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To the prospectus dated April 13, 2023 and  
the prospectus supplement dated April 13, 2023

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Dated April 13, 2023  
Rule 424(b)(2)

**JPMORGAN CHASE & CO.**

**Notes Linked to One or More Indices or Funds**

**JPMORGAN CHASE FINANCIAL COMPANY LLC**

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This underlying supplement supplements the terms described in the accompanying product supplement, the prospectus supplement and the prospectus. A separate term sheet or pricing supplement, as the case may be, will describe terms that apply to specific issuances of the notes, including any changes to description of any relevant Index or Fund specified below. These term sheets and pricing supplements are referred to generally in this underlying supplement as terms supplements. If the terms described in the relevant terms supplement are inconsistent with those described in this underlying supplement, any other accompanying underlying supplement, the accompanying product supplement, the prospectus supplement or the prospectus, the terms described in the relevant terms supplement will control. In addition, if this underlying supplement and the accompanying product supplement or another relevant underlying supplement contain information relating to the same Index or Fund to which the notes are linked, the information contained in the document with the most recent date will control.

**Investing in the notes involves a number of risks. See “Risk Factors” beginning on page S-2 of the prospectus supplement, “Risk Factors” in the accompanying product supplement and “Risk Factors” beginning on page US-1 of this underlying supplement.**

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**The notes are not bank deposits, are not insured by the Federal Deposit Insurance Corporation or any other governmental agency, and are not obligations of, or guaranteed by, a bank.**

J.P.Morgan

April 13, 2023

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## EQUITY INDEX DESCRIPTIONS

### THE DOW JONES INDUSTRIAL AVERAGE®

All information contained in this underlying supplement regarding the Dow Jones Industrial Average®, 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, S&P Dow Jones Indices LLC (“**S&P Dow Jones**”). The Dow Jones Industrial Average® is calculated, maintained and published by S&P Dow Jones. S&P Dow Jones has no obligation to continue to publish, and may discontinue the publication of, the Dow Jones Industrial Average®.

The Dow Jones Industrial Average® is reported by Bloomberg L.P. under the ticker symbol “INDU.”

The Dow Jones Industrial Average® is a price-weighted index that seeks to measure of the performance of 30 U.S. blue-chip companies. The Dow Jones Industrial Average® covers all industries with the exception of the transportation industry group and the utilities sector.

#### Calculation of the Dow Jones Industrial Average®

The Dow Jones Industrial Average® is price-weighted rather than market capitalization-weighted, which means that weightings are based only on changes in the stocks’ prices, rather than 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 component stocks included in the Dow Jones Industrial Average® *divided* by a divisor. The divisor used to calculate the price-weighted average of the Dow Jones Industrial Average® is not simply the number of component stocks; rather, the divisor is adjusted to smooth out the effects of price-impacting corporate actions, including price adjustments, special dividends, stock splits and rights offerings. The index divisor will also adjust in the event of an addition to or deletion from the Dow Jones Industrial Average®.

#### Construction and Maintenance of the Dow Jones Industrial Average®

The index universe consists of securities in the S&P 500® Index, excluding stocks classified under Global Industry Classification Standard (GICS®) code 2030 (Transportation) and 55 (Utilities). While stock selection is not governed by quantitative rules, a stock typically is added only if the company has an excellent reputation, demonstrates sustained growth and is of interest to a large number of investors. Since the Dow Jones Industrial Average® is price-weighted, the Averages Committee (as defined below) evaluates stock price when considering a company for inclusion. The Averages Committee monitors whether the highest-priced stock in the Dow Jones Industrial Average® has a price more than 10 times that of the lowest. Maintaining adequate sector representation within the Dow Jones Industrial Average® is also a consideration in the selection process for the Dow Jones Industrial Average®. Companies should be incorporated and headquartered in the United States, and a plurality of revenues should be derived from the United States.

Changes to the Dow Jones Industrial Average® are made on an as-needed basis. There is no annual or semi-annual reconstruction. 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.

*Multiple Share Classes.* Each company in the Dow Jones Industrial Average® is represented once by the primary listing, which is generally the most liquid share line.

*Other Adjustments.* In cases where there is no achievable market price for a stock being deleted, it can be removed at a zero or minimal price at the discretion of the Averages Committee, in recognition of the constraints faced by investors in trading bankrupt or suspended stocks.

The table below summarizes the treatment of certain corporate actions.

Corporate Action	Treatment
<b>Company addition/deletion</b>	<p><u>Addition Only</u></p> <p>A stock is added to the Dow Jones Industrial Average® at a weight determined by the price of the added stock relative to all other index constituents. There is a divisor adjustment.</p> <p><u>Deletion Only</u></p> <p>The weights of all stocks in the Dow Jones Industrial Average® will proportionally change but relative weights will stay the same. The index divisor will change.</p>
<b>Split/reverse split</b>	Stock price is adjusted by the split ratio. Shares outstanding are not adjusted by the split ratio. There is a divisor adjustment.
<b>Spin-off</b>	Any potential impacts on index constituents from a spin-off are evaluated by the Averages Committee on a case by case basis. The price of the parent company is adjusted to the price of the parent company <i>minus</i> (the price of the spun-off company/share exchange ratio). The index divisor adjusts simultaneously.
<b>Ordinary dividend</b>	When a company pays an ordinary cash dividend, the Dow Jones Industrial Average® does not make any adjustments to the price or shares of the stock. As a result, there are no divisor adjustments to the Dow Jones Industrial Average®.
<b>Special dividend</b>	The stock price is adjusted by the amount of the dividend. There is a divisor adjustment.
<b>Rights offering</b>	All rights offerings that are in the money on the ex-date are applied under the assumption the rights are fully subscribed. The stock price is adjusted by the value of the rights. There is a divisor adjustment.

### Governance of the Dow Jones Industrial Average®

The Dow Jones Industrial Average® is maintained by a committee, which is currently composed of three representatives of S&P Dow Jones and two representatives of The Wall Street Journal (the “**Averages Committee**”). The Averages Committee meets regularly. At each meeting, the Averages Committee reviews pending corporate actions that may affect index constituents, statistics comparing the composition of the Dow Jones Industrial Average® to the market, companies that are being considered as candidates for addition to the Dow Jones Industrial Average® and any significant market events. In addition, the Averages Committee may revise index policy covering rules for selecting companies, treatment of dividends, share counts or other matters.

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## THE FTSE® CHINA 50 INDEX

All information contained in this underlying supplement regarding the FTSE® China 50 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**”). The FTSE® China 50 Index is calculated, maintained and published by FTSE. FTSE has no obligation to continue to publish, and may discontinue publication of, the FTSE® China 50 Index.

The FTSE® China 50 Index is designed to represent the performance of the Chinese companies that are listed on the Stock Exchange of Hong Kong Ltd (“**HKSE**”). The FTSE® China 50 Index is reported by Bloomberg L.P. under the ticker symbol “XIN01.”

### 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 Chip” shares and “P Chip” shares), listed and trading on HKSE. “H” shares are securities of companies incorporated in the People’s Republic of China and traded on the HKSE. “Red Chip” shares are securities of companies incorporated outside of the People’s Republic of China that trade on HKSE and that which are substantially owned directly or indirectly by Mainland Chinese state entities with the majority of their revenue or assets derived from Mainland China. “P Chip” shares are securities of companies (other than a Red Chip company) incorporated outside of the People’s Republic of China and traded on HKSE, but are controlled by Mainland Chinese companies and individuals, with the establishment and origins of the companies in Mainland China and with a majority of their revenue or assets derived from Mainland China.

### Eligibility

Currently, only H shares, P Chip shares and Red Chip shares are eligible for inclusion in the FTSE® China 50 Index. Each constituent must also be a constituent of the FTSE All-World Index, a market-capitalization weighted index representing the performance of large- and mid-capitalization developed and emerging markets stocks covering 90-95% of the investable market capitalization globally. Non-constituent P Chip shares whose associated “N” shares are already included in the FTSE All-World Index will be eligible for inclusion in the FTSE® China 50 Index at the next quarterly review after a minimum 3-month trading period, subject to satisfying all other FTSE All-World Index eligibility criteria. “N” shares are securities of companies incorporated inside or outside of the People’s Republic of China and traded on the New York Stock Exchange or The Nasdaq Stock Market, but are controlled by Mainland Chinese companies and individuals, with a majority of their revenue or assets derived from Mainland China.

The following are considered ineligible for inclusion in the FTSE® China 50 Index:

- Companies whose business is that of holding equity and other investments (e.g., investment trusts); and
- limited liability partnerships (LLP), limited partnerships (LP), master limited partnerships (MLP), limited liability companies (LLC) and business development companies (BDC).

Where a stapled unit comprises an eligible security and a non-eligible security (such as non-equity or an investment trust structure), the unit will not be eligible for inclusion.

### Screens Applied to Eligible Securities

Securities are screened based on investability, liquidity and trading history according to the following criteria:

**Investability.** Constituents of the FTSE® China 50 Index are adjusted for free float and foreign ownership limits. Free float is 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. The restrictions placed on the equity holdings of foreigners in a company where these have been imposed by



a government, regulatory authority or the company's constitution are also considered. In addition, FTSE considers company's "foreign headroom," defined as the percentage of shares available to foreign investors as a proportion of the company's foreign ownership limit ("FOL"), i.e. (FOL – foreign holdings)/FOL.

**Liquidity.** Each security will be tested for liquidity semi-annually in March and September by calculation of its monthly median of 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 cut-off 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.

**Trading Screen.** Existing and non-constituent securities, which have not traded on 60 or more trading days during the past year (up to and including the review cut-off date), will not be eligible for index inclusion. Regular/ad-hoc market holidays and unscheduled market closures will not count towards the total; otherwise, the reason(s) for a security's non-trading will not be considered. All standard trading days will be incorporated within the calculation (Friday and Sundays as appropriate). Ad-hoc non-standard trading days will not be incorporated within the calculation. If a security does not have a full year of trading, the 60 day period will be pro-rated according to the number of available trading days passed since its listing. Where a pro-rata calculation is necessary, the number of available trading days on the underlying market during the previous year up to and including the review cut-off date will be used as the basis of the calculation. A security that has been removed from the FTSE® China 50 Index as a result of this screen will only be re-considered for inclusion after a period of 12 months from its deletion. For the purposes of index eligibility, it will be treated as a new issue.

The FTSE® China 50 Index is subject to the oversight of an advisory committee, the "**FTSE Russell Asia Pacific Regional Equity Advisory Committee**." The FTSE Russell Asia Pacific Regional Equity Advisory Committee is responsible for undertaking the periodic review of the FTSE® China 50 Index ground rules and for considering changes of the ground rules.

### Calculation of the FTSE® China 50 Index

The FTSE® China 50 Index is calculated by FTSE using a free float index calculation methodology. The FTSE® China 50 Index is calculated using the following formula:

$$\frac{\sum_{i=1}^N (p_i \times e_i \times s_i \times f_i \times c_i)}{d}$$

where "N" is the number of securities in the FTSE® China 50 Index, "p<sub>i</sub>" is the latest trade price of the component security "i," "e<sub>i</sub>" is the exchange rate required to convert the security's home currency into the FTSE® China 50 Index's base currency, "s<sub>i</sub>" is the number of shares of the security in issue, "f<sub>i</sub>" is the free float factor published by FTSE, to be applied to such security to allow amendments to its weighting, "c<sub>i</sub>" is the capping factor published by FTSE at the most recent quarterly review of the FTSE® China 50 Index, and "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. FTSE excludes from free floating shares: (i) shares held by public companies or by non-listed subsidiaries of public companies; (ii) shares held by directors, senior executives and managers of the company and/or their families, direct relations or affiliated companies; (iii) shares held within employee share plans; (iv) government holdings; (v) shares subject to foreign ownership limits; (vi) shares held by strategic investors; (vii) shares subject to lock-in clauses (for the duration of the lock-up); (viii) shares that are subject to on-going contractual agreements (such as swaps) where they would ordinarily be treated as restricted; (ix) shares that are non-negotiable which are held by companies that have not converted these shares following the A Share reform and (x) non-tradable A Shares subject to a lock-in (until the lock-in expires and the shares are freely tradable on the exchange).

Free float is calculated using available published information rounded up to 12 decimal places. Companies with a free float of 5% or below are excluded from the FTSE® China 50 Index. In June, a constituent's free float will be updated regardless of size. No buffers are applied.

Foreign ownership limits, if any, are applied after calculating the free float restriction. If the foreign ownership limit is more restrictive than the free float restriction, the precise foreign ownership limit is applied. 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 undertaken of the FTSE® China 50 Index. The constituents will be 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. Implementation of any changes takes place at the close of trading on the third Friday in March, June, September and December. A stock's free float is also reviewed and adjusted if necessary following certain corporate events. 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 FTSE® 100 Index is reported by Bloomberg L.P. under the ticker symbol “UKX.”

The FTSE® 100 Index is an index calculated, published and disseminated by FTSE, a wholly owned subsidiary of London Stock Exchange Group plc (the “**LSEG**”). The FTSE® 100 Index measures the composite price performance of the 100 largest companies (determined on the basis of market capitalization) traded on the London Stock Exchange (the “**LSE**”). Publication of the FTSE® 100 Index began in January 1984.

### Composition of the FTSE® 100 Index

The 100 stocks included in the FTSE® 100 Index (the “**FTSE Underlying Stocks**”) were selected from a reference group of stocks of U.K. companies trading on the LSE that were selected by excluding certain stocks that have low liquidity, public float accuracy, and reliability of prices, or size or have limited voting rights by unrestricted shareholders or foreign ownership restrictions. The FTSE Underlying Stocks were selected from this reference group by selecting 100 stocks with the largest market value. Where there are multiple lines of listed 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 company will be considered a U.K. company if it is U.K. incorporated, the company has its sole listing in the United Kingdom and the company has a minimum free float of 10%. If a company is not incorporated in the United Kingdom, the company will be eligible to be considered a U.K. company if it publicly acknowledges adherence to the principles of the UK Corporate Governance Code, pre-emption rights and the UK Takeover Code as far as practicable and it has a minimum free float of 25%. A company will be allocated to a single country.

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. This voting rights screen is applied to any potential new constituent on a quarterly basis, and existing constituents are tested on an annual basis in conjunction with the June review.

The FTSE® 100 Index is overseen and reviewed quarterly by the FTSE Russell Europe, Middle East & Africa Regional Equity Advisory Committee (the “**Index Steering Committee**”) in order to maintain continuity in the level. The Index Steering Committee undertakes the reviews of the FTSE® 100 Index and ensures that constituent changes and index calculations are made in accordance with the ground rules of the FTSE® 100 Index. The FTSE® 100 Index is reviewed on a quarterly basis in March, June, September and December. Each review is based on data from the close of business on the Tuesday before the first Friday of the review month. Any constituent changes are 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 contracts.

The FTSE Underlying Stocks may be replaced, if necessary, in accordance with deletion/addition rules that provide generally for the removal and replacement of a stock from the FTSE® 100 Index if that stock is delisted or its issuer is subject to a takeover offer that has been declared unconditional or it has ceased, in the opinion of the Index Steering Committee, to be a viable component of the FTSE® 100 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® 100 Index. Where a greater number of companies qualify to be inserted in the FTSE® 100 Index than those qualifying to be deleted, the lowest ranking constituents presently included in the FTSE® 100 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 FTSE® 100 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® 100 Index but do not pass the liquidity test are excluded. They will remain ineligible until the next annual review in June when they will be re-tested against all eligibility screens.

### **Calculation of the FTSE® 100 Index**

The FTSE® 100 Index is an arithmetic weighted index where the weights are the market capitalization of each company. The FTSE® 100 Index is calculated by summing the free float-adjusted market values (or capitalizations) of all companies within the FTSE® 100 Index divided by the divisor. On the base date, the divisor is calculated as the sum of the market capitalizations of the index constituents divided by the initial index value of 1,000. The divisor is subsequently adjusted for any capital changes in the index constituents. In order to prevent discontinuities in the FTSE® 100 Index in the event of a corporate action or change in constituents, it is necessary to make an adjustment to the prices used to calculate the FTSE® 100 Index to ensure that the change in the FTSE® 100 Index between two consecutive dates reflects only market movements rather than including change due to the impact of corporate actions or constituent changes. This ensures that the index values remain comparable over time and that changes in the index level properly reflect the change in value of a portfolio of index constituents with weights the same as in the FTSE® 100 Index.

### **Corporate Events Affecting the FTSE® 100 Index**

FTSE applies corporate actions to the FTSE® 100 Index on a daily basis. FTSE has stated as general principles that the treatment of corporate events (a) should reflect how such events are likely to be dealt with in investment portfolios to maintain the portfolio structure in line with the target set out in the index objective and index methodology and (b) should normally be designed to minimize the trading activity required by investors to match the index performance. No assurance can be provided that corporate actions and events will be treated by FTSE in a manner consistent with its statement of general principles.

In addition, FTSE has established guidance for the treatment of corporation actions and events, including, but not limited to, dividends, capital repayments, companies converting to a REIT structure, share buybacks, rights issues, mergers, acquisitions, tender offers, split-offs, spin-offs, bankruptcies, insolvencies, liquidations and trading suspensions. However, because of the complexities involved in some cases, those guidelines are not definitive rules that will determine FTSE's actions in all circumstances. FTSE reserves the right to determine the most appropriate method of implementation for any corporate event which is not covered by those guidelines or which is of a complex nature.

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## THE MSCI INDICES

All information contained in this underlying supplement regarding the MSCI ACWI Index, the MSCI ACWI ex USA Index, the MSCI Brazil Index, the MSCI Canada Index, the MSCI China Index, the MSCI EAFE® Index, the MSCI EAFE® Investable Market Index, the MSCI Emerging Markets Index, the MSCI EMU Index, the MSCI Europe Index, the MSCI Italy<sup>SM</sup>ID Cap Index, the MSCI Japan Index, the MSCI Korea Index, the MSCI Malaysia Index, the MSCI Mexico Investable Market Index, the MSCI Pacific Ex-Japan Index, the MSCI Singapore Free Index, the MSCI South Africa Index, the MSCI Spain<sup>SM</sup>ID Cap Index, the MSCI Taiwan Index, the MSCI Turkey Investable Market Index and the MSCI World Index<sup>SM</sup> (each, an “**MSCI Index**” and collectively, the “**MSCI Indices**”), including, without limitation, their make-up, method of calculation and changes in their components, has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, MSCI Inc. (“**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 MSCI ACWI Index

The MSCI ACWI Index is a free float adjusted market capitalization index that is designed to measure the performance of the large- and mid-cap segments of global emerging markets and certain developed markets. The MSCI ACWI Index currently consists of the following 23 developed market country indices and 24 emerging market country indices: developed market countries include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom and the United States; emerging market countries include Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Kuwait, Malaysia, Mexico, Peru, Philippines, Poland, Qatar, Saudi Arabia, South Africa, Taiwan, Thailand, Turkey and the United Arab Emirates. The MSCI ACWI Index covers approximately 85% of global investable equities. The U.S. dollar price return version of the MSCI ACWI Index is reported by Bloomberg L.P. under the ticker symbol “MXWD.”

### The MSCI ACWI ex USA Index

The MSCI ACWI ex USA Index is a free float adjusted market capitalization index that is designed to measure the equity market performance of the large- and mid-cap segments of global emerging markets and certain developed markets, excluding the United States. The MSCI ACWI ex USA Index currently consists of the following 22 developed market country indices and 24 emerging market country indices: developed market countries include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland and the United Kingdom; emerging market countries include Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Kuwait, Malaysia, Mexico, Peru, Philippines, Poland, Qatar, Saudi Arabia, South Africa, Taiwan, Thailand, Turkey and the United Arab Emirates. The MSCI ACWI ex USA Index covers approximately 85% of global investable equities, excluding the United States. The U.S. dollar price return version of the MSCI ACWI ex USA Index is reported by Bloomberg L.P. under the ticker symbol “MXWDU.”

### The MSCI Brazil Index

The MSCI Brazil Index is a free float-adjusted market capitalization index that is designed to measure the equity market performance of the large- and mid-cap segments of the Brazilian equity market. The MSCI Brazil Index covers approximately 85% of the Brazilian equity universe. The U.S. dollar price return version of the MSCI Brazil Index is reported by Bloomberg L.P. under the ticker symbol “MXBR.”

### The MSCI Canada Index

The MSCI Canada Index is a free float-adjusted market capitalization index that is designed to measure the equity market performance of the large- and mid-cap segments of the Canadian equity market. The MSCI Canada Index covers approximately 85% of the free float-adjusted market



capitalization in Canada. The Canadian dollar price return version of the MSCI Canada Index is reported by Bloomberg, L.P. under the ticker symbol “MXCA.”

### **The MSCI China Index**

The MSCI China Index is a free float-adjusted market capitalization index that is designed to capture large- and mid-cap representation across A-shares, B-shares, H-shares, Red-chips, P-chips and foreign listings (e.g., American depositary receipts). As of June 2018, the MSCI China Index includes A-shares. A-shares are securities of companies incorporated in mainland China that trade on the Shanghai Stock Exchange (the “SSE”) and the Shenzhen Stock Exchange (the “SZSE”), are quoted in local renminbi and entail foreign investment regulations. B-shares are securities of companies incorporated in mainland China that trade on the SSE (quoted in U.S. dollars) and the SZSE (quoted in Hong Kong dollars) and are open to foreign investors. H-shares are securities of companies incorporated in mainland China that trade on the Hong Kong Stock Exchange (the “HKSE”) and other foreign exchanges. Red-chips and P-chips are securities of companies incorporated outside of China that trade on the HKSE. A Red-chip company is a company whose largest shareholder is an organization or enterprise that is owned by the state, provinces, or municipalities of mainland China. A P-chip company is not state-owned, and only P-chips of companies meeting certain thresholds relating to revenue derivation from and asset allocation in mainland China are included in the MSCI China Index. Although the MSCI China Index does include some foreign listings, such securities listed in the United States and resulting from reverse mergers are not eligible for inclusion in the MSCI China Index. In addition, any securities designated with a “special treatment” status by the relevant exchange are excluded from the MSCI China Index. The MSCI China Index covers approximately 85% of the Chinese equity universe set forth above. The Hong Kong dollar price return version of the MSCI China Index is reported by Bloomberg L.P. under the ticker symbol “MXCN.”

### **The MSCI EAFE® Index**

The MSCI EAFE® Index is a free float-adjusted market capitalization index that is designed to measure the equity market performance of the large- and mid-cap segments of certain developed markets, excluding the United States and Canada. 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 EAFE® Investable Market Index**

The MSCI EAFE® Investable Market Index is a free float-adjusted market capitalization index that is designed to measure the equity market performance of the large-, mid- and small-cap segments of certain developed markets, excluding the United States and Canada. The MSCI EAFE® Investable Market 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® Investable Market Index covers approximately 99% of the free float-adjusted market capitalization in each country. The U.S. dollar price return version of the MSCI EAFE® Investable Market Index is reported by Bloomberg L.P. under the ticker symbol “MXEAIM.”

### **The MSCI Emerging Markets Index**

The MSCI Emerging Markets Index is a free float-adjusted market capitalization index that is designed to measure the equity market performance of the large- and mid-cap segments of global emerging markets. The MSCI Emerging Markets Index currently consists of the following 24 emerging market country indices: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Kuwait, Malaysia, Mexico, Peru, Philippines, Poland, Qatar, Saudi Arabia, South Africa, Taiwan, Thailand, Turkey and the United Arab Emirates. As of June 2018, the MSCI Emerging Markets Index includes shares traded on mainland Chinese exchanges, referred to as A-shares. The MSCI

Emerging Markets Index covers approximately 85% of the free float-adjusted market capitalization in each country. The U.S. dollar price return version of the MSCI Emerging Markets Index is reported by Bloomberg L.P. under the ticker symbol “MXEF.”

### **The MSCI EMU Index**

The MSCI EMU Index is a free float-adjusted market capitalization index that is designed to measure the equity market performance of the large- and mid-cap segments of certain developed markets in the European Economic and Monetary Union (the “**EMU**”). The MSCI EMU Index currently consists of the following 10 developed market country indices: Austria, Belgium, Finland, France, Germany, Ireland, Italy, the Netherlands, Portugal and Spain. The MSCI EMU Index covers approximately 85% of the free float-adjusted market capitalization in the EMU. The euro price return version of the MSCI EMU Index is reported by Bloomberg L.P. under the ticker symbol “MXEM.”

### **The MSCI Europe Index**

The MSCI Europe Index is a free float adjusted market capitalization index that is designed to measure the equity market performance of the large- and mid-cap segments of certain developed markets in Europe. 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 in the European developed markets equity universe. The euro price return version of the MSCI Europe Index is reported by Bloomberg L.P. under the ticker symbol “MXEU.”

### **The MSCI Italy SMID Cap Index**

The MSCI Italy SMID Cap Index is a free float-adjusted market capitalization index that is designed to measure the equity market performance of the mid- and small-cap segments in the Italian equity market. The MSCI Italy SMID Cap Index covers approximately 28% of the free float-adjusted market capitalization in Italy. The euro price return version of the MSCI Italy SMID Cap Index is reported by Bloomberg Financial Markets under the ticker symbol “MXITSM.”

### **The MSCI Japan Index**

The MSCI Japan Index is a free float-adjusted market capitalization index that is designed to measure the equity market performance of the large- and mid-cap segments of the Japanese equity market. The MSCI Japan Index covers approximately 85% of the free float-adjusted market capitalization in Japan. The Japanese yen price return version of the MSCI Japan Index is reported by Bloomberg L.P. under the ticker symbol “MXJP.”

### **The MSCI Korea Index**

The MSCI Korea Index is a free float-adjusted market capitalization index that is designed to measure the equity market performance of the large- and mid-cap segments of the South Korean equity market. The MSCI Korea Index covers about 85% of the Korean equity universe. The Korean won price return version of the MSCI Korea Index is reported by Bloomberg L.P. under the ticker symbol “MXKR.”

### **The MSCI Malaysia Index**

The MSCI Malaysia Index is a free float-adjusted market capitalization index that is designed to measure the equity market performance of the large- and mid-cap segments of the Malaysian equity market. The MSCI Malaysia Index covers about 85% of the Malaysian equity universe. The Malaysian ringgit price return version of the MSCI Malaysia Index is reported by Bloomberg L.P. under the ticker symbol “MXMY.”



### **The MSCI Mexico Investable Market Index**

The MSCI Mexico Investable Market Index is a free float-adjusted market capitalization index that is designed to measure the equity market performance of the large-, mid- and small-cap segments of the Mexican equity market. The MSCI Mexico Index covers approximately 99% of the free float-adjusted market capitalization in Mexico. The U.S. dollar price return version of the MSCI Mexico Investable Market Index is reported by Bloomberg L.P. under the ticker symbol “MXMX”.

### **The MSCI Pacific Ex-Japan Index**

The MSCI Pacific Ex-Japan Index is a free float-adjusted market capitalization index that is designed to measure the equity market performance of the large- and mid-cap segments of certain developed markets in the Pacific region, excluding Japan. The MSCI Pacific Ex-Japan Index currently consists of the following 4 developed country indices: Australia, Hong Kong, New Zealand and Singapore. The MSCI Pacific 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 Pacific Ex-Japan Index is reported by Bloomberg L.P. under the ticker symbol “MXAPJ.”

### **The MSCI Singapore Free Index**

The MSCI Singapore Free Index is a free float-adjusted market capitalization index that is designed to measure the equity market performance of the large- and mid-cap segments of the Singaporean equity market and uses “foreign” prices instead of local prices when available. The MSCI Singapore Free Index covers approximately 85% of the free float-adjusted market capitalization in Singapore. The Singapore dollar price return version of the MSCI Singapore Free Index is reported by Bloomberg L.P. under the ticker symbol “SIMSCI.”

### **The MSCI South Africa Index**

The MSCI South Africa Index is a free float-adjusted market capitalization index that is designed to measure the equity market performance of the large- and mid-cap segments of the South African equity market. The MSCI South Africa Index covers approximately 85% of the free float-adjusted market capitalization in South Africa. The South African rand price return version of the MSCI South Africa Index is reported by Bloomberg L.P. under the ticker symbol “MXZA.”

### **The MSCI Spain SMID Cap Index**

The MSCI Spain SMID Cap Index is a free float-adjusted market capitalization index that is designed to measure the equity market performance of the mid- and small-cap segments in the Spanish equity market. The MSCI Spain SMID Cap Index covers approximately 28% of the free float-adjusted market capitalization in Spain. The euro price return version of the MSCI Spain SMID Cap Index is reported by Bloomberg Financial Markets under the ticker symbol “MXESSM.”

### **The MSCI Taiwan Index**

The MSCI Taiwan Index is a free float-adjusted market capitalization index that is designed to measure the equity market performance of the large- and mid-cap segments of the Taiwanese equity market. The MSCI Taiwan Index covers approximately 85% of the free float-adjusted market capitalization in Taiwan. The Taiwan new dollar price return version of the MSCI Taiwan Index is reported by Bloomberg L.P. under the ticker symbol “TAMSCI.”

### **The MSCI Turkey Investable Market Index**

The MSCI Turkey Investable Market Index is a free float-adjusted market capitalization index that is designed to measure the equity market performance of the large-, mid- and small-cap segments of the Turkish equity market. The MSCI Turkey Investable Market Index covers approximately 99% of the free float-adjusted market capitalization in Turkey. The Turkish lira price return version of the MSCI Turkey Investable Market Index is reported by Bloomberg L.P. under the ticker symbol “MXTR.”

## The MSCI World Index<sup>SM</sup>

The MSCI World Index<sup>SM</sup> is a free float-adjusted market capitalization index that is designed to measure the equity market performance of the large- and mid-cap segments of certain developed markets. The MSCI World Index<sup>SM</sup> currently consists of the following 23 developed market country indices: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom and the United States. The MSCI World Index<sup>SM</sup> covers approximately 85% of the free float-adjusted market capitalization in each country. The U.S. dollar price return version of the MSCI World Index<sup>SM</sup> is reported by Bloomberg L.P. under the ticker symbol “MXWO.”

## Constructing the MSCI Global Investable Market Indices

The MSCI Global Investable Market Indices are constructed and maintained at an individual market level. MSCI undertakes an index construction process that, with respect to the MSCI Global Investable Market Indices, involves: (i) defining the equity universe for each market; (ii) determining the market investable equity universe for each market; (iii) determining market capitalization size segments for each market and (iv) applying index continuity rules for the Standard Index (as defined below).

### *Defining the Equity Universe*

- (i) **Identifying Eligible Equity Securities:** All listed equity securities, including REITs and certain income trusts listed in Canada, are eligible for inclusion in the equity universe. Limited partnerships, limited liability companies and business trusts, which are listed in the United States and are not structured to be taxed as limited partnerships, are likewise eligible for inclusion in the equity universe. Conversely, mutual funds, exchange-traded funds, equity derivatives and most investment trusts are not eligible for inclusion in the equity universe. Preferred shares that exhibit characteristics of equity securities are eligible. Stapled securities are considered eligible if each of the underlying components exhibit characteristics of equity securities.
- (ii) **Country Classification of Eligible Securities:** The equity universe initially looks at securities listed in any of the countries in the MSCI global index series, which will be classified as a developed market (“**DM**”), emerging market (“**EM**”) or frontier market. Each company and its securities (*i.e.*, share classes) are classified in one and only one country, which allows for a distinctive sorting of each company by its respective country.

### *Determining the Market Investable Equity Universes*

A market investable equity universe for a market is derived by (i) identifying eligible listings for each security in the equity universe and (ii) applying investability screens to individual companies and securities in the equity universe that are classified in that market. A market is equivalent to a single country, except in DM Europe, where all DM countries in Europe are aggregated into a single market for index construction purposes. Subsequently, individual DM Europe country indices within the MSCI Europe Index are derived from the constituents of the MSCI Europe Index under the Global Investable Market Indices methodology. The global investable equity universe is the aggregation of all market investable equity universes.

- (i) **Identifying Eligible Listings:** A security may have a listing that trades in the country where it is classified (a “**local listing**”) and/or a listing that trades in a different country (a “**foreign listing**”). A security may be represented by either a local listing or a foreign listing (including a depositary receipt) in the global investable equity universe as determined by MSCI.
- (ii) **Applying Investability Screens:** Some of the 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 such, the inclusion or exclusion of one security does not imply the automatic inclusion or exclusion of other securities of the same company.

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

- (a) **Equity Universe Minimum Size Requirement:** This investability screen is applied at the company level. In order to be included in a market investable equity universe, a company must have the required minimum full market capitalization. A company will meet this requirement if its cumulative free float-adjusted market capitalization is within the top 99% of the equity universe sorted in descending order by full market capitalization.
- (b) **Equity Universe Minimum Free Float-Adjusted Market Capitalization Requirement:** This investability screen is applied at the individual security level. To be eligible for inclusion in a market investable equity universe, a security must have a free float-adjusted market capitalization equal to or higher than 50% of the equity universe minimum size requirement.
- (c) **DM and EM Minimum Liquidity Requirement:** This investability screen is applied at the individual security level. To be eligible for inclusion in a market investable equity universe, a security must have adequate liquidity as measured by the annualized traded value ratio (“**ATVR**”) and the frequency of trading. In addition to the ATVR and frequency of trading requirements, securities in the MSCI China equity universe will not be eligible for inclusion in the market investable equity universe if the securities are suspended on the price cutoff date of the index review or have been suspended for 50 consecutive business days or more in the past 12 months.

Only one listing per security may be included in the market investable equity universe. In instances when a security has two or more eligible listings that meet the above liquidity requirements, then the following priority rules are used to determine which listing will be used for potential inclusion of the security in the market investable equity universe: (i) local listing; (ii) foreign listing in the same geographical region and (iii) foreign listing in a different geographical region.

- (d) **Global Minimum Foreign Inclusion Factor Requirement:** This investability screen is applied at the individual security level. To be eligible for inclusion in a market investable equity universe, a security’s foreign inclusion factor (“**FIF**”) must reach a certain threshold. The FIF of a security is defined as the proportion of shares outstanding that is available for purchase in the public equity markets by international investors. This proportion accounts for the available free float of and/or the foreign ownership limits applicable to a specific security (or company). In general, a security must have an FIF equal to or larger than 0.15 to be eligible for inclusion in a market investable equity universe. Exceptions to this general rule are made only in the limited cases where the exclusion of securities of a very large company would compromise the Standard Index’s ability to fully and fairly represent the characteristics of the underlying market.
- (e) **Minimum Length of Trading Requirement:** This investability screen is applied at the individual security level. For an initial public offering (“**IPO**”) to be eligible for inclusion in a market investable equity universe, the new issue must have started trading at least three months before the implementation of a semi-annual index review. This requirement is applicable to small new issues in all markets. Large IPOs and large primary/secondary offerings of non-index constituents are not subject to this requirement and may be included in a market investable equity universe and the Standard Index outside of a quarterly or semi-annual index review.
- (f) **Minimum Foreign Room Requirement:** This investability screen is applied at the individual security level. For a security that is subject to a foreign ownership limit to be eligible for inclusion in a market investable equity universe, the proportion of shares still available to foreign investors relative to the maximum allowed (referred to as “**foreign room**”) must be at least 15%.
- (g) **Financial Reporting Requirement:** This investability screen is applied at the company level. Companies classified as belonging to the United States must file a Form 10-K/10-Q to be eligible for inclusion in the United States investable equity universe.

### *Defining Market Capitalization Size Segments for Each Market*

Once a market investable equity universe is defined, it is segmented into the following size-based indices (each, a “**Size Segment Index**”), with the following free float-adjusted market capitalization market coverage target ranges:

- (i) Investable Market Index (Large + Mid + Small): 99%+1% or -0.5%
- (ii) Standard Index (Large + Mid): 85% ± 5%
- (iii) Large Cap Index: 70% ± 5%
- (iv) Mid Cap Index: The Mid Cap Index market coverage in each market is derived as the difference between the market coverage of the Standard Index and the Large Cap Index in that market.
- (v) Small Cap Index: The Small Cap Index market coverage in each market is derived as the difference between the free float-adjusted market capitalization coverage of the Investable Market Index and the Standard Index in that market.

Additional size segment investability requirements are set for the Investable Market and the Standard Indices. For instance, securities that exhibit extreme price increase will not be eligible for addition into the Standard Index but will continue to be considered as part of the market investable equity universe. These securities will be re-evaluated for Standard Index inclusion at the subsequent index review using Standard Index inclusion criteria, including the applicable return-based thresholds for extreme price increase. MSCI will evaluate the 5-day to 60-day excess returns, in increments of 5 days, as of the price cutoff date of the index review, for additions to the Standard Indices. Excess return is calculated as the difference between the return of a security for the relevant period and the average return of Investable Market Index constituents belonging to the same country-sector where the security is classified (in terms of country of classification and GICS® classification at the sector level). For country-sectors that have five or fewer Investable Market Index constituents, the relevant country Investable Market Index return is used instead. IPOs that do not meet the minimum length of trading requirement but meet all other criteria for Standard Index inclusion are not subject to this requirement.

### *Index Continuity Rules for the Standard Indices*

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 DM Standard Index and a minimum number of three constituents will be maintained for an EM Standard Index.

If, after the application of the index construction methodology, a Standard Index contains fewer than five securities in a DM or three securities in an EM, then the largest securities by free float-adjusted market capitalization among the securities included in the market investable equity universe are added to the Standard Index in order to reach five constituents in that DM or three in that EM. At subsequent index reviews, if, after the application of the index maintenance methodology, a Standard Index contains fewer than five securities in a DM or three securities in an EM, then the remaining securities are selected for inclusion by ranking those securities by descending free float-adjusted market capitalization and multiplying the free float-adjusted market capitalization of such securities by a factor of 1.5.

### *Constructing and Calculating the Individual 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 Size Segment Index is determined. The MSCI Investable Market Indices are composed of the MSCI Standard Indices and the MSCI Small Cap Indices. The MSCI Standard Indices are further subdivided into the MSCI Large Cap and the MSCI Mid Cap 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.

## Maintenance of the MSCI Global Investable Market Indices

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

In particular, index maintenance involves semi-annual index reviews in May and November of the Size Segment and Global Value and Growth Indices and quarterly index reviews in February and August of the Size Segment Indices. Semi-annual index reviews include updating the indices on the basis of a fully refreshed equity universe; taking buffer rules into consideration for migration of securities across size and style segments; and updating FIFs and number of shares ("**NOS**"). Quarterly index reviews include adding significant new eligible securities (such as IPOs that were not eligible for earlier inclusion) in the index; allowing for significant moves of companies within the Size Segment Indices, using wider buffers than in the semi-annual index reviews; and reflecting the impact of significant market events on FIFs and updating NOS.

In addition, ongoing event-related changes to the indices are made as 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 generally are reflected in the indices at the time of the event. Significantly large IPOs are included in the indices after the close of the company's tenth day of trading.

## Index Calculation

The MSCI Indices are calculated using the Laspeyres' concept of a weighted arithmetic average together with the concept of chain-linking. As a general principle, today's index level is obtained by applying the change in the market performance to the previous period index level.

## Treatment of Investment Sanctions Related to U.S. Executive Order 13959

The U.S. Executive Order 13959 dated November 12, 2020 which prohibits transactions by U.S. persons in certain Chinese companies (the "**Order**"), along with clarification from the Office of Foreign Assets Control ("**OFAC**"), results in the deletion from/non-inclusion in the MSCI Global Investable Market Indices of relevant impacted securities.

On January 5, 8 and 26, 2021, MSCI deleted securities impacted by the Order from the MSCI Global Investable Market Indices. Following the amendment of the Order on June 3, 2021, OFAC has published the Non-SDN Chinese Military-Industrial Complex Companies List (the "**NS-CMIC List**") and related security tickers. MSCI deleted the securities included in OFAC's NS-CMIC List from the MSCI Global Investable Market Indices as of the close of July 26, 2021.

MSCI continues to monitor for updates to the NS-CMIC List and related security tickers impacted by the Order. Furthermore, securities that are not included in the NS-CMIC List but belong to the same issuer as a security already included in the NS-CMIC List will also be considered impacted by the Order.

Securities impacted by the Order are considered to be ineligible for inclusion in the MSCI Global Investable Market Indices. Securities that are impacted by the Order that are assigned to a size segment will have an adjustment factor of 0 applied and hence will not be included in the relevant Size Segment Indices. Existing index constituents impacted by the Order will be deleted from the MSCI Global Investable Market Indices. At the time of their deletion from the MSCI Global Investable Market Indices, the securities will be retained in their existing size segment and will continue to be included in the market investable equity universe.

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## THE MSCI 25/50 INDICES

All information contained in this underlying supplement regarding the MSCI Brazil 25/50 Index, the MSCI Korea 25/50 Index, the MSCI Mexico Investable Market (IMI) 25/50 Index and the MSCI Taiwan 25/50 Index (each, an **“MSCI 25/50 Index”** and collectively, the **“MSCI 25/50 Indices”**), including, without limitation, their make-up, method of calculation and changes in their components, has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, MSCI Inc. (**“MSCI”**). The MSCI 25/50 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 25/50 Indices.

Each of the MSCI Brazil 25/50 Index, the MSCI Korea 25/50 Index, the MSCI Mexico Investable Market (IMI) 25/50 Index and the MSCI Taiwan 25/50 Index is an index created by applying the weight constraints described below to its parent index, the MSCI Brazil Index, the MSCI Korea Index, the MSCI Mexico Investable Market Index and the MSCI Taiwan Index (each, an **“MSCI Index”** and collectively, the **“MSCI Indices”**), respectively. For additional information about the MSCI Indices, please see “Equity Index Descriptions — The MSCI Indices” in this underlying supplement.

### The MSCI Brazil 25/50 Index

The MSCI Brazil 25/50 Index is designed to measure the performance of the large- and mid-cap segments of the Brazilian equity market. It applies certain investment limits that are imposed on regulated investment companies (**“RICs”**) under the current U.S. Internal Revenue Code. The MSCI Brazil 25/50 Index covers approximately 85% of the free float-adjusted market capitalization in Brazil. The MSCI Brazil 25/50 Index is an index created by applying the weight constraints described below to the MSCI Brazil Index. The U.S. dollar price return version of the MSCI Brazil 25/50 Index is reported by Bloomberg L.P. under the ticker symbol “MXBR2550.”

### The MSCI Korea 25/50 Index

The MSCI Korea 25/50 Index is designed to measure the performance of the large- and mid-capitalization segments of the Korean equity market. It applies certain investment limits that are imposed on RICs under the current U.S. Internal Revenue Code. The MSCI Korea 25/50 Index covers approximately 85% of the free float-adjusted market capitalization in Korea. The MSCI Korea 25/50 Index is an index created by applying the weight constraints described below to the MSCI Korea Index. The U.S. dollar price return version of the MSCI Korea 25/50 Index is reported by Bloomberg L.P. under the ticker symbol “MXKR2550.”

### The MSCI Mexico IMI 25/50 Index

The MSCI Mexico IMI 25/50 Index is designed to measure the performance of the large-, mid- and small-cap segments of the Mexican equity market. It applies certain investment limits that are imposed on RICs under the current U.S. Internal Revenue Code. The MSCI Mexico IMI 25/50 Index covers approximately 99% of the free float-adjusted market capitalization in Mexico. The MSCI Mexico IMI 25/50 Index is an index created by applying the weight constraints described below to the MSCI Mexico Investable Market Index. The U.S. dollar price return version of the MSCI Mexico IMI 25/50 Index is reported by Bloomberg L.P. under the ticker symbol “MXMX5IM.”

### The MSCI Taiwan 25/50 Index

The MSCI Taiwan 25/50 Index is designed to measure the performance of the large- and mid-capitalization segments of the Taiwanese equity market. It applies certain investment limits that are imposed on RICs under the current U.S. Internal Revenue Code. The MSCI Taiwan 25/50 Index covers approximately 85% of the free float-adjusted market capitalization in Taiwan. The MSCI Taiwan 25/50 Index covers approximately 85% of the free float-adjusted market capitalization in Taiwan. The MSCI Taiwan 25/50 Index is an index created by applying the weight constraints described below to the MSCI Taiwan Index. The U.S. dollar price return version of the MSCI Taiwan 25/50 Index is reported by Bloomberg L.P. under the ticker “MXCXBICR.”



## Objectives and Guiding Principles Underlying the MSCI 25/50 Indices

Under current regulations, a fund needs to satisfy certain tests, such as those relating to asset diversification and sources of income, for qualification as a RIC. More specifically, one requirement of a RIC is that, at the end of each quarter of a RIC's tax year, no more than 25% of the value of the RIC's assets may be invested in a single issuer and the sum of the weights of all issuers representing more than 5% of the fund should not exceed 50% of the fund's total assets. The MSCI 25/50 Indices take into account these investment limits, aiming to offer a benchmarking alternative for RIC-compliant funds.

The following principles have guided MSCI in designing a methodology for constructing the MSCI 25/50 Indices from underlying non-constrained indices.

*Reflecting the 25% and 50% concentration constraints.* Reflecting the 25% and 50% concentration constraints is the primary consideration in terms of both index construction and index maintenance. Ensuring timely and on-going reflection of the constraints requires an MSCI 25/50 Index to be rebalanced periodically. The MSCI 25/50 Indices are rebalanced in February, May, August and November.

*Minimizing tracking error to the parent index.* Minimizing the tracking error between an MSCI 25/50 Index and the relevant parent index, while keeping the index turnover to a reasonable level, is another important objective. MSCI seeks to achieve this by rebalancing each MSCI 25/50 Index using an optimization process that aims to minimize the constituent weight differences between that MSCI 25/50 Index and the relevant parent index.

## Construction and Maintenance of the MSCI 25/50 Indices

### *Constructing and Rebalancing the MSCI 25/50 Indices*

The MSCI 25/50 Indices methodology follows a portfolio optimization framework. The “**Barra Optimizer**” is utilized to perform the optimization function, which is aimed at minimizing index turnover, tracking error and extreme deviation from the relevant parent index. The Barra Optimizer is an algorithm designed to facilitate the portfolio construction process.

*Constraint targets.* Each MSCI 25/50 Index is subject to the following constraints:

- no issuer may exceed 25% of index weight; and
- all issuers with weight above 5% may not exceed 50% of the index weight.

*Minimizing tracking error from the relevant parent index.* The MSCI 25/50 Indices methodology aims at minimizing the tracking error from the relevant pro forma parent index. The tracking error of an MSCI 25/50 Index versus the relevant parent index is measured as the sum of the squared weight differences between the constituent weights of that MSCI 25/50 Index and the relevant parent index.

*Minimizing transaction cost.* A transaction cost is applied as a proxy for index turnover on rebalancing from the current MSCI 25/50 Index to the relevant pro forma MSCI 25/50 Index.

*Minimum weight of constituents.* The minimum weight of any MSCI 25/50 Index constituent is equal to the weight of the smallest constituent in the relevant pro forma parent index.

*Maximum weight of constituents.* In order to avoid excess weight allocation to the smaller securities relative to their market cap weight, the maximum weight of any MSCI 25/50 Index constituent is capped at four times its weight in the relevant pro forma parent index. The constraint is relaxed in steps of one in case of infeasibilities. For certain narrow parent indices, the standard maximum weight constraint parameters might lead to an infeasible solution. In such cases, MSCI may apply relaxed constraints relative to the standard set of constraints.

### *Buffer Rules*

A buffer of 10% of the value of each constraint is used in order to reduce the risk of non-compliance due to short-term market movements between two quarterly rebalancings. As a result, at the point of constructing or rebalancing an MSCI 25/50 Index, the weight of any single issuer cannot exceed 22.5% of the index weight and all issuers with weight above 4.5% cannot exceed 45% of the index weight.

### *Maintenance Rules*

*Quarterly index reviews.* The MSCI 25/50 Indices are rebalanced quarterly and the changes resulting from the rebalancing are made as of the close of the last business day of each February, May, August and November, to coincide with the quarterly index reviews of their parent indices.

The MSCI 25/50 Indices are in general rebalanced nine business days before the effective date. The changes resulting from the rebalancing are announced on the same day.

In case a pro forma MSCI 25/50 Index violates the 25/50 constraints between the announcement date and the effective date, the previously announced results will be discarded and a newly rebalanced MSCI 25/50 Index will be announced.

There is no index rebalancing due to non-compliance between quarterly index reviews.

At each rebalancing, a constraint factor is calculated for each constituent of an MSCI 25/50 Index. The constraint factor is defined as the weight in the relevant MSCI 25/50 Index at the time of the rebalancing divided by the weight in the relevant parent index. The constraint factor as well as the constituents of the relevant MSCI 25/50 Index remain constant between index reviews except in case of corporate events.

*Ongoing Event Related Changes.* A security added to a parent index following a corporate event is added to the relevant MSCI 25/50 Index with an estimated capped weight, without rebalancing of that MSCI 25/50 Index.

In the event of a merger or an acquisition where an index constituent acquires another index constituent or merges with another index constituent, the remaining company is maintained in the relevant MSCI 25/50 Index with a constraint factor calculated as the weighted average of the constraint factors before the corporate event.

If a spun-off security of an index constituent is added to a parent index, it will be added to the relevant MSCI 25/50 Index with the same constraint factor as the parent security.

The deletion of a constituent from a parent index following a corporate event triggers its deletion from the relevant MSCI 25/50 Index without rebalancing of that MSCI 25/50 Index.

The addition of a newly eligible security in a parent index — for example, an early inclusion of a large initial public offering, or a security migrating to that parent index from another size segment — will result in the inclusion of that security in the relevant MSCI 25/50 Index and consequently trigger the full rebalancing of that MSCI 25/50 Index.

### *Issuer Concentration Issues*

A minimum of 15 issuers in the relevant parent index is required at any point in time for the relevant MSCI 25/50 Index to be rebalanced as described above. In the event the number of issuers drops below 15 but remains above 11 following a corporate event or a regular index review, MSCI will apply the following adjustments:

- Number of issuers drops to 14: the buffer mentioned above will be reduced from 10% to 9%. Thus, the weight of any single issuer cannot exceed 22.75% of the index weight and all issuers with weight above 4.55% cannot exceed 45.5% of the index weight.

- Number of issuers drops to 13: the buffer mentioned above will be reduced from 10% to 4%. Thus, the weight of any single issuer cannot exceed 24% of the index weight and all issuers with weight above 4.8% cannot exceed 48% of the index weight.
- Number of issuers drops to 12: the buffer mentioned above will be reduced from 10% to 0%. Thus, the weight of any single issuer cannot exceed 25% of the index weight and all issuers with weight above 5% cannot exceed 50% of the index weight.

An MSCI 25/50 Index will need to be discontinued if the number of issuers drops below 12 as mathematically no solution can satisfy the 25% and 50% constraints. MSCI will however temporarily maintain the relevant MSCI 25/50 Index for a minimum of two months before discontinuation by adding the necessary number of securities to that MSCI 25/50 Index. The index discontinuation will coincide with one of the subsequent regular index reviews. The securities to be added will be chosen in the following order of priority:

- Securities deleted from that MSCI 25/50 Index, *provided* they exhibit required liquidity and were not deleted due to financial difficulties, etc.
- Eligible securities of relevant size not included in the relevant parent index (e.g., largest small cap size-segment securities).

In the event that no securities are eligible for temporary addition to the relevant MSCI 25/50 Index, MSCI will provide an index, as close as possible to the 25/50 constraints, for a minimum of two months before discontinuation. The index discontinuation will coincide with one of the subsequent regular index reviews.

## Index Calculation and Corporate Events

Please refer to “Equity Index Descriptions — The MSCI Indices” in this underlying supplement for information relating to the calculation of the MSCI 25/50 Indices, subject to the weight limits, buffer rules and issuer concentration issues described above, and the treatment of corporate events, subject to the maintenance rules described above. For these purposes, each MSCI 25/50 Index is deemed to be one of the MSCI Indices described in that section of the underlying supplement.

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## THE NASDAQ-100 INDEX®

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The Nasdaq-100 Index® is reported by Bloomberg L.P. under the ticker symbol “NDX.”

The Nasdaq-100 Index® is a modified market capitalization-weighted index that is designed to measure the performance of 100 of the largest non-financial companies listed on The Nasdaq Stock Market. The Nasdaq-100 Index®, which includes companies across a variety of major industry groups, was launched on January 31, 1985, with a base index value of 125.00, as adjusted.

The index share weights of the component securities of the Nasdaq-100 Index® at any time are based upon the total shares outstanding (“**TSO**”) in each of those securities and are additionally subject, in certain cases, to rebalancing. Accordingly, each security’s influence on the level of the Nasdaq-100 Index® is directly proportional to the value of its index share weight.

### Calculation of the Nasdaq-100 Index®

At any moment in time, the value of the Nasdaq-100 Index® equals the aggregate value of the then-current index share weights of each of the Nasdaq-100 Index® component securities, which are based on the TSO of each Nasdaq-100 Index® component security, multiplied by each security’s respective last sale price on The Nasdaq Stock Market (which may be the official closing price published by The Nasdaq Stock Market) and divided by a scaling factor (the “**Divisor**”), which becomes the basis for the reported Nasdaq-100 Index® value. The Divisor serves the purpose of scaling the aggregate value to a lower order of magnitude which is more desirable for index reporting purposes.

### Security Eligibility Criteria

Eligible security types generally include American depositary receipts, common stocks, ordinary shares and tracking stocks. Companies organized as real estate investment trusts (“**REITs**”) are not eligible for index inclusion. If the security is a depositary receipt representing a security of a non-U.S. issuer, then references to the “**issuer**” are references to the underlying security and the TSO is the actual depositary shares outstanding as reported by the depositary banks.

If an issuer has listed multiple security classes, all security classes are eligible, subject to meeting all other security eligibility criteria.

The issuer of the security’s primary U.S. listing must exclusively be listed on the Nasdaq Global Select Market or the Nasdaq Global Market. If the issuer of the security is organized under the laws of a jurisdiction outside the United States, then that security must have listed options on a registered options market in the United States or be eligible for listed options trading on a registered options market in the United States.

The security must be classified as a non-financial company (any industry other than financials) according to the Industry Classification Benchmark.

There is no market capitalization eligibility criterion. Each security must have a minimum average daily trading volume of 200,000 shares (measured over the three calendar months ending with the month that includes the reconstitution reference date).

The security must have traded for at least three full calendar months, not including the month of initial listing, on an eligible exchange, which includes Nasdaq (Nasdaq Global Select Market, Nasdaq Global Market or Nasdaq Capital Market), NYSE, NYSE American or CBOE BZX. Eligibility is determined as of the constituent selection reference date and includes that month. A security that was added to the



Nasdaq-100 Index® as the result of a spin-off event will be exempt from the seasoning requirement. There is no float eligibility criterion.

The issuer of the security generally may not currently be in bankruptcy proceedings.

The issuer of the security generally may not have entered into a definitive agreement or other arrangement that would make it ineligible for index inclusion and where the transaction is imminent as determined by the Nasdaq Index Management Committee.

### **Reconstitution and Rebalancing of the Nasdaq-100 Index®**

Nasdaq selects constituents once annually in December. The security eligibility criteria are applied using market data as of the end of October and TSO as of the end of November. Index reconstitutions are announced in early December and become effective after the close of trading on the third Friday in December.

The Nasdaq-100 Index® is rebalanced on a quarterly basis in March, June, September and December. The Nasdaq-100 Index® rebalance uses the TSO and last sale price of all Nasdaq-100 Index® securities as of the prior month-end (February, May, August and November respectively). Index rebalance changes are announced in early March, June, September and December and become effective after the close of trading on the third Friday in March, June, September and December. A special rebalance may be conducted at any time based on the weighting restrictions described in the index rebalance procedure if it is determined to be necessary to maintain the integrity of the Nasdaq-100 Index®.

### **Constituent Selection**

A reconstitution is conducted on an annual basis, at which time all eligible issuers, ranked by market capitalization, are considered for index inclusion based on the following order of criteria.

- (1) The top 75 ranked issuers will be selected for inclusion in the Nasdaq-100 Index®.
- (2) Any other issuers that were already members of the Nasdaq-100 Index® as of the reconstitution reference date and are ranked within the top 100 are also selected for inclusion in the Nasdaq-100 Index®.
- (3) In the event that fewer than 100 issuers pass the first two criteria, the remaining positions will first be filled, in rank order, by issuers currently in the Nasdaq-100 Index® ranked in positions 101-125 that were ranked in the top 100 at the previous reconstitution or replacement- or spin-off-issuers added since the previous reconstitution.
- (4) In the event that fewer than 100 issuers pass the first three criteria, the remaining positions will be filled, in rank order, by any issuers ranked in the top 100 that were not already members of the Nasdaq-100 Index® as of the reference date.

### **Constituent Weighting**

The Nasdaq-100 Index® is a modified market capitalization-weighted index.

#### *Quarterly Weight Adjustment*

The Nasdaq-100 Index® quarterly weight adjustment employs a two-stage weight adjustment scheme according to issuer- level constraints.

Nasdaq-100 Index® securities' initial weights are determined using up to two calculations of market capitalization: TSO-derived market capitalization and index share-derived market capitalization. TSO-derived market capitalization is defined as a security's last sale price times its TSO. Nasdaq-100 Index® share-derived market capitalization is defined as a security's last sale price times its updated index shares as of the prior month end. Both TSO-derived and index share-derived market capitalizations can

be used to calculate TSO-derived and index share-derived initial index weights by dividing each index security's (TSO- or index share-derived) market capitalization by the aggregate (TSO- or index share-derived) market capitalization of all index securities.

When the rebalance coincides with the reconstitution, only TSO-derived initial weights are used. When the rebalance does not coincide with the reconstitution, index share-derived initial weights are used when doing so results in no weight adjustment; otherwise, TSO-derived weights are used in both stages of the weight adjustment procedure. Issuer weights are the aggregated weights of the issuers' respective index securities.

**Stage 1.** If no initial issuer weight exceeds 24%, initial weights are used as Stage 1 weights; otherwise, initial weights are adjusted so that no issuer weight may exceed 20% of the Nasdaq-100 Index®.

**Stage 2.** If the aggregate weight of the subset of issuers whose Stage 1 weights exceed 4.5% does not exceed 48%, Stage 1 weights are used as final weights; otherwise, Stage 1 weights are adjusted so that the aggregate weight of the subset of issuers whose Stage 1 weights exceed 4.5% is set to 40%.

#### *Annual Weight Adjustment*

The Nasdaq-100 Index® annual weight adjustment employs a two-stage weight adjustment scheme according to security-level constraints. Nasdaq-100 Index® securities' initial weights are determined via the quarterly weight adjustment procedure.

**Stage 1.** If no initial security weight exceeds 15%, initial weights are used as Stage 1 weights; otherwise, initial weights are adjusted so that no security weight may exceed 14% of the Nasdaq-100 Index®.

**Stage 2.** If the aggregate weight of the subset of index securities with the five largest market capitalizations is less than 40%, Stage 1 weights are used as final weights; otherwise, Stage 1 weights are adjusted so that (i) the aggregate weight of the subset of index securities with the five largest market capitalizations is set to 38.5% and (ii) no security with a market capitalization outside the largest five may have a final index weight exceeding the lesser of 4.4% or the final index weight of the index security ranked fifth by market capitalization.

### **Maintenance of the Nasdaq-100 Index®**

#### *Deletion Policy*

If, at any time other than an index reconstitution, Nasdaq determines that an index security is ineligible for index inclusion, the index security is removed as soon as practicable.

This may include:

- Listing on an ineligible index exchange.
- Merger, acquisition or other major corporate event that would adversely impact the integrity of the Nasdaq-100 Index®.
- If a company is organized as a REIT.
- If an index security is classified as a financial company (financials industry) according to the ICB.
- If the issuer has an adjusted market capitalization below 0.10% of the aggregate adjusted market capitalization of the Nasdaq-100 Index® for two consecutive month ends.
- If a security that was added to the Nasdaq-100 Index® as the result of a spin-off event has an adjusted market capitalization below 0.10% of the aggregate adjusted market capitalization of the

Nasdaq-100 Index® at the end of its second day of regular way trading as a Nasdaq-100 Index® member.

In the case of mergers and acquisitions, the effective date for the removal of an index issuer or security will be largely event-based, with the goal to remove the issuer or security as soon as completion of the acquisition or merger has been deemed highly probable. Notable events include, but are not limited to, completion of various regulatory reviews, the conclusion of material lawsuits and/or shareholder and board approvals.

If at the time of the removal of the index issuer or security there is not sufficient time to provide advance notification of the replacement issuer or security so that both the removal and replacement can be effective on the same day, the index issuer or security being removed will be retained and persisted in the index calculations at its last sale price until the effective date of the replacement issuer or security's entry to the Nasdaq-100 Index®.

Securities that are added as a result of a spin-off may be deleted as soon as practicable after being added to the Nasdaq-100 Index®. This may occur when Nasdaq determines that a security is ineligible for inclusion because of reasons such as ineligible exchange, security type, industry or adjusted market capitalization. Securities that are added as a result of a spin-off may be maintained in the Nasdaq-100 Index® until a later date and then removed, for example, if a spin-off security has liquidity characteristics that diverge materially from the security eligibility criteria and could affect the integrity of the Nasdaq-100 Index®.

#### *Replacement Policy*

Securities may be added to the Nasdaq-100 Index® outside of the index reconstitution when there is a deletion. The index security (or all index securities under the same issuer, if appropriate) is replaced as soon as practicable if the issuer in its entirety is being deleted from the Nasdaq-100 Index®. The issuer with the largest market capitalization as of the prior month end which is not in the Nasdaq-100 Index® will replace the deleted issuer. Issuers that are added as a result of a spin-off are not replaced until after they have been included in a reconstitution.

For pending deletions set to occur soon after an index reconstitution and/or index rebalance effective date, Nasdaq may decide to remove the index security from the Nasdaq-100 Index® in conjunction with the index reconstitution and/or index rebalance effective date.

#### *Corporate Actions*

In the periods between scheduled index reconstitution and rebalancing events, individual index securities may be subject to a variety of corporate actions and events that require maintenance and adjustments to the Nasdaq-100 Index®.

At the quarterly rebalancing, no changes are made to the Nasdaq-100 Index® from the previous month end until the quarterly share change effective date, with the exception of corporate actions with an ex-date.

#### **Governance of the Nasdaq-100 Index®**

The Nasdaq Index Management Committee approves all new index methodologies. This committee is comprised of full-time professional members of Nasdaq. The committee meets regularly and reviews items including, but not limited to, pending corporate actions that may affect Nasdaq-100 Index® constituents, statistics comparing the composition of the Nasdaq-100 Index® to the market, companies that are being considered as candidates for addition to the Nasdaq-100 Index® and any significant market events.

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## THE NIKKEI 225 INDEX

All information contained in this underlying supplement regarding the Nikkei 225 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, Nikkei Inc. The Nikkei 225 Index is calculated, maintained and published by Nikkei Inc. Nikkei Inc. has no obligation to continue to publish, and may discontinue publication of, the Nikkei 225 Index.

The Nikkei 225 Index is reported by Bloomberg L.P. under the ticker symbol “NKY.”

The Nikkei 225 Index is a stock index that measures the composite price performance of selected Japanese stocks. The Nikkei 225 Index is currently based on 225 underlying stocks (the “**Nikkei Underlying Stocks**”) trading on the Tokyo Stock Exchange (“**TSE**”) Prime Market, representing a broad cross-section of Japanese industries. Non-ordinary shares, such as shares of exchange-traded funds, real estate investment trusts, preferred stock or other preferred securities or tracking stocks, are excluded from the Nikkei 225 Index.

All 225 Nikkei Underlying Stocks are stocks listed on the TSE Prime Market. Stocks listed on the TSE Prime Market 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 225 Index) be included in the Nikkei 225 Index.

### Rules of the Periodic Review

Nikkei Underlying Stocks are reviewed twice a year with a base date at the end of January and July, and results of the review become effective on the first trading day of April and October, respectively. The maximum number of Nikkei Underlying Stocks that can be affected is three, excluding any Nikkei Underlying Stock affected by corporate reorganization near the time of periodic review. Stocks selected by the procedures outlined below are presented as candidates to a committee composed of academics and market professionals for comment; based on comments from the committee, Nikkei Inc. determines and announces any changes to the Nikkei Underlying Stocks.

#### *Assessment of Liquidity*

The top 450 most liquid stocks are chosen from the TSE Prime Market. For purposes of this selection, liquidity is measured by (i) trading value in the preceding 5-year period and (ii) the magnitude of price fluctuation by trading value in the preceding 5-year period. These 450 stocks constitute the “**High Liquidity Group**” for the review. Those Nikkei Underlying Stocks that are not in the High Liquidity Group are removed. Those stocks that are not currently Nikkei Underlying Stocks but that are in the top 75 of the High Liquidity Group are added.

#### *Sector Balance*

Nikkei Inc. has an industry classification system where there are 36 industries. For index operation purposes, the High Liquidity Group is re-classified from these 36 industries into 6 sectors as follows:

- Technology - Pharmaceuticals, Electrical Machinery, Automobiles & Auto Parts, Precision Instruments and Communications;
- Financials - Banks, Other Financial Services, Securities and Insurance;
- Consumer Goods - Fishery, Food, Retail and Services;
- Materials - Mining, Textiles & Apparel, Pulp & Paper, Chemicals, Petroleum, Rubber, Glass & Ceramics, Steel, Nonferrous Metals and Trading Companies;
- Capital Goods/Others - Construction, Machinery, Shipbuilding, Transportation Equipment, Other Manufacturing and Real Estate; and

- Transportation/Utilities - Railway&Bus, Marine Transport, Air Transport, Warehousing, Electric Power and Gas.

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 overage. For under-represented sectors, non-constituent stocks are added from the High Liquidity Group in the order of liquidity (highest liquidity first) to correct the shortage.

### Extraordinary Replacement Rules

Nikkei Underlying Stocks that meet the following criteria are deleted from the Nikkei 225 Index: designation as “**securities to be delisted**” or “**securities on alert**,” delisting due to corporate restructuring such as merger, share exchange or share transfer, or transfer to a market other than the TSE Prime Market. A constituent designated as a “**security under supervision**” remains a constituent at the time of designation. However, Nikkei Inc. may replace that constituent with a pre-announcement when it is highly inappropriate to keep the stock as a constituent (e.g. the probability of delisting is extremely high).

When a Nikkei Underlying Stock is deleted from the Nikkei 225 Index as outlined in the preceding paragraph, a new Nikkei Underlying 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 that deletion is scheduled close to the time of 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 liquidity and sector balancing rules outlined above.

### Procedures to Implement Constituent Changes

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 Nikkei Underlying Stocks 225. However, under the circumstances outlined below, when an addition cannot be made on the same day as a deletion, the Nikkei 225 Index may be calculated with fewer than 225 Nikkei Underlying Stocks. In this case, the divisor is adjusted to ensure continuity.

A Nikkei Underlying Stock may be delisted when it establishes a parent company through a share transfer or becomes a subsidiary of an unlisted company through a share exchange. If a new parent company is deemed to be succeeding the business of the delisted company, that new parent company may become a Nikkei Underlying Stock if it becomes listed. In that case, during the period between the delisting of the original company and the listing of the new succeeding company, the Nikkei 225 Index may be calculated with fewer than 225 Nikkei Underlying Stocks.

### Calculation of the Nikkei 225 Index

The Nikkei 225 Index is a modified, price-weighted index (*i.e.*, a Nikkei Underlying Stock’s weight in the index is based on its price per share rather than the total market capitalization of the issuer) that is calculated by (i) multiplying the per share price of each Nikkei Underlying Stock by the corresponding price adjustment factor for that Nikkei Underlying Stock (a “**PAF**”), (ii) calculating the sum of all these products and (iii) dividing this sum by a divisor. The divisor is subject to periodic adjustments as set forth below. The stock prices used in the calculation of the Nikkei 225 Index are those reported by a primary market for the Nikkei Underlying Stocks (currently the TSE). The level of the Nikkei 225 Index is calculated every 5 seconds.

The PAF of a Nikkei Underlying Stock will equal 1 if the per share price of this Nikkei Underlying Stock does not exceed 1% of the sum of the adjusted per share prices for all Nikkei Underlying Stocks. If the per share price of a Nikkei Underlying Stock exceeds 1% of the sum of the adjusted per share prices

for all Nikkei Underlying Stocks, the PAF for this Nikkei Underlying Stock will be calculated in intervals of 0.1 (rounded down) and will equal the highest possible value that, when multiplied by the per share price of this Nikkei Underlying Stock, does not exceed 1% of the sum of the adjusted per share prices for all Nikkei Underlying Stocks. PAFs are evaluated annually on the base date at the end of July.

Effective October 2022, if the weight of any Nikkei Underlying Stock exceeds a certain threshold (the “**weight cap threshold**”) on the base date of a periodic review, a capping ratio will be applied to decrease the weight of that Nikkei Underlying Stock. The weight cap threshold for any Nikkei Underlying Stock is (i) 12% as of the October 2022 periodic review, (ii) 11% as of the October 2023 periodic review and (iii) 10% as of the October 2024 periodic review. For any Nikkei Underlying Stock to which a capping ratio is applied, the price of that Nikkei Underlying Stock is adjusted by a capped price adjustment factor (“**CPAF**”) equal to (i) the capping ratio multiplied by (ii) the PAF.

If, on the base date of a periodic review, the weight of any Nikkei Underlying Stock exceeds the weight cap threshold and a capping ratio does not already apply to that Nikkei Underlying Stock, a capping ratio of 0.9 is applied on the effective date of the periodic review. If a capping ratio already applies to any Nikkei Underlying Stock, the capping ratio will be decreased in increments of 0.1 on the effective date of the periodic review until there is a change in the CPAF. If, on the base date of a periodic change, the weight of a Nikkei Underlying Stock to which a capping ratio is applied is below 5%, the capping ratio will be increased in increments of 0.1 on the effective date of the periodic review until there is a change in the CPAF; however, the capping ratio will be canceled if it increases to 1.0. When a Nikkei Underlying Stock to which a capping ratio is applied effects a large-scale stock split or reverse split and the PAF is adjusted by the ratio of the split or reverse split, the capping ratio may be revised as necessary to ensure that the new CPAF does not change the weight of that Nikkei Underlying Stock.

In order to maintain continuity of the Nikkei 225 Index in the event of certain changes due to non-market factors affecting the Nikkei Underlying Stocks, such as the addition or deletion of stocks, substitution of stocks, stock splits or distributions of assets to stockholders, the divisor used in calculating the Nikkei 225 Index is adjusted in a manner designed to prevent any instantaneous change or discontinuity in the level of the Nikkei 225 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 that change affecting any Nikkei Underlying Stock, the divisor is adjusted in such a way that the sum of all share prices immediately after that change multiplied by the applicable PAF and divided by the new divisor (*i.e.*, the level of the Nikkei 225 Index immediately after that change) will equal the level of the Nikkei 225 Index immediately prior to the change.

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## THE RUSSELL INDICES

All information contained in this underlying supplement regarding the Russell 1000® Index, the Russell 2000® Index and the Russell 3000® Index (each, a “**Russell Index**” and collectively, the “**Russell Indices**”), including, without limitation, their make-up, method of calculation and changes in their 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**”), which is wholly owned by the London Stock Exchange Group. The Russell Indices are calculated, maintained and published by FTSE. FTSE has no obligation to continue to publish, and may discontinue publication of, any of the Russell Indices.

The Russell Indices are sub indices of the Russell 3000E™ Index, which is composed of the 4,000 largest U.S. companies as determined by total market capitalization and represents approximately 97% of the U.S. equity market.

### The Russell 1000® Index

The Russell 1000® Index measures the capitalization-weighted price performance of 1,000 U.S. large-capitalization stocks listed on eligible U.S. exchanges. The companies included in the Russell 1000® Index are the 1,000 largest companies that form the Russell 3000E™ Index. The Russell 1000® Index represents approximately 93% of the Russell 3000® Index. The Russell 1000® Index is reported by Bloomberg L.P. under the ticker symbol “RIY.”

### The Russell 2000® Index

The Russell 2000® Index measures the capitalization-weighted price performance of 2,000 U.S. small-capitalization stocks listed on eligible U.S. exchanges and is designed to track the performance of the small-capitalization segment of the U.S. equity market. The companies included in the Russell 2000® Index are the middle 2,000 of the companies that form the Russell 3000E™ Index (*i.e.*, those ranking from 1,001 to 3,000 in the Russell 3000E™ Index). The Russell 2000® Index represents approximately 7% of the Russell 3000® Index. The Russell 2000® Index is reported by Bloomberg L.P. under the ticker symbol “RTY.”

### The Russell 3000® Index

The Russell 3000® Index measures the capitalization-weighted price performance of 3,000 U.S. large-capitalization stocks listed on eligible U.S. exchanges and is designed to represent the broad U.S. equity market. The companies included in the Russell 3000® Index are the 3,000 largest U.S. companies that form the Russell 3000E™ Index. The Russell 3000® Index represents approximately 96% of the U.S. equity market and it consists of the 3,000 companies included in the Russell 1000® Index and the Russell 2000® Index, which are subsets of the Russell 3000E™ Index. The Russell 3000E™ Index is not the same as the Russell 3000® Index, which is a subset of the Russell 3000E™ Index. The Russell 3000® Index is reported by Bloomberg L.P. under the ticker symbol “RAY.”

### Selection of Stocks Underlying the Russell Indices

To be eligible for inclusion in the Russell 3000E™ Index and, consequently, a Russell Index, a company must meet the following criteria as of the rank day in May (except that initial public offerings (“**IPOs**”) are considered for inclusion on a quarterly basis):

- **U.S. Equity Market.** The company must be determined to be part of the U.S. equity market, meaning that its home country is the United States. If a company incorporates in, has a stated headquarters location in, and also trades 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 then defines three Home Country Indicators (“**HCIs**”): country of incorporation, country of headquarters and country of the most liquid exchange as defined by two-year average daily dollar trading volume 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 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 location of assets, FTSE 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 uses an average of two years of assets or revenue data for analysis to reduce potential turnover.

If conclusive country details cannot be derived from assets or revenue, FTSE 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.

- *U.S. Eligible Exchange.* The following exchanges and markets are deemed to be eligible U.S. exchanges: the Chicago Board Options Exchange, the New York Stock Exchange, NYSE American, The Nasdaq Stock Market and NYSE Arca. Stocks that are not traded on an eligible U.S. exchange (Bulletin Board, Pink Sheet and over-the-counter securities, including securities for which prices are displayed on the FINRA Alternative Display Facility) are not eligible for inclusion.
- *Minimum Closing Price.* A stock must have a close price at or above \$1.00 (on its primary exchange), subject to exceptions to reduce turnover.
- *Minimum Total Market Capitalization.* Companies with a total market capitalization less than \$30 million are not eligible for inclusion.
- *Minimum Free Float.* Companies with less than an absolute 5% of their shares available in the marketplace are not eligible for inclusion.
- *Company Structure.* Companies structured in the following ways are not eligible for inclusion: royalty trusts, U.S. limited liability companies, closed-end investment companies, business development companies (and other companies that are required to report Acquired Fund Fees and Expenses, as defined by the SEC), blank-check companies, special-purpose acquisition companies, limited partnerships, exchange-traded funds and mutual funds.
- *UBTI.* Real estate investment trusts and publicly traded partnerships that generate or have historically generated unrelated business taxable income ("**UBTI**") and have not taken steps to block UBTI to equity holders are not eligible for inclusion. 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.
- *Security Types.* The following types of securities are not eligible for inclusion: preferred and convertible preferred stock, redeemable shares, participating preferred stock, warrants, rights, depositary receipts, installment receipts and trust receipts.
- *Minimum Voting Rights.* As of August 2017, more than 5% of a company's voting rights (aggregated across all of its equity securities, including, where identifiable, those that are not listed or trading) must be in the hands of unrestricted shareholders. Existing constituents have a five-year grandfathering period to comply or they will be removed from each applicable Russell Index at the June 2023 reconstitution. Shares referenced as "**non-voting**" or providing legally minimum rights only will be viewed as having no voting power as it relates to the minimum voting rights review.

- **Multiple Share Classes.** If an eligible company trades under multiple share classes, each share class is reviewed independently for eligibility for inclusion. Share classes in addition to the primary share class must meet the following minimum size, liquidity and float requirements to be eligible: (i) total market capitalization must be larger than \$30 million; (ii) average daily dollar trading value must exceed that of the global median; and (iii) more than 5% of shares must be available in the marketplace.

Securities of eligible companies are included in Russell Indices based on total market capitalization. Total market capitalization is determined by multiplying total outstanding shares by the market price (generally, the last price traded on the primary exchange of the share class with the highest two-year trading volume, subject to exceptions) as of the rank day in May (except that IPOs are considered for inclusion on a quarterly basis). Common stock, non-restricted exchangeable shares and partnership units/membership interests (but not operating partnership units of umbrella partnership real estate investment trusts) are used to calculate a company's total market capitalization. If multiple share classes of common stock exist, they are combined to determine total shares outstanding; however, in cases where the common stock share classes act independently of each other (e.g., tracking stocks), each class is considered for inclusion separately. For merger and spin-off transactions that are effective between rank day in May and the business day immediately before the index lock-down takes effect ahead of the annual reconstitution in June, the market capitalizations of the impacted securities are recalculated and membership is re-evaluated as of the effective date of the corporate action.

The 4,000 securities with the greater total market capitalization become members of the Russell 3000E™ Index. All remaining Russell Indices are a subset of the Russell 3000E™ Index. Market capitalization breakpoints for the Russell Indices are determined by the breaks between the rankings of companies (based on descending total market capitalization). Market capitalization breakpoints for the Russell 3000® Index are determined by the break between the companies ranked #1 through #3,000. Market capitalization breakpoints for the Russell 1000® Index are determined by the break between the companies ranked #1 through #1,000. Market capitalization breakpoints for the Russell 2000® Index are determined by the break between the companies ranked #1,001 through #3,000. 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 Russell Index rather than be moved to a different Russell Index.

After membership is determined, a security's shares are adjusted to include only those shares available to the public ("**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 Indices are weighted by their available (also called float-adjusted) market capitalization. The following types of shares are removed from total market capitalization to arrive at free float or available market capitalization, based on information recorded in SEC corporate filings: officers' and directors' holdings, private holdings exceeding 10% of shares outstanding, institutional holdings exceeding 30% of shares outstanding, shares held by publicly listed companies, shares held by an Employee Stock Ownership Plan or a Leveraged Employee Stock Ownership Plan; shares locked up during an IPO; direct government holdings; and indirect government holdings exceeding 10% of shares outstanding.

Reconstitution occurs on the fourth Friday in June. A full calendar for reconstitution is published each spring, with such reconstitution schedule governed by FTSE guidelines.

### **Corporate Actions and Events Affecting the Russell Indices**

FTSE applies corporate actions to the Russell Indices on a daily basis. FTSE applies the following methodology guidelines, among others, when adjusting the applicable Russell Index in response to corporate actions:

- **"No Replacement" Rule.** Securities that leave the relevant Russell Index for any reason (e.g., mergers, acquisitions or other similar corporate activity) are not replaced. Thus, the number of securities in the relevant Russell Index over a year will fluctuate according to corporate activity.



- *Statement of Principles and Adjustments for Specific Corporate Events.* FTSE has stated as general principles that the treatment of corporate events (a) should reflect how such events are likely to be dealt with in investment portfolios to maintain the portfolio structure in line with the target set out in the index objective and index methodology and (b) should normally be designed to minimize the trading activity required by investors to match the index performance. No assurance can be provided that corporate actions and events will be treated by FTSE in a manner consistent with its statement of general principles.

In addition, FTSE has established guidance for the treatment of corporate actions and events, including, but not limited to, dividends, capital repayments, companies converting to a REIT structure, share buybacks, rights issues, mergers, acquisitions, tender offers, split-offs, spin-offs, bankruptcies, insolvencies, liquidations and trading suspensions. However, because of the complexities involved in some cases, those guidelines are not definitive rules that will determine FTSE's actions in all circumstances. FTSE reserves the right to determine the most appropriate method of implementation for any corporate event which is not covered by those guidelines or which is of a complex nature.

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## THE RUSSELL STYLE INDICES

All information contained in this underlying supplement regarding the Russell 1000<sup>®</sup> Growth Index, the Russell 2000<sup>®</sup> Growth Index and the Russell 3000<sup>®</sup> Growth Index (each, a “**Russell Growth Index**” and collectively, the “**Russell Growth Indices**”) and the Russell 1000<sup>®</sup> Value Index, the Russell 2000<sup>®</sup> Value Index and the Russell 3000<sup>®</sup> Value Index (each, a “**Russell Value Index**” and collectively, the “**Russell Value Indices**”), including, without limitation, their make-up, method of calculation and changes in their 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**”), which is wholly owned by the London Stock Exchange Group. The Russell Growth Indices and the Russell Value Indices (each, a “**Russell Style Index**” and collectively, the “**Russell Style Indices**”) are calculated, maintained and published by FTSE. FTSE has no obligation to continue to publish, and may discontinue publication of, any of the Russell Style Indices.

The constituents included in each Russell Style Index are members of the Russell 1000<sup>®</sup> Index, the Russell 2000<sup>®</sup> Index or the Russell 3000<sup>®</sup> Index (each, a “**Russell Index**” and collectively, the “**Russell Indices**”), as applicable. The Russell 1000<sup>®</sup> Index measures the capitalization-weighted price performance of 1,000 large-capitalization stocks (with respect to the Russell 1000<sup>®</sup> Index, the “**Component Stocks**”) and is designed to track the performance of the large-capitalization segment of the U.S. equity market. The Russell 2000<sup>®</sup> Index measures the capitalization-weighted price performance of 2,000 small-capitalization stocks (with respect to the Russell 2000<sup>®</sup> Index, the “**Component Stocks**”) and is designed to track the performance of the small-capitalization segment of the U.S. equity market. The Russell 3000<sup>®</sup> Index measures the capitalization-weighted price performance of 3,000 large-capitalization stocks (with respect to the Russell 3000<sup>®</sup> Index, the “**Component Stocks**”) and is designed to represent the broad U.S. equity market. For additional information about the Russell Indices, please see “Equity Index Descriptions — The Russell Indices” in this underlying supplement.

### The Russell 1000<sup>®</sup> Growth Index

The Russell 1000<sup>®</sup> Growth Index measures the capitalization-weighted price performance of the stocks included in the Russell 1000<sup>®</sup> Index that are determined by FTSE to be growth oriented, with higher price-to-book ratios and higher forecasted and historical growth. The Russell 1000<sup>®</sup> Growth Index is reported by Bloomberg L.P. under the ticker symbol “RLG.”

### The Russell 1000<sup>®</sup> Value Index

The Russell 1000<sup>®</sup> Value Index measures the capitalization-weighted price performance of the stocks included in the Russell 1000<sup>®</sup> Index that are determined by FTSE to be value oriented, with lower price-to-book ratios and lower forecasted and historical growth. The Russell 1000<sup>®</sup> Value Index is reported by Bloomberg L.P. under the ticker symbol “RLV.”

### The Russell 2000<sup>®</sup> Growth Index

The Russell 2000<sup>®</sup> Growth Index measures the capitalization-weighted price performance of the stocks included in the Russell 2000<sup>®</sup> Index that are determined by FTSE to be growth oriented, with higher price-to-book ratios and higher forecasted and historical growth. The Russell 2000<sup>®</sup> Growth Index is reported by Bloomberg L.P. under the ticker symbol “RUO.”

### The Russell 2000<sup>®</sup> Value Index

The Russell 2000<sup>®</sup> Value Index measures the capitalization-weighted price performance of the stocks included in the Russell 2000<sup>®</sup> Index that are determined by FTSE to be value oriented, with lower price-to-book ratios and lower forecasted and historical growth. The Russell 2000<sup>®</sup> Value Index is reported by Bloomberg L.P. under the ticker symbol “RUJ.”

### The Russell 3000<sup>®</sup> Growth Index

The Russell 3000<sup>®</sup> Growth Index measures the capitalization-weighted price performance of the stocks included in the Russell 3000<sup>®</sup> Index that are determined by FTSE to be growth oriented, with

higher price-to-book ratios and higher forecasted and historical growth. 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 capitalization-weighted price performance of the stocks included in the Russell 3000® Index that are determined by FTSE to be value oriented, with lower price-to-book ratios and lower forecasted and historical growth. The Russell 3000® Value Index is reported by Bloomberg L.P. under the ticker symbol “RAV.”

### Determining Style

FTSE uses a “**non-linear probability**” method to assign stocks to a Russell Value Index, an index that measures the capitalization-weighted price performance of the relevant Component Stocks determined by FTSE to be value oriented, with lower price-to-book ratios and lower forecasted and historical growth, and a Russell Growth Index, an index that measures the capitalization-weighted price performance of the relevant Component Stocks determined by FTSE to be growth oriented, with higher price-to-book ratios and higher forecasted and historical growth.

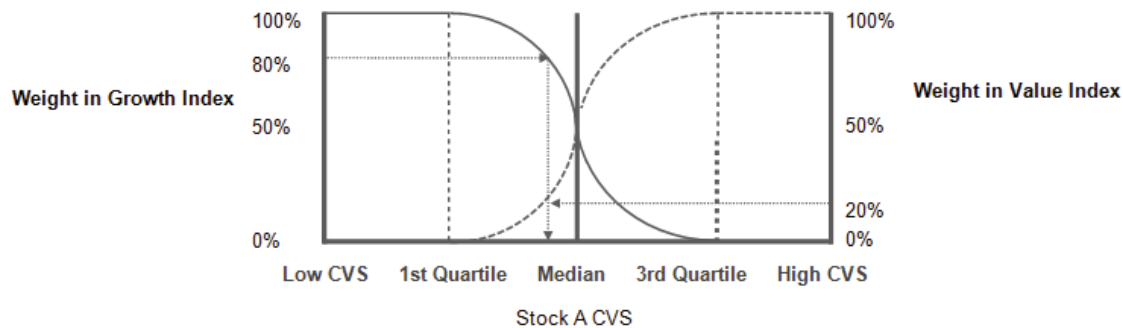
FTSE uses three variables in the determination of value and growth. For value, book-to-price (B/P) ratio is used, while for growth, two variables — I/B/E/S forecast medium-term growth (2-year) and sales per share historical growth (5-year) — are used. The term “**probability**” is used to indicate the degree of certainty that a stock is value or growth based on its relative book-to-price (B/P) ratio, I/B/E/S forecast medium-term growth (2 year) and sales per share historical growth (5 year).

First, the relevant Component Stocks are ranked by their adjusted book-to-price ratio (B/P), their I/B/E/S forecast medium-term growth (2 year) and sales per share historical growth (5 year). These rankings are then converted to standardized units, where the value variable represents 50% of the score and the two growth variables represent the remaining 50%. Next, these units are combined to produce a composite value score (“**CVS**”).

The relevant Component Stocks are then ranked by their CVS, 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 relevant Russell Growth Index and the corresponding Russell 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 corresponding Russell Growth Index). Style index assignment for non-pricing vehicle share classes will be based on that of the pricing vehicle and assigned consistently across all additional share classes.

Stock A, in the figure below, is a security with 20% of its available shares assigned to a Russell Value Index and the remaining 80% assigned to the corresponding Russell Growth Index. The growth and value probabilities will always sum to 100%. Hence, the sum of a stock’s market capitalization in a Russell Growth Index and the corresponding Russell Value Index will always equal its market capitalization in the relevant Russell Index.

**Figure 1: Non-linear probability function for index position weights**



In the figure above, the quartile breaks are calculated such that approximately 25% of the available market capitalization lies in each quartile. Stocks at the median are divided 50% in each of the relevant Russell Growth Index and the corresponding Russell Value Index. Stocks below the first quartile are 100% in the Russell Growth Index. Stocks above the third quartile are 100% in the relevant Russell Value Index. Stocks falling between the first and third quartile breaks are included in both the relevant Russell Growth Index and the corresponding Russell Value Index to varying degrees, depending on how far they are above or below the median and how close they are to the first or third quartile breaks.

Roughly 70% of the available market capitalization is classified as all growth or all value. The remaining 30% have some portion of their market value in either the relevant Russell Value Index or the corresponding Russell Growth Index, depending on their relative distance from the median value score. Note that there is a small position cutoff rule. If a stock's weight is more than 95% in one Russell Style Index, its weight is increased to 100% in that Russell Style Index.

In an effort to mitigate unnecessary turnover, FTSE 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  $\pm 0.10$  and if the company remains in the relevant Russell Index, 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 Russell Style Index. However, this banding methodology is intended 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.

In calculating growth and value weights, stocks with missing or negative values for B/P, or missing values for I/B/E/S growth (negative I/B/E/S growth is valid), or missing sales per share historical growth (6 years of quarterly numbers are required), are allocated by using the mean value score of the Industry Classification Benchmark subsector, sector, supersector or industry group of the relevant Russell Index into which the company falls. Each missing (or negative B/P) variable is substituted with the subsector, sector, supersector or industry group independently. An industry must have five members or the substitution reverts to the subsector and so forth to the sector. 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 subsector, sector, supersector or industry group value score is weighted with 1/3 the security's independent value score. For those securities with coverage by two analysts, 2/3 of the independent security's value score is used and only 1/3 of the subsector, sector, supersector or industry 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.

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## THE S&P/ASX 200 INDEX

All information contained in this underlying supplement regarding the S&P/ASX 200 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, S&P Dow Jones Indices LLC (“**S&P Dow Jones**”). The S&P/ASX 200 Index is calculated, maintained and published by S&P Dow Jones. S&P Dow Jones has no obligation to continue to publish, and may discontinue publication of, the S&P/ASX 200 Index.

The S&P/ASX 200 Index is reported by Bloomberg L.P. under the ticker symbol “AS51.”

### Composition of the S&P/ASX 200 Index

The S&P/ASX 200 Index is designed to be the primary gauge for the Australian equity market, and it is recognized as an investable benchmark in Australia. The S&P/ASX 200 Index measures the performance of the 200 largest and most liquid index-eligible stocks listed on the Australian Securities Exchange (the “**ASX**”) by float-adjusted market capitalization.

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

### Eligibility Criteria

The index companies are drawn from the universe of ordinary and preferred equity stocks listed on ASX. The criteria for index additions include, but are not limited to:

- *Listing.* Only securities listed on the ASX are considered for inclusion in the S&P/ASX 200 Index;
- *Domicile.* The S&P/ASX 200 Index draws from the entire universe of ASX-listed stocks, which includes both primary and secondary listings on the ASX. A secondary listing occurs when the ASX is not the primary exchange and the stock is listed in multiple markets. This includes foreign-domiciled entities that are not incorporated or registered in Australia and have their primary listing on an exchange other than the ASX.

Securities classified as “foreign-domiciled” are eligible for inclusion in the S&P/ASX 200 Index. Foreign-domiciled securities may be subject to specialized treatment due to the data reporting conventions of certain foreign securities listed on the ASX. Generally, a foreign-domicile company is a company that is (i) incorporated overseas and/or listed on one or more overseas markets; and (ii) has the majority of its trading activity occurring on an overseas exchange.

Securities classified as “domestic” are eligible for inclusion in the S&P/ASX 200 Index. A company is considered to be domestic if (i) the company is incorporated in Australia and traded on the ASX; (ii) the company is incorporated overseas but has an exclusive listing on the ASX; or (iii) the company is incorporated overseas and is traded on other overseas markets, but most of the trading activity occurs on the ASX.

- *Eligible Securities.* Common and equity preferred stocks (which are not of a fixed income nature) are eligible for inclusion in the S&P/ASX 200 Index. Hybrid stocks, such as convertible stock, bonds, warrants and preferred stock that provide a guaranteed fixed return, are not eligible. Listed investment companies that invest in a portfolio of securities are not eligible. Companies that are currently the target of an acquisition are ineligible.
- *Market Capitalization.* The market capitalization criterion for stock inclusion is based upon the daily average market capitalization of a security over the last six months. The ASX stock price history (last six months, adjusted for price-adjusting corporate actions), latest available shares on issue and the investable weight factor (“**IWF**”) are the relevant variables for the calculation. The IWF is a variable that is primarily used to determine the available float of a security for ASX-listed securities; and



- **Liquidity.** Only securities that are regularly traded are eligible for inclusion in the S&P/ASX 200 Index. A stock's liquidity is measured relative to its peers. Relative Liquidity is calculated as follows:

$$\text{Relative Liquidity} = \frac{\text{Stock Median Liquidity}}{\text{Market Liquidity}}$$

Where:

- Stock Median Liquidity is the median daily value traded on the ASX for each stock divided by the average float/index weight-adjusted market capitalization for the previous six months; and
- Market Liquidity is determined using the market capitalization-weighted average of the stock median liquidities of the 500 companies in the All Ordinaries index, an index that includes nearly all ordinary shares listed on the ASX.

Stocks must have a minimum Relative Liquidity of 50% to be included in the S&P/ASX 200 Index. If the Relative Liquidity of a stock drops below half of the 50% threshold, that stock becomes ineligible and is removed at the next rebalancing.

**Rebalancing.** Rebalancing of the S&P/ASX 200 Index occurs on a regular basis. Shares and IWFs updates are also applied regularly. The reference date used for the six months' worth of trading data is the second to last Friday of the month prior to the rebalancing.

**Frequency.** The S&P/ASX 200 Index constituents are rebalanced quarterly to ensure adequate market capitalization and liquidity. Quarterly rebalancing changes take effect after the market close on the third Friday of March, June, September and December.

**Buffers.** In order to limit the level of index turnover, eligible non-constituent securities will generally only be considered for index inclusion once a current constituent stock is excluded due to a sufficiently low rank and/or liquidity, based on the float-adjusted market capitalization. Potential index inclusions and exclusions need to satisfy a buffer requirement in terms of the rank of the stock relative to the S&P/ASX 200 Index. The following buffer aims to limit the level of index turnover that may take place at each quarterly rebalancing, maximizing the efficiency and limiting the cost associated with holding the index portfolio.

Addition	Rank Buffer for Deletion
179 <sup>th</sup> or higher	221 <sup>st</sup> or lower

This float-adjusted market capitalization rank buffer serves as the guideline used by the index committee to arrive at any potential constituent changes to the S&P/ASX 200 Index. However, the index committee has complete discretion to bypass these rules when circumstances warrant.

**Intra-Rebalancing Additions/Deletions.** Between rebalancing dates, an addition to the S&P/ASX 200 Index is generally made only if a vacancy is created by an index deletion. Index additions are made according to market size and liquidity. The reference date used to determine the index replacement is determined on a case by case basis and taken closer to the time of the event that triggered the vacancy. Deletions can occur between index rebalancing dates due to acquisitions, mergers and spin-offs or due to suspension or bankruptcies. The decision to remove a stock from the S&P/ASX 200 Index will be made once there is sufficient evidence that the transaction will be completed. Stocks that are removed due to mergers & acquisitions activity are removed from the S&P/ASX 200 Index at the cash offer price for cash-only offers. Otherwise the best available price in the market is used.

**Initial Public Offerings (IPOs).** An initial public offering is added to the S&P/ASX 200 Index only when an appropriate vacancy occurs or due to a rebalance and is subject to proven liquidity for at least eight weeks. An exception may be made for extraordinary large offerings where sizeable trading volumes justify inclusion. Available price and value traded data as of the reference date is used to determine eligibility for IPOs.

*Share Updates.* The share count for all S&P/ASX 200 Index constituents are reviewed quarterly and are rounded to the nearest thousand ('000).

Share updates for foreign-domiciled securities will take place at each quarterly rebalancing. The update to the number of shares outstanding will take place only when the three-month average of CHES Depositary Interests ("CDIs") or the total securities held in the Australian branch of issuer sponsored register (where supplied) and in CHES, on the rebalancing reference date, differs from the current number of shares used by 5% or more.

Where CDI information is not supplied to the ASX by the company or the company's share register, estimates for Australian equity capital will be drawn from CHES data and, ultimately, registry-sourced data.

### **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 the S&P/ASX 200 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 (IWF) 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.

*IWFs.* A stock's weight in the S&P/ASX 200 Index is determined by the float-adjusted market capitalization of the stock. The number of shares outstanding is reduced to exclude closely held shares from the calculation of the S&P/ASX 200 Index because such shares are not available to investors. The S&P/ASX 200 Index calculates an IWF, which is the percentage of total shares outstanding that are included in the calculation of the S&P/ASX 200 Index. All constituents in the S&P/ASX 200 Index are assigned an IWF. A company must have a minimum IWF of 0.3 to be eligible for index inclusion, however an IWF at or above that level is not necessary for ongoing index membership. The IWF for foreign-domiciled securities in the S&P/ASX 200 Index is typically set to 1. IWFs are reviewed annually as part of the September quarterly rebalancing. In addition to the annual IWF review, certain events may warrant an intra-quarter or quarterly IWF update.

On any given day, the S&P/ASX 200 Index value is the quotient of the total available market capitalization of its constituents and its divisor. The key to index maintenance is the adjustment of the divisor. The purpose of the index divisor is to maintain the continuity of an index level following the implementation of corporate actions, index rebalancing events or other non-market driven actions. Index maintenance – reflecting changes in shares outstanding, corporate actions, addition or deletion of stocks to the S&P/ASX 200 Index – should not change the level of the S&P/ASX 200 Index. Any change to the stocks in the S&P/ASX 200 Index that alters the total market value of the S&P/ASX 200 Index while holding stock prices constant will require a divisor adjustment.

### **Index Governance**

The S&P/ASX 200 Index is maintained by the S&P/ASX index committee. S&P Dow Jones chairs the index committee, which is comprised of five voting members representing both S&P Dow Jones and the ASX.

The S&P/ASX index committee meets regularly to review market developments and convenes as needed to address major corporate actions. At each meeting, the index committee may review pending corporate actions that may affect index constituents, statistics comparing the composition of the S&P/ASX 200 Index to the market, companies that are being considered as candidates for addition to the S&P/ASX 200 Index, and any significant market events. In addition, the index committee may revise index policy covering rules for selecting companies, treatment of dividends, share counts or other matters.

The index committee of the S&P/ASX 200 Index reserves the right to make exceptions when applying the methodology if the need arises. At least once within any twelve-month period, the index committee reviews the methodology to ensure that the S&P/ASX 200 Index continues to achieve the stated objectives and that the data and methodology remain effective.

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### The S&P 500<sup>®</sup> Equal Weight Index

The S&P 500<sup>®</sup> Equal Weight Index is an equal-weighted version of the S&P 500<sup>®</sup> Index. The S&P 500<sup>®</sup> Index consists of stocks of 500 companies selected to provide a performance benchmark for the U.S. equity markets. The S&P 500<sup>®</sup> Equal Weight Index is reported by Bloomberg L.P. under the ticker symbol “SPW.”

### The S&P MidCap 400<sup>®</sup> Equal Weight Index

The S&P MidCap 400<sup>®</sup> Equal Weight Index is an equal-weighted version of the S&P MidCap 400<sup>®</sup> Index. The S&P MidCap 400<sup>®</sup> Index consists of stocks of 400 companies selected to provide a performance benchmark for the medium market capitalization segment of the U.S. equity markets. The S&P MidCap 400<sup>®</sup> Equal Weight Index is reported by Bloomberg L.P. under the ticker symbol “MIDEWI.”

### The S&P SmallCap 600<sup>®</sup> Equal Weight Index

The S&P SmallCap 600<sup>®</sup> Equal Weight Index is an equal-weighted version of the S&P SmallCap 600<sup>®</sup> Index. The S&P SmallCap 600<sup>®</sup> Index consists of stocks of 600 companies selected to provide a performance benchmark for the small market capitalization segment of the U.S. equity markets. The S&P SmallCap 600<sup>®</sup> Equal Weight Index is reported by Bloomberg L.P. under the ticker symbol “SMLEWI.”

### Methodology of the S&P Equal Weight Indices

Composition of an S&P Equal Weight Index is the same as that of the corresponding S&P U.S. Index. Constituent changes are incorporated in an S&P Equal Weight Index as and when they are made in the corresponding S&P U.S. Index. When a company is added to an S&P Equal Weight Index in the middle of the quarter, it takes the weight of the company that it replaced. The one exception is when a company is removed from an S&P Equal Weight Index at a price of \$0.00. In that case, the company’s replacement is added to that S&P Equal Weight Index at the weight using the previous day’s closing value or the most immediate prior business day that the deleted company was not valued at \$0.00.

Each S&P Equal Weight Index is generally calculated and maintained in the same manner as the corresponding S&P U.S. Index, except that each constituent is equally weighted rather than weighted by float-adjusted market capitalization. To calculate an equal-weighted index, the market capitalization for each stock used in the calculation of the index is redefined so that each index constituent has an equal weight in the index at each rebalancing date. In addition to being the product of the stock price, the stock’s shares outstanding and the stock’s float factor (“**IWF**”), an additional weight factor (“**AWF**”) is also introduced in the market capitalization calculation to establish equal weighting. The AWF of a stock is the adjustment factor of that stock assigned at each index rebalancing date that makes all index constituents’ modified market capitalization equal (and, therefore, equal weight), while maintaining the total market value of the overall index.

Each S&P Equal Weight Index is reset to equal weight quarterly after the close of business on the third Friday of March, June, September and December. The reference date for weighting is the second Friday of the reweighting month and changes are effective after the close of the following Friday using prices as of the reweighting reference date and membership, shares outstanding and IWFs as of the reweighting effective date.

Each S&P Equal Weight Index is calculated, maintained and governed using the same methodology as the corresponding S&P U.S. Index, subject to the equal weight methodology described above. For additional information about the calculation, maintenance and governance of the S&P U.S. Indices, please see “Equity Index Descriptions — The S&P U.S. Indices” in this underlying supplement.

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## THE S&P 500® LOW VOLATILITY HIGH DIVIDEND INDEX

All information contained in this underlying supplement regarding the S&P 500® Low Volatility High Dividend Index (the “**Low Volatility High Dividend 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, S&P Dow Jones Indices LLC (“**S&P Dow Jones**”). The Low Volatility High Dividend Index is calculated, maintained and published by S&P Dow Jones. S&P Dow Jones has no obligation to continue to publish, and may discontinue the publication of, the Low Volatility High Dividend Index.

The price return of the Low Volatility High Dividend Index is reported by Bloomberg, L.P. under the ticker symbol “SP5LVHD.” The Low Volatility High Dividend Index began publishing on September 17, 2012 and has a base date of January 31, 1990 and a base value of 1,000.

The Low Volatility High Dividend Index is a modified dividend yield-weighted index that is designed to measure the performance of the 50 least-volatile among the 75 highest dividend-yielding companies in the S&P 500® Index, subject to sector and individual constituent concentration limits. Although the Low Volatility High Dividend Index measures the performance of high dividend-yielding companies, it is a price return index and, therefore, the return on the Low Volatility High Dividend Index will not include any dividends paid on the securities that make up the Low Volatility High Dividend Index.

### Index Constituent Selection

To be eligible for inclusion in the Low Volatility High Dividend Index, a stock must be a constituent of the S&P 500® Index. For additional information about the S&P 500® Index, including the methodology for inclusion in the S&P 500® Index, see “Equity Index Descriptions — The S&P U.S. Indices” in this underlying supplement.

S&P Dow Jones first selects the stocks to be included in the Low Volatility High Dividend Index and then weights those constituents. Generally, a stock must have been issued and trading on all trading days in the 12 months leading up to the rebalancing reference date to be included in the Low Volatility High Dividend Index. Some companies may have more than one share class or more than one listing in the S&P 500® Index. In the Low Volatility High Dividend Index, each company is represented once by the primary listing, which is generally the most liquid share class. S&P Dow Jones selects the stocks to be included in the Low Volatility High Dividend Index by ranking the stocks in the S&P 500® Index in descending order by their 12-month trailing dividend yield. Dividend yield is calculated by dividing each stock's dividends per share for the prior 12 months by the stock price as of the rebalancing reference date. Special dividends are not considered in the calculation of dividend yields. The 75 stocks with the highest dividend yield are selected, with the number of stocks from each Global Industry Classification Standard (“**GICS**®”) sector capped at 10. If the number of stocks from a GICS® sector reaches 10, the remaining highest yielding stocks from other sectors are selected until the number of selected stocks reaches 75. Using available price return data for the trailing 252 trading day leading up to the rebalancing reference date, the realized volatilities of these stocks are calculated. Realized volatility is defined as the standard deviation of the stock's daily price returns over the prior 252 trading days. Those stocks are then ranked in ascending order based on their realized volatility. The 50 stocks with the lowest realized volatility form the Low Volatility High Dividend Index.

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 Low Volatility High Dividend Index, not for continued membership. As a result, an index constituent that appears to violate criteria for addition to the Low Volatility High Dividend Index is not deleted unless ongoing conditions warrant an index change.

At the discretion of S&P Dow Jones, a stock may be excluded from the Low Volatility High Dividend Index, or not considered for membership, at a semi-annual rebalancing if S&P Dow Jones determines the stock's dividend yield to be unsustainable.



Except for major corporate actions, such as mergers and spin-offs, additions and deletions of stocks generally only take place at the time of the reconstitution. In addition, constituents removed from the S&P 500® Index are also removed from the Low Volatility High Dividend Index simultaneously.

## Index Rebalancing

The Low Volatility High Dividend Index is rebalanced after the close of the last business day of January and July based on market data from the rebalancing reference dates, which are the last business day of December and June, respectively. The constituents' shares are calculated using closing prices five business days prior to the rebalancing date as the reference price. The constituents' shares are calculated and assigned to each stock to arrive at the weights determined on the rebalancing reference date.

The S&P Dow Jones' U.S. Index Committee may change the date of a given rebalancing for reasons including market holidays occurring on or around the scheduled rebalancing date. Any change will be announced with proper advance notice where possible.

## Index Calculation and Governance

The Low Volatility High Dividend Index is calculated using the same methodology as the S&P 500® Index, except that the constituents of the S&P 500® Low Volatility High Dividend Index are weighted by dividend yield. In addition, at each rebalancing, modifications are made to stock weights to increase diversification across individual stocks and sectors. The weight for each constituent of the S&P 500® Low Volatility High Dividend Index is constrained between 0.05% and 3.0%, and the weight of each GICS® sector is capped at 25%. The Low Volatility High Dividend Index is governed using the same methodology as the S&P 500® Index. For additional information about the calculation and governance of the S&P 500® Index, see “– The S&P U.S. Indices – The S&P 500® Index” in this underlying supplement.

## Corporate Actions

The table below summarizes types of index maintenance adjustments and indicates whether or not a divisor adjustment is required.

Type of Corporate Action	Adjustment Made to Index	Divisor Adjustment
Spin-off	The spun-off company is added to the Low Volatility High Dividend Index of which the parent is a constituent, at a zero price at the market close of the day before the ex-date (with no divisor adjustment). The spun-off company is then removed after at least one day of regular way trading (with a divisor adjustment).	See “Adjustment Made to Index”
Rights Offering	All rights offerings that are in the money on the ex-date are applied under the assumption the rights are fully subscribed. The stock price is adjusted by the value of the rights and the shares outstanding are increased by the rights ratio. The change in price and shares is offset by an adjustment weight factor to keep the company's weight unchanged. There is no change to the company's weight and no divisor adjustment.	No
Stock Dividend, Stock Split, Reverse Stock Split	Index shares are multiplied by and price is divided by the split factor.	No
Changes in Shares Outstanding	Shares outstanding changes are offset by an adjustment weight factor. There is no change to the company's weight and no divisor adjustment.	No

Type of Corporate Action	Adjustment Made to Index	Divisor Adjustment
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. The net change in the company's weight will cause a divisor change.	Yes
Constituent Change	There are no intra-rebalancing additions.	—
	Deletions due to delistings, acquisition or any other corporate event resulting in the deletion of the stock from the index causes the weights of the rest of the stocks in the index to change. Relative weights stay the same.	Yes

### Other Adjustments

In cases where there is no achievable market price for a stock being deleted, it may be removed at a zero or minimal price at the S&P Dow Jones' U.S. Index Committee's discretion, in recognition of the constraints faced by investors in trading bankrupt or suspended stocks.

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## THE S&P SELECT INDUSTRY INDICES

All information contained in this underlying supplement regarding the S&P® Banks Select Industry Index, the S&P® Biotechnology Select Industry Index, the S&P® Homebuilders Select Industry Index, the S&P® Metals & Mining Select Industry Index, the S&P® Oil & Gas Exploration & Production Select Industry Index, the S&P® Regional Banks Select Industry Index and the S&P® Retail Select Industry Index (each, a **“Select Industry Index”** and collectively, the **“Select Industry Indices”**), including, without limitation, their make-up, method of calculation and changes in their components, has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, S&P Dow Jones Indices LLC (**“S&P Dow Jones”**). The Select Industry Indices are calculated, maintained and published by S&P Dow Jones. S&P Dow Jones has no obligation to continue to publish, and may discontinue publication of, any of the Select Industry Indices.

The Select Industry Indices are modified equal-weighted indices that are designed to measure the performance of stocks composing specific Global Industry Classification Standard (**“GICS®”**) sub-industries or groups of sub-industries in the S&P Total Market Index. Membership is based on a company’s GICS® classification, as well as liquidity and market capitalization requirements.

### The S&P Total Market Index

The S&P Total Market Index (the **“S&P TM Index”**) offers broad market exposure to companies of all market capitalizations, including all eligible U.S. common equities with a primary listing on the New York Stock Exchange, NYSE Arca, NYSE American, Nasdaq Global Select Market, Nasdaq Select Market, Nasdaq Capital Market, Cboe BZX, Cboe BYX, Cboe EDGA or Cboe EDGX exchanges. Only U.S. companies are eligible for inclusion in the S&P TM Index.

### The S&P® Banks Select Industry Index

The S&P® Banks Select Industry Index is a modified equal-weighted index that is designed to measure the performance of the following GICS® sub-industries of the S&P TM Index: asset management & custody banks (must also meet the North American Industry Classification of depository credit intermediation); diversified banks; regional banks; diversified financial services; and commercial & residential mortgage finance. The S&P® Banks Select Industry Index is reported by Bloomberg L.P. under the ticker symbol “SPSIBK.”

### The S&P® Biotechnology Select Industry Index

The S&P® Biotechnology Select Industry Index is a modified equal-weighted index that is designed to measure the performance of the GICS® biotechnology sub-industry of the S&P TM Index. The S&P® Biotechnology Select Industry Index may also include companies in the life sciences tools & services supplementary sub-industry. The S&P® Biotechnology Select Industry Index is reported by Bloomberg L.P. under the ticker symbol “SPSIBI.”

### The S&P® Homebuilders Select Industry Index

The S&P® Homebuilders Select Industry Index is a modified equal-weighted index that is designed to measure the performance of the GICS® homebuilding sub-industry of the S&P TM Index. The S&P® Homebuilders Select Industry Index may also include companies in the following supplementary GICS® sub-industries: building products; home furnishings; home improvement retail; homefurnishing retail; and household appliances. The S&P® Homebuilders Select Industry Index is reported by Bloomberg L.P. under the ticker symbol “SPSIHO.”

### The S&P® Metals & Mining Select Industry Index

The S&P® Metals & Mining Select Industry Index is a modified equal-weighted index that is designed to measure the performance of the following GICS® sub-industries of the S&P TM Index: aluminum; coal & consumable fuels; copper; diversified metals & mining; gold; precious metals & minerals; silver; and steel. The S&P® Metals & Mining Select Industry Index is reported by Bloomberg L.P. under the ticker symbol “SPSIMM.”

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

The S&P® Oil & Gas Exploration & Production Select Industry Index is a modified equal-weighted index that is designed to measure the performance of the following GICS® sub-industries of the S&P TM Index: integrated oil & gas; oil & gas exploration & production; and oil & gas refining & marketing. The S&P® Oil & Gas Exploration & Production Select Industry Index is reported by Bloomberg under the ticker symbol “SPSIOP.”

## The S&P® Regional Banks Select Industry Index

The S&P® Regional Banks Select Industry Index is a modified equal-weighted index that is designed to measure the performance of the GICS® regional banks sub-industry of the S&P TM Index. The S&P® Regional Banks Select Industry Index is reported by Bloomberg L.P. under the ticker symbol “SPSIRBK.”

## The S&P® Retail Select Industry Index

The S&P® Retail Select Industry Index is a modified equal-weighted index that is designed to measure the performance of the following GICS® sub-industries of the S&P TM Index: apparel retail; automotive retail; broadline retail; computer & electronic retail; consumer staples merchandise retail; drug retail; food retailers; and other specialty retail. The S&P® Retail Select Industry Index is reported by Bloomberg L.P. under the ticker symbol “SPSIRE.”

## Select Industry Index Eligibility

To qualify for membership in a Select Industry Index, at each quarterly rebalancing, a company must satisfy the following criteria:

- (1) be a member of the S&P TM Index;
- (2) be included in the relevant GICS® sub-industries for the relevant Select Industry Index (stocks included in such sub-industry, “**primary stocks**”);
- (3) meet one of the following float-adjusted market capitalization (“**FMC**”) and float-adjusted liquidity ratio (“**FALR**”) requirements:
  - (a) be a current constituent, have an FMC greater than or equal to US\$ 300 million and have an FALR greater than or equal to 50%;
  - (b) have an FMC greater than or equal to US\$ 500 million and an FALR greater than or equal to 90%; or
  - (c) have an FMC greater than or equal to US\$ 400 million and an FALR greater than or equal to 150%.

Notwithstanding the foregoing, to be eligible for inclusion in the S&P® Banks Select Industry Index, a company’s FMC must be above US\$ 2 billion and its FALR must be above 100%, and existing constituents of the S&P® Banks Select Industry Index are removed at the quarterly rebalancing date if either their FMC falls below US\$ 1 billion or their FALR falls below 50%.

In the event that fewer than 35 stocks are selected for each Select Industry Index using the eligible primary stocks, certain indices will select stocks for inclusion from a supplementary list of highly correlated sub-industries (supplementary stocks) based on a process established by S&P Dow Jones. Additionally, minimum FMC 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.

*Liquidity.* An FALR, defined as the annual dollar value traded divided by the FMC, is used to measure liquidity. Using composite pricing and consolidated volume (excluding dark pools) across all venues (including historical values), annual dollar value traded is defined as the average closing price multiplied by the historical volume over the 365 calendar days prior to the evaluation date. This is

reduced to the available trading period for initial public offerings or spin-offs that do not have 365 calendar days of trading history. In these cases, the dollar value traded available as of the evaluation date is annualized. Liquidity requirements are reviewed during the quarterly rebalancings. The price, shares outstanding and IWF (as defined below) are used to calculate the FMC.

**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 a Select Industry Index. Ownership restrictions preventing entities from replicating the index weight of a stock may be excluded from the eligible universe or removed from the relevant Select Industry Index. S&P Dow Jones will provide up to five days advance notification of a deletion between rebalancings due to ownership restrictions.

**Multiple Share Classes.** Some companies in the S&P TM Index are represented by multiple share classes. As of December 2015, each company in the Select Industry Indices is represented once by the primary listing, which is generally the most liquid share line.

## Calculation of the Select Industry Indices

The Select Industry Indices are equal-weighted, with adjustments to individual constituent weights to ensure concentration and liquidity requirements, and calculated by means of the divisor methodology used by S&P Dow Jones for the Select Industry Indices.

The index value of each Select Industry Index is simply the market value of that Select Industry Index divided by the index divisor:

$$\text{Index Value} = (\text{Index Market Value}) / \text{Divisor}$$

$$\text{Index Market Value} = \sum_i^N P_i \times \text{Shares}_i \times \text{IWF}_i \times \text{AWF}_i$$

where  $N$  is the number of stocks in the index,  $P_i$  is the price of stock  $i$ ,  $\text{Shares}_i$  is total shares outstanding of stock  $i$ ,  $\text{IWF}_i$  is the float factor of stock  $i$  (as defined below), and  $\text{AWF}_i$  is the adjustment factor of stock  $i$  assigned at each index rebalancing date,  $t$ , which makes all index constituents modified market capitalization equal (and, therefore, equal weight), while maintaining the total market value of the overall index. The AWF for each index constituent,  $i$ , at rebalancing date,  $t$ , is calculated by:

$$\text{AWF}_{i,t} = Z / N \times \text{FloatAdjustedMarketValue}_{i,t}$$

where  $Z$  is an index-specific constant set for the purpose of deriving the AWF and, therefore, each stock's share count used in the index calculation (often referred to as modified index shares).

**Float Adjustment.** Float adjustment means that the number of shares outstanding is reduced to exclude closely held shares from the calculation of the index value because such shares are not available to investors. The goal of float adjustment is to adjust each company's total shares outstanding for long-term strategic shareholders, who often have interests such as maintaining control rather than the shorter-term economic fortunes of the company. Generally, these long-term strategic shareholders include, but are not limited to, officers and directors, private equity, venture capital and special equity firms, asset managers and insurance companies with direct board of director representation, other publicly traded companies that hold shares, holders of restricted shares, company-sponsored employee share plans/trusts, defined contribution plans/savings, and investment plans, foundations or family trusts associated with the company, government entities at all levels (other than government retirement/pension funds), sovereign wealth funds and any individual person who controls a 5% or greater stake in a company as reported in regulatory filings. Restricted shares are generally not included in total shares outstanding except for shares held as part of a lock-up agreement. Shares that are not considered outstanding are also not included in the available float. These generally include treasury stock, stock options, equity participation units, warrants, preferred stock, convertible stock and rights.

For each component, S&P Dow Jones calculates an Investable Weight Factor ("IWF"), which represents the portion of the total shares outstanding that are considered part of the public float for purposes of the relevant Select Industry Index.



**Divisor.** Continuity in index values of each Select Industry Index is maintained by adjusting its divisor for all changes in its constituents' share capital after its base date. This includes additions and deletions to the relevant Select Industry Index, rights issues, share buybacks and issuances and non-zero price spin-offs. The value of each Select Industry Index's divisor over time is, in effect, a chronological summary of all changes affecting the base capital of that Select Industry Index. The divisor of each Select Industry Index is adjusted such that the index value of that Select Industry Index at an instant just prior to a change in base capital equals the index value of that Select Industry Index at an instant immediately following that change.

## Constituent Weightings

At each quarterly rebalancing, companies are initially equally weighted, with adjustments made to ensure that no individual constituent's index weight exceeds the value that can be traded in a single day for a given theoretical portfolio value ranging from US\$ 500 million to US\$ 2,000 million (the "**Theoretical Portfolio Value**"). Theoretical Portfolio Values are determined and reviewed annually by an S&P Dow Jones' index committee (the "**Index Committee**"). Any updates to Theoretical Portfolio Values are made at the discretion of the Index Committee and announced to the clients with ample lead time.

S&P Dow Jones calculates a maximum basket liquidity weight for each constituent in the Select Industry Indices using the ratio of the constituent's three-month median daily value traded to the Theoretical Portfolio Value as of the last business day of February, May, August, and November for the rebalancing effective after the closing on the third Fridays of March, June, September, and December, respectively. Each constituent's initial equal weight is compared to the calculated maximum basket liquidity weight, and the constituent's weight is set to the lesser of the maximum basket liquidity weight or the initial equal weight.

If the resulting weights fail to sum to 100%, the weight of the constituent with the lowest maximum basket liquidity weight from the remaining equal weighted constituents is increased to the maximum basket liquidity weight. The relevant Select Industry Index then equal weights the remaining constituents again. This process repeats iteratively until no equal weight stock exceeds the assigned maximum basket liquidity weight and the resulting weights sum to 100%.

If necessary, a final adjustment is made to ensure that no stock in a Select Industry 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 contain exactly 22 stocks as of the rebalancing effective date, the relevant Select Industry Index is equally weighted without basket liquidity constraints.

## Maintenance of the Select Industry Indices

Membership of the Select Industry Indices is reviewed quarterly. 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 date of the previous month. For selection purposes, all S&P Select Industry Indices use shares outstanding and IWF figures as of the rebalancing effective date. Closing prices as of the second Friday of the rebalancing month are used for setting index shares. The Index Committee may change the date of a given rebalancing for reasons including market holidays occurring on or around the scheduled rebalancing date. Any such change will be announced by S&P Dow Jones with proper advance notice where possible.

The table below summarizes the treatment of certain corporate actions.

Corporate Action	Treatment
Company addition/deletion	<p>Addition Only</p> <p>Stocks are added between rebalancings only if a deletion in the relevant Select Industry Index causes the constituent count to fall below 22. In those cases, each</p>

<b>Corporate Action</b>	<b>Treatment</b>
	<p>stock deletion is accompanied with a stock addition. A new stock is added to that Select Industry Index at the weight of the deleted stock.</p> <p><u>Deletion Only</u></p> <p>A stock is deleted from the relevant Select Industry Index if dropped from the S&amp;P TM Index. If a deletion causes the number of stocks in the relevant Select Industry Index to fall below 22, each stock deletion is accompanied with a corresponding stock addition. The weights of all stocks in that Select Industry Index will proportionately change, due to the absolute change in the number of index constituents. Relative weights will stay the same. The index divisor will change due to the net change in the market capitalization of that Select Industry Index.</p>
<b>Change in shares outstanding</b>	Shares outstanding changes are offset by an AWF. There is no change to the market capitalization of the relevant Select Industry Index and no divisor adjustment.
<b>Split/reverse split</b>	Shares outstanding are adjusted by the split ratio. Stock price is adjusted by the split ratio. There is no change to the market capitalization of the relevant Select Industry Index and no divisor adjustment.
<b>Spin-off</b>	In the case of spin-offs, the Select Industry Indices will follow the S&P TM Index's treatment of the action. In general, both the parent and spin-off company will remain in the relevant Select Industry Index until the subsequent rebalancing. The spin-off company is added to the relevant Select Industry Index at a zero price at the close of the day before the ex-date. No price adjustment is applied to the parent and there is no divisor change. If the spin-off company is dropped from the S&P TM Index, the weight of the spun-off company is added back to the parent stock's weight after at least one day of trading.
<b>Change in IWF</b>	IWF changes are offset by an AWF. There is no change to the market capitalization of the relevant Select Industry Index and no divisor adjustment.
<b>Ordinary dividend</b>	When a company pays an ordinary cash dividend, the relevant Select Industry Index does not make any adjustments to the price or shares of the stock. As a result, there are no divisor adjustments to that Select Industry Index.
<b>Special dividend</b>	The stock price is adjusted by the amount of the dividend. The net change to the market capitalization of the relevant Select Industry Index causes a divisor adjustment.
<b>Rights offering</b>	All rights offerings that are in the money on the ex-date are applied under the assumption that the rights are fully subscribed. The stock price is adjusted by the value of the rights and the shares outstanding are increased by the rights ratio. The change in price and shares is offset by an AWF to keep the market capitalization (stock weight) of the relevant Select Industry Index unchanged. There is no change to the market capitalization of that Select Industry Index and no divisor adjustment.

In the case of mergers involving two index constituents, the merged entity remains in the relevant Select Industry Index provided it satisfies the eligibility criteria. If the merged entity qualifies for inclusion in the relevant Select Industry Index, the stock deemed the target is dropped, the index shares for the acquirer will remain unchanged, and the weightings of the remaining constituents adjust proportionally.

If a constituent's GICS® classification changes to an ineligible sub-industry for a Select Industry Index, the constituent is removed at the subsequent rebalancing.

### **Governance of the Select Industry Indices**

The Index Committee maintains the Select Industry Indices. All Index Committee members are full-time professional members of S&P Dow Jones' staff. The Index Committee meets regularly. At each meeting, the Index Committee reviews pending corporate actions that may affect the Select Industry Indices constituents, statistics comparing the composition of the Select Industry Indices to the market, companies that are being considered as candidates for addition to a Select Industry Index and any significant market events. In addition, the Index Committee may revise index policy covering rules for selecting companies, treatment of dividends, share counts or other matters.

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## THE S&P SELECT SECTOR INDICES

All information contained in this underlying supplement regarding the Communication Services Select Sector Index, the Consumer Discretionary Select Sector Index, the Consumer Staples Select Sector Index, the Energy Select Sector Index, the Financial 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 (each, a **“Select Sector Index”** and collectively, the **“Select Sector Indices”**), including, without limitation, their make-up, method of calculation and changes in their components, has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, S&P Dow Jones Indices LLC (**“S&P Dow Jones”**). The Select Sector Indices are calculated, maintained and published by S&P Dow Jones. S&P Dow Jones has no obligation to continue to publish, and may discontinue publication of, any of the Select Sector Indices.

The constituents included in each Select Sector Index at each moment in time are members of the S&P 500® Index. For additional information about the S&P 500® Index, please see “Equity Index Descriptions — The S&P U.S. Indices” in this underlying supplement. S&P Dow Jones assigns constituents to a Select Sector Index based on the constituent’s classification under the Global Industry Classification Standard (**“GICS®”**).

### The Communication Services Select Sector Index

The Communication Services Select Sector Index is a capped modified market capitalization-based index that measures the performance of the GICS® communication services sector, which currently includes companies in the following industries: diversified telecommunication services; wireless telecommunication services; media; entertainment; and interactive media & services. The Communication Services Select Sector Index is reported by Bloomberg L.P. under the ticker symbol “IXCPR.”

### The Consumer Discretionary Select Sector Index

The Consumer Discretionary Select Sector Index is a capped modified market capitalization-based index that measures the performance of the GICS® consumer discretionary sector, which currently includes companies in the following industries: broadline retail; specialty retail; hotels, restaurants & leisure; textiles, apparel & luxury goods; household durables; automobiles; automobile components; distributors; leisure products; and diversified consumer services. The Consumer Discretionary Select Sector Index is reported by Bloomberg L.P. under the ticker symbol “IXY.”

### The Consumer Staples Select Sector Index

The Consumer Staples Select Sector Index is a capped modified market capitalization-based index that measures the performance of the GICS® consumer staples sector, which currently includes companies in the following industries: consumer staples distribution & retail; household products; food products; beverages; tobacco; and personal care products. The Consumer Staples Select Sector Index is reported by Bloomberg L.P. under the ticker symbol “IXR.”

### The Energy Select Sector Index

The Energy Select Sector Index is a capped modified market capitalization-based index that measures the performance of the GICS® energy sector, which currently includes companies in the following industries: oil, gas & consumable fuels; and energy equipment & services. The Energy Select Sector Index is reported by Bloomberg L.P. under the ticker symbol “IXE.”

### The Financial Select Sector Index

The Financial Select Sector Index is a capped modified market capitalization-based index that measures the performance of the GICS® financials sector, which currently includes companies in the following industries: financial services; insurance; banks; capital markets; mortgage real estate

investment trusts (“REITs”); and consumer finance. The Financial Select Sector Index is reported by Bloomberg L.P. under the ticker symbol “IXM.”

### **The Health Care Select Sector Index**

The Health Care Select Sector Index is a capped modified market capitalization-based index that measures the performance of the GICS® health care sector, which currently includes companies in the following industries: pharmaceuticals; health care equipment & supplies; health care providers & services; biotechnology; life sciences tools & services; and health care technology. The Health Care Select Sector Index is reported by Bloomberg L.P. under the ticker symbol “IXV.”

### **The Industrials Select Sector Index**

The Industrials Select Sector Index is a capped modified market capitalization-based index that measures the performance of the GICS® industrials sector, which currently includes companies in the following industries: aerospace & defense; industrial conglomerates; machinery; air freight & logistics; passenger airlines; marine transportation; ground transportation; transportation infrastructure; commercial services & supplies; professional services; electrical equipment; construction & engineering; trading companies & distributors; and building products. The Industrials Select Sector Index is reported by Bloomberg L.P. under the ticker symbol “IXI.”

### **The Materials Select Sector Index**

The Materials Select Sector Index is a capped modified market capitalization-based index that measures the performance of the GICS® materials sector, which currently includes companies in the following industries: chemicals; metals & mining; paper & forest products; containers & packaging; and construction materials. The Materials Select Sector Index is reported by Bloomberg L.P. under the ticker symbol “IXB.”

### **The Real Estate Select Sector Index**

The Real Estate Select Sector Index is a capped modified market capitalization-based index that measures the performance of the GICS® real estate sector, which currently includes companies in the following industries: diversified REITs; industrial REITs; hotel & resort REITs; office REITs; health care REITs; residential REITs; retail REITs; specialized REITs; and real estate management & development. The Real Estate Select Sector Index is reported by Bloomberg L.P. under the ticker symbol “IXRE.”

### **The Technology Select Sector Index**

The Technology Select Sector Index is a capped modified market capitalization-based index that measures the performance of the GICS® information technology sector, which currently includes companies in the following industries: technology hardware, storage & peripherals; software; communications equipment; semiconductors & semiconductor equipment; IT services; and electronic equipment, instruments & components. The Technology Select Sector Index is reported by Bloomberg L.P. under the ticker symbol “IXT.”

### **The Utilities Select Sector Index**

The Utilities Select Sector Index is a capped modified market capitalization-based index that measures the performance of the GICS® utilities sector, which currently includes companies in the following industries: electric utilities; water utilities; multi-utilities; independent power and renewable electricity producers; and gas utilities. The Utilities Select Sector Index is reported by Bloomberg L.P. under the ticker symbol “IXU.”

### **Select Sector Index Capping Methodology**

For capping purposes, the Select Sector Indices are rebalanced quarterly after the close of business on the third Friday of March, June, September and December using 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, adjusted for any applicable corporate actions, and membership, shares outstanding and investable weight factors (“**IWFs**”) as of the rebalancing effective date, each company is weighted by float-adjusted market capitalization (“**FMC**”). Modifications are made as defined below.
- (3) If any company has an FMC weight greater than 24%, the company’s weight is capped at 23%, which allows for a 2% buffer. This buffer is meant to mitigate against any company exceeding 25% as of the quarter-end diversification requirement date.
- (4) All excess weight is proportionally redistributed to all uncapped companies within the relevant Select Sector Index.
- (5) After this redistribution, if the FMC weight of any other company 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.
- (7) If the rule in paragraph 6 is breached, all companies are ranked in descending order by FMC weight, and the smallest company whose weight is greater than 4.8% that causes the paragraph 6 breach has its weight reduced to 4.5%.
- (8) This process continues iteratively until paragraph 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, on the second to last business day of March, June, September or December, a company has a weight greater than 24% or the sum of the companies with weights greater than 4.8% exceeds 50%, a secondary rebalancing will be triggered with the rebalancing effective date being after the close of the last business day of the month. This secondary rebalancing will use the closing prices as of the second to last business day of March, June, September or December, and membership, shares outstanding and IWFs as of the rebalancing effective date.

When companies represented in the Select Sector Indices are represented by multiple share classes, maximum weight capping is based on company FMC, with the weight of multiple-class companies allocated proportionally to each share class based on its FMC as of the rebalancing reference date. If no capping is required, both share classes remain in the relevant Select Sector Index at their natural FMC.

### **Calculation, Maintenance and Governance of the Select Sector Indices**

The Select Sector Indices are calculated, maintained and governed using the same methodology as the S&P 500® Index, subject to the capping methodology described above. For additional information about the calculation, maintenance and governance of the S&P 500® Index, please see “Equity Index Descriptions — The S&P U.S. Indices” in this underlying supplement.

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## THE S&P STYLE INDICES

All information contained in this underlying supplement regarding the S&P 500® Growth Index, the S&P MidCap 400® Growth Index and the S&P SmallCap 600® Growth Index (each, an “**S&P Growth Index**” and collectively, the “**S&P Growth Indices**”) as well as the S&P 500® Value Index, the S&P MidCap 400® Value Index and the S&P SmallCap 600® Value Index (each, an “**S&P Value Index**” and collectively, the “**S&P Value Indices**”), including, without limitation, their make-up, method of calculation and changes in their components, has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, S&P Dow Jones Indices LLC (“**S&P Dow Jones**”). The S&P Growth Indices and the S&P Value Indices (each, an “**S&P Style Index**” and collectively, the “**S&P Style Indices**”) are calculated, maintained and published by S&P Dow Jones. S&P Dow Jones has no obligation to continue to publish, and may discontinue publication of, any of the S&P Style Indices.

Each S&P Style Index is a subset of the S&P 500® Index, the S&P MidCap 400® Index or the S&P SmallCap 600® Index (each, an “**S&P U.S. Index**” and collectively, the “**S&P U.S. Indices**”), as applicable. For additional information about the S&P U.S. Indices, please see “Equity Index Descriptions — S&P U.S. Indices” in this underlying supplement.

### The S&P 500® Growth Index

The S&P 500® Growth Index is a subset of the S&P 500® Index and is a float-adjusted market capitalization-weighted index composed of large-capitalization U.S. equities that exhibit growth characteristics. The S&P 500® Index consists of stocks of 500 companies selected to provide a performance benchmark for the U.S. equity markets. The S&P 500® Growth Index is reported by Bloomberg L.P. under the ticker symbol “SGX.”

### The S&P 500® Value Index

The S&P 500® Value Index is a subset of the S&P 500® Index and is a float-adjusted market capitalization-weighted index composed of large-capitalization U.S. equities that exhibit value characteristics. The S&P 500® Index consists of stocks of 500 companies selected to provide a performance benchmark for the U.S. equity markets. The S&P 500® Value Index is reported by Bloomberg L.P. under the ticker symbol “SVX.”

### The S&P MidCap 400® Growth Index

The S&P MidCap 400® Growth Index is a subset of the S&P MidCap 400® Index and is a float-adjusted market capitalization-weighted index composed of medium-capitalization U.S. equities that exhibit growth characteristics. The S&P MidCap 400® Index consists of stocks of 400 companies selected to provide a performance benchmark for the medium market capitalization segment of the U.S. equity markets. The S&P MidCap 400® Growth Index is reported by Bloomberg L.P. under the ticker symbol “MIDG.”

### The S&P MidCap 400® Value Index

The S&P MidCap 400® Value Index is a subset of the S&P MidCap 400® Index and is a float-adjusted market capitalization-weighted index composed of medium-capitalization U.S. equities that exhibit value characteristics. The S&P MidCap 400® Index consists of stocks of 400 companies selected to provide a performance benchmark for the medium market capitalization segment of the U.S. equity markets. The S&P MidCap 400® Value Index is reported by Bloomberg L.P. under the ticker symbol “MIDV.”

### The S&P SmallCap 600® Growth Index

The S&P SmallCap 600® Growth Index is a subset of the S&P SmallCap 600® Index and is a float-adjusted market capitalization-weighted index composed of small-capitalization U.S. equities that exhibit growth characteristics. The S&P SmallCap 600® Index consists of stocks of 600 companies selected to provide a performance benchmark for the small market capitalization segment of the U.S. equity markets. The S&P SmallCap 600® Growth Index is reported by Bloomberg L.P. under the ticker symbol “SMLG.”

## The S&P SmallCap 600® Value Index

The S&P SmallCap 600® Value Index is a subset of the S&P SmallCap 600® Index and is a float-adjusted market capitalization-weighted index composed of small-capitalization U.S. equities that exhibit value characteristics. The S&P SmallCap 600® Index consists of stocks of 600 companies selected to provide a performance benchmark for the small market capitalization segment of the U.S. equity markets. The S&P SmallCap 600® Value Index is reported by Bloomberg L.P. under the ticker symbol “SMLV.”

## Composition of the S&P Style Indices

Each S&P Style Index is a subset of the relevant S&P U.S. Index and is a float-adjusted market-capitalization weighted index. S&P Dow Jones allocates the complete float-adjusted market capitalization of the companies included in the relevant S&P U.S. Index between the corresponding S&P Value Index and S&P Growth Index based on an assessment of those companies’ respective value and growth characteristics.

The market capitalization of companies exhibiting the strongest value characteristics relative to their respective growth characteristics is allocated to the relevant S&P Value Index (approximately 33% of the market capitalization of its parent index), and the market capitalization of companies exhibiting the strongest growth characteristics relative to their respective value characteristics (approximately 33% of the market capitalization of its parent index) is allocated to the corresponding S&P Growth Index. The market capitalization of the remaining companies included in the relevant S&P U.S. Index is split between the corresponding S&P Value Index and S&P Growth Index, with more of the market capitalization of companies exhibiting stronger value characteristics relative to their respective growth characteristics being allocated to the relevant S&P Value Index and more of the market capitalization of companies exhibiting the stronger growth characteristics relatively to their respective value characteristics being allocated to the corresponding S&P Growth Index.

## Construction of the S&P Style Indices

Each S&P Style Index is derived from its parent index, the relevant S&P U.S. Index. An S&P Style Index cannot have a constituent that is not also a member of the relevant S&P U.S. Index.

*Style Factors.* The S&P Growth Indices and the S&P Value Indices measure growth and value along two separate dimensions, with three factors each used to measure growth and value. The list of factors used is outlined in the table below.

Growth Factors	Value Factors
Three-year net change in earnings per share (excluding extra items) over price per share	Book value to price ratio
Three-year sales per share growth rate	Earnings to price ratio
Momentum (12-month % price change)	Sales to price ratio

- If earnings from three years prior are not available, two-year change in earnings per share (excluding extra items) over price per share is used. If earnings from two years prior are not available, one-year change in earnings per share (excluding extra items) over price per share is used. If earnings from one year prior are not available, the factor is set equal to zero. If the starting values is less than zero, the score is multiplied by a factor of negative 1.
- If sales from three years prior are not available, two-year sales per share growth rate is used. If sales from two years prior are not available, one-year sales per share growth rate is used. If sales from one year prior are not available, the factor is set equal to zero. If the starting values is less than zero, the score is multiplied by a factor of negative 1.

- If there is not enough trading history to calculate 12-month momentum then the momentum factor is calculated from the stock's listing date.
- If book value to price ratio, earnings to price ratio, or sales to price ratio is not available then such factor is set equal to zero.

*Style Scores.* Raw values for each of the above factors are calculated by S&P Dow Jones for each company in the S&P Total Market Index universe. The S&P Total Market Index is a float-adjusted, market capitalization-weighted index designed to track the broad U.S. equity market, including large-, mid-, small- and micro-cap stocks.

These raw values are first “**winsorized**” (a statistical tool used to minimize the influence of outliers in data) to the 90th percentile and then standardized by dividing the difference between each company's raw score and the mean of the entire set by the standard deviation of the entire set. A “**growth score**” for each company is computed as the average of the standardized values of the three growth factors. Similarly, a “**value score**” for each company is computed as the average of the standardized values of the three value factors. At the end of this step each company has a growth score and a value score.

*Establishing Style Baskets.* Companies within the relevant S&P U.S. Index are then ranked based on their growth and value scores. A company with a high growth score would have a higher “**growth rank**,” while a company with a low value score would have a lower “**value rank**.” For example, the index constituent with the highest value score would have a value rank of 1, while the constituent with the lowest value score would have a value rank of 500 in the case of the S&P 500® Index, 400 in the case of the S&P MidCap 400® Index or 600 in the case of the S&P SmallCap 600® Index.

The companies within the relevant S&P U.S. Index are then sorted in ascending order by the ratio of their growth rank to their value rank. The companies at the top of the list have a higher growth rank (or higher growth score) and a lower value rank (or lower value score) and, therefore, exhibit pure growth characteristics. The companies at the top of the list, comprising 33% of the total market capitalization of the relevant S&P U.S. Index, are included in the “**growth basket**.”

The companies at the bottom of the list have a higher value rank (or higher value score) and a lower growth rank (or lower growth score) and, therefore, exhibit pure value characteristics. The companies at the bottom of the list, comprising 33% of the total market capitalization of the relevant S&P U.S. Index, are included in the “**value basket**.”

The companies in the middle of the list have similar growth ranks and value ranks and, therefore, exhibit neither pure growth nor pure value characteristics. The companies in the middle of the list, comprising 34% of the total market capitalization of the relevant S&P U.S. Index, are included in the “**blended basket**.”

*Growth and Value Indices.* The style baskets described above are the starting points for the S&P Style Indices' construction. 100% of the float market capitalization of a company in the value basket is assigned to the relevant S&P Value Index, and 100% of the float market capitalization of a company in the growth basket is assigned to the corresponding S&P Growth Index.

The middle 34% of float market capitalization consists of companies that have similar growth and value ranks. The market capitalization of these companies that are in the blended basket is distributed between the relevant S&P Value Index and the corresponding S&P Growth Index based on their distances from the midpoint of the growth basket and the midpoint of the value basket. The midpoint of each style basket is calculated as the average of value scores and growth scores of all companies in that style basket.

Based on back-tested results, the total market capitalization is approximately equally divided among each S&P Growth Index and its corresponding S&P Value Index. However, there is no mathematical procedure employed to force equal market capitalization for each S&P Growth Index and its corresponding S&P Value Index, since price movements of constituent stocks would result in inequality

immediately following any reconstitution. Therefore, the future allocation of the market capitalization to the S&P Style Indices may not be equal.

Each S&P Style Index is calculated following S&P Dow Jones' modified market capitalization-weighted, divisor-based index methodology. Corporate actions and index changes are implemented in the same manner as for other market capitalization-weighted indices, *provided* that additional adjustments, when needed, are made in accordance with the *Corporate Actions and Other Adjustments* table below. See "Equity Index Descriptions — The S&P U.S. Indices" in this underlying supplement for additional information.

### **Maintenance of the S&P Style Indices**

**Rebalancing.** Each S&P Style Index is rebalanced once a year in December. The rebalancings occur after the close on the third Friday of December. The reference date for growth and value expressions is after the close of the last trading date of the previous month.

Style scores, float market-capitalization weights and growth and value midpoint averages are reset only once a year at the December rebalancing.

Other changes to the S&P Style Indices are made on an as-needed basis, following the guidelines of the relevant S&P U.S. Index. Changes in response to corporate actions and market developments can be made at any time. Constituent changes are typically announced for the relevant S&P U.S. Index two-to-five days before they are scheduled to be implemented.

#### *Corporate Actions and Other Adjustments*

<b>Parent Index Action</b>	<b>Adjustment Made to the Relevant S&amp;P Style Index</b>	<b>Divisor Adjustment?</b>
Constituent Change	If the index constituent being dropped is a member of an S&P Style Index, it is removed from such S&P Style Index. The replacement stock will then be added to either the relevant S&P Value Index or the corresponding S&P Growth Index (or both) based on its growth/value rank, and S&P Dow Jones will announce the percent of float market capitalization of the replacement stock to be added to the relevant S&P Value Index or the corresponding S&P Growth Index (or both) via its index corporate events report. The percent of float market capitalization of the constituent in each S&P Style Index for the replacement stock is calculated using the Global Industry Classification Standard industry-level averages for stocks outside the S&P Composite 1500 index other than spin-offs, and such percentage will be based on old values for inter-index moves.	Yes
Share Changes between Quarterly Share Adjustments	Share count follows the relevant S&P U.S. Index share count.	Yes
Quarterly Share Changes	Share count follows the relevant S&P U.S. Index share count. In addition, the new percent of float market capitalization in the relevant S&P Value Index and the corresponding S&P Growth Index changes for all constituent stocks at the December rebalancing. These will be pre-announced in a manner similar to quarterly	Yes



<b>Parent Index Action</b>	<b>Adjustment Made to the Relevant S&amp;P Style Index</b>	<b>Divisor Adjustment?</b>
	share changes.	
Spin Off	Index membership follows the relevant S&P U.S. Index. The “ <b>child stock</b> ” is assigned the same percent of float market capitalization in each S&P U.S. Index as its “ <b>parent stock</b> .”	No

### **Governance of the S&P Style Indices**

The S&P Style Indices are maintained by an index committee (the “**Index Committee**”). All members of the Index Committee are full-time professional members of S&P Dow Jones’ staff. The Index Committee meets regularly. At each meeting, the Index Committee may review pending corporate actions that may affect constituents of an S&P Style Index, statistics comparing the composition of the S&P Style Indices to the market, companies that are being considered as candidates for addition to an S&P Style Index and any significant market events. In addition, the Index Committee may revise index policy covering rules for selecting companies, treatment of dividends, share counts or other matters.

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## THE S&P U.S. INDICES

All information contained in this underlying supplement regarding the S&P 500® Index, the S&P MidCap 400® Index and the S&P SmallCap 600® Index (each, an “**S&P U.S. Index**” and collectively, the “**S&P U.S. Indices**”), including, without limitation, their make-up, method of calculation and changes in their components, has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, S&P Dow Jones Indices LLC (“**S&P Dow Jones**”). The S&P U.S. Indices are calculated, maintained and published by S&P Dow Jones. S&P Dow Jones has no obligation to continue to publish, and may discontinue publication of, any of the S&P U.S. Indices.

### The S&P 500® Index

The S&P 500® Index consists of stocks of 500 companies selected to provide a performance benchmark for the U.S. equity markets. The S&P 500® Index is reported by Bloomberg L.P. under the ticker symbol “SPX.”

### The S&P MidCap 400® Index

The S&P MidCap 400® Index consists of stocks of 400 companies selected to provide a performance benchmark for the medium market capitalization segment of the U.S. equity markets. The S&P MidCap 400® Index is reported by Bloomberg L.P. under the ticker symbol “MID.”

### The S&P SmallCap 600® Index

The S&P SmallCap 600® Index consists of stocks of 600 companies selected to provide a performance benchmark for the small market capitalization segment of the U.S. equity markets. The S&P SmallCap 600® Index is reported by Bloomberg L.P. under the ticker symbol “SML.”

### Composition of the S&P U.S. Indices

Additions to the S&P U.S. Indices are evaluated based on the following:

- *Domicile.* The company should be a U.S. company, meaning a company that has the following characteristics:
  - the company should file 10-K annual reports;
  - the U.S. portion of fixed assets and revenues should constitute a plurality of the total but need not exceed 50%. When these factors are in conflict, fixed assets determine plurality. Revenue determines plurality when there is incomplete asset information. Geographic information for revenue and fixed asset allocations are determined by the company as reported in its annual filings. If this criteria is not met or is ambiguous, S&P Dow Jones may still deem the company to be a U.S. company for index purposes if its primary listing, headquarters and incorporation are all in the United States and/or “**a domicile of convenience**” (Bermuda, Channel Islands, Gibraltar, islands in the Caribbean, Isle of Man, Luxembourg, Liberia or Panama); and
  - the primary listing must be on an eligible U.S. exchange as described under “*Exchange Listing*” below.

In situations where the only factor suggesting that a company is not a U.S. company is its tax registration in a domicile of convenience or another location chosen for tax-related reasons, S&P Dow Jones normally determines that the company is still a U.S. company. The final determination of domicile eligibility is made by the S&P Dow Jones’s U.S. index committee.

- *Exchange Listing.* A primary listing on one of the following U.S. exchanges is required: New York Stock Exchange, NYSE Arca, NYSE American, Nasdaq Global Select Market, Nasdaq Select

Market, Nasdaq Capital Market, Cboe BZX, Cboe BYX, Cboe EDGA or Cboe EDGX exchanges. Ineligible exchanges include the OTC Bulletin Board and Pink Sheets.

- *Organizational Structure and Share Type.* Eligible organizational structures and share types are corporations, including equity and mortgage real estate investment trusts (“**REITs**”), and common stock (*i.e.*, shares). Ineligible organizational structures and share types include, but are not limited to, business development companies, limited partnerships, master limited partnerships, limited liability companies, closed-end funds, exchange-traded funds, exchange-traded notes, royalty trusts, special purposes acquisition companies, tracking stocks, preferred and convertible preferred stock, unit trusts, equity warrants, convertible bonds, investment trusts, rights and American depositary receipts.

As of July 2017, the securities of companies with multiple share class structures (including companies with listed and unlisted share classes) are no longer eligible to be added to the S&P U.S. Indices, but securities already included in an S&P U.S. Index have been grandfathered and are not affected by this change.

- *Market Capitalization.* The total company market capitalization should be within a specified range for the relevant S&P U.S. Index. These ranges are reviewed quarterly and updated as needed to ensure they reflect current market conditions. A company meeting the total company market capitalization criteria is also required to have a security level float-adjusted market capitalization (“**FMC**”) that is at least 50% of the relevant S&P U.S. Index’s total company level minimum market capitalization threshold. For spin-offs, S&P U.S. Index membership eligibility is determined using when-issued prices, if available.
- *Investable Weight Factor (“**IWF**”).* For each component, S&P Dow Jones calculates an IWF, which represents the portion of the total shares outstanding that are considered part of the public float for purposes of the relevant S&P U.S. Index. An IWF of at least 0.10 is required for S&P U.S. Indices.
- *Liquidity.* A float-adjusted liquidity ratio (“**FALR**”), defined as the annual dollar value traded divided by the FMC, is used to measure liquidity. Using composite pricing and consolidated volume (excluding dark pools) across all venues (including historical values), annual dollar value traded is defined as the average closing price multiplied by the historical volume over the 365 calendar days prior to the evaluation date. This is reduced to the available trading period for initial public offerings (“**IPOs**”) or spin-offs that do not have 365 calendar days of trading history. In these cases, the dollar value traded available as of the evaluation date is annualized. The price, shares outstanding and IWF as of the evaluation date are used to calculate the FMC. The evaluation date is the open of trading on the day prior to the announcement date. The stock should trade a minimum of 250,000 shares in each of the six months leading up to the evaluation date. The FALR must be greater than or equal to 1.0 at the time of addition to an S&P U.S. Index. Current index constituents have no minimum requirement.
- *Financial Viability.* The sum of the most recent four consecutive quarters’ Generally Accepted Accounting Principles (“**GAAP**”) earnings (net income excluding discontinued operations) should be positive as should the most recent quarter. For equity REITs, financial viability is based on GAAP earnings and/or funds from operations, if reported.
- *Treatment of IPOs.* IPOs should be traded on an eligible exchange for at least 12 months before being considered for addition to an S&P U.S. Index. For former special purpose acquisition companies (“**SPACs**”), S&P Dow Jones considers the de-SPAC transaction to be an event equivalent to an IPO, and 12 months of trading post the de-SPAC event are required before a former SPAC can be considered for inclusion in an S&P U.S. Index. Spin-offs or in-specie distributions from existing constituents do not need to be seasoned for 12 months prior to their inclusion in an S&P U.S. Index.
- *Sector Classification.* The company is evaluated for its contribution to sector balance maintenance, as measured by a comparison of each Global Industry Classification Standard

sector's weight in the relevant S&P U.S. Index with its weight in the S&P Total Market Index, in the relevant market capitalization range. The S&P Total Market Index is a float-adjusted market capitalization-weighted index designed to track the broad U.S. equity market, including large-, mid-, small- and micro-cap stocks.

Companies that migrate from an ineligible exchange, emerge from bankruptcy, are newly designated to be domiciled in the U.S. for index purposes by S&P Dow Jones or convert from an ineligible share or organizational type to an eligible type do not need to trade on an eligible U.S. exchange for 12 months before being considered for addition to an S&P U.S. Index.

Current constituents of an S&P U.S. Index can be migrated from one S&P U.S. Index to another provided they meet the total company level market capitalization eligibility criteria for the new index. Migrations from an S&P U.S. Index to another do not need to meet the financial viability, liquidity or 50% of the respective index's total company level minimum market capitalization threshold criteria.

Companies that are spun-off from current index constituents do not need to meet the outside addition criteria, but they should be considered U.S. domiciled for index purposes and have a total market cap representative of the relevant S&P U.S. Index.

Removals from the S&P U.S. Indices are evaluated based as follows:

- *Companies that are involved in mergers, acquisitions or significant restructuring such that they no longer meet the eligibility criteria.* Companies delisted as a result of merger, acquisition or other corporate action are removed at a time announced by S&P Dow Jones, normally at the close of the last day of trading or expiration of a tender offer. Constituents that are halted from trading may be kept in an S&P U.S. Index until trading resumes, at the discretion of S&P Dow Jones's U.S. index committee. If a stock is moved to Pink Sheets or the OTC Bulletin Board, the stock is removed.

Any company that is removed from an S&P U.S. Index (including discretionary and bankruptcy/exchange delistings) must wait a minimum of one year from its index removal date before being screened for the eligibility criteria.

- *Companies that substantially violate one or more of the addition criteria.* S&P Dow Jones believes turnover in index membership should be avoided when possible. At times, a stock may appear to temporarily violate one or more of the addition criteria. However, the addition criteria are for addition to an S&P U.S. Index, not for continued membership. As a result, an S&P U.S. Index constituent that appears to violate criteria for addition to that index is not deleted unless ongoing conditions warrant an index change. When a stock is removed from an S&P U.S. Index, S&P Dow Jones explains the basis for the removal.

## **Calculation of the S&P U.S. Indices**

The S&P U.S. Indices are float-adjusted market capitalization-weighted indices. On any given day, the index value of each S&P U.S. Index is the total float-adjusted market capitalization of that S&P U.S. Index's constituents *divided* by its divisor. The float-adjusted market capitalization reflects the price of each stock in the relevant S&P U.S. Index *multiplied* by the number of shares used in the index value calculation.

**Float Adjustment.** Float adjustment means that the number of shares outstanding is reduced to exclude closely held shares from the calculation of the index value because such shares are not available to investors. The goal of float adjustment is to adjust each company's total shares outstanding for long-term strategic shareholders, who often have interests such as maintaining control rather than the shorter-term economic fortunes of the company. Generally, these long-term strategic shareholders include, but are not limited to, officers and directors, private equity, venture capital and special equity firms, asset managers and insurance companies with direct board of director representation, other publicly traded companies that hold shares, holders of restricted shares, company-sponsored employee share plans/trusts, defined contribution plans/savings, and investment plans, foundations or family trusts

associated with the company, government entities at all levels (other than government retirement/pension funds), sovereign wealth funds and any individual person who controls a 5% or greater stake in a company as reported in regulatory filings. Restricted shares are generally not included in total shares outstanding except for shares held as part of a lock-up agreement. Shares that are not considered outstanding are also not included in the available float. These generally include treasury stock, stock options, equity participation units, warrants, preferred stock, convertible stock and rights.

**Divisor.** Continuity in index values of each S&P U.S. Index is maintained by adjusting its divisor for all changes in its constituents' share capital after its base date. This includes additions and deletions to the relevant S&P U.S. Index, rights issues, share buybacks and issuances and non-zero price spin-offs. The value of each S&P U.S. Index's divisor over time is, in effect, a chronological summary of all changes affecting the base capital of that S&P U.S. Index. The divisor of each S&P U.S. Index is adjusted such that the index value of that S&P U.S. Index at an instant just prior to a change in base capital equals the index value of that S&P U.S. Index at an instant immediately following that change.

## Maintenance of the S&P U.S. Indices

Changes to index composition are made on an as-needed basis. There is no scheduled reconstitution. Rather, changes in response to corporate actions and market developments can be made at any time. Index additions and deletions are announced with at least three business days advance notice. Less than three business days' notice may be given at the discretion of the S&P Dow Jones's U.S. index committee.

**Quarterly Update.** Share counts are updated to the latest publicly available filings on a quarterly basis. IWF changes will only be made at the quarterly review if the change represents at least 5% of total current shares outstanding and is related to a single corporate action that did not qualify for the accelerated implementation rule, regardless of whether there is an associated share change.

**Share/IWF Reference Date and Freeze Period.** A reference date, after the market close five weeks prior to the third Friday in March, June, September and December, is the cutoff for publicly available information used for quarterly shares outstanding and IWF changes. All shares outstanding and ownership information contained in public filings and/or official sources dated on or before the reference date are included in that quarter's update. In addition, there is a freeze period on a quarterly basis for any changes that result from the accelerated implementation rule. The freeze period begins after the market close on the Tuesday prior to the second Friday of each rebalancing month (i.e., March, June, September and December) and ends after the market close on the third Friday of the rebalancing month.

Pro-forma files for float-adjusted market capitalization indices are generally released after the market close on the first Friday, two weeks prior to the rebalancing effective date. For illustration purposes, if rebalancing pro-forma files are scheduled to be released on Friday, March 5, the share/IWF freeze period will begin after the close of trading on Tuesday, March 9, and will end after the close of trading the following Friday, March 19 (i.e., the third Friday of the rebalancing month).

During the share/IWF freeze period, shares and IWFs are not changed and the accelerated implementation rule is suspended, except for mandatory corporate action events (such as merger activity, stock splits and rights offerings). The suspension includes all changes that qualify for accelerated implementation and would typically be announced or effective during the share/IWF freeze period. At the end of the freeze period, all suspended changes will be announced on the third Friday of the rebalancing month and implemented five business days after the quarterly rebalancing effective date.

**Other Adjustments.** In cases where there is no achievable market price for a stock being deleted, it can be removed at a zero or minimal price at the S&P Dow Jones's U.S. index committee's discretion.

The table below summarizes the treatment of certain corporate actions.

Corporate Action	Treatment
Company	Addition

<b>Corporate Action</b>	<b>Treatment</b>
<b>addition/deletion</b>	<p>Companies are added at the float market capitalization weight. The net change to the market capitalization of the relevant S&amp;P U.S. Index causes a divisor adjustment.</p> <p><u>Deletion</u> The weights of all stocks in the relevant S&amp;P U.S. Index will proportionally change. Relative weights will stay the same. The index divisor will change due to the net change in the market capitalization of that S&amp;P U.S. Index.</p>
<b>Change in shares outstanding</b>	Increasing (decreasing) the shares outstanding increases (decreases) the market capitalization of the relevant S&P U.S. Index. The change to the market capitalization of that S&P U.S. Index causes a divisor adjustment.
<b>Split/reverse split</b>	Shares outstanding are adjusted by the split ratio. Stock price is adjusted by the split ratio. There is no change to the market capitalization of the relevant S&P U.S. Index and no divisor adjustment.
<b>Spin-off</b>	<p>Generally, the spin-off is added to the relevant S&amp;P U.S. Index on the ex-date at a price of zero and will remain in that S&amp;P U.S. Index for at least one trading day. As a result, there will be no change to the index divisor on the ex-date.</p> <p>However, if the spin-off is ineligible for continued inclusion, it will be removed after the ex-date. The weight of the spin-off being deleted is reinvested across all the index components proportionally such that the relative weights of all index components are unchanged. The net change in the market capitalization of the relevant S&amp;P U.S. Index will cause a divisor change.</p>
<b>Change in IWF</b>	Increasing (decreasing) the IWF increases (decreases) the market capitalization of the relevant S&P U.S. Index. A net change to the market capitalization of that S&P U.S. Index causes a divisor adjustment.
<b>Ordinary dividend</b>	When a company pays an ordinary cash dividend, the relevant S&P U.S. Index does not make any adjustments to the price or shares of the stock. As a result, there are no divisor adjustments to that S&P U.S. Index.
<b>Special dividend</b>	The stock price is adjusted by the amount of the dividend. The net change to the market capitalization of the relevant S&P U.S. Index causes a divisor adjustment.
<b>Rights offering</b>	All rights offerings that are in the money on the ex-date are applied under the assumption that the rights are fully subscribed. The stock price is adjusted by the value of the rights and the shares outstanding are increased by the rights ratio. The net change in the market capitalization of the relevant S&P U.S. Index causes a divisor adjustment.

### **Governance of the S&P U.S. Indices**

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## THE STOXX BENCHMARK INDICES

All information contained in this underlying supplement regarding the STOXX® Europe Total Market Index, the STOXX® Europe 600 Index, the EURO STOXX® Index, the STOXX® Europe 600 Supersector indices, the EURO STOXX® Supersector indices, the STOXX® Europe 50 Index and the EURO STOXX 50® Index (each, a “**STOXX Benchmark Index**” and collectively, the “**STOXX Benchmark Indices**”), including, without limitation, their make-up, method of calculation and changes in their components, has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, STOXX Limited, a wholly owned subsidiary of Deutsche Börse AG. The STOXX Benchmark Indices are calculated, maintained and published by STOXX Limited. STOXX Limited has no obligation to continue to publish, and may discontinue publication of, any of the STOXX Benchmark Indices.

### The STOXX® Europe Total Market Index

The STOXX® Europe Total Market Index is a free-float market capitalization weighted index composed of at least 95% of the free-float market capitalization traded on each of the major exchanges of 17 European countries: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland and the United Kingdom. The euro price return version of the STOXX® Europe Total Market Index is reported by Bloomberg L.P. under the ticker symbol “BKXP.”

Only common stocks and equities with similar characteristics from financial markets that provide reliable real-time, historical component and currency pricing, and reference and corporate actions data are eligible for inclusion in the STOXX® Europe Total Market Index. In addition, only listed companies on a regulated market on a major exchange as determined by STOXX are eligible to be included in the STOXX® Europe Total Market Index. Investment instruments (Industry Classification Benchmark: 8985 or 8995) and companies that were recently removed from the STOXX® Europe Total Market Index due to mergers and acquisition are not eligible for inclusion in the STOXX® Europe Total Market Index.

Each stock is uniquely assigned to a specific country and listing within the STOXX investable universe. The country classification and listing is based on the country of incorporation, the primary listing and the country with the largest trading volume. American and other depositary receipts (e.g., ADRs/GDRs) are assigned to the same country as the stock on which the receipt is issued. Each country is assigned to one or more regions. The STOXX® Europe Total Market Index is composed of stocks assigned to countries within the Europe region.

All stocks in the investable stock universe of each country included in STOXX® Europe Total Market Index are ranked in terms of their free-float market capitalization at the cut-off date to produce the review list. The largest companies in the investible universe of each country with a cumulative free-float market capitalization up to and including 93% of the investible universe of that country qualify for inclusion in the STOXX® Europe Total Market Index. The stocks covering the next 2% of cumulative free-float market capitalization are selected among the largest remaining current components of the STOXX® Europe Total Market Index representing the portion of capitalization above 93% and up to and including 99%. If the country coverage is still below the defined threshold, then the largest remaining stocks are selected until the country coverage is reached.

No weighting cap factor is applied in calculating the STOXX® Europe Total Market Index.

### The STOXX® Europe 600 Index

The STOXX® Europe 600 Index is a free-float-market capitalization weighted index composed of 600 of the largest stocks in terms of free-float market capitalization traded on the major exchanges of 17 European countries: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland and the United Kingdom. At any given time, some eligible countries may not be represented in the STOXX® Europe 600 Index. The euro price return version of the STOXX® Europe 600 Index is reported by Bloomberg L.P. under the ticker symbol “SXXP.”

The selection list for the STOXX® Europe 600 Index is composed of the most liquid stock of each component of the STOXX® Europe Total Market Index that has a minimum liquidity of greater than one million EUR measured over 3-month average daily trading value. From the selection list, the largest 550 stocks qualify for inclusion in the STOXX® Europe 600 Index. 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 weighting cap factor limits the weight of each component stock within the STOXX® Europe 600 Index to a maximum of 20% of the STOXX® Europe 600 Index at the time of each review.

### **The EURO STOXX® Index**

The EURO STOXX® Index is a free-float market capitalization weighted index composed of the largest stocks in terms of free-float market capitalization traded on the major exchanges of 11 Eurozone countries: Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain. At any given time, some eligible countries may not be represented in the EURO STOXX® Index. The euro price return version of the EURO STOXX® Index is reported by Bloomberg L.P. under the ticker symbol "SXXE."

The EURO STOXX® Index is composed of all of the components of the STOXX® Europe 600 Index that are traded in euros and assigned to countries in the Eurozone.

The weighting cap factor limits the weight of each component stock within the EURO STOXX® Index to a maximum of 20% of the EURO STOXX® Index at the time of each review.

### **The STOXX® Europe 600 Supersector Indices and the EURO STOXX® Supersector Indices**

The STOXX® Europe 600 Index and the EURO STOXX® Index are each divided into 20 supersector indices according to the Industry Classification Benchmark ("ICB"), an international system for categorizing companies that is maintained by FTSE Russell. Each supersector index includes the components of its parent index that have been issued by companies within the relevant ICB supersector. The ICB supersectors are: automobiles and parts; banks; basic resources; chemicals; construction and materials; consumer products and services; energy; financial services; food, beverage and tobacco; health care; industrial goods and services; insurance; media; personal care, drug and grocery stores; real estate; retail; technology; telecommunications; travel and leisure; and utilities.

The STOXX® Europe 600 Banks Index is one of 20 STOXX® Europe 600 Supersector indices and includes stocks composing the STOXX® Europe 600 Index that have been issued by companies in the ICB banks supersector. The banks supersector tracks companies providing a broad range of financial services, including retail banking, loans and money transmissions. The euro price return version of the STOXX® Europe 600 Banks Index is reported by Bloomberg L.P. under the ticker symbol "SX7P."

The EURO STOXX® Banks Index is one of 20 EURO STOXX® Supersector indices and includes stocks composing the EURO STOXX® Index that have been issued by companies in the ICB banks supersector. The banks supersector tracks companies providing a broad range of financial services, including retail banking, loans and money transmissions. The euro price return version of the EURO STOXX® Banks Index is reported by Bloomberg L.P. under the ticker symbol "SX7E."

With respect to each STOXX® Europe 600 Supersector index, the weighting cap factor limits the weight of the highest weighted component stock to a maximum of 30% at the time of each review and limits the weight of the second highest weighted component stock to a maximum of 15% at the time of each review. No weighting cap factor is applied in calculating the EURO STOXX® Supersector indices.

### **The STOXX® Europe 50 Index**

The STOXX® Europe 50 Index is a free-float market capitalization weighted index composed of 50 of the largest stocks in terms of free-float market capitalization traded on the major exchanges of 17 European countries: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland and the United Kingdom. At any

given time, some eligible countries may not be represented in the STOXX® Europe 50 Index. The euro price return version of the STOXX® Europe 50 Index is reported by Bloomberg L.P. under the ticker symbol "SX5P."

The selection list for the STOXX® Europe 50 Index is composed of the components of the STOXX® Europe 600 Index. In addition, the selection list for the STOXX® Europe 50 Index includes only the top 60% of the free-float market capitalization of each of the 20 STOXX® Europe 600 Supersector indices and all current STOXX® Europe 50 Index component stocks. All the stocks on the selection list are ranked in terms of free-float market capitalization. The largest 40 stocks on the selection list are selected for inclusion in the STOXX® Europe 50 Index; 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 weighting cap factor limits the weight of each component stock within the STOXX® Europe 50 Index to a maximum of 10% of the STOXX® Europe 50 Index at the time of each review.

### **The EURO STOXX 50® Index**

The EURO STOXX 50® Index is a free-float market capitalization weighted index composed of 50 of the largest stocks in terms of free-float market capitalization traded on the major exchanges of 9 Eurozone countries: Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands and Spain. At any given time, some eligible countries may not be represented in the EURO STOXX 50® Index. The euro price return version of the EURO STOXX 50® Index is reported by Bloomberg L.P. under the ticker symbol "SX5E."

The selection list for the EURO STOXX® 50 Index is composed of the components of the EURO STOXX® Index. In addition, the selection list for the EURO STOXX® 50 Index includes the top 60% of the free-float market capitalization of each of the 20 EURO STOXX® Supersector indices and all current EURO STOXX® 50 Index component stocks. All the stocks on the selection list are ranked in terms of free-float market capitalization. The largest 40 stocks on the selection list are selected for inclusion in the EURO STOXX® 50 Index; 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 weighting cap factor limits the weight of each component stock within the EURO STOXX® 50 Index to a maximum of 10% of the EURO STOXX® 50 Index at the time of each review.

### **STOXX Benchmark Index Maintenance**

The composition of each of the STOXX® Europe Total Market Index, the STOXX® Europe 600 Index, the EURO STOXX® Index, the STOXX® Europe 600 Supersector Indices and the EURO STOXX® Supersector Indices is reviewed quarterly in March, June, September and December. For the STOXX® Europe Total Market Index, the review cut-off date is the last trading day of the month following the last quarterly index review. For the remaining STOXX Benchmark Indices, the review cut-off date is the last trading day of the month preceding the review month.

The composition of each of the STOXX® Europe 50 Index and the EURO STOXX 50® Index is reviewed annually in September. The review cut-off date is the last trading day of August. The composition of the STOXX® Europe 50 Index and the EURO STOXX 50® Index is also reviewed monthly and components that rank 75 or below are replaced and non-component stocks that rank 25 or above are added.

In addition, changes to country classification and listing are effective as of the next quarterly review. At that time, the relevant STOXX Benchmark Index is adjusted accordingly to remain consistent with its country membership rules by deleting the company where necessary.

The STOXX Benchmark Indices are also reviewed on an ongoing basis. Corporate actions (including initial public offerings, mergers and takeovers, spin-offs, delistings, bankruptcy, and price and share adjustments) that affect a STOXX Benchmark 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.

With respect to the STOXX® Europe Total Market Index, removed companies are not replaced. With respect to the STOXX® Europe 600 Index, the EURO STOXX® Index, the STOXX® Europe 600 Supersector Indices, the EURO STOXX® Supersector Indices, the STOXX® Europe 50 Index and the EURO STOXX 50® Index, to maintain the number of components constant, a removed company is replaced by the highest-ranked non-component on the relevant selection list. The selection list is updated on a monthly basis according to the review component selection process.

The free-float factors for each component stock used to calculate each STOXX Benchmark Index are reviewed, calculated and implemented on a quarterly basis and are fixed until the next quarterly review.

### STOXX Benchmark Index Calculation

Each STOXX Benchmark Index is calculated with the “Laspeyres formula,” which measures the aggregate price changes in the component stocks against a fixed base quantity weight. The formula for calculating the value of a STOXX Benchmark Index can be expressed as follows:

$$\text{Index} = \frac{\text{free-float market capitalization of the relevant STOXX Benchmark Index}}{\text{divisor}}$$

The “free-float market capitalization of the relevant STOXX Benchmark Index” is equal to the sum of the products, for each component stock, of the price, number of shares, free-float factor, weighting cap factor and, if applicable, the exchange rate from the local currency into the index currency of the relevant STOXX Benchmark Index as of the time that STOXX Benchmark Index is being calculated.

The free-float factor of each component stock is intended to reduce the number of shares to the actual amount available on the market. All fractions of the total number of shares that are larger than 5% and whose holding is of a long-term nature are excluded from the calculation of the STOXX Benchmark Indices, including: cross-ownership (stock owned either by the company itself, in the form of treasury shares, or owned by other companies); government ownership (stock owned by either governments or their agencies); private ownership (stock owned by either individuals or families); and restricted shares that cannot be traded during a certain period or have a foreign ownership restriction. Block ownership is not applied for holdings of custodian nominees, trustee companies, mutual funds, investment companies with short-term investment strategies, pension funds and similar entities.

Each STOXX Benchmark Index is also subject to a divisor, which is adjusted to maintain the continuity of the values of that STOXX Benchmark Index despite changes due to corporate actions. The following is a summary of the adjustments to any component stock of a STOXX Benchmark Index made for corporate actions and the effect of such adjustment on the divisor of that STOXX Benchmark Index, where shareholders of the component stock will receive “B” number of shares for every “A” share held (where applicable).

#### (1) *Special cash dividend:*

Cash distributions that are outside the scope of the regular dividend policy or that the company defines as an extraordinary distribution

Adjusted price = closing price – dividend announced by the company × (1 – withholding tax if applicable)

Divisor: decreases

#### (2) *Split and reverse split:*

Adjusted price = closing price × A / B

New number of shares = old number of shares × B / A

Divisor: unchanged



<p><b>(3) Rights offering:</b></p> <p>If the subscription price is not available or if the subscription price is equal to or greater than the closing price on the day before the effective date, then no adjustment is made.</p> <p>If the subscription price is available as a price range and not as a fixed price, the price and share adjustment is performed only if both lower and upper range are in the money. The average value between lower and upper range will be used as a subscription price.</p> <p>In case the share increase is greater than or equal to 100% (<math>B / A \geq 1</math>), the adjustment of the shares and weight factors are delayed until the new shares are listed.</p> <p>Adjusted price = <math>(\text{closing price} \times A + \text{subscription price} \times B) / (A + B)</math></p> <p>New number of shares = <math>\text{old number of shares} \times (A + B) / A</math></p> <p>Divisor: increases</p>	
<p><b>(4) Stock dividend:</b></p> <p>Adjusted price = <math>\text{closing price} \times A / (A + B)</math></p> <p>New number of shares = <math>\text{old number of shares} \times (A + B) / A</math></p> <p>Divisor: unchanged</p>	<p><b>(5) Stock dividend (from treasury stock):</b></p> <p>Adjusted only if treated as extraordinary dividend.</p> <p>Adjusted close = <math>\text{close} - \text{close} \times B / (A + B)</math></p> <p>Divisor: decreases</p>
<p><b>(6) Stock dividend (from redeemable shares):</b></p> <p>Adjusted only if treated as extraordinary dividend.</p> <p>Adjusted close = <math>\text{close} - \text{close} \times B / (A + B)</math></p> <p>Divisor: decreases</p>	<p><b>(7) Stock dividend of another company:</b></p> <p>Adjusted price = <math>(\text{closing price} \times A - \text{price of other company} \times B) / A</math></p> <p>Divisor: decreases</p>
<p><b>(8) Return of capital and share consolidation:</b></p> <p>Adjusted price = <math>(\text{closing price} - \text{capital return announced by company} \times (1 - \text{withholding tax})) \times A / B</math></p> <p>New number of shares = <math>\text{old number of shares} \times B / A</math></p> <p>Divisor: decreases</p>	<p><b>(9) Repurchase of shares / self-tender:</b></p> <p>Adjusted price = <math>((\text{price before tender} \times \text{old number of shares}) - (\text{tender price} \times \text{number of tendered shares})) / (\text{old number of shares} - \text{number of tendered shares})</math></p> <p>New number of shares = <math>\text{old number of shares} - \text{number of tendered shares}</math></p> <p>Divisor: decreases</p>
<p><b>(10) Spin-off:</b></p> <p>Adjusted price = <math>(\text{closing price} \times A - \text{price of spun-off shares} \times B) / A</math></p> <p>Divisor: decreases</p>	
<p><b>(11) Combination stock distribution (dividend or split) and rights offering:</b></p> <p>For this corporate action, the following additional assumptions apply:</p> <p>Shareholders receive B new shares from the distribution and C new shares from the rights offering for every A share held.</p> <p>If A is not equal to one share, all the following “<b>new number of shares</b>” formulae need to be divided by A:</p>	
<p>– If rights are applicable after stock distribution (one action applicable to other):</p> <p>Adjusted price = <math>(\text{closing price} \times A + \text{subscription price} \times C \times (1 + B / A)) / ((A + B) \times (1 + C / A))</math></p> <p>New number of shares = <math>\text{old number of shares} \times</math></p>	<p>– If stock distribution is applicable after rights (one action applicable to other):</p> <p>Adjusted price = <math>(\text{closing price} \times A + \text{subscription price} \times C) / ((A + C) \times (1 + B / A))</math></p> <p>New number of shares = <math>\text{old number of shares} \times</math></p>



$((A + B) \times (1 + C / A)) / A$ <p>Divisor: increases</p>	$((A + C) \times (1 + B / A))$ <p>Divisor: increases</p>
<p>– <i>Stock distribution and rights (neither action is applicable to the other):</i></p> <p>Adjusted price = (closing price × A + subscription price × C) / (A + B + C)</p> <p>New number of shares = old number of shares × (A + B + C) / A</p> <p>Divisor: increases</p>	
<p>(12) <i>Addition / deletion of a company:</i></p> <p>No price adjustments are made. The net change in market capitalization determines the divisor adjustment.</p>	<p>(13) <i>Free-float and shares changes:</i></p> <p>No price adjustments are made. The net change in market capitalization determines the divisor adjustment.</p>

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## THE STOXX SELECT DIVIDEND INDICES

All information contained in this underlying supplement regarding the EURO STOXX® Select Dividend 30 Index, the STOXX® Asia/Pacific Select Dividend 30 Index, the STOXX® Europe Select Dividend 30 Index, the STOXX® North America Select Dividend 40 Index and the STOXX® Global Select Dividend 100 Index (each, a “**STOXX Select Dividend Index**” and collectively, the “**STOXX Select Dividend Indices**”), including, without limitation, their make-up, method of calculation and changes in their components, has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, STOXX Limited, a wholly owned subsidiary of Deutsche Börse AG. The STOXX Select Dividend Indices are calculated, maintained and published by STOXX Limited. STOXX Limited has no obligation to continue to publish, and may discontinue the publication of, any of the STOXX Select Dividend Indices.

### The EURO STOXX® Select Dividend 30 Index

The EURO STOXX® Select Dividend 30 Index is a net dividend yield-weighted index composed of 30 of the highest dividend-paying stocks selected from the components of the EURO STOXX® Index, which provides a broad representation of the developed markets in the Eurozone. See “Equity Index Descriptions — The STOXX Benchmark Indices” in this underlying supplement for additional information about the EURO STOXX® Index. The component stocks of the EURO STOXX® Select Dividend 30 Index are traded on the major exchanges of 11 Eurozone countries: Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain. At any given time, some eligible countries may not be represented in the EURO STOXX® Select Dividend 30 Index. Although the EURO STOXX® Select Dividend 30 Index measures the performance of high dividend-yielding companies, it is a price return index and, therefore, the return on the EURO STOXX® Select Dividend 30 Index will not include any dividends paid on the securities that make up the EURO STOXX® Select Dividend 30 Index. The euro price return version of the EURO STOXX® Select Dividend 30 Index is reported by Bloomberg L.P. under the ticker symbol “SD3E.”

### The STOXX® Asia/Pacific Select Dividend 30 Index

The STOXX® Asia/Pacific Select Dividend 30 Index is a net dividend yield-weighted index composed of 30 of the highest dividend-paying stocks selected from the components of the STOXX® Asia/Pacific 600 Index, which provides a broad representation of the developed markets in the Asia/Pacific region. The selection list for the STOXX® Asia/Pacific 600 Index is derived from its relevant regional STOXX® Total Market Index. Otherwise, the STOXX® Asia/Pacific 600 Index is calculated and maintained using the same methodology as the STOXX® Europe 600 Index. See “Equity Index Descriptions — The STOXX Benchmark Indices” in this underlying supplement for additional information about the calculation and maintenance of the STOXX® Europe 600 Index. The component stocks of the STOXX® Asia/Pacific Select Dividend 30 Index are traded on the major exchanges of Australia, Hong Kong, Japan, New Zealand and Singapore. At any given time, some eligible countries may not be represented in the STOXX® Asia/Pacific Select Dividend 30 Index. Although the STOXX® Asia/Pacific Select Dividend 30 Index measures the performance of high dividend-yielding companies, it is a price return index and, therefore, the return on the STOXX® Asia/Pacific Select Dividend 30 Index will not include any dividends paid on the securities that make up the STOXX® Asia/Pacific Select Dividend 30 Index. The euro price return version of the STOXX® Asia/Pacific Select Dividend 30 Index is reported by Bloomberg L.P. under the ticker symbol “SD3PP.”

### The STOXX® Europe Select Dividend 30 Index

The STOXX® Europe Select Dividend 30 Index is a net dividend yield-weighted index composed of 30 of the highest dividend-paying stocks selected from the components of the STOXX® Europe 600 Index, which provides a broad representation of the developed markets in the European region. See “Equity Index Descriptions — The STOXX Benchmark Indices” in this underlying supplement for additional information about the STOXX® Europe 600 Index. The component stocks of the STOXX® Europe Select Dividend 30 Index are traded on the major exchanges of 17 European countries: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland and the United Kingdom. At any given time, some eligible

countries may not be represented in the STOXX® Europe Select Dividend 30 Index. Although the STOXX® Europe Select Dividend 30 Index measures the performance of high dividend-yielding companies, it is a price return index and, therefore, the return on the STOXX® Europe Select Dividend 30 Index will not include any dividends paid on the securities that make up the STOXX® Europe Select Dividend 30 Index. The euro price return version of the STOXX® Europe Select Dividend 30 Index is reported by Bloomberg L.P. under the ticker symbol “SD3P.”

### **The STOXX® North America Select Dividend 40 Index**

The STOXX® North America Select Dividend 40 Index is a net dividend yield-weighted index composed of 40 of the highest dividend-paying stocks selected from the components of the STOXX® North America 600 Index, which provides a broad representation of the developed markets in the North American region. The selection list for the STOXX® North America 600 Index is derived from its relevant regional STOXX® Total Market Index. Otherwise, the STOXX® North America 600 Index is calculated and maintained using the same methodology as the STOXX® Europe 600 Index. See “Equity Index Descriptions — The STOXX Benchmark Indices” in this underlying supplement for additional information about the calculation and maintenance of the STOXX® Europe 600 Index. The component stocks of the STOXX® North America Select Dividend 40 Index are traded on the major exchanges of Canada and the United States. At any given time, some eligible countries may not be represented in the STOXX® North America Select Dividend 40 Index. Although the STOXX® North America Select Dividend 40 Index measures the performance of high dividend-yielding companies, it is a price return index and, therefore, the return on the STOXX® North America Select Dividend 40 Index will not include any dividends paid on the securities that make up the STOXX® North America Select Dividend 40 Index. The euro price return version of the STOXX® North America Select Dividend 40 Index is reported by Bloomberg L.P. under the ticker symbol “SD4AP.”

### **The STOXX® Global Select Dividend 100 Index**

The STOXX® Global Select Dividend 100 Index is a combination of the STOXX® Asia/Pacific Select Dividend 30 Index, the STOXX® Europe Select Dividend 30 Index and the STOXX® North America Select Dividend 40 Index. Accordingly, the STOXX® Global Select Dividend 100 Index is composed of the component stocks of the STOXX® Asia/Pacific Select Dividend 30 Index, representing 30 of the highest dividend-paying stocks selected from the developed markets in the Asia/Pacific region (from the components of the STOXX® Asia/Pacific 600 Index), the STOXX® Europe Select Dividend 30 Index, representing 30 of the highest dividend-paying stocks selected from the developed markets in the European region (from the components of the STOXX® Europe 600 Index), and the STOXX® North America Select Dividend 40 Index, representing 40 of the highest dividend-paying stocks selected from the developed markets in the North American region (from the components of the STOXX® North America 600 Index). At any given time, some eligible countries may not be represented in the STOXX® Global Select Dividend 100 Index. Although the STOXX® Global Select Dividend 100 Index measures the performance of high dividend-yielding companies, it is a price return index and, therefore, the return on the STOXX® Global Select Dividend 100 Index will not include any dividends paid on the securities that make up the STOXX® Global Select Dividend 100 Index. The euro price return version of the STOXX® Global Select Dividend 100 Index is reported by Bloomberg L.P. under the ticker symbol “SDGP.”

### **Composition and Maintenance of the STOXX Select Dividend Indices**

The table below sets forth each “Regional Select Dividend Index” with its corresponding “Parent Index” and number of component stocks.

<b>Regional Select Dividend Index</b>	<b>Parent Index</b>	<b>Number of Component Stocks</b>
EURO STOXX® Select Dividend 30 Index	EURO STOXX® Index	30 component stocks

<b>Regional Select Dividend Index</b>	<b>Parent Index</b>	<b>Number of Component Stocks</b>
STOXX® Asia/Pacific Select Dividend 30 Index	STOXX® Asia/Pacific 600 Index	30 component stocks
STOXX® Europe Select Dividend 30 Index	STOXX® Europe 600 Index	30 component stocks
STOXX® North America Select Dividend 40 Index	STOXX® North America 600 Index	40 component stocks

For each Regional Select Dividend Index, the components of the corresponding Parent Index and their secondary share lines are eligible for inclusion in the applicable selection list. Companies are screened for the following criteria: indicated annualized dividend (applies for components and non-components), non-negative dividend growth rate over the past five years (applies for non-components only), dividend payments in four out of five calendar years (applies for non-components only), non-negative payout ratio (applies for components and non-components), payout ratio of less than or equal to 80% (applies for non-components only) with respect to the STOXX® Asia/Pacific Select Dividend 30 Index or less than or equal to 60% (applies for non-components only) with respect to the other Regional Select Dividend Indices and a minimum average daily traded value over the preceding three months (applies for non-components only) of approximately 11.11 million euros with respect to the EURO STOXX® Select Dividend 30 Index, approximately 3.33 million euros with respect to the STOXX® Asia/Pacific Select Dividend 30 Index and the STOXX® Europe Select Dividend 30 Index and 2.50 million euros with respect to the STOXX® North America Select Dividend 40 Index. For companies that have more than one share line, the line with the higher dividend yield is chosen.

For the STOXX® North America Select Dividend 40 Index, all companies on the selection list are ranked according to the ratio of their net dividend yield to the net dividend yield of the STOXX® Total Market Index for the relevant country. For each of the other Regional Select Dividend Indices, all companies on the applicable selection list are ranked according to the ratio of their net dividend yield to the greater of the net dividend yield of the STOXX® Total Market Index for the relevant country and the net dividend yield of the STOXX® Total Market Index for the relevant region.

For the STOXX® North America Select Dividend 40 Index, the companies are ranked by the net dividend yield ratio described above for each country and region as a whole. All current companies ranked 60 or above in each country ranking remain in the STOXX® North America Select Dividend 40 Index. If fewer than 40 companies are included, the highest ranked non-components from the regional ranking are added until 40 companies are included. A maximum of 30 companies per country can be included in the STOXX® North America Select Dividend 40 Index.

For the STOXX® Asia/Pacific Select Dividend 30 Index, the companies are ranked by the net dividend yield ratio described above for each country and region as a whole. All current companies ranked 20 or above in each country ranking will remain in the STOXX® Asia/Pacific Select Dividend 30 Index. If fewer than 30 companies are included, the highest ranked non-components from the regional ranking are added until 30 companies are included. A maximum of 10 companies per country can be included in the STOXX® Asia/Pacific Select Dividend 30 Index.

For each of the EURO STOXX® Select Dividend 30 Index and the STOXX® Europe Select Dividend 30 Index, all current companies ranked from 1 to 60 in the applicable selection list will remain in the relevant Regional Select Dividend Index. If fewer than 30 companies are included in the EURO STOXX® Select Dividend 30 Index or the STOXX® Europe Select Dividend 30 Index, the highest ranked non-components are added until 30 companies are included in the relevant Regional Select Dividend Index.

The composition of each STOXX Select Dividend Index is reviewed annually in March. Each STOXX Select Dividend Index is also reviewed on an ongoing basis. Corporate actions (including initial public offerings, mergers and takeovers, spin-offs, delistings, bankruptcy, and price and share adjustments) that

affect a Parent 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. To maintain the number of components constant, a deleted company is replaced by the highest-ranked non-component on the relevant selection list. Each selection list is updated on a quarterly basis according to the review component selection process. Any restrictions on the maximum count per country are applied. If a company is deleted from a Parent Index between the annual review dates but is still a component of the STOXX® Global Total Market Index, the company will remain in the corresponding STOXX Select Dividend Index until the next annual review, *provided* that it still meets the requirements for that STOXX Select Dividend Index.

If STOXX Limited becomes aware of dividend data changes for the components of a STOXX Select Dividend Index, the following index adjustments may occur:

- If the company cancels one of its dividends, the company will be deleted from the relevant STOXX Select Dividend Index, the replacement will be announced immediately, implemented two trading days later and become effective the next trading day. The case of dividend cancellation does not apply to dividends whose payment is postponed within the same fiscal year. Dividends whose payment is postponed indefinitely or to a subsequent fiscal year are considered cancelled. In case a company pays its dividends for a fiscal year in tranches, after the first tranche has been paid, the cancellation of one or more remaining tranches or the postponement of their payment to a subsequent fiscal year is treated as a lowering of dividend.
- If the company lowers its dividend, the company will remain in the relevant STOXX Select Dividend Index until the next selection list is available. If the company is ranked at or above the rank threshold for the relevant Regional Select Dividend Index, it is retained. If it is ranked below the rank threshold with respect to that Regional Select Dividend Index, it is removed and replaced by the highest-ranked non-component on that selection list. The changes will be announced on the fifth trading day of the month together with the applicable selection list and become effective on the first trading day after the third Friday of the month. The weight factors for the new components will be published on the quarterly underlying data announcement based on previous day closing prices.

### Calculation of the STOXX Select Dividend Indices

Each STOXX Select Dividend Index is calculated with the “Laspeyres formula,” which measures the aggregate price changes in the component stocks against a fixed base quantity weight. The formula for calculating a STOXX Select Dividend Index value can be expressed as follows:

$$\text{Index} = \frac{\text{total “units” of the relevant STOXX Select Dividend Index}}{\text{divisor}}$$

The “total “units” of the relevant STOXX Select Dividend Index” is equal to the sum of the products, for each component stock, of the price, weighting factor and weighting cap factor as of the time that the relevant STOXX Select Dividend Index is being calculated.

The weighting factor for each component stock is equal to the ratio of (a) the net dividend of the issuer of that component stock divided by the closing price of that component stock (the “**net dividend yield**”) to (b) the sum of the net dividend yields of all component stocks. The weighting factors are published on the second Friday in March, one week prior to quarterly review implementation using Thursday’s closing prices.

In addition, each STOXX Select Dividend Index applies a weighting cap factor for each component stock of  $(1,000,000,000 \times \text{initial weight of that component} / \text{closing price of that component stock in euros})$ , rounded to the nearest integer. An additional cap factor limits the weight of each component stock within a STOXX Select Dividend Index to a maximum of 10% with respect to the STOXX® Global Select Dividend 100 Index or 15% with respect to the other STOXX Select Dividend Indices at the time of each review.



Each STOXX Select Dividend Index is also subject to a divisor, which is adjusted to maintain the continuity of the relevant STOXX Select Dividend 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 the shareholders of the component stock will receive "B" number of shares for every "A" share held (where applicable).

<p>(1) Special cash dividend:</p> <p>Cash distributions that are outside the scope of the regular dividend policy or that the company defines as an extraordinary distribution</p> <p>Adjusted price = closing price – dividend announced by the company × (1 – withholding tax if applicable)</p> <p>Divisor: decreases</p>	
<p>(2) Split and reverse split:</p> <p>Adjusted price = closing price × A / B</p> <p>New weighting factor = old weighting factor × B / A</p> <p>Divisor: unchanged</p>	
<p>(3) Rights offering:</p> <p>If the subscription price is not available or if the subscription price is equal to or greater than the closing price on the day before the effective date, then no adjustment is made.</p> <p>For standard rights issues:</p> <p>Adjusted price = (closing price × A + subscription price × B) / (A + B)</p> <p>New weighting factor = old weighting factor × closing price / adjusted price</p> <p>Divisor: unchanged</p>	
<p>(4) Stock dividend:</p> <p>Adjusted price = closing price × A / (A + B)</p> <p>New weighting factor = old weighting factor × (A + B) / A</p> <p>Divisor: unchanged</p>	<p>(5) Stock dividend (from treasury stock and from redeemable shares):</p> <p>Adjusted only if treated as extraordinary dividend.</p> <p>Adjusted close = close – close × B / (A + B)</p> <p>Divisor: decreases</p>
<p>(6) Stock dividend of another company:</p> <p>Adjusted price = (closing price × A – price of other company × B) / A</p> <p>Divisor: decreases</p>	<p>(7) Return of capital and share consolidation:</p> <p>Adjusted price = (closing price – capital return announced by company × (1–withholding tax)) × A / B</p> <p>New weighting factor = old weighting factor × B / A</p> <p>Divisor: decreases</p>
<p>(8) Repurchase of shares / self-tender:</p> <p>Adjusted price = ((price before tender × old number of shares) – (tender price × number of tendered shares)) / (old number of shares – number of tendered shares)</p> <p>New weighting factor = old weighting factor × closing price / adjusted price</p> <p>Divisor: unchanged</p>	<p>(9) Spin-off:</p> <p>Adjusted price = (closing price × A – price of spun-off shares × B) / A</p> <p>New weighting factor for the spin-off = weighting factor of the parent company × B / A</p> <p>Divisor: decreases</p>

<p>(10) Combination stock distribution (dividend or split) and rights offering:</p> <p>For this corporate action, the following additional assumptions apply:</p> <p>Shareholders receive B new shares from the distribution and C new shares from the rights offering for every A share held.</p> <p>If A is not equal to one share, all the following “new number of shares” formulae need to be divided by A:</p>	
<p>– If rights are applicable after stock distribution (one action applicable to other):</p> <p>Adjusted price = (closing price × A + subscription price × C × (1 + B / A)) / ((A + B) × (1 + C / A))</p> <p>New weighting factor = old weighting factor × closing price / adjusted price</p> <p>Divisor: unchanged</p>	<p>– If stock distribution is applicable after rights (one action applicable to other):</p> <p>Adjusted price = (closing price × A + subscription price × C) / ((A + C) × (1 + B / A))</p> <p>New weighting factor = old weighting factor × closing price / adjusted price</p> <p>Divisor: unchanged</p>
<p>– Stock distribution and rights (neither action is applicable to the other):</p> <p>Adjusted price = (closing price × A + subscription price × C) / (A + B + C)</p> <p>New weighting factor = old weighting factor × closing price / adjusted price</p> <p>Divisor: unchanged</p>	
<p>(11) Addition / deletion of a company:</p> <p>No price adjustments are made. The net change in units determines the divisor adjustment.</p>	

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## THE SWISS MARKET INDEX

All information contained in this underlying supplement regarding the Swiss Market Index (the “SMI<sup>®</sup>”), 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, SIX Swiss Exchange Ltd (“SSE”). The SMI<sup>®</sup> is calculated, maintained and published by SSE. SSE has no obligation to continue to publish, and may discontinue publication of, the SMI<sup>®</sup>.

The SMI<sup>®</sup> is reported by Bloomberg L.P. under the ticker symbol “SMI.”

The SMI<sup>®</sup> is a free float-adjusted market capitalization-weighted price return index of the Swiss equity market. The SMI<sup>®</sup> was standardized on June 30, 1988 with an initial baseline value of 1,500 points.

### Composition of the SMI<sup>®</sup>

The SMI<sup>®</sup> is composed of the most highly capitalized and liquid stocks of the Swiss Performance Index (“SPI<sup>®</sup>”). The SMI<sup>®</sup> represents more than 75% of the free-float market capitalization of the Swiss equity market.

The SMI<sup>®</sup> is composed of the 20 highest ranked securities of the SPI<sup>®</sup>, where the ranking of each security is determined by a combination of the following criteria:

- average free-float market capitalization over the last 12 months (compared to the capitalization of the entire SPI<sup>®</sup>); and
- cumulated on order book turnover over the last 12 months (compared to the total turnover of the SPI<sup>®</sup>).

The average market capitalization in percent and the turnover in percent are each given a weighting of 50% and yield the weighted market share. A security is excluded from the SMI<sup>®</sup> if it ranked 23 or lower in the selection list. To reduce fluctuations in the SMI<sup>®</sup>, a buffer is applied for securities ranked 19 to 22. Out of the candidates from ranks 19 to 22, current components are selected with priority over the other candidates. New components out of the buffer are selected until 20 components have been reached. Instruments that are primary listed on more than one stock exchange and generate less than 50% of their total turnover at SIX Swiss Exchange, need to fulfill additional liquidity criteria in order to be selectable for the SMI<sup>®</sup>. For this purpose, all components of the SPI<sup>®</sup> are ranked based on their cumulated order book turnover over the past 12 months relative to the total turnover of the index universe. For this list, only turnovers of stock exchanges are considered where the instrument is primary listed. Such an instrument with several primary listings must rank among the first 18 components on the order book turnover list in order to be selectable for the SMI<sup>®</sup>. Such an instrument is excluded from the SMI<sup>®</sup> once it reaches 23 or lower.

### Standards for Admission and Exclusion

To ensure that the composition of the SMI<sup>®</sup> maintains a high level of continuity, the stocks contained within it are subject to a special admission and exclusion procedure. This is based on the criteria of free-float market capitalization and liquidity. The index-basket adjustments which arise from this procedure are, as a rule, made once per year.

The securities included in the SMI<sup>®</sup> are weighted according to their free float. The free float is calculated only for shares with voting rights. This means that large positions in a security that reach or exceed the threshold of 5% and are held in firm hands are subtracted from the total market capitalization. The following positions in a security are deemed to be held in firm hands:

- Shareholding that has been acquired by one person or a group of persons who are subject to a shareholder or lockup agreement.

- Shareholding that has been acquired by one person or a group of persons who according to publicly known facts, have a long-term interest in a company.

The positions in a security held by institutions of the following kind are deemed free floating:

- custodian nominees
- trustee companies
- investment funds
- pension funds
- investment companies

The SIX Swiss Exchange classifies at its own discretion persons and groups of persons who, because of their area of activity or the absence of important information, cannot be clearly assigned.

#### *Ordinary Index Review*

Each year on the third Friday of September, the composition of the SMI® is updated in the ordinary index review based on the selection list of June. With the cut-off dates on March 31, September 30 and December 31, a provisional selection list is created, which serves as the basis for the adjustment of extraordinary corporate actions. The number of securities and free-float shares are adjusted on four ordinary adjustment dates a year: the third Friday in March, June, September and December.

#### *Extraordinary Corporate Actions*

An extraordinary corporate action is an initial public offering (“IPO”), merger and acquisition activity, spin-off, insolvency or any other event that leads to a listing or delisting. An extraordinary corporate action has an ex-date, but its effect can usually not be calculated by a generic predefined formula. In most cases, an extraordinary corporate action leads to a new listing or delisting and subsequently there is a change in the composition of the SMI® and in the component weights of the composition of the SMI®.

Newly listed instruments that fulfill the selection rules of the SMI® are extraordinarily included in the SMI® on their second trading day and the SMI® is adjusted with the free-float market capitalization at the close of the first trading day. The extraordinary inclusion of a newly listed instrument in the SMI® can lead to an extraordinary replacement of an existing index component. Extraordinary inclusions are usually implemented after a notification period of 5 trading days. The adjusted cap factors are implemented after a notification period of generally 5 trading days, but no less than one trading day.

If an IPO of a real estate instrument leads to an extraordinary inclusion, it is included in the SMI® in three equal stages. This is achieved by the gradual increase of the number of shares or the free-float factor over three trading days starting on the second trading day after the IPO.

In case of a planned delisting, the exclusion of an index component is made, if possible, on the next ordinary index review date. However, if the delisting would be effective before the ordinary index review, the component is excluded from the SMI® on the effective date of the delisting. If the index component no longer meets the criteria for remaining in the SMI® due to a pending acquisition, it may be removed ahead of time. If a component is excluded from the SMI® outside of the ordinary index review, it is replaced by the best-ranked candidate on the selection list that is not yet part composition of the SMI® in order to maintain a stable number of components within the SMI®. Extraordinary exclusions and respective additions are implemented after a notification period of usually 5 trading days. Adjusted cap factors are implemented after a notification period of generally 5 trading days, but no less than one trading day.

Extraordinary inclusions in the SMI® take place if the selection rules for the SMI® are fulfilled after a three-month period. This occurs on a quarterly basis after the close of trading on the third Friday of March, June, September and December as follows:

<b>Latest Listing Date</b>	<b>Earliest Extraordinary Inclusion Date</b>
5 trading days prior to the end of November	March
5 trading days prior to the end of February	June
5 trading days prior to the end of May	September
5 trading days prior to the end of August	December

In the case of major market changes as a result of a corporate action, an instrument may be admitted to the SMI® outside of the accepted admission period as long as it clearly fulfills the selection rules for the SMI®. For the same reasons, a component can be excluded if the requirements for admission to the SMI® are no longer fulfilled.

### **Calculation of the SMI®**

The SMI® is calculated using the Laspeyres method with the weighted arithmetic mean of a defined number of securities issues. The formula for calculating the level of the SMI® can be expressed as follows:

$$\text{Index Level} = \frac{\text{free-float market capitalization of the SMI®}}{\text{divisor}}$$

The “free-float market capitalization of the SMI®” is equal to the sum of the products, for each component, of the last-paid price, number of shares, free-float factor, capping factor and, if applicable, the current Swiss franc exchange rate as of the time the SMI® is being calculated.

The divisor is a technical number used to calculate the SMI®. If the market capitalization changes due to a corporate event, the divisor changes while the index level remains the same. The new divisor is calculated on the evening of the day before the corporate event takes effect.

In calculating the SMI®, the last available price is taken into account. If no price has been paid on the day of calculation, the previous day’s price is used. Only the prices achieved via the electronic order book of the SIX Swiss Exchange are used.

The trading hours for Swiss equities, participation certificates and bonus certificates are determined by the SIX Swiss Exchange. Since the opening phase usually causes strong price fluctuations, the SMI® is first calculated two minutes after the start of on order book trading. This index level is called the “open.” A closing auction takes place ten minutes before close of trading. At the close of trading, the final closing prices used in calculating the closing level of the SMI® are established.

### *Component Weighting*

The SMI® is weighted by the free-float market capitalization of its components. The number of shares and the free-float factor are reviewed on a quarterly basis. In the same context, each component of the SMI® with a free-float market capitalization larger than 18% of the total market capitalization of the SMI® is capped to that weight of 18%.

Additionally, the components of the SMI® are capped to 18% between two ordinary index reviews as soon as two components exceed a weight of 20% each. If such an intra quarter breach is observed after the close of markets, the new cap factors are calculated so that any component has a maximum weight of 18%. This cap factor is set to be effective after the close of the following trading day.

If an issuer has issued more than one equity instrument (e.g., registered shares, bearer shares, participation certificates, bonus certificates), it is possible that one issuer is represented in the SMI® with more than one instrument. In this case, the free-float market capitalization of those instruments is cumulated for the calculation of the cap factors. If the cumulated index weight exceeds the 18%



threshold, the weight is capped accordingly. The cumulated, capped index weight is distributed proportionally based on the free-float market capitalization of those instruments.

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## THE TOPIX® INDEX

All information contained in this underlying supplement regarding the Tokyo Stock Price Index, or the TOPIX® 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, JPX Market Innovation & Research, Inc. (the “JPXI”). The TOPIX® Index is calculated, maintained and published by the JPXI. The JPXI has no obligation to continue to publish, and may discontinue publication of, the TOPIX® Index.

The TOPIX® Index is reported by Bloomberg L.P. under the ticker symbol “TPX.”

The TOPIX® Index was developed by the Tokyo Stock Exchange, Inc. (the “TSE”). Publication of the TOPIX® Index began on July 1, 1969, based on an initial index value of 100 at January 4, 1968. The TOPIX® Index is computed and published every second through the Market Information System, and is reported to securities companies across Japan and available worldwide through computerized information networks.

### Composition and Maintenance of the TOPIX® Index

The TOPIX® Index is a free float-adjusted market capitalization-weighted index of common stocks listed on the TSE covering an extensive portion of the Japanese stock market. On April 4, 2022, JPXI began revisions to the TOPIX® Index in conjunction with the restructuring of the TSE into three new market segments: the Prime Market, the Standard Market and the Growth Market.

Prior to April 4, 2022, the component stocks of the TOPIX® Index consisted of all Japanese common stocks listed on the First Section of the TSE. Japanese stocks admitted to the TSE were previously assigned to one of the First Section, the Second Section or the Mothers. Stocks listed on the First Section were typically limited to larger, longer established and more actively traded issues, stocks listed on the Second Section were typically limited to mid-sized companies and stocks listed on the Mothers were typically limited to high-growth start-up companies. Stocks that were components of the TOPIX® Index as of April 1, 2022 remain as its components after the market restructuring, regardless of their new market segment. However, component stocks with tradeable share market capitalization of under JPY 10 billion on the base date of June 20, 2021 are designated as “phased weighting reduction constituents,” and their weighting will be gradually reduced in ten stages on the last business day of each quarter beginning in October 2022 and ending in January 2025. Subject to a re-evaluation after the fourth stage, they will be removed from the TOPIX® Index on the last business day of January 2025.

During the transition period, additions to the component stocks can occur (1) through the initial listing of a company on or transfer to the Prime Market, with those changes taking effect on the last business day of the month after such initial listing; (2) through the initial listing of a new company resulting from a corporate consolidation that results in an index constituent being delisted, with those changes taking effect on the new listing date; (3) through the delisting of an index constituent due to a merger with a surviving stock that is not an index constituent, with those changes taking effect on the delisting date; or (4) through the cancellation, as of the last business day of August 2023, of the designation “Securities on Alert” on a former component stock that had caused that stock to be removed from the TOPIX® Index, *provided* that that stock meets tradeable share market capitalization and annual traded value ratio requirements, with those changes taking effect on the last business day of October 2023.

Deletions of constituents can occur due to (1) de-listing, resulting from a corporate consolidation, when the surviving company re-lists with the TSE, with those changes taking effect on the initial listing date of the new company (normally two business days after the delisting date); (2) de-listing of a company for reasons other than those stated above, with those changes taking effect on the de-listing date; or (3) designation of stocks to be de-listed, with those changes taking effect four business days after such designation. Any component stock designated as a “Security on Alert” as of April 4, 2022 was removed from the TOPIX® Index as of the last business day of April 2022.

Rules for addition of component stocks after January 31, 2025 will be determined following the transition period.

## Calculation of the TOPIX® Index

The TOPIX® Index is calculated using market capitalization weighting, with the market price of each component stock multiplied by the number of shares listed, as adjusted by multiplying by a free float weight (“**FFW**”) that incorporates both a liquidity factor (to take into account only the listed shares deemed to be available for trading in the market) and a transition factor (in the case of a component stock identified for phased weighting reduction as described above). The upper weighting limit for any one component stock is 10%. The JPXI amended its free-float weight calculation methodology as of April 4, 2022, with changes to any component’s FFW phased in over three months.

The TOPIX® Index is not expressed in Japanese yen, but is presented in terms of points (as a decimal figure), rounded 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 (the current market price per share at the time of the index calculation multiplied by the number of free float-adjusted common shares listed on the TSE at the same instance) (as adjusted by multiplying the FFW) (the “**Current Market Value**”) by the base market value (*i.e.*, the Current Market Value on the base date) (the “**Base Market Value**”).

The calculation of the TOPIX® Index can be represented by the following formula:

$$\text{Index} = \frac{\text{Current Market Value}}{\text{Base Market Value}} \times 100$$

The number of free float-adjusted shares at the time of the index calculation is the number of common shares listed on the TSE multiplied by the free float weight. The free float weight is the percentage of listed shares deemed to be available for trading in the market and is calculated by the JPXI for each listed company for purposes of index calculation. The free float weight is determined by estimating the number of non-free float shares on the basis of published materials such as securities reports. In determining the free float weight, the JPXI deems the following shares as non-free float shares: shares held by the top 10 major shareholders (subject to certain exceptions), treasury stocks (including certain cross-shareholdings), shares held by board members of the relevant company, equity securities held for investment purposes other than pure investment and other shares JPXI deems not available for trading in the market. The free float weight is equal to 1 minus the number of non-free float shares divided by the number of listed shares. In the case of some companies with low liquidity, the JPXI may adjust their free float downwards by applying a “liquidity factor.”

The free float weight assigned to each listed company is reviewed annually, with timings that vary according to the earnings release date of each listed company. Free float weights may also be subject to extraordinary review at JPXI’s discretion in the case of certain corporate actions (*e.g.*, allocation of new shares, conversion of preferred shares or exercise of subscription warrants, spin-offs, mergers, stock swaps, take-overs) and for other reasons the JPXI believes appropriate.

In order to maintain continuity, the Base Market Value is adjusted from time to time to ensure that it reflects only price movements resulting from auction market activity, and to eliminate the effects of other factors and prevent any instantaneous change or discontinuity in the level of the TOPIX® Index. These factors include, without limitation: new listings, delistings, new share issues either through public offerings or through rights offerings to shareholders (limited to cases where the allotted subscription warrant securities are listed) and issuance of shares as a consequence of exercise of convertible bonds or warrants.

The formula for the adjustment is as follows:

$$\frac{\text{Free float-adjusted Market Value on business day before adjustment date}}{\text{Base Market Value before adjustment}} = \frac{(\text{Free float-adjusted Market Value on business day before adjustment date} \pm \text{Adjustment Amount})}{\text{Base Market Value after adjustment}}$$

Where “**Adjustment Amount**” is equal to the changes in the number of shares included in the calculation of the TOPIX® Index multiplied by the price of those shares used for the purposes of the adjustment.

Therefore,

$$\text{New Base Market Value} = \frac{\text{Old Base Market Value} \times (\text{Free float-adjusted Market Value on business day before adjustment date} \pm \text{Adjustment Amount})}{\text{Free float-adjusted Market Value on business day before adjustment date}}$$

The Base Market Value remains at the new value until a further adjustment is necessary as a result of another change. As a result of this change affecting the Current Market Value or any stock underlying the TOPIX® Index, the Base Market Value is adjusted in a way that the new value of the TOPIX® Index will equal the level of the TOPIX® Index immediately prior to this change.

No adjustment is made to the 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 capitalization.

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Including but not limited to the foregoing, JPXI shall not be responsible for any damage resulting from the issue and sale of the notes.

## COMMODITY INDEX DESCRIPTIONS

### THE BLOOMBERG COMMODITY INDICES

All information contained in this underlying supplement regarding the Bloomberg Commodity Index<sup>SM</sup>, its single-commodity sub-indices and the forward-month version of the Bloomberg Commodity Index<sup>SM</sup> and its single-commodity sub-indices (each, a **“Bloomberg Commodity Index”** and collectively, the **“Bloomberg Commodity Indices”**), including, without limitation, their make up, methods of calculation and changes in their components, has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, Bloomberg Index Services Limited (**“BISL”** and, collectively with its affiliates, **“Bloomberg”**). Bloomberg is not involved in the offer of the notes in any way and has no obligation to consider your interests as a holder of the notes. Bloomberg has no obligation to continue to publish, and may discontinue publication of, the Bloomberg Commodity Indices at any time in its sole discretion.

The Bloomberg Commodity Index<sup>SM</sup> was created by AIG International Inc in 1998, acquired by UBS Securities LLC in May 2009, administered by Bloomberg starting in July 2014, and later acquired by Bloomberg in September 2020. As of 2014, the Dow Jones-UBS Commodity Index was renamed to the Bloomberg Commodity Index<sup>SM</sup> and the ticker changed from “DJUBS” to “BCOM.”

The Bloomberg Commodity Index<sup>SM</sup> was introduced in July 1998 to provide unique, diversified, economically rational and liquid benchmarks for commodities as an asset class. The Bloomberg Commodity Index<sup>SM</sup> currently is composed of the prices of twenty-three exchange-traded futures contracts on twenty-one physical commodities. An exchange-traded futures contract is a bilateral agreement providing for the purchase and sale of a specified type and quantity of a commodity or financial instrument during a stated delivery month for a fixed price. For a general description of the commodity future markets, see “The Commodity Futures Markets” below. The commodities included in the Bloomberg Commodity Index<sup>SM</sup> for 2022 are as follows: aluminum, coffee, copper, corn, cotton, crude oil (WTI and Brent), gold, lean hogs, live cattle, low sulphur gas oil, natural gas, nickel, RBOB gasoline, silver, soybean meal, soybean oil, soybeans, sugar, ULS diesel, wheat (Chicago and KC HRW) and zinc.

### Benchmark Governance, Audit and Review Structure

BISL uses two primary committees to provide overall governance and effective oversight of its benchmark administration activities:

The Product, Risk & Operations Committee (**“PROC”**) provides direct governance and is responsible for the first line of controls over the creation, design, production and dissemination of benchmark indices, strategy indices and fixings administered by BISL, including the Indices. The PROC is composed of Bloomberg personnel with significant experience or relevant expertise in relation to financial benchmarks. Meetings are attended by Bloomberg Legal & Compliance personnel. Nominations and removals are subject to review by the BOC, discussed below.

The oversight function is provided by Bloomberg’s Benchmark Oversight Committee (**“BOC”**). The BOC is independent of the PROC and is responsible for reviewing and challenging the activities carried out by the PROC. In carrying out its oversight duties, the BOC receives reports of management information both from the PROC as well as Bloomberg Legal & Compliance members engaged in second level controls.

On a quarterly basis, the PROC reports to the BOC on governance matters, including but not limited to client complaints, the launch of new benchmarks, operational incidents (including errors & restatements), major announcements and material changes concerning the benchmarks, the results of any reviews of the benchmarks (internal or external) and material stakeholder engagements.

As described in more detail below, the composition of the Index is rebalanced by BISL each year pursuant to the established procedures by index managers operating within the PROC governance body under the oversight of the BOC oversight function. Any material deviations or changes from established procedures are subject to review by such bodies. In addition, to the extent practicable, BISL may solicit stakeholder feedback, including by means of the Index Advisory Council. Once approved, the new



composition of the Index is publicly announced and takes effect in the month of January immediately following the announcement.

#### **Four Main Principles Guiding the Creation of the Bloomberg Commodity Index<sup>SM</sup>**

The Bloomberg Commodity Index<sup>SM</sup> was created using the following four main principles:

- **Economic Significance.** A commodity index should fairly represent the importance of a diversified group of commodities to the world economy. To achieve a fair representation, the Bloomberg Commodity Index<sup>SM</sup> uses both liquidity data and U.S. dollar-weighted production data in determining the relative quantities of included commodities. The Bloomberg Commodity Index<sup>SM</sup> 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 Bloomberg Commodity Index<sup>SM</sup> also relies on production data as a useful measure of the importance of a commodity to the world economy. Production data alone, however, may underestimate the economic significance of storable commodities (e.g., gold) relative to non-storable commodities (e.g., live cattle). Production data alone also may underestimate the investment value that financial market participants place on certain commodities, and/or the amount of commercial activity that is centered around various commodities. Accordingly, production statistics alone do not necessarily provide as accurate a blueprint of economic importance as the pronouncements of the markets themselves. The Bloomberg Commodity Index<sup>SM</sup> thus relies on data that is both endogenous to the futures markets (liquidity) and exogenous to the futures markets (production) in determining relative weightings.
- **Diversification.** A second major goal of the Bloomberg Commodity Index<sup>SM</sup> is to provide diversified exposure to commodities as an asset class. Disproportionate weightings of any particular commodity or sector increase volatility and negate the concept of a broad-based commodity index. Instead of diversified commodities exposure, the investor is unduly subjected to micro-economic shocks in one commodity or sector. As described further below, diversification rules have been established and are applied annually. Additionally, the Bloomberg Commodity Index<sup>SM</sup> is rebalanced annually on a price-percentage basis in order to maintain diversified commodities exposure over time.
- **Continuity.** A third goal of the Bloomberg Commodity Index<sup>SM</sup> is to be responsive to the changing nature of commodity markets in a manner that does not completely reshape the character of the Bloomberg Commodity Index<sup>SM</sup> from year to year. The Bloomberg Commodity Index<sup>SM</sup> is intended to provide a stable benchmark, so that end-users may be reasonably confident that historical performance data (including such diverse measures as correlation, spot yield, roll yield and volatility) is based on a structure that bears some resemblance to both the current and future composition of the Bloomberg Commodity Index<sup>SM</sup>.
- **Liquidity.** Another goal of the Bloomberg Commodity Index<sup>SM</sup> is to provide a highly liquid index. The explicit inclusion of liquidity as a weighting factor helps to ensure that the Bloomberg Commodity Index<sup>SM</sup> can accommodate substantial investment flows. The liquidity of an index affects transaction costs associated with current investments. It also may affect the reliability of historical price performance data.

These principles represent goals of the Bloomberg Commodity Index<sup>SM</sup>, its creators and owners and there can be no assurance that these goals will be reached by the BISL.

#### **Composition of the Bloomberg Commodity Index<sup>SM</sup>**

*Commodities available for inclusion in the Bloomberg Commodity Index<sup>SM</sup>*

The commodities that have been selected for possible inclusion in the Bloomberg Commodity Index<sup>SM</sup> are believed by BISL to be sufficiently significant to the world economy to merit consideration for inclusion

in the Bloomberg Commodity Index<sup>SM</sup>, and each such commodity is the subject of a qualifying related futures contract (a “**Designated Contract**”).

The 25 commodities currently eligible for inclusion in the Bloomberg Commodity Index<sup>SM</sup> are as follows: aluminum, cocoa, coffee, copper, corn, cotton, crude oil, gold, lead, lean hogs, live cattle, low sulphur gas oil, natural gas, nickel, platinum, RBOB gasoline, silver, soybean meal, soybean oil, soybeans, sugar, tin, ULS diesel, wheat and zinc.

#### *Designated contracts for each commodity*

The 21 commodities selected to be included in the Bloomberg Commodity Index<sup>SM</sup> for 2022 are as follows: aluminum, coffee, copper, corn, cotton, crude oil, gold, lean hogs, live cattle, low sulphur gas oil, natural gas, nickel, RBOB gasoline, silver, soybean meal, soybean oil, soybeans, sugar, ULS diesel, wheat and zinc.

Historically, through and including the composition of the Bloomberg Commodity Index<sup>SM</sup> for 2022, BISL has chosen for each commodity one Designated Contract that is traded in North America and denominated in U.S. dollars (with the exception of several LME contracts, which are traded in London, and with the exception of crude oil, for which two Designated Contracts have been selected starting in 2012, and wheat, for which two Designated Contracts that are traded in North America have been selected starting in 2013). It is possible that BISL will 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 Bloomberg Commodity Index<sup>SM</sup> 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 the Designated Contract.

#### *Commodity Groups*

For purposes of applying the diversification rules discussed above and below, the commodities available for inclusion in the Bloomberg Commodity Index<sup>SM</sup> are assigned to commodity groups. The commodity groups currently include Energy, Grain, Industrial Metals, Livestock, Precious Metals and Softs.

The commodity groups, and the commodities included in each group are currently as follows:

<b>Commodity Group</b>	<b>Commodity</b>
Energy	WTI Crude Oil
	Brent Crude Oil
	Natural Gas
	RBOB Gasoline
	Low Sulphur Gas Oil
	ULS Diesel
Grains	Corn
	Soybeans
	Soybean Oil
	Soybean Meal
	Wheat (Chicago)
	Wheat (KC HRW)

Commodity Group	Commodity
Industrial Metals	Aluminum
	Copper
	Lead
	Nickel
	Tin
	Zinc
Precious Metals	Gold
	Platinum
	Silver
Softs	Cocoa
	Coffee
	Cotton
	Sugar
Livestock	Live Cattle
	Lean Hogs

*2023 Bloomberg Commodity Index<sup>SM</sup> Target Weights Breakdown by Commodity and Commodity Group*

The target weights for the commodities included in the Bloomberg Commodity Index<sup>SM</sup> and the target weights for the commodity groups for 2023 are as follows:

Commodity Group	Commodity	Target Weight	Target Group Weight
Energy	WTI Crude Oil	7.7716540%	29.95%
	Brent Crude Oil	7.2283460%	
	Natural Gas	7.9388780%	
	RBOB Gasoline	2.1961970%	
	Low Sulphur Gas Oil	2.7136480%	
	ULS Diesel	2.0986570%	
Grains	Corn	5.5132960%	22.64%
	Soybeans	5.7839800%	
	Soybean Oil	3.2648360%	
	Soybean Meal	3.5284850%	
	Wheat (Chicago)	2.7939000%	
	Wheat (KC HRW)	1.7543100%	
Industrial Metals	Aluminum	4.0856610%	15.94%
	Copper	5.2289070%	
	Nickel	2.7796880%	
	Zinc	2.9053380%	
	Lead	0.9361220%	
Precious Metals	Gold	14.8532180%	19.44%
	Silver	4.5901960%	
Softs	Sugar	2.5559290%	6.97%
	Coffee	2.8579300%	
	Cotton	1.5589050%	
Livestock	Live Cattle	3.3187010%	5.06%
	Lean Hogs	1.7432180%	

Source: Bloomberg

*Determination of Relative Weightings*

The relative weightings of the component commodities included in the Bloomberg Commodity Index<sup>SM</sup> are determined annually according to both liquidity and U.S. dollar-adjusted production data in 2/3 and

1/3 shares, respectively. For each of the commodities designated for potential inclusion in the Bloomberg Commodity Index<sup>SM</sup>, liquidity is measured by the Commodity Liquidity Percentage (“**CLP**”) and production by the Commodity Production Percentage (“**CPP**”). The CLP for each commodity is determined by taking a five-year average of the product of trading volume and the historic U.S. dollar value of the Designated Contract for that commodity, and dividing the result by the sum of such products for all commodities which were designated for potential inclusion in the applicable 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 such production figures for all the commodities which were designated for potential inclusion in the applicable index. For primary commodities that appear in the Bloomberg Commodity Index<sup>SM</sup> along with their derivatives (e.g., crude oil, together with ULS diesel and RBOB gasoline), the CPPs within that group of commodities are reassigned among the primary commodity and its derivative commodities to eliminate the double-counting production figures for the primary commodity that would otherwise occur if no adjustment were made. The same process is applied when more than one Designated Contract has been selected for a particular commodity. The CLP and the CPP are then combined (using a ratio of 2:1) to establish the Bloomberg Commodity Index<sup>SM</sup> Percentage (“**CIP**”) for each commodity. This CIP is then adjusted in accordance with the diversification rules in order to determine the commodities which will be included in the Bloomberg Commodity Index<sup>SM</sup> and their respective percentage weights.

#### *Diversification Rules*

The Bloomberg Commodity Index<sup>SM</sup> is designed to provide diversified exposure to commodities as an asset class. To ensure that no single commodity or commodity sector dominates the Bloomberg Commodity Index<sup>SM</sup>, the following diversification rules are applied to the annual reweighting and rebalancing of the Bloomberg Commodity Index<sup>SM</sup> as of January of the applicable year:

- No single commodity (e.g., natural gas or silver) may constitute over 15% of the Bloomberg Commodity Index<sup>SM</sup>.
- No single commodity, together with its derivatives (e.g., WTI Crude Oil and Brent Crude Oil, together with ULS Diesel, Unleaded Gas and Low Sulfur Gas Oil), may constitute more than 25% of the Bloomberg Commodity Index<sup>SM</sup>,
- No related group of commodities (e.g., energy, precious metals, livestock or grains) may constitute more than 33% of the Bloomberg Commodity Index<sup>SM</sup>.
- No single commodity (e.g., natural gas or silver) may constitute less than 2% of the Bloomberg Commodity Index<sup>SM</sup>, as liquidity allows.

The last rule helps to increase the diversification of the Bloomberg Commodity Index<sup>SM</sup> by giving even the smallest commodity within the basket a reasonably significant weight. Commodities with small weights initially may have their weights increased to higher than 2% by prior steps.

Following the annual reweighting and rebalancing of the Bloomberg Commodity Index<sup>SM</sup> 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.

#### *Commodity Index Multipliers*

The new unit weights for each commodity included in the Bloomberg Commodity Index<sup>SM</sup> are determined by calculating the applicable Commodity Index Multipliers (“**CIMs**”). Following application of the diversification rules discussed above, CIPs are incorporated into the Bloomberg Commodity Index<sup>SM</sup> by calculating the new unit weights for each commodity. On the fourth business day of the month of January (the “**CIM Determination Date**”) following the calculation of the CIPs, the CIPs are combined with the settlement prices of all Designated Contracts for such day to create the CIM for each Designated Contract for each index component. This CIM is used to achieve the percentage weightings of the index components, in U.S. 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 component will float throughout the year, until the CIMs are reset the following year based on new CIPs.

### **Calculation of the Bloomberg Commodity Index<sup>SM</sup>**

The Bloomberg Commodity Index<sup>SM</sup> is calculated by BISL by applying the impact of the changes to the futures prices of commodities included in the Bloomberg Commodity Index<sup>SM</sup> (based on their relative weightings).

Once the CIMs are determined as discussed above, the calculation of the Bloomberg Commodity Index<sup>SM</sup> is a mathematical process that reflects the performance of each index component and the returns that correspond to the weekly announced interest rate for specified 3-month U.S. Treasury Bills.

At present, BISL disseminates the Bloomberg Commodity Index<sup>SM</sup> levels approximately every 15 seconds (assuming the Bloomberg Commodity Index<sup>SM</sup> levels have changed within such 15-second interval) from 10:00 p.m. to 3:20 p.m., New York City time, and publishes daily levels at approximately 5:00 p.m., New York City time, on Bloomberg page "BCOMTR <Index>."

*The Bloomberg Commodity Index<sup>SM</sup> is a rolling index*

The Bloomberg Commodity Index<sup>SM</sup> is composed of futures contracts on physical commodities. Unlike equities, which typically entitle the holder to a continuing stake in a corporation, commodity futures contracts normally specify a certain date for the delivery of the underlying physical commodity. In order to avoid delivering the underlying physical commodities and to maintain exposure to the underlying physical commodities, periodically 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. The rollover for each contract occurs over a period of five BCOM Business Days each month according to a pre-determined schedule. This process is known as "rolling" a futures position. The Bloomberg Commodity Index<sup>SM</sup> is a "rolling index."

A "**BCOM Business Day**" means any day on which the sum of the CIPs for those index components that are open for trading is greater than 50%. For purposes of this definition, the CIPs used during any calendar year are those calculated in the preceding year and applied on the CIM Determination Date for that year; provided however, that on any day during such calendar year falling prior to or on the CIM Determination Date, the preceding year's CIPs will be used for purposes of determining the existence of a BCOM Business Day.

*The Bloomberg Commodity Index<sup>SM</sup> is calculated on a Total Return Basis*

The Bloomberg Commodity Index<sup>SM</sup> is a "total return" index. The overall return on the Bloomberg Commodity Index<sup>SM</sup> is generated by two components: (i) unleveraged returns on futures contracts on the physical commodities comprising the Bloomberg Commodity Index<sup>SM</sup> and (ii) the returns that correspond to the weekly announced interest rate for specified 3-month U.S. Treasury Bills. The returns are calculated by using the most recent weekly auction high rate for 13-week U.S. Treasury Bills, as reported on the U.S. Treasury website published by the Bureau of the Fiscal Service of the Department of the Treasury, or any successor source, which is generally published once per week on Monday.

### **Bloomberg Commodity Index<sup>SM</sup> Calculation Disruption Events**

From time to time, disruptions can occur in trading futures contracts on various commodity exchanges. The daily calculation of the Bloomberg Commodity Index<sup>SM</sup> may be adjusted in the event that BISL determines that any of the following index calculation disruption events exists:

- the termination or suspension of, or material limitation or disruption in the trading of any futures contract used in the calculation of the Bloomberg Commodity Index<sup>SM</sup> on that day;
- the settlement price of any futures contract used in the calculation of the Bloomberg Commodity Index<sup>SM</sup> reflects the maximum permitted price change from the previous day's settlement price;



- the failure of an exchange to publish official settlement prices for any futures contract used in the calculation of the Bloomberg Commodity Index<sup>SM</sup>; or
- with respect to any futures contract used in the calculation of the Bloomberg Commodity Index<sup>SM</sup> that trades on the LME, a BCOM Business Day on which the LME is not open for trading.

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This underlying supplement and the relevant terms supplement relate only to the notes and does not relate to the exchange-traded physical commodities underlying any of the Bloomberg Commodity Index<sup>SM</sup> components. Purchasers of the notes should not conclude that the inclusion of a futures contract in the Bloomberg Commodity Index<sup>SM</sup> is any form of investment recommendation of the futures contract or the underlying exchange-traded physical commodity by Bloomberg or any of its subsidiaries or affiliates. The information in this underlying supplement regarding the Bloomberg Commodity Index<sup>SM</sup> components has been derived solely from publicly available documents. None of Bloomberg or any of its subsidiaries or affiliates has made any due diligence inquiries with respect to the Bloomberg Commodity Index<sup>SM</sup> components in connection with the notes. None of Bloomberg or any of its subsidiaries or affiliates makes any representation that these publicly available documents or any other publicly available information regarding the Bloomberg Commodity Index<sup>SM</sup> components, including without limitation a description of factors that affect the prices of such components, are accurate or complete.

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### **The Commodity Futures Markets**

Futures contracts on physical commodities are traded on regulated futures exchanges, in the over-the-counter market and on various types of physical and electronic trading facilities and markets. As of the date of this underlying supplement, all of the contracts included in the Bloomberg Commodity Index<sup>SM</sup> described in this underlying supplement are exchange-traded futures contracts. An exchange-traded futures contract provides for the purchase and sale of a specified type and quantity of a commodity or financial instrument during a stated delivery month for a fixed price. A futures contract provides for a specified settlement month in which cash settlement is made or in which the commodity or financial instrument is to be delivered by the seller (whose position is therefore described as “short”) and acquired by the purchaser (whose position is therefore described as “long”).

No purchase price is paid or received on the purchase or sale of a futures contract. Instead, an amount of cash or cash equivalents must be deposited with the broker as “initial margin.” This amount varies based on the requirements imposed by the exchange clearing houses, but it may be lower than 5% of the notional value of the contract. This margin deposit provides collateral for the obligations of the parties to the futures contract.

By depositing margin, which may vary in form depending on the exchange, with the clearing house or broker involved, a market participant may be able to earn interest on its margin funds, thereby increasing the total return that it may realize from an investment in futures contracts.

Futures contracts are traded on organized exchanges, known as “contract markets” in the United States. At any time prior to the expiration of a futures contract, a trader may elect to close out its position by taking an opposite position on the exchange on which the trader obtained the position, subject to the availability of a liquid secondary market. This operates to terminate the position and fix the trader’s profit or loss. Futures contracts are cleared through the facilities of a centralized clearing house and a brokerage firm, referred to as a “futures commission merchant,” which is a member of the clearing house.

Unlike equity securities, futures contracts, by their terms, have stated expirations at a specified point in time prior to expiration. At a specific point in time prior to expiration, trading in a futures contract for the current delivery month will cease. As a result, a market participant wishing to maintain its exposure to a futures contract on a particular commodity or financial instrument with the nearest expiration must close out its position in the expiring contract and establish a new position in the contract for the next delivery month, a process referred to as “rolling.” For example, a market participant with a long position in a futures contract expiring in November who wishes to maintain a position in the nearest delivery month will, as the November contract nears expiration, sell the November contract, which serves to close out the existing long position, and buy a futures contract expiring in December. This will “roll” the November position into a December position, and, when the November contract expires, the market participant will still have a long position in the nearest delivery month.

Futures exchanges and clearing houses in the United States are subject to regulation by the Commodity Futures Trading Commission. Exchanges may adopt rules and take other actions that affect trading, including imposing speculative position limits, maximum price fluctuations and trading halts and suspensions and requiring liquidation of contracts in certain circumstances.

Futures markets outside the United States are generally subject to regulation by comparable regulatory authorities. The structure and nature of trading on non-U.S. exchanges may differ from this description.

## THE S&P GSCI® INDICES

All information contained in this underlying supplement regarding the S&P GSCI® Indices (as defined below), including, without limitation, their make-up, method of calculation and changes in their components, has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, S&P Dow Jones Indices LLC (**"S&P Dow Jones"**). The S&P GSCI® Indices are calculated, maintained and published by S&P Dow Jones. S&P Dow Jones acquired the rights to the S&P GSCI® Indices from Goldman, Sachs & Co. in 2007. Goldman, Sachs & Co. established and began calculating the S&P GSCI® in April 1991. The former name of the S&P GSCI® was the Goldman Sachs Commodity Index, or GSCI®. S&P Dow Jones has no obligation to continue to publish, and may discontinue publication of, any S&P GSCI® Index.

The notes may be linked in whole or in part to the performance of the S&P GSCI® Index (**"S&P GSCI®"**), the S&P GSCI® Light Energy Index or certain of the S&P GSCI®'s commodity sector sub-indices: the S&P GSCI® Agriculture Index, the S&P GSCI® Energy Index, the S&P GSCI® Industrial Metals Index, the S&P GSCI® Livestock Index and the S&P GSCI® Precious Metals Index (each a **"S&P GSCI® Sector Index,"** and together, the **"S&P GSCI® Sector Indices"**), or the S&P GSCI®'s single commodity sub-indices (each a **"S&P GSCI® Single Component Index,"** and collectively, the **"S&P GSCI® Single Component Indices"**). The S&P GSCI® Single Component Indices and S&P GSCI® Sector Indices are referred to in this underlying supplement collectively as the **"S&P GSCI® Component Indices,"** and together with the S&P GSCI® and the S&P GSCI® Light Energy Index, as the **"S&P GSCI® Indices,"** and each, an **"S&P GSCI® Index."** If the notes are linked to any S&P GSCI® Single Component Index, any relevant disclosure for such S&P GSCI® Single Component Index will be provided in the relevant terms supplement.

S&P Dow Jones publishes excess return and total return versions of each of the S&P GSCI® Indices. The relevant terms supplement will specify whether the notes are linked to the excess return or total return version of the S&P GSCI® Indices. The excess return versions of the S&P GSCI® Indices are based on price levels of the futures contracts included in that S&P GSCI® Index as well as the discount or premium obtained by "rolling" hypothetical positions in those contracts forward as they approach delivery. The total return versions of the S&P GSCI® Indices incorporate the returns of the excess return versions, except that the total return versions also reflect interest earned on hypothetical, fully collateralized contract positions on the included commodities.

The S&P GSCI® is an index on a world production-weighted basket of principal non-financial commodities (*i.e.*, physical commodities) that satisfy specified criteria. The only commodities represented in the S&P GSCI® are those physical commodities on which active and liquid contracts are traded on trading facilities in major industrialized countries. The commodities included in the S&P GSCI® are weighted, on a production basis, to reflect the relative significance (in the view of S&P Dow Jones, as described below) of such commodities to the world economy. The fluctuations in the value of the S&P GSCI® are intended generally to correlate with changes in the prices of such physical commodities in global markets. The S&P GSCI® has been normalized such that its hypothetical level on January 2, 1970 was 100. Futures contracts on the S&P GSCI®, and options on such futures contracts, are currently listed for trading on the Chicago Mercantile Exchange.

The S&P GSCI® Light Energy Index is composed of the same commodity futures contracts as the S&P GSCI® but with those weights for contracts in the energy sector having been divided by 4. Because the weights of energy-related S&P GSCI® commodities are reduced in the S&P Light Energy Index relative to the S&P GSCI®, the relative weights of the remaining S&P GSCI® commodities are necessarily increased. As a result, although the S&P GSCI® Light Energy Index contains all of the S&P GSCI® commodities that are included in the S&P GSCI®, it is not world-production weighted in the same manner as the S&P GSCI® and may not serve as a benchmark for changes in inflation or other economic factors. In particular, because of the significance of energy-related commodities to the world economy, a significant reduction in the weights of these commodities in the S&P GSCI® Light Energy Index will substantially limit the effect of changes in energy prices on the S&P GSCI® Light Energy Index. Increases in the prices of energy commodities, therefore, will not increase the level of the S&P GSCI® Light Energy Index to the same extent as the S&P GSCI®.

The S&P GSCI® Agriculture Index is a world production-weighted index of certain agricultural commodities in the world economy, including wheat (Chicago and Kansas), corn, soybeans, cotton, sugar, coffee and cocoa.

The S&P GSCI® Energy Index is a world production-weighted index of certain energy commodities in the world economy, including crude oil, Brent crude oil, RBOB gasoline, heating oil, gasoil and natural gas.

The S&P GSCI® Industrial Metals Index is a world production-weighted index of certain industrial metals commodities in the world economy, including aluminum, copper, lead, nickel and zinc.

The S&P GSCI® Livestock Index is a world production-weighted index of certain livestock commodities in the world economy, including lean hogs, live cattle and feeder cattle.

The S&P GSCI® Precious Metals Index is a world production-weighted index consisting of two precious metals commodities in the world economy: gold and silver.

Set forth below is a summary of the methodology used to calculate the S&P GSCI® Indices. Because the S&P GSCI® is the base index of the S&P GSCI® Component Indices, the methodology for compiling the S&P GSCI® relates as well to the methodology of compiling the S&P GSCI® Component Indices. Each of the S&P GSCI® Component Indices is calculated in the same manner as the S&P GSCI®, except that (i) the daily contract reference price, CPWs and roll weights (each as discussed below) used in performing those calculations are limited to those of the commodities included in the relevant S&P GSCI® Component Index and (ii) each S&P GSCI® Component Index has a separate normalizing constant (discussed below). The methodology for determining the composition and weighting of the S&P GSCI® and for calculating its value is subject to modification in a manner consistent with the purposes of the S&P GSCI®, as described below. S&P Dow Jones makes the official calculations of the S&P GSCI® Indices.

### Composition of the S&P GSCI®

In order to be included in the S&P GSCI®, a contract must satisfy the following eligibility criteria:

- the contract must be in respect of a physical commodity and not a financial commodity;
- the contract must have a specified expiration or term or provide in some other manner for delivery or settlement at a specified time, or within a specified period, in the future;
- the contract must, 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;
- the contract must be traded on an exchange, facility or other platform (referred to as a “**trading facility**”) that allows market participants to execute spread transactions, through a single order entry, between the pairs of contract expirations 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);
- the contract must be denominated in U.S. dollars; and
- the contract must be traded on or through 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.

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, 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. The daily contract reference price may be (but is not required to be) the price (a) used by the relevant trading facility or clearing facility to determine the margin obligations (if any) of its

members or participants or margining transactions or for other purposes or (b) referred to generally as the reference, closing or settlement price of the relevant contract.

For a contract to be eligible for inclusion in the S&P GSCI<sup>®</sup>, 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:

- In order to be added to the S&P GSCI<sup>®</sup>, a contract that is not included in the S&P GSCI<sup>®</sup> at the time of determination and that is based on a commodity that is not represented in the S&P GSCI<sup>®</sup> at such time must have an annualized total dollar value traded over the relevant period of at least U.S. \$15 billion. The total dollar value traded is the dollar value of the total quantity of the commodity underlying transactions in the relevant contract over the period for which the calculation is made, based on the average of the daily contract reference prices on the last day of each month during the period.
- In order to continue to be included in the S&P GSCI<sup>®</sup>, a contract that is already included in the S&P GSCI<sup>®</sup> at the time of determination and that is the only contract on the relevant commodity included in the S&P GSCI<sup>®</sup> must have an annualized total dollar value traded of at least U.S. \$5 billion over the relevant period and of at least U.S. \$10 billion during at least one of the three most recent annual periods used in making the determination.
- In order to be added to the S&P GSCI<sup>®</sup>, a contract that is not included in the S&P GSCI<sup>®</sup> 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<sup>®</sup> at such time must have an annualized total dollar value traded over the relevant period of at least U.S. \$30 billion.
- In order to continue to be included in the S&P GSCI<sup>®</sup>, a contract that is already included in the S&P GSCI<sup>®</sup> 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<sup>®</sup> at such time must have an annualized total dollar value traded, over the relevant period of at least U.S. \$10 billion over the relevant period and of at least U.S. \$20 billion during at least one of the three most recent annual periods used in making the determination.

In addition to the volume requirements described above, a contract must have a minimum reference percentage dollar weight:

- In order to continue to be included in the S&P GSCI<sup>®</sup>, a contract that is already included in the S&P GSCI<sup>®</sup> at the time of determination must have a reference percentage dollar weight of at least 0.10%. The reference percentage dollar weight of a contract is determined by multiplying the CPW (defined below) of a contract by the average of its daily contract reference prices on the last day of each month during the relevant period. These amounts are summed for all contracts included in the S&P GSCI<sup>®</sup> and each contract's percentage of the total is then determined.
- In order to be added to the S&P GSCI<sup>®</sup>, a contract that is not included in the S&P GSCI<sup>®</sup> at the time of determination must have a reference percentage dollar weight of at least 1.00% at the time of determination.

In the event that two or more contracts on the same commodity satisfy the eligibility criteria, such contracts are included in the S&P GSCI<sup>®</sup> 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. No further contracts are included if such inclusion results in the portion of the S&P GSCI<sup>®</sup> attributable to such commodity exceeding a particular level.

If under the procedure set forth in the preceding paragraph, additional contracts could be included with respect to several commodities at the same time, the procedure is first applied to the commodity that has the smallest portion of the S&P GSCI<sup>®</sup> attributable to it at the time of determination. Subject to the other eligibility criteria, the contract with the highest total quantity traded on such commodity is included.

Before any additional contracts on any 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 Europe (“**ICE-Europe**”), ICE Futures U.S. (“**ICE-US**”), the Chicago Mercantile Exchange (“**CME**”), the Chicago Board of Trade (“**CBOT**”), the Kansas City Board of Trade (“**KBT**”), the Commodities Exchange Inc. (“**CMX**”) and the London Metal Exchange (“**LME**”).

The quantity of each of the contracts included in the S&P GSCI® is determined on the basis of a five-year average (referred to as the “**world production average**”) of the production quantity of the underlying commodity from sources determined by S&P Dow Jones to be reasonably accurate and reliable, such as the United Nations Industrial Commodity Statistics Yearbook. However, if a commodity is primarily a regional commodity, based on its production, use, pricing, transportation or other factors, S&P Dow Jones may calculate the weight of such commodity based on regional, rather than world, production data. At present, natural gas is the only commodity included in the S&P GSCI® where the production quantity is determined based on regional (North American) production.

The five-year moving average is updated annually for each commodity included in the S&P GSCI®, based on the five-year period (ending approximately two years prior to the date of calculation and moving backwards) for which complete data for all commodities is available. The contract production weights (the “**CPWs**”) used in calculating the S&P GSCI® are derived from world or regional production averages, as applicable, of the relevant commodities, and are calculated based on the total quantity traded for the relevant contract and the world or regional production average, as applicable, of the underlying commodity. However, if the volume of trading in the relevant contract, as a multiple of the production levels of the commodity, is below specified thresholds, the CPW of the contract is reduced until the threshold is satisfied. This is designed to ensure that trading in each such contract is sufficiently liquid relative to the production of the commodity.

In addition, S&P Dow Jones performs this calculation on a quarterly basis and, if the multiple of any contract is below the prescribed threshold, the composition of the S&P GSCI® is reevaluated, based on the criteria and weighting procedure described above. This procedure is undertaken to allow the S&P GSCI® to shift from contracts that have lost substantial liquidity into more liquid contracts, during the course of a given year. As a result, it is possible that the composition or weighting of the S&P GSCI® will change on one or more of these quarterly evaluation dates. In addition, regardless of whether any changes have occurred during the year, S&P Dow Jones reevaluates the composition of the S&P GSCI® at the conclusion of each year, based on the above criteria. Other commodities that satisfy such criteria, if any, will be added to the S&P GSCI®. Commodities included in the S&P GSCI® that no longer satisfy such criteria, if any, will be deleted.

S&P Dow Jones also determines whether modifications in the selection criteria or the methodology for determining the composition and weights of and for calculating the S&P GSCI® are necessary or appropriate in order to assure that the S&P GSCI® represents a measure of commodity market performance. S&P Dow Jones has the discretion to make any such modifications.

## **Contract Expirations**

Because the S&P GSCI® comprises 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 an eligible replacement contract on the commodity. To the extent practicable, the replacement will be in effect 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 specifications and contract expirations.

### Value of the S&P GSCI®

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**” (discussed below),
- multiplied by the appropriate CPWs, and
- during a roll period, the appropriate “roll weights” (discussed below).

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.

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; provided, 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.

### **Contract Daily Return**

The contract daily return on any given day is equal to the sum, for each of the commodities included in the S&P GSCI<sup>®</sup>, of the applicable daily contract reference price on the relevant contract multiplied by the appropriate CPW and the appropriate “roll weight,” divided by the total dollar weight of the S&P GSCI<sup>®</sup> on the preceding day, minus one.

### **Calculation of the S&P GSCI<sup>®</sup> Indices**

#### ***Excess return S&P GSCI<sup>®</sup> Indices***

The value of any excess return version of a S&P GSCI<sup>®</sup> Index on any day on which the S&P GSCI<sup>®</sup> is calculated (an “**S&P GSCI<sup>®</sup> Business Day**”) is equal to the product of:

- the value of the applicable S&P GSCI<sup>®</sup> Index on the immediately preceding S&P GSCI<sup>®</sup> Business Day; and
- one *plus* the contract daily return of the applicable S&P GSCI<sup>®</sup> Index on the S&P GSCI<sup>®</sup> Business Day on which the calculation is made.

#### ***Total Return S&P GSCI<sup>®</sup> Indices***

The value of any total return version of an S&P GSCI<sup>®</sup> Index on any S&P GSCI<sup>®</sup> Business Day reflects the value of an investment in the excess return version of that S&P GSCI<sup>®</sup> Index together with a Treasury bill return and is equal to the product of:

- the value of the applicable S&P GSCI<sup>®</sup> Index on the immediately preceding S&P GSCI<sup>®</sup> Business Day;
- one *plus* the sum of the contract daily return and the Treasury Bill return on the S&P GSCI<sup>®</sup> Business Day on which the calculation is made; and
- one *plus* the Treasury Bill return for each non-S&P GSCI<sup>®</sup> Business Day since the immediately preceding S&P GSCI<sup>®</sup> Business Day.

The Treasury Bill return is the return on a hypothetical investment in the applicable S&P GSCI<sup>®</sup> Index at a rate equal to the interest rate on a specified U.S. Treasury Bill.

### **Index Governance**

#### ***Index Committee***

S&P Dow Jones has established an index committee with respect to the S&P GSCI<sup>®</sup> Indices (the “**Index Committee**”) to oversee the daily management and operations of the S&P GSCI<sup>®</sup>, and is responsible for all analytical methods and calculation of the S&P GSCI<sup>®</sup> Indices. The Index Committee consists of full-time professional members of S&P Dow Jones’s 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 the S&P GSCI® Indices and related matters to be potentially market-moving and material. Therefore, all Index Committee discussions are confidential.

The Index Committee reserves the right to make exceptions when applying the methodology of the S&P GSCI® if the need arises.

In addition to the daily governance of the S&P GSCI® Indices and maintenance of their methodologies, at least once within any 12-month period, the Index Committee reviews the methodology to ensure the S&P GSCI® Indices continue to achieve the stated objectives, and that the data and methodology remain effective. In certain instances, S&P Dow Jones may publish a consultation inviting comments from external parties.

## **License Agreement**

The S&P GSCI® Indices are licensed by S&P Dow Jones for use in connection with an issuance of the notes.

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## **The Commodity Futures Markets**

Futures contracts on physical commodities are traded on regulated futures exchanges, in the over-the-counter market and on various types of physical and electronic trading facilities and markets. As of

the date of this underlying supplement, all of the contracts included in the S&P GSCI® Indices are exchange-traded futures contracts. An exchange-traded futures contract provides for the purchase and sale of a specified type and quantity of a commodity or financial instrument during a stated delivery month for a fixed price. A futures contract provides for a specified settlement month in which cash settlement is made or in which the commodity or financial instrument is to be delivered by the seller (whose position is therefore described as “short”) and acquired by the purchaser (whose position is therefore described as “long”).

No purchase price is paid or received on the purchase or sale of a futures contract. Instead, an amount of cash or cash equivalents must be deposited with the broker as “initial margin.” This amount varies based on the requirements imposed by the exchange clearing houses, but it may be lower than 5% of the notional value of the contract. This margin deposit provides collateral for the obligations of the parties to the futures contract.

By depositing margin, which may vary in form depending on the exchange, with the clearing house or broker involved, a market participant may be able to earn interest on its margin funds, thereby increasing the total return that it may realize from an investment in futures contracts.

Futures contracts are traded on organized exchanges, known as “contract markets” in the United States. At any time prior to the expiration of a futures contract, a trader may elect to close out its position by taking an opposite position on the exchange on which the trader obtained the position, subject to the availability of a liquid secondary market. This operates to terminate the position and fix the trader’s profit or loss. Futures contracts are cleared through the facilities of a centralized clearing house and a brokerage firm, referred to as a “futures commission merchant,” which is a member of the clearing house.

Unlike equity securities, futures contracts, by their terms, have stated expirations at a specified point in time prior to expiration. At a specific point in time prior to expiration, trading in a futures contract for the current delivery month will cease. As a result, a market participant wishing to maintain its exposure to a futures contract on a particular commodity or financial instrument with the nearest expiration must close out its position in the expiring contract and establish a new position in the contract for the next delivery month, a process referred to as “rolling.” For example, a market participant with a long position in a futures contract expiring in November who wishes to maintain a position in the nearest delivery month will, as the November contract nears expiration, sell the November contract, which serves to close out the existing long position, and buy a futures contract expiring in December. This will “roll” the November position into a December position, and, when the November contract expires, the market participant will still have a long position in the nearest delivery month.

Futures exchanges and clearing houses in the United States are subject to regulation by the Commodity Futures Trading Commission. Exchanges may adopt rules and take other actions that affect trading, including imposing speculative position limits, maximum price fluctuations and trading halts and suspensions and requiring liquidation of contracts in certain circumstances.

Futures markets outside the United States are generally subject to regulation by comparable regulatory authorities. The structure and nature of trading on non-U.S. exchanges may differ from this description. From their inception to the present, the S&P GSCI® Indices have been composed exclusively of futures contracts traded on regulated exchanges.

## FUND DESCRIPTIONS

### THE ARK INNOVATION ETF

All information contained in this underlying supplement regarding the ARK Innovation ETF (the “**ARKK Fund**”) has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, ARK ETF Trust (“**ARK Trust**”). The ARKK Fund is an actively-managed exchange-traded fund managed by ARK Investment Management LLC (“**ARK LLC**”), the investment adviser to the ARKK Fund. The ARKK Fund trades on NYSE Arca, Inc. under the ticker symbol “ARKK.”

The investment objective of the ARKK Fund is long-term growth of capital.

As an actively-managed fund, the ARKK Fund is subject to management risk. In managing the ARKK Fund, ARK LLC applies investment strategies, techniques and analyses in making investment decisions for the ARKK Fund, but there can be no guarantee that these actions will produce the intended results. The ability of ARK LLC to successfully implement the ARKK Fund’s investment strategy will significantly influence that ARKK Fund’s performance.

The ARKK Fund will invest under normal circumstances primarily (at least 65% of its assets) in equity securities of U.S. and non-U.S. companies that are relevant to the ARKK Fund’s investment theme of disruptive innovation. ARK LLC defines “disruptive innovation” as the introduction of a technologically enabled new product or service that potentially changes the way the world works. ARK LLC believes that companies relevant to this theme are those that rely on or benefit from the development of new products or services, technological improvements and advancements in scientific research relating to the areas of genomics; innovation in automation and manufacturing, transportation, energy, artificial intelligence and materials; the increased use of shared technology, infrastructure and services; and technologies that make financial services more efficient. ARK LLC defines “genomics” as the study of genes and their functions, and related techniques (*e.g.*, genomic sequencing).

ARK Trust is a registered investment company that consists of numerous separate investment portfolios, including the ARKK Fund. Information provided to or filed with the SEC by ARK 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 333-191019 and 811-22883, respectively, through the SEC’s website at <http://www.sec.gov>.

## THE GLOBAL X SILVER MINERS ETF

All information contained in this underlying supplement regarding the Global X Silver Miners ETF (the “**Silver Miners ETF**”) has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by Global X Funds® (the “**Global X Trust**”) and Global X Management Company LLC (“**Global X Management**”). Global X Management is currently the investment adviser to the Silver Miners ETF. The Silver Miners ETF is an exchange-traded fund that trades on NYSE Arca, Inc. under the ticker symbol “SIL.”

The Silver Miners ETF seeks to provide investment results that correspond generally to the price and yield performance, before fees and expenses, of the Solactive Global Silver Miners Total Return Index (the “**Silver Miners Index**”). The Silver Miners Index is a modified market capitalization-weighted net total return index that is designed to track the performance of international companies active in the exploration, mining and/or refining of silver. For more information about the Silver Miners Index, see “— The Solactive Global Silver Miners Total Return Index” below.

Global X Management uses a “passive” or indexing approach to try to achieve the Silver Miners ETF’s investment objective. The Silver Miners ETF generally will use a replication strategy. A replication strategy is an indexing strategy that involves investing in the securities of the Silver Miners Index in approximately the same proportions as in the Silver Miners Index. However, the Silver Miners ETF may utilize a representative sampling strategy with respect to the Silver Miners Index when a replication strategy might be detrimental or disadvantageous to shareholders of the Silver Miners ETF, such as when there are practical difficulties or substantial costs involved in compiling a portfolio of equity securities to replicate the Silver Miners Index, in instances in which a security in the Silver Miners Index becomes temporarily illiquid, unavailable or less liquid, or as a result of legal restrictions or limitations (such as tax diversification requirements) that apply to the Silver Miners ETF but not the Silver Miners Index.

Tracking error is the divergence of the Silver Miners ETF’s performance from that of the Silver Miners Index. Tracking error may occur because of differences between the securities and other instruments held in the Silver Miners ETF’s portfolio and those included in the Silver Miners Index, pricing differences (including differences between a security’s price at the local market close and the Silver Miners ETF’s valuation of a security at the time of calculation of the Silver Miners ETF’s net asset value), transaction costs incurred by the Silver Miners ETF, the Silver Miners ETF’s holding of uninvested cash, differences in timing of the accrual of or the valuation of dividends or interest, tax gains or losses, changes to the Silver Miners Index or the costs to the Silver Miners ETF of complying with various new or existing regulatory requirements. This risk may be heightened during times of increased market volatility or other unusual market conditions. Tracking error also may result because the Silver Miners ETF incurs fees and expenses, while the Silver Miners Index does not. Exchange-traded funds that track indices with significant weights in emerging markets issuers may experience higher tracking error than other exchange-traded funds that do not track such indices.

The Global X Trust is a registered investment company that consists of numerous separate investment portfolios, including the Silver Miners ETF. Information provided to or filed with the SEC by the Global X 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 the SEC file numbers 333-151713 and 811-22209, respectively, through the SEC’s website at <http://www.sec.gov>.

### The Solactive Global Silver Miners Total Return Index

All information contained in this underlying supplement regarding the Silver Miners 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, Solactive AG (“**Solactive**”). The Silver Miners Index is calculated, maintained and published by Solactive. Solactive has no obligation to continue to publish, and may discontinue publication of, the Silver Miners Index.

The Silver Miners Index is reported by Bloomberg L.P. under the ticker symbol “SOLGOLSI.”



The Silver Miners Index is a modified market capitalization-weighted net total return index that is designed to track the performance of international companies active in the exploration, mining and/or refining of silver. The Silver Miners Index has a base date of February 26, 2010 and a base value of 100.

A net total return Index seeks to replicate the overall return from holding a portfolio consisting of the Index Components (as defined below). To achieve this goal, a net total return index considers payments, such as dividends, after the deduction of any withholding tax or other amounts to which an investor holding the Index Components would typically be exposed.

### ***Composition of the Silver Miners Index***

#### ***Selection of Index Components***

The composition of the Silver Miners Index is ordinarily adjusted twice a year on the last trading day in April and October (the “**Adjustment Day**”). On the tenth business day before an Adjustment Day (a “**Selection Day**”), Solactive provides the “**Selection Pool**” which, in respect of a Selection Day, consists of the companies that fulfill the following conditions:

- listing on a regulated stock exchange in the form of shares tradable for foreign investors without restrictions;
- significant business operations in the silver mining industry, meaning that:
  - a significant part of the company’s revenues is generated in silver mining and/or closely related activities (e.g., exploration or refining of silver) and/or;
  - a company is expected to generate a significant part of its revenues in silver mining and/or closely related activities (e.g., exploration or refining of silver) in the future.
- Free float market capitalization of
  - at least US\$60 million for companies that are not currently included in the Silver Miners Index on that Selection Day; or
  - at least US\$30 million for companies that are currently included in the Silver Miners Index on that Selection Day;
- Average daily trading volume in the last three months expressed in U.S. dollars (the “**Relevant Trading Volume**”) of:
  - at least US\$250,000 for companies that are not currently included in the Silver Miners Index on that Selection Day; or
  - at least US\$125,000 for companies that are currently included in the Silver Miners Index on that Selection Day; and
- Average monthly trading volume of at least 75,000 shares in each of the last six months (the “**Liquidity Criterion**”).

The Index Committee (as defined below) may decide to include companies in the Selection Pool that do not fulfill the Liquidity Criterion.

The companies in the Selection Pool are ranked according to their Relevant Trading Volume. The companies with the highest ranks are then chosen as “**Index Components**” and the new index composition is effective immediately following the Adjustment Day.

The minimum number of Index Components is 20 and the maximum number of Index Components is 40. The Index Committee may decide to increase the maximum number of Index Components on a Selection Day. In case the rank assigned to a company that is currently an Index Component on a

Selection Day is not sufficient to be selected as an Index Component, it will only be removed from the Silver Miners Index if its rank exceeds the maximum number of Index Components by more than five ranks. In that case, the company with the lowest rank that would have been selected as an Index Component on a Selection Day but that is not currently an Index Component on that Selection Day will not be selected for inclusion in the Silver Miners Index.

### *Weighting of Index Components*

On each Selection Day, each Index Component of the Silver Miners Index is ranked according to its free float market capitalization and weighted in four steps:

- (1) Each Index Component is weighted proportionally according to its free float market capitalization;
- (2) The percentage weight of a single Index Component is capped at 22.5%. The excess weight is allocated proportionally to all Index Components that is not capped.
- (3) The weights of the top ranked Index Components with a weight above 5% will be aggregated. This aggregated weight has a maximum cap of 48%. The last Index Component that would add up to 48% or would exceed 48% will receive an index weight of the maximum of:
  - (a) 48% *minus* the sum of weights of the higher ranked Index Components; or
  - (b) 4.75%
- (4) The percentage weight of all other Index Components is capped at 4.75%. The excess weight is allocated proportionally to all Index Components with a percentage weight of less than 4.75%.

The “**percentage weight**” of an Index Component is the ratio of its trading price *multiplied* by its number of shares divided by the level of the Silver Miners Index. The “**number of shares**” is, in respect of an Index Component on any given business day, the number of fractions of shares included in the Silver Miners Index calculated as the ratio of (a) the percentage weight of an Index Component *multiplied* by the index level and (b) its trading price.

The new index composition of the Silver Miners Index and weightings are implemented after the close of trading on the Adjustment Day. The capping methodology may be amended by the Index Committee from time to time to ensure appropriate index representation and index compliance with financial product regulations in the United States.

The cumulative percentage weight of the Index Components that do not fulfill the Liquidity Criterion is capped at 10% on Selection Days. The excess weight is allocated proportionally to all Index Components that is not capped.

### *Continuous Listing Standard Review*

On each Monitoring Selection Day (as defined below), the index composition will be reviewed for a breach of the following criteria (the “**Continuous Listing Standards**”):

1. The maximum weight of the top Index Component must not be larger than 25%. If this criterion is breached, the stock is capped at 22% and the excess weight is redistributed to other non-capped stocks.
2. The maximum aggregate weight of the top 5 Index Components must not exceed 60%. If this criterion is breached, the stocks will be proportionally capped at 55% and the excess weight is redistributed to other non-capped stocks.
3. The maximum weight of constituents with a market liquidity below 250,000 shares traded (monthly average of the previous 6 months) and US\$25 million monthly average daily traded value (monthly average of the previous 6 months) must not exceed 30%. If this criterion is breached, the stocks with a market liquidity below 250,000 shares traded (monthly average of the

previous 6 months) and US\$25 million monthly average traded value (monthly average of the previous 6 months) will be proportionally capped at 25% and the excess weight is redistributed to other non-capped stocks.

4. The maximum weight of constituents with a full-market capitalization below US\$100 million must not account for more than 10%. If this criterion is breached, stocks with market capitalization below US\$100 million will be proportionally capped at 9% and the excess weight is redistributed to other non-capped stocks.

This reweighting process will be repeated until no Continuous Listing Standards are breached. In the event that the Continuous Listing Standards cannot be satisfied using the buffers described above, the weighting will be reviewed by the Index Committee. After the review, the decision will be announced publicly.

The “**Monitoring Selection Day**” is the business day that is ten business days before the Monitoring Adjustment Day. The “**Monitoring Adjustment Day**” is the last trading day in January, April, July and October.

#### *Calculation of the Silver Miners Index*

##### *Index Formula*

For the calculation of the index level, the sum of the market capitalization of the components is divided by the divisor.

$$Index_t = \frac{\sum_{i=1}^n S_{i,t} * p_{i,t} * f_{i,t} WCF_{i,t} FFF_{i,t}}{D_t}$$

Where:

$S_{i,t}$ : total number of shares of Index Component i on trading day t

$p_{i,t}$ : price of Index Component i on trading day t

$f_{i,t}$ : foreign exchange rate applicable to price of Index Component i on trading day t

$WCF_{i,t}$ : weighting cap factor of Index Component i on trading day t

$FFF_{i,t}$ : free float factor of Index Component i on trading day t

$D_t$ : divisor

The divisor is a mathematical factor defined at the inception of the Index. The Divisor is adjusted by certain Corporate Actions and Index Rebalances. After the deduction of any withholding tax, dividends paid by any component are applied across the entire basket of Index Components by changing the divisor.

##### *Currency conversion*

For intraday calculation of the Silver Miners Index, prices of Index Components not in U.S. dollars are converted using the current Intