusted to take account of current block ownership of 5% or greater. The divisor is recalculated each time the market capitalization changes due to a capital event (e.g., a capital increase or a change in number of shares). The new divisor is calculated on the eve of the effective date of the capital event to prevent the index level from being changed by a capital event. A dividend payment does not lead to any adjustment of the divisor. Capital repayments made instead of dividend payments are, as a rule, treated as normal dividend payments for the index calculation and do not lead to an adjustment of the divisor. However, if the amount of a capital repayment, made instead of a dividend distribution, is larger than the dividend for the previous year, the difference is regarded as a capital event and the divisor is adjusted accordingly.

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The Tokyo Stock Price Index

We have derived all information contained in this underlying supplement regarding the Tokyo Stock Price Index (the "**TOPIX**"), including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. We have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by Tokyo Stock Exchange, Inc. ("**TSE**"). The TOPIX was developed and is calculated, maintained and published by the TSE. The TSE has no obligation to continue to publish, and may discontinue publication of, the TOPIX.

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

General

The TOPIX is a free float-adjusted capitalization weighted index developed by TSE. Publication of the TOPIX began on July 1, 1969, based on a base index value of 100 as of January 4, 1968. The TOPIX is computed and published every second via TSE's Market Information System, and is reported to securities companies across Japan and available worldwide through computerized information networks.

The component stocks of the TOPIX consist of all domestic common stocks listed on the TSE First Section. The TOPIX measures changes in the aggregate market value of these stocks. Japanese stocks admitted to the TSE are assigned to one of the First Section, the Second Section and the Mothers (Market of high-growth and emerging stocks). Stocks listed on the First Section are typically limited to larger, longer established and more actively traded issues, the Second Section to mid-sized companies and the Mothers to high-growth start-up companies. The component stocks of the TOPIX are determined based on market capitalization and liquidity. Review and selection of component stocks is conducted semiannually, based on market data as of the base date for selection.

Standards for Listing and Maintenance

TSE is responsible for maintaining the TOPIX, and can add, delete or substitute the stocks underlying the TOPIX or make other methodological changes that could change the value of the TOPIX Index. The underlying stocks may be removed, if necessary, in accordance with deletion/addition rules which provide generally for the deletion of a stock from the TOPIX if such stock ceases to meet the criteria for inclusion. Stocks listed on the TSE Second Section may be transferred to the First Section if they satisfy applicable criteria. Such criteria include average monthly trading volume, among others. Similarly, when a First Section stock falls within the coverage of TSE rules prescribing reassignment thereof to the Second Section, such stock will be removed from the First Section.

Calculation of the TOPIX

The TOPIX Index is a free float-adjusted market capitalization weighted index, with the market price of each component stock multiplied by the number of shares listed (as adjusted by multiplying the Free Float Weight ("**FFW**") to take into account only the listed shares deemed to be available for trading in the market).

The TOPIX Index is not expressed in Japanese Yen, but is presented in terms of points (as a decimal figure) rounded off to the nearest one-hundredth. The TOPIX Index is calculated by multiplying 100 by the figure obtained by dividing the current free float-adjusted market value (calculated as the aggregate, for each component of the TOPIX Index, of the current market price per share at the time of the index calculation multiplied by the number of common shares listed on the First Section of the TSE at the same instance) (the "**CMV**") by the base market value (i.e., the TOPIX Current Market Value on the base date) (the "**BMV**"). The free float weight is the weight of listed shares deemed to be available for trading in the market

The calculation of the TOPIX Index can be represented by the following formula:

$$Index = \left(\frac{CMV}{BMV} \right) \times 100$$

In order to maintain continuity, the BMV is adjusted from time to time to ensure that it reflects only price movements resulting from reasons other than fluctuations in the stock market such as public offerings or changes in the number of constituents, and to eliminate the effects of other factors and prevent any instantaneous change or discontinuity in the level of the TOPIX. Such factors include, without limitation: new listings; delistings; new share issues either through public offerings or through rights offerings to shareholders; issuance of shares as a consequence of exercise of convertible bonds or warrants and transfer of listed securities from the First Section to the Second Section of the TSE.

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The formula for the adjustment is as follows:

$$\frac{\textit{Adjusted Market Value on Adjustment Date}}{\textit{BMV before Adjustment}} = \frac{\textit{Adjusted Market Value on Adjustment Date} \pm \textit{Adjustment Amount}}{\textit{BMV after Adjustment}}$$

$$\textit{Adjustment Amount} = \textit{Changes in the Number of Shares for Index Calculation} \times \textit{Price Used for Adjustment}$$

Therefore,

$$\textit{New BMV} = \textit{Old BMV} \times \frac{\textit{Adjusted Market Value on Adjustment Date} \pm \textit{Adjustment Amount}}{\textit{Adjusted Market Value on Adjustment Date}}$$

The TOPIX Base Market Value remains at the new value until a further adjustment is necessary as a result of another change. As a result of such change affecting the TOPIX Current Market Value or any stock underlying the TOPIX, the TOPIX Base Market Value is adjusted in such a way that the new value of the TOPIX will equal the level of the TOPIX Index immediately prior to such change. No adjustment is made to the TOPIX Base Market Value, however, in the case of events such as stock splits or decreases in capital without compensation, which theoretically do not affect market value.

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The Tokyo Stock Exchange TOPIX Banks Index

We have derived all information contained in this pricing supplement regarding the Tokyo Stock Exchange TOPIX Banks Index (the "**Topix Banks Index**"), including, without limitation, information concerning its make-up, from publicly available information. We have not participated in the preparation of, or verified, such information. Such information reflects the policies of, and is subject to change by, Tokyo Stock Exchange, Inc. ("**TSE**"). The Topix Banks Index was developed, and is calculated, maintained and published, by TSE. TSE has no obligation to continue to publish, and may discontinue or suspend publication of, the Topix Banks Index at any time.

The Topix Banks Index is reported by Bloomberg L.P. under the ticker symbol "TPNBNK."

General

The TOPIX Banks Index has an initial index value of 1,000 on the base date of January 6, 1992. The TOPIX Banks Index is one of the 33 sector indices that compose the Tokyo Stock Price Index (the "**TOPIX**"). The TOPIX consists of all domestic common stocks listed on the First Section of the Tokyo Stock Exchange and measures changes in the aggregate market value of those stocks. Listings of stock on the First Section of the Tokyo Stock Exchange are typically limited to larger, longer established and more actively traded issues. Each of the TOPIX sector indices contains the companies in the relevant sector as defined by the Securities Identification Code Committee (the "**SICC**"). The TOPIX Banks Index includes companies in the banks sector of the TOPIX.

Exchange Traded Funds

The iShares Exchange Traded Funds

We have derived all information contained in this underlying supplement regarding the iShares® U.S. Financials ETF, the iShares® U.S. Real Estate ETF, iShares® FTSE China Large-Cap ETF, iShares® MSCI Brazil Capped ETF, the iShares® MSCI Emerging Markets ETF and the iShares® MSCI EAFE® ETF (each an "**iShares ETF**," and together, the "**iShares ETFs**"), including, without limitation, their make-up, method of calculation and changes in their components, from publicly available information. We have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by, iShares, Inc. ("**iShares**"), iShares Trust and BlackRock Fund Advisors ("**BFA**"). The iShares ETFs are investment portfolios maintained and managed by iShares. BFA is the investment advisor to the iShares ETFs.

iShares Trust is a registered investment company that consists of numerous separate investment portfolios, including the iShares ETFs. Information provided to or filed with the SEC by iShares Trust pursuant to the Securities Act of 1933 and the Investment Company Act of 1940 can be located by reference to SEC file numbers 033-92935 and 811-09729, respectively, and for iShares®, Inc. 033-97598 and 811-09102 through the SEC's website at http://www.sec.gov. For additional information regarding iShares, BFA and the iShares ETFs, please see each iShares ETFs' prospectus.

iShares® U.S. Financials ETF

The iShares® U.S. Financials ETF seeks to provide investment results that correspond generally to the price and yield performance, before fees and expenses, of the financial and economic sectors of the U.S. equity market, as represented by the Dow Jones U.S. Financials Index. The Dow Jones U.S. Financials Index measures the performance of the financial sector of the U.S. equity market, including companies from the following industries: banks, insurance, real estate and general finance. The index is a subset of the Dow Jones U.S. Index and is capitalization-weighted. Component companies are adjusted for available float and must meet objective criteria for inclusion to the index. Index reconstitution is quarterly.

The iShares® U.S. Financials ETF is an exchange traded fund that trades on the NYSE Arca under the ticker symbol "IYF."

For information about the Dow Jones U.S. Financials Index, see "The S&P Dow Jones Indices" above.

iShares® U.S. Real Estate ETF

The iShares® U.S. Real Estate ETF seeks to provide investment results that correspond generally to the price and yield performance, before fees and expenses, of publicly traded securities in the real estate sector of the U.S equity market, as measured by the Dow Jones U.S. Real Estate Index. The Dow Jones U.S. Real Estate Index measures the performance of the real estate industry of the U.S. equity market, including real estate holding and developing and real estate investment trusts (REITS) subsectors. The index is a subset of the Dow Jones U.S. Index and is capitalization-weighted. Component companies are adjusted for available float and must meet objective criteria for inclusion to the index. Index reconstitution is quarterly.

The iShares® Real Estate ETF is an exchange traded fund that trades on the NYSE Arca under the ticker symbol “IYR.”

For information about the Dow Jones U.S. Real Estate Index, see “The S&P Dow Jones Indices” above.

iShares® China Large-Cap ETF

The iShares® China Large-Cap ETF seeks to provide investment results that correspond generally to the price and yield performance, before fees and expenses, of the FTSE China 50 Index. The FTSE China 50 Index is designed to represent the performance of the largest companies in the China equity market that are available to international investors. The FTSE China 50 Index consists of 50 of the largest and most liquid Chinese companies. Securities in the FTSE China 50 Index are weighted based on the total market value of their shares, so that securities with higher total market values generally have a higher representation in the index. Each security in the FTSE China 50 Index is a current constituent of the FTSE All-World Index. All of the securities in the FTSE China 50 Index trade on the Hong Kong Stock Exchange.

The iShares® China Large-Cap ETF is an exchange traded fund that trades on the NYSE Arca under the ticker symbol "FXI."

For information about the FTSE China 50 Index, see "The FTSE China 50 Index" above.

iShares® MSCI Brazil ETF

The iShares® MSCI Brazil ETF seeks to provide investment results that correspond generally to the price and yield performance, before fees and expenses, of publicly traded securities in the Brazilian market, as measured by the MSCI Brazil 25/50 Index. The MSCI Brazil 25/50 Index seeks to measure the performance of the large- and mid-sized companies in Brazil (of those listed on B3, Brazils largest exchange) and replicates certain investment limits that are imposed on regulated investment companies under the current U.S. Internal Revenue Code by applying a capping methodology that limits the weight of any single issuer to a maximum of 25% of the MSCI Brazil 25/50 Index and limiting the sum of the weights of all issuers representing more than 5% of the MSCI Brazil 25/50 Index to a maximum of 50% of the weight of the MSCI Brazil 25/50 Index in the aggregate. It is a capitalization-weighted index that aims to capture 85% of the free float-adjusted market capitalization in Brazil. Component companies are adjusted for available float and must meet objective criteria for inclusion to the index, taking into consideration unavailable strategic shareholdings and limitations to foreign ownership. MSCI reviews its indices quarterly.

The iShares® MSCI Brazil ETF is an exchange traded fund that trades on the NYSE Arca under the ticker symbol "EWZ."

For information about the MSCI Brazil 25/50 Index, see "The MSCI Indices" above.

iShares® MSCI Emerging Markets ETF

The iShares® MSCI Emerging Markets ETF seeks to provide investment results that correspond generally to the price and yield performance, before fees and expenses, of publicly traded securities in emerging markets, as represented by the MSCI Emerging Markets Index℠. The MSCI Emerging Markets Index℠ was developed by MSCI Inc. as an equity benchmark for emerging market stock performance. It is a capitalization-weighted index that aims to capture 85% of the free float-adjusted market capitalization. Component companies are adjusted for available float and must meet objective criteria for inclusion to the index, taking into consideration unavailable strategic shareholdings and limitations to foreign ownership. MSCI reviews its indices quarterly. The countries included are Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, South Korea, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Russia, Qatar, South Africa, Taiwan, Thailand, Turkey and United Arab Emirates.

The iShares® MSCI Emerging Markets ETF is an exchange traded fund that trades on the NYSE Arca under the ticker symbol "EEM."

For information about the MSCI Emerging Markets Index℠, see "The MSCI Indices" above.

iShares® MSCI EAFE ETF

The iShares® MSCI EAFE ETF seeks to provide investment results that correspond generally to the price and yield performance, before fees and expenses, of publicly traded securities in the European, Australasian and Far Eastern markets, as measured by the MSCI EAFE® Index. The MSCI EAFE® Index has been developed by MSCI Inc. as an equity benchmark for large- and mid-capitalization developed market equities, excluding the U.S. and Canada. It is a capitalization-weighted index that aims to capture 85% of the free float-adjusted market capitalization. Component companies are adjusted for available float and must meet objective criteria for inclusion to the index, taking into consideration unavailable strategic shareholdings and limitations to foreign ownership. MSCI reviews its indices quarterly. The countries represented are Australia, Austria, Belgium, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland and the UK.

The iShares® MSCI EAFE ETF is an exchange traded fund that trades on the NYSE Arca under the ticker symbol "EFA."

For information about the MSCI EAFE® Index, see "The MSCI Indices" above.

iShares® Nasdaq Biotechnology ETF

The iShares® Nasdaq Biotechnology ETF seeks to provide investment results that correspond generally to the total return performance, before fees and expenses, of the NASDAQ Biotechnology Index®, which is composed of biotechnology and pharmaceutical equities listed on the NASDAQ Stock Market. In seeking to track the performance of the NASDAQ Biotechnology Index®, the iShares® Nasdaq Biotechnology ETF employs a sampling strategy, which means that the iShares® Nasdaq Biotechnology ETF is not required to purchase all of the securities represented in the NASDAQ Biotechnology Index®. Instead, the iShares® Nasdaq Biotechnology ETF may purchase a subset of the securities represented in the NASDAQ Biotechnology Index® in an effort to hold a portfolio of securities with generally the same risk and return characteristics of the NASDAQ Biotechnology Index®. Under normal market conditions, the iShares® Nasdaq Biotechnology ETF generally invests substantially all, but at least 90%, of its total assets in the securities composing the NASDAQ Biotechnology Index®.

The iShares® Nasdaq Biotechnology ETF is an exchange traded fund that trades on the NASDAQ Stock Market under the ticker symbol “IBB.”

The NASDAQ Biotechnology Index® is a modified equally-weighted index that consists of stocks listed on the NASDAQ Stock Market classified under the Industry Classification Benchmark (“**ICB**”) as either biotechnology or pharmaceuticals. The companies included in the NASDAQ Biotechnology Index® are also selected on the basis of meeting float-adjusted liquidity ratio and float-adjusted market capitalization requirements. The NASDAQ Biotechnology Index® may include large-, mid- or small-capitalization companies. The NASDAQ Biotechnology Index® is reported by Bloomberg under the ticker symbol “IBB.”

iShares® Russell 2000® ETF

The iShares® Russell 2000® ETF seeks to provide investment results that correspond generally to the price and yield performance, before fees and expenses, of the small capitalization sector of the U.S. equity market as measured by the Russell 2000® Index. The Russell 2000® Index was developed by Russell as an equity benchmark representing the approximately 2,000 smallest companies in the Russell 3000® Index. The Russell 2000® Index represents approximately 8% of the total market capitalization of the Russell 3000® Index. The Russell 3000® Index is composed of the 3,000 largest U.S. companies as determined by market capitalization and represents approximately 98% of the U.S. equity market. Component companies are adjusted for available float and must meet objective criteria for inclusion to the index. Index reconstitution is annual.

The iShares® Russell 2000® ETF is an exchange traded fund that trades on the NYSE Arca under the ticker symbol “IWM.”

For information about the Russell 2000® Index, see “The Russell Indices” above.

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VanEck Vectors ETF Trust

We have derived all information contained in this underlying supplement regarding the VanEck Vectors Oil Services ETF and VanEck Vectors Gold Miners ETF (each a "**VanEck Vectors ETF**," and together, the "**VanEck Vectors ETFs**"), including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. We have not participated in the preparation of, or verified, such available information. Such information reflects the policies of, and is subject to change by, Van Eck Associates Corporation.

The VanEck Vectors ETF Trust is a registered investment company that consists of numerous separate investment portfolios, including the VanEck Vectors ETFs. Information provided to or filed with the SEC by the Market Vectors ETFs pursuant to the Securities Act of 1933, as amended, and the Investment Company Act of 1940, as amended, can be located by reference to the SEC file numbers 333-123257 and 811-10325, respectively, through the SEC's website at http://www.sec.gov. For additional information regarding the VanEck Vectors ETF Trust and the VanEck Vectors ETFs, please see each VanEck Vectors ETF's prospectus.

VanEck Vectors Oil Services ETF

The VanEck Vectors Oil Services ETF seeks to replicate as closely as possible, before fees and expenses, the price and yield performance of the MVIS US Listed Oil Services 25 Index. The MVIS US Listed Oil Services 25 Index (the "**Oil Service Index**") is a rules based index intended to track the overall performance of 25 of the largest U.S. listed, publicly traded oil services companies. The Oil Service Index is comprised of common stocks and depositary receipts of U.S. exchange-listed companies in the oil services sector. Such companies may include foreign companies that are listed on a U.S. exchange. Companies are considered to be in the oil services sector if they derive at least 50% of their revenues from oil services, which include oil equipment, oil services or oil drilling. Of the largest 50 stocks in the oil services sector by full market capitalization, the top 25 by free float market capitalization (e.g., includes only shares that are readily available for trading in the market) and three month average daily trading volume are included in the Oil Services Index.

The VanEck Vectors Oil Services ETF is an exchange traded fund that trades on the NYSE Arca under the ticker symbol "OIH."

VanEck Vectors Gold Miners ETF

The VanEck Vectors® Gold Miners ETF seeks to provide investment results that replicate as closely as possible the price and yield performance, before fees and expenses, of the NYSE Arca Gold Miners Index. The NYSE Arca Gold

Miners Index is a modified market capitalization weighted index primarily composed of publicly traded companies involved in mining for gold and silver. The NYSE Arca Gold Miners Index includes common stocks and depository receipts of selected companies that are involved in mining for gold and silver and that are listed for trading and electronically quoted on a major stock market that is accessible by foreign investors. Only companies with market capitalization greater than $750 million, an average daily trading volume of at least 50,000 shares over the past three months and an average daily value traded of at least $1 million over the past three months are eligible for inclusion in the NYSE Arca Gold Miners Index. For more information about the NYSE Arca Gold Miners Index, see “The NYSE Arca Gold Miners Index” above.

The Market Vectors Gold Miners ETF trades on the NYSE Arca under the ticker symbol “GDX.”

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Invesco QQQ™

We have obtained all information regarding the Invesco QQQ™ ETF (the "**QQQ**") contained in this underlying supplement, including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. We have not participated in the preparation of, or verified, such available information. Such information reflects the policies of, and is subject to change by, Invesco QQQ Trust℠, Series 1 (the "**QQQ Trust**") and Invesco PowerShares Capital Management LLC ("**Invesco**"). Invesco is the sponsor of QQQ.

The QQQ Trust is a unit investment trust designed to generally correspond to the price and yield performance of the Nasdaq-100 Index®. Information filed by the QQQ Trust with the SEC pursuant to the Securities Act of 1933, as amended, and the Investment Company Act of 1940, as amended, can be located by reference to the SEC file numbers 333-61001 and 811-08947, respectively on the SEC's website at http://www.sec.gov. For additional information regarding the QQQ Trust and QQQ, please see QQQ Trust's prospectus.

QQQ is based on the Nasdaq-100 Index®. QQQ will, under most circumstances consist of all the stocks in the Nasdaq-100 Index®. The Nasdaq-100 Index® includes 100 of the largest domestic and international nonfinancial companies listed on the NASDAQ Stock Market based on the market capitalization. QQQ and the Nasdaq-100 Index® are rebalanced quarterly and reconstituted annually.

The QQQ is traded on the NASDAQ Stock Market under the ticker symbol "QQQ".

For information about the Nasdaq®-100 Index, see "The Nasdaq®-100 Index" above.

The Select Sector SPDR Exchange Traded Funds

We have derived all information contained in this underlying supplement regarding the Energy Select Sector SPDR® Fund, the Financials Select Sector SPDR® Fund, the Health Care Select Sector SPDR® Fund, the Materials Select Sector SPDR® Fund and the Technology Select Sector SPDR® Fund (each a "**Select Sector SPDR ETF**," and together, the "**Select Sector SPDR ETFs**"), including, without limitation, their make-up, method of calculation and changes in its components, from publicly available information. We have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by SSgA Funds Management, Inc. ("**SSFM**"). The Select Sector SPDR ETFs are investment portfolios maintained and managed by SSFM. SSFM is the investment advisor to the Select Sector SPDR ETFs.

The Select Sector SPDR® Trust (the "**Trust**") is a registered investment company that consists of nine separate investment portfolios, including the Select Sector SPDR ETFs. Information provided to or filed with the SEC (the "**Commission**") by the Trust pursuant to the Securities Act of 1933 and the Investment Company Act of 1940 can be located by reference to Commission file numbers 333-57791 and 811-08837, respectively, through the Commission's website at http://www.sec.gov. For additional information regarding the Trust, SSFM and the Select Sector SPDR ETFs, please see the Select Sector SPDR ETFs' Prospectus.

The Energy Select Sector SPDR® Fund

The Energy Select Sector SPDR® Fund seeks investment results that correspond generally to the level and yield performance, before fees and expenses, of the Energy Select Sector Index. The Energy Select Sector Index measures the performance of the energy sector of the U.S. equity market. The Energy Select Sector Index includes companies from the following industries: oil, gas, consumable fuels, energy equipment and services.

The Energy Select Sector SPDR® Fund is an exchange traded fund that trades on the NYSE Arca under the ticker symbol "XLE."

For information about the Energy Select Sector Index, see "The S&P Select Sector Indices" above.

The Financials Select Sector SPDR® Fund

The Financials Select Sector SPDR® Fund seeks investment results that correspond generally to the level and yield performance, before fees and expenses, of the Financials Select Sector Index. The Financials Select Sector Index measures the performance of the financial services sector of the U.S. equity market. The Financials Select Sector Index includes companies in the following sub-sectors: diversified financial services, insurance, banks, capital markets, mortgage real estate investment trusts ("**REITs**"), consumer finance, and thrifts and mortgage finance.

The Financials Select Sector SPDR® Fund is an exchange traded fund that trades on the NYSE Arca under the ticker symbol "XLF."

For information about the Financials Select Sector Index, see "The S&P Select Sector Indices" above.

The Health Care Select Sector SPDR® Fund

The Health Care Select Sector SPDR® Fund seeks investment results that correspond generally to the level and yield performance, before fees and expenses, of the Health Care Select Sector Index. The Health Care Select Sector Index measures the performance of the health care sector of the U.S. equity market. The Health Care Select Sector Index includes companies from the following industries: pharmaceuticals, health care providers and services, health care equipment and supplies, biotechnology, life sciences tools and services and health care technology.

The Health Care Select Sector SPDR® Fund is an exchange traded fund that trades on the NYSE Arca under the ticker symbol "XLV."

For information about the Health Care Select Sector Index, see "The S&P Select Sector Indices" above.

The Materials Select Sector SPDR® Fund

The Materials Select Sector SPDR® Fund seeks investment results that correspond generally to the level and yield performance, before fees and expenses, of the Materials Select Sector Index. The Materials Select Sector Index

measures the performance of the materials sector of the U.S. equity market. The Materials Select Sector Index includes companies from the following industries: chemicals, construction materials, containers and packaging, metals and mining and paper and forest products.

The Materials Select Sector SPDR® Fund is an exchange traded fund that trades on the NYSE Arca under the ticker symbol "XLB."

For information about the Materials Select Sector Index, see "The S&P Select Sector Indices" above.

The Technology Select Sector SPDR® Fund

The Technology Select Sector SPDR® Fund seeks investment results that correspond generally to the level and yield performance, before fees and expenses, of The Technology Select Sector Index. The Technology Select Sector Index measures the performance of the technology sector of the U.S. equity market. The Technology Select Sector Index includes companies from the following industries: technology hardware, storage and peripherals; software; diversified telecommunication services; communications equipment; semiconductors and semiconductor equipment; internet software and services; IT services; electronic equipment, instruments and components; and wireless telecommunication services.

The Technology Select Sector SPDR® Fund is an exchange traded fund that trades on the NYSE Arca under the ticker symbol "XLK."

For information about the Materials Select Sector Index, see "The S&P Select Sector Indices" above.

The Select Industry SPDR Exchange Traded Funds

We have derived all information contained in this underlying supplement regarding the SPDR® S&P® Bank ETF, SPDR® S&P® Biotech ETF, The SPDR® S&P® EURO STOXX 50® ETF, SPDR® S&P® Homebuilders ETF, SPDR® S&P® Metals & Mining ETF, SPDR® S&P® Oil & Gas Exploration and Production ETF and the SPDR® S&P Regional Banking ETF (the "**Select Industry SPDR ETFs**"), including, without limitation, their make-up, method of calculation and changes in their respective components, from publicly available information. We have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by SPDR® Series Trust and SSgA Funds Management, Inc. ("**SSFM**"). The Select Industry SPDR ETFs are investment portfolios maintained and managed by SSFM. SSFM is the investment adviser to the Select Industry SPDR ETFs.

SPDR® Series Trust is a registered investment company that consists of numerous separate investment portfolios, including the Select Industry SPDR ETFs. Information provided to or filed with the SEC by SPDR® Series Trust pursuant to the Securities Act of 1933, as amended, and the Investment Company Act of 1940, as amended, can be located by reference to SEC file numbers 333-57793 and 811-08839, respectively, through the SEC's website at http://www.sec.gov. For additional information regarding SPDR® Series Trust, SSFM and the Select Industry SPDR ETFs, please see the SPDR® Series Trust's prospectus.

The SPDR® S&P® Bank ETF

The SPDR® S&P® Bank ETF seeks to provide investment results that correspond generally to the total return performance, before fees and expenses, of the S&P® Banks Select Industry® Index, which represents the performance of the bank sub-industry portion of the S&P® Total Market Index. In seeking to track the performance of the S&P® Banks Select Industry® Index, the SPDR® S&P® Bank ETF employs a sampling strategy, which means that the SPDR® S&P® Bank ETF is not required to purchase all of the securities represented in the S&P® Banks Select Industry® Index. Instead, the SPDR® S&P® Bank ETF may purchase a subset of the securities represented in the S&P® Banks Select Industry® Index in an effort to hold a portfolio of securities with generally the same risk and return characteristics of the S&P® Banks Select Industry® Index. Under normal market conditions, the SPDR® S&P® Bank ETF generally invests substantially all, but at least 80%, of its total assets in the securities composing the S&P® Banks Select Industry® Index.

The SPDR® S&P® Bank ETF is an exchange traded fund that trades on the NYSE Arca under the ticker symbol "KBE."

The S&P® Banks Select Industry® Index is a modified equally-weighted index that is designed to measure the performance of the bank sub-industry portion of the S&P® Total Market Index. The S&P® Total Market Index offers

broad market exposure to companies of all market capitalization, including all common equities listed on the NYSE, NYSE Arca, NYSE American, NASDAQ Global Select Market, NASDAQ Select Market, Investors Exchange (IEX), NASDAQ Capital Market, Bats BZX, Bats BYX, Bats EDGA, or Bats EDGX exchanges. Only U.S. companies are eligible for inclusion in the S&P® Total Market Index. The companies included in the S&P® Banks Select Industry® Index are selected on the basis of being classified under the Global Industry Classification Standard (GICS) as Asset Management & Custody Banks, Diversified Banks, Regional Banks, Other Diversified Financial Services and Thrifts & Mortgage Finance companies as well as meeting float-adjusted liquidity ratio and float-adjusted market capitalization requirements. The S&P® Banks Select Industry® Index is reported by Bloomberg under the ticker symbol "SPSIBK."

The SPDR® S&P® Biotech ETF

The SPDR® S&P® Biotech ETF seeks to provide investment results that correspond generally to the total return performance, before fees and expenses, of the S&P® Biotechnology Select Industry® Index, which represents the biotechnology sector of the U.S. equity market. In seeking to track the performance of the S&P® Biotechnology Select Industry® Index, the SPDR® S&P® Biotech ETF employs a sampling strategy, which means that the SPDR® S&P® Biotech ETF is not required to purchase all of the securities represented in the S&P® Biotechnology Select Industry® Index. Instead, the SPDR® S&P® Biotech ETF may purchase a subset of the securities represented in the S&P® Biotechnology Select Industry® Index in an effort to hold a portfolio of securities with generally the same risk and return characteristics of the S&P® Biotechnology Select Industry® Index. Under normal market conditions, the SPDR® S&P® Biotech ETF generally invests substantially all, but at least 80%, of its total assets in the securities composing the S&P® Biotechnology Select Industry® Index.

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The SPDR® S&P® Biotech ETF is an exchange traded fund that trades on the NYSE Arca under the ticker symbol "XBI."

The S&P® Biotechnology Select Industry® Index is a modified equally-weighted index that is designed to measure the performance of the biotechnology sub-industry portion of the S&P® Total Market Index. The S&P® Total Market Index offers broad market exposure to companies of all market capitalization, including all common equities listed on the NYSE, NYSE Arca, NYSE American, NASDAQ Global Select Market, NASDAQ Select Market, Investors Exchange (IEX), NASDAQ Capital Market, Bats BZX, Bats BYX, Bats EDGA, or Bats EDGX exchanges. Only U.S. companies are eligible for inclusion in the S&P® Total Market Index. The companies included in the S&P® Biotechnology Select Industry® Index are selected on the basis of being classified under the Global Industry Classification Standard (GICS) as Biotechnology companies as well as meeting float-adjusted liquidity ratio and float-adjusted market capitalization requirements. The S&P® Biotechnology Select Industry® Index is reported by Bloomberg under the ticker symbol "SPSIBI."

The SPDR® S&P® EURO STOXX 50® ETF

The SPDR® EURO STOXX 50® ETF seeks to provide investment results that correspond generally to the total return performance, before fees and expenses, of the EURO STOXX 50® Index, which is composed of the stocks of 50 major companies in the Eurozone. In seeking to track the performance of the EURO STOXX 50®Index, the SPDR® EURO STOXX 50® ETF employs a sampling strategy, which means that the SPDR® EURO STOXX 50® ETF is not required to purchase all of the securities represented in the EURO STOXX 50® Index. Instead, the SPDR® EURO STOXX 50® ETF may purchase a subset of the securities represented in the EURO STOXX 50® Index in an effort to hold a portfolio of securities with generally the same risk and return characteristics of the EURO STOXX 50® Index. Under normal market conditions, the SPDR® EURO STOXX 50® ETF generally invests substantially all, but at least 80%, of its total assets in the securities composing the EURO STOXX 50® Index.

The SPDR® S&P® EURO STOXX 50® ETF is an exchange traded fund that trades on the NYSE Arca under the ticker symbol "FEZ."

The EURO STOXX 50® Index is composed of the stocks of 50 major companies in the Eurozone. These companies include market sector leaders from within the 19 EURO STOXX® Supersector indices, which represent the Eurozone portion of the STOXX Europe 600® Supersector indices. The STOXX Europe 600® Supersector indices contain the 600 largest stocks traded on the major exchanges of 18 European countries.

For information concerning the methodology of the EURO STOXX 50® Index, please see "The EURO STOXX 50® Index" above.

The SPDR® S&P® Homebuilders ETF

The SPDR® S&P® Homebuilders ETF seeks to provide investment results that, before fees and expenses, correspond generally to the total return performance of the S&P® Homebuilders Select Industry™ Index, which measures the performance of the homebuilding industry of the U.S. equity market. The companies included in each Select Industry Index are selected on the basis of GICS® and liquidity and market cap requirements from a universe of companies defined by the S&P® Total Market Index, a U.S. total market composite index. The SPDR® S&P® Homebuilders ETF is comprised of the companies in the S&P® Homebuilders Select Industry™ Index and includes companies in the homebuilding sub-industry.

The SPDR® S&P® Homebuilders ETF is an exchange-traded fund that trades on the NYSE Arca under the ticker symbol "XHB". The inception date of the SPDR® S&P® Homebuilders ETF is January 31, 2006. Prior to January 8, 2007 the SPDR® S&P® Homebuilders ETF was known as the SPDR® Homebuilders ETF.

For information about the S&P® Homebuilders Select Industry™ Index, see "The S&P® Homebuilders Select Industry™ Index" above.

The SPDR® S&P® Metals & Mining ETF

The SPDR® S&P® Metals & Mining ETF seeks to provide investment results that correspond generally to the total return performance, before fees and expenses, of the S&P® Metals & Mining Select Industry™ Index (the "**Tracked Index**"), which represents the metals and mining sub-industry portion of the U.S. equity market. The SPDR® S&P® Metals & Mining ETF is comprised of the companies included in the S&P® Metals & Mining Select Industry™ Index and includes

companies in the following sub-industries: aluminum, coal & consumable fuels, copper, diversified metals & mining, gold, precious metals & minerals, silver and steel. The companies included in the S&P® Metals & Mining Select Industry™ Index are selected on the basis of Global Industry Classification Standard and liquidity and market capitalization requirements from a universe of companies defined by the S&P® Total Market Index (the "**S&P TMI**"), a U.S. total market composite index.

The SPDR® S&P® Metals & Mining ETF is an exchange traded fund that trades on the NYSE Arca under the ticker symbol "XME."

For information concerning the methodology of the S&P® Metals & Mining Select Industry™ Index, see "The S&P® Metals & Mining Select Industry™ Index" above.

The SPDR® S&P® Oil & Gas Exploration and Production ETF

The SPDR® S&P® Oil & Gas Exploration and Production ETF seeks to provide investment results that correspond generally to the total return performance, before fees and expenses, of the S&P® Oil & Gas Exploration & Production Select Industry™ Index, which represents the oil and gas exploration and production sub-industry portion of the U.S. equity market. The companies included in each Select Industry Index are selected on the basis of Global Industry Classification Standard and liquidity and market cap requirements from a universe of companies defined by the S&P® Total Market Index. The SPDR® S&P® Oil & Gas Exploration and Production ETF is comprised of the companies in the S&P® Oil & Gas Exploration & Production Select Industry Index and includes companies in the following sub-industries: integrated oil & gas, oil & gas exploration & production, and oil & gas refining & marketing.

The SPDR® S&P® Oil & Gas Exploration and Production ETF is an exchange traded fund that trades on the NYSE Arca under the ticker symbol "XOP."

For information about the S&P® Oil & Gas Exploration & Production Select Industry™ Index, see "The S&P® Oil & Gas Exploration & Production Select Industry™ Index" above.

The SPDR® S&P® Regional Banking ETF

The SPDR® S&P® Regional Banking ETF seeks investment results that, before fees and expenses, correspond generally to the total return performance of the S&P® Regional Banks Select Industry Index. The S&P® Regional Banks Select Industry Index measures the performance of the regional banking segment of the U.S. equity market. The S&P® Regional Banks Select Industry Index is a modified equal-weighted index of geographically diverse companies representing regional banking institutions listed on U.S. stock markets.

The SPDR® S&P® Regional Banking ETF is an exchange traded fund that trades on the NYSE Arca under the ticker symbol "KRE."

For information about the S&P® Regional Banks Select Industry Index, see "The S&P® Regional Banks Select Industry Index."

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The SPDR® S&P 500® ETF Trust

We have derived all information relating to the SPDR® S&P 500® ETF Trust, including, without limitation, its make-up, performance, method of calculation and changes in its components from publicly available sources, and we have not participated in the preparation of, or independently verified, such information. Such information reflects the policies of, and is subject to change by State Street Bank and Trust Company, as trustee ("**SSBTC**"), and PDR Services, LLC, as sponsor.

The SPDR® S&P 500® ETF Trust is a unit investment trust registered under the Investment Company Act of 1940 that is designed to generally correspond, before expenses, to the price and yield performance of the S&P 500® Index. Information provided to or filed with the SEC regarding the SPDR® S&P 500® ETF Trust pursuant to the Securities Act of 1933, as amended, and the Investment Company Act of 1940, as amended, can be located by reference to SEC file numbers 033-46080 and 811-06125, respectively, through the SEC's website at http://www.sec.gov. For additional information regarding SPDR® S&P 500® ETF Trust, SSBTC and PDR Services, LLC, please see the SPDR® S&P 500® ETF Trust's prospectus.

The SPDR® S&P 500® ETF Trust is organized under New York law and is governed by an amended and restated trust agreement between SSBTC and PDR Services, LLC. The SPDR® S&P 500® ETF Trust was created to provide investors with the opportunity to purchase a security representing a proportionate undivided interest in a portfolio of securities consisting of substantially all of the component common stocks, in substantially the same weighting, which comprise the S&P 500® Index. In January 2010, the name of the fund was changed from "Standard and Poor's Depositary Receipts®" to "SPDR® S&P 500® ETF Trust."

The SPDR® S&P 500® ETF Trust's objective is to provide investment results that, before expenses, generally correspond to the price and yield performance of the S&P 500® Index. The SPDR® S&P 500® ETF Trust holds stocks and cash and is not actively managed by traditional methods, which typically involve effecting changes in the holdings of stocks and cash on the basis of judgments made relating to economic, financial and market considerations. To maintain the correspondence between the composition and weightings of the stocks held by the SPDR® S&P 500® ETF Trust and the component stocks of the S&P 500® Index, SSBTC adjusts the holdings of the SPDR® S&P 500® ETF Trust from time to time to conform to periodic changes in the identity and/or relative weightings of the component stocks of the S&P 500® Index. SSBTC aggregates certain of these adjustments and makes changes to the holdings of the SPDR® S&P 500® ETF Trust at least monthly, or more frequently in the case of significant changes to the S&P 500® Index. Any change in the identity or weighting of a component stock will result in a corresponding adjustment to the prescribed holdings of the SPDR® S&P 500® ETF Trust effective on any day that the NYSE is open for business following the day on which the change to the S&P 500® Index takes effect after the close of the market.

The SPDR® S&P 500® ETF Trust is listed on the NYSE Arca under the ticker symbol "SPY."

For information about the S&P 500® Index, see "The S&P 500® Index" above.

The SPDR® S&P MidCap 400® ETF Trust

We have derived all information relating to the SPDR® S&P MidCap 400® ETF Trust, including, without limitation, its make-up, performance, method of calculation and changes in its components from publicly available sources. We have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by The Bank of New York Mellon, formerly The Bank of New York, as trustee ("**BNYM**") and PDR Services, LLC, as sponsor.

The SPDR® S&P MidCap 400® ETF Trust is a unit investment trust registered under the Investment Company Act of 1940 that is designed to generally correspond, before expenses, to the price and yield performance of the S&P MidCap 400® Index. Information provided to or filed with the SEC regarding the SPDR® S&P MidCap 400® ETF Trust pursuant to the Securities Act of 1933, as amended, and the Investment Company Act of 1940, as amended, can be located by reference to SEC file numbers 033−89088 and 811-08972, respectively, through the SEC's website at http://www.sec.gov. For additional information regarding SPDR® S&P MidCap 400® ETF Trust, BNYM and PDR Services, LLC, please see the SPDR® S&P MidCap 400® ETF Trust's prospectus.

The SPDR® S&P MidCap 400® ETF Trust is organized under New York law and is governed by a trust agreement between BNYM and PDR Services, LLC. The SPDR® S&P MidCap 400® ETF Trust was created to provide investors with the opportunity to purchase a unit representing a proportionate undivided ownership interest in a portfolio of securities consisting of substantially all of the common stocks, in substantially the same weighting, which comprise the S&P MidCap® 400 Index.

The SPDR® S&P MidCap 400® ETF Trust holds common stocks (the "**Portfolio**") and cash and is not actively "managed" by traditional methods, which typically involve effecting changes in the Portfolio on the basis of judgments made relating to economic, financial and market considerations. The SPDR® S&P MidCap 400® ETF Trust pursues an indexing strategy of "replication" in attempting to approximate the performance of the S&P MidCap 400® Index. At any time, the SPDR® S&P MidCap 400® ETF Trust will consist of as many underlying index component stocks as practicable. To maintain the correspondence between the composition and weightings of the Portfolio and component stocks of the S&P MidCap 400® Index, BNYM adjusts the Portfolio from time to time to conform to periodic changes in the identity and/or relative weightings of the component stocks of the S&P MidCap 400® Index. BNYM aggregates certain of these adjustments and makes changes to the Portfolio at least monthly, or more frequently in the case of significant changes to the S&P MidCap 400® Index.

The SPDR® S&P MidCap 400® ETF Trust is listed on the NYSE Arca under the ticker symbol "MDY."

For information about the S&P MidCap 400® Index, see "The S&P MidCap 400® Index" above.

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United States Oil Fund, LP

We have derived all information contained in this underlying supplement regarding the United States Oil Fund, LP, including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information, and we have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by, United States Commodity Funds, LLC (formerly known as Victoria Bay Asset Management, LLC) ("**USCF**"). The United States Oil Fund, LP is an investment portfolio managed and controlled by USCF. USCF is a single member limited liability company formed in Delaware on May 10, 2005, that is registered as a commodity pool operator with the Commodity Futures Trading Commission and is a member of the National Futures Association. The General Partner is the investment advisor to the United States Oil Fund, LP.

Information provided to or filed with the SEC by the United States Oil Fund, LP pursuant to the Securities Act of 1933 and the Securities Exchange Act of 1934 can be located by reference to SEC file numbers 333-209362 and 001-32834, respectively, through the SEC's website at http://www.sec.gov. The United States Oil Fund, LP is not a mutual fund or any other type of investment company within the meaning of the Investment Company Act of 1940, as amended, and is not subject to regulation thereunder. For additional information regarding the United States Oil Fund, LP and USCF, please see the United States Oil Fund, LP's prospectus. In addition, information about the United States Oil Fund, LP may be obtained from other sources including, but not limited to, press releases, newspaper articles and other publicly disseminated documents, and we have not participated in the preparation of, or verified, such publicly available information.

The investment objective of the United States Oil Fund, LP is for the daily changes in percentage terms of its units' net asset value to reflect the daily changes in percentage terms of the spot price of light, sweet crude oil delivered to Cushing, Oklahoma, as measured by the changes in the price of the futures contract for light, sweet crude oil traded on the New York Mercantile Exchange (the "**Benchmark Oil Futures Contract**") that is the near month contract to expire, except when the near month contract is within two weeks of expiration, in which case it will be measured by the futures contract that is the next month contract to expire, less the United States Oil Fund, LP's expenses. The United States Oil Fund, LP invests in futures contracts for light, sweet crude oil, other types of crude oil, diesel-heating oil, gasoline, natural gas, and other petroleum-based fuels that are traded on the NYMEX, ICE Futures Europe and ICE Futures U.S. or other U.S. and foreign exchanges (collectively, "**Oil Futures Contracts**") and other oil-related investments such as cash-settled options on Oil Futures Contracts, forward contracts for oil, cleared swap contracts and over-the-counter transactions that are based on the price of oil, other petroleum-based fuels, Oil Futures Contracts and indices based on the foregoing (collectively, "**Other Oil-Related Investments**"). The United States Oil Fund, LP seeks to achieve its investment objective by investing in a combination of Oil Futures Contracts and Other Oil-Related Investments such that daily changes in its per unit net asset value, measured in percentage terms, will closely track the daily changes in the price of the Benchmark Oil Futures Contract, also measured in percentage terms.

The United States Oil Fund, LP trades on the NYSE Arca under the ticker symbol "USO."

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Vanguard FTSE Emerging Markets ETF

We have derived all information contained in this underlying supplement regarding the Vanguard FTSE Emerging Markets ETF, including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. We have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by The Vanguard International Equity Index Funds (the "**Vanguard Trust**") and The Vanguard Group, Inc. ("**VGI**"). The Vanguard FTSE Emerging Markets ETF is an investment portfolio maintained and managed by VGI. VGI is the investment adviser to the Vanguard FTSE Emerging Markets ETF.

The Vanguard Trust is a registered investment company that consists of numerous separate investment portfolios, including the Vanguard FTSE Emerging Markets ETF. Information provided to or filed with the SEC by the Vanguard Trust pursuant to the Securities Act of 1933, as amended, and the Investment Company Act of 1940, as amended, can be located by reference to SEC file numbers 033-32548 and 811-05972, respectively, through the SEC's website at http://www.sec.gov. For additional information regarding the Vanguard Trust, VGI and the Vanguard FTSE Emerging Markets ETF, please see the Vanguard FTSE Emerging Markets ETF's prospectus. In addition, information may be obtained from other sources including, but not limited to, press releases, newspaper articles and other publicly disseminated documents, and we have not participated in the preparation of, or verified, such publicly available information.

The Vanguard FTSE Emerging Markets ETF is an exchange traded fund that trades on the NYSE Arca under the ticker symbol "VWO."

The Vanguard FTSE Emerging Markets ETF seeks to replicate as closely as possible, before fees and expenses, the performance of the FTSE Emerging Markets All Cap China A Inclusion Index (the "**Tracked Index**") that measures the investment return of stocks issued by companies located in emerging market countries. The Vanguard FTSE Emerging Markets ETF employs a sampling approach by holding a broadly diversified collection of securities that, in the aggregate, approximates the Tracked Index in terms of key characteristics. These key characteristics include industry weightings and market capitalization, as well as certain financial measures, such as price/earnings ratio and dividend yield.

The index tracked by the Vanguard FTSE Emerging Markets ETF has changed over time. The Vanguard FTSE Emerging Markets ETF tracked the Select Emerging Markets Index through August 23, 2006; the MSCI Emerging Markets Index through January 9, 2013; the FTSE Emerging Transition Index through June 27, 2013; the FTSE Emerging Markets Index through November 1, 2015 and the FTSE Emerging Markets All Cap China A Transition Index through September 18, 2016. Since September 19, 2016, the Vanguard FTSE Emerging Markets ETF has tracked the Tracked Index.

FTSE Emerging Markets All Cap China A Inclusion Index

All information in this underlying supplement regarding the Tracked Index including, without limitation, its make-up, method of calculation and changes in its components, has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by FTSE Russell. FTSE Russell has no obligation to continue to publish, and may discontinue publication of, the Tracked Index.

The Tracked Index is a market-capitalization weighted index representing the performance of large-, mid- and small-cap companies in emerging markets. The Tracked Index was launched on June 5, 2015, with a base date of December 30, 2005 and a base value of 1,000. The Emerging Markets Index is currently composed of approximately 3,350 securities from 22 different countries.

The Tracked Index applies the same methodology as the FTSE Emerging Markets Index, except that the Tracked Index includes small-capitalization stocks and China A-shares at a weighting equivalent to the aggregate qualified foreign institutional investor ("QFII") and/or Renminbi QFII ("RQFII") approved quota for international investors. China A-shares, which are securities of Chinese-incorporated companies that trade on either the Shanghai or Shenzhen stock exchange, are quoted in Renminbi and can be traded only either by residents of the People's Republic of China or under the QFII or RQFII rules and stock connect schemes. The China A-shares weighting will increase as total QFII and RQFII allocations increase. A built-in mechanism ensures that the allocation of China A-shares is adjusted proportional to the changes in the approved quota and is in line with the accessibility available to international investors. For more information about the FTSE Emerging Markets Index, see "FTSE Emerging Markets Index" below.

FTSE Emerging Markets Index

Eligibility of Countries

On an annual basis, using a range of criteria, FTSE classifies countries into one of four categories: Developed, Advanced Emerging, Secondary Emerging and Frontier. Only the first three are including in FTSE's global indexes. FTSE assesses each country based, among other factors, on the size its market and a quality of markets assessment matrix, which includes the following criteria:

- the World Bank's Gross National Income per capita rating in the immediately preceding year;
- credit worthiness;
- the market and regulatory environment (e.g., whether there are formal stock market regulatory authorities that actively monitor the market, an assessment of whether there is fair and non-prejudicial treatment of minority shareholders and whether there are foreign ownership restrictions);
- custody and settlement framework;
- dealing landscape (e.g., whether there is sufficient competition to ensure high quality broker services, whether there is sufficient broad market liquidity to support sizeable global investment); and
- whether there is a developed derivatives market.

The minimum standards for inclusion increase from Frontier to Secondary Emerging, Secondary Emerging to Advanced Emerging and Advanced Emerging to Developed. A country will be classified under the category with the highest standards which it meets. The Tracked Index will include the equity securities of companies in countries classified as Advanced Emerging and Secondary Emerging.

Once a country has met the required standards, the stocks of companies from such country will be eligible for inclusion. However, for stocks from an eligible country to be included, such eligible country must have a minimum of 3 companies which pass the securities eligibility criteria and screens to be included in the Tracked Index. A country already represented in the Tracked Index will remain while any eligible companies representing the country remain within the Tracked Index. On the deletion of the last constituent company, the country will continue to be eligible, but the country will be immediately removed from the Tracked Index and will only be reconsidered for inclusion if it

meets the minimum requirement of 3 eligible companies.

Security Inclusion Criteria

Ineligible securities include those whose business is that of holding equity and other investments, those of Limited Liability Partnerships, Limited Partnerships, Master Limited Partnerships, Limited Liability Companies and Business Development Company, and a stapled unit if it comprises an eligible security and a non-eligible security, and convertible preference shares and loan stocks until converted. Shares that have been listed but do not form part of a company's current issued share capital, such as treasury shares and shares pending issuance to an employee scheme, will be excluded from the full market capitalization calculation.

Determining Company Nationality

A company will be allocated to a single country. If a company is incorporated in one country and has its sole listing in the same country, the company will be allocated to that country. In all other circumstances, FTSE Russell will base its decisions on an assessment of various factors including, but not necessarily limited to, the following:

- the investor protection regulations present in the country of incorporation;
- the country in which the company is domiciled for tax purposes;
- the location of its factors of production;
- the location of its headquarters;
- the location of company meetings;
- the composition of its shareholder base;
- the membership of its board of directors;

· the currency denomination of the company's shares; and

· the perception of investors.

If a company is incorporated in a country, has a listing in that country and listings in other countries, FTSE Russell will normally assign the company to the country of incorporation. If a company is incorporated in a country, and is listed only in countries other than the country of incorporation, FTSE Russell will normally allocate the company to the country with the greatest liquidity. If a company is incorporated in a country other than a developed country, has no listing in that country and is listed only in one or more developed countries, that company will only be eligible for FTSE Global Equity Index Series inclusion if the country of incorporation is internationally recognized as having a low taxation status that has been approved by FTSE Russell.

Multiple Share Classes

Where there are multiple classes of equity capital in a company, all classes are included and priced separately, provided that: they pass index eligibility screens in their own right. All partly-paid classes of equity are priced on a fully-paid basis if the calls are fixed and are payable at known future dates. Those where future calls are uncertain in either respect are priced on a partly-paid basis.

Adjustments Applied to Eligible Securities

Eligible companies may be subject to adjustment for free float restrictions. Free float restrictions include:

· shares directly owned by state, regional, municipal and local governments (excluding shares held by independently managed pension plans for governments);

· 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;

- all shares where the holder is subject to a lock-in provision (for the duration of that provision);

- shares held by an investor, investment company or an investment fund that is actively participating in the management of a company or is holding shares in a company for strategic reasons as evidenced by specific statements to that effect in publicly available announcements, or has successfully placed a current member to the board of directors of a company; and

- shares that are subject to on-going contractual agreements (such as swaps) where they would ordinarily be treated as restricted.

Initial Weighting. Free float is calculated using available published information rounded to 12 decimal places. Securities with a free float of 5% or below are not eligible for inclusion in the FTSE Emerging Markets Index.

Changes in Free Float. Following the application of an initial free float restriction, a constituent's free float will only be changed if its rounded free float moves to more than 3 percentage points above or below the existing rounded free float. A constituent with a free float of 15% or below will not be subject to the 3 percentage points threshold and will instead be updated if the change is greater than 1%. Where a change is not corporate event driven, the update in free float will be applied after the close of business on the third Friday of March, June, September and December, whichever comes first. Events meeting a minimum level of impact can result in intra-quarter updates.

Foreign Ownership Restrictions. The Tracked Index's methodology takes into account the restrictions placed on the equity holdings of foreigners in a company where they have been imposed by a government, regulatory authority or the company's constitution. Where the presence of a foreign ownership restriction creates a limit on foreign ownership ("**FOL**") that is more restrictive than the calculated free float for a company, the precise FOL is used in place of the free float for the purposes of calculating the company's investability weight.

*Minimum Foreign Headroom Requirement***.** FTSE Russell defines "foreign headroom" as the percentage of shares available to foreign investors as a proportion of the company's FOL. FTSE Russell applies minimum and maximum foreign headroom requirements for constituents to be eligible for inclusion in the index and, in certain circumstances, will also adjust a constituent's investability weight.

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Liquidity of Constituents

Each constituent security will be tested for liquidity semi-annually in March and September by calculation of its median daily trading volume per month. The median trading volume is calculated by ranking each daily trading volume and selecting the middle ranking day if there is an odd number of days and the mean of the middle two if there is an even number of days. Daily totals with zero trades are included in the ranking; therefore, a security that fails to trade for more than half of the days in a month will have a median trade of zero.

An existing constituent which does not turnover at least 0.04% of its shares in issue (after the application of any free float weightings) based on its median daily trading volume per month for at least eight of the twelve months prior to a full market review will be removed from the Tracked Index.

A non-constituent which does not turnover at least 0.05% of its shares in issue (after the application of any free float weightings) based on its median daily trading volume per month for at least ten of the twelve months prior to a full market review will not be eligible for inclusion in the Tracked Index.

New issues which do not have a twelve month trading record must have a minimum three month trading record when reviewed. They must turnover at least 0.05% of their shares in issue (after the application of any free float weightings) based on their median daily trading volume per month in each month on a pro-rata basis since their listing. This rule will not apply to new issues added under the Fast Entry Rule. Newly eligible securities will be treated as new issues and liquidity will be tested from the date of eligibility. Trading records prior to this date will generally not be taken into account.

In assessing liquidity, data will be aggregated from trading volume in the country in which the company is classified by FTSE Russell and from any other trading venues, as approved by FTSE Russell, operating in a similar time zone. If a company fails the liquidly test based on its underlying shares, its Depositary Receipts ("**DRs**") may be considered for inclusion in the Tracked Index if it passes the liquidity test in its own right and is traded on an exchange within the same regional time zone in which the underlying shares are listed. Where a company has both DRs and underlying shares listed, both securities will be tested separately for liquidity. The underlying shares will be included if they pass the liquidity test in their own right. The DRs will only be eligible for inclusion if the underlying shares fail the liquidity test and the DRs pass in their own right. Where the DRs have been included, it will remain in the Tracked Index until such DRs either fail the liquidity test or the underlying shares pass a future liquidity test with greater liquidity than the DRs. In the event that the underlying shares fail the liquidity test and the DRs trade in a different time zone, but pass the test in their own right, the underlying shares will be included as long as the DRs are fully fungible (i.e., the DRs can be converted into underlying shares and the underlying shares can be converted into DRs).

Calculation of the Tracked Index

Actual closing mid-market or last trade prices are used, where available, for constituent securities with local securities exchange quotations. The number of shares outstanding for each constituent security is expressed to the nearest share. To prevent a large number of insignificant weighting changes, the number of shares outstanding for each constituent security is amended only when the total outstanding shares included in 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 performance of the Tracked Index on a given day is determined by calculating the percentage difference between (1) the Tracked Index's market capitalization as at the close of that day and (2) the market capitalization at the start of that day. "Start of the day" is defined as the previous day's close adjusted for capital changes, investability weight changes, additions and deletions.

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License Agreements

We have entered into an agreement with the sponsor of each third-party index described in this underlying supplement, providing us and certain of our affiliates or subsidiaries with a non-exclusive license and, for a fee, with the right to use such index, which is owned and published by the sponsor, in connection with certain securities, including these securities offered by Deutsche Bank AG, London Branch. For the securities linked to a specific index, the general terms of such license agreement are as follows:

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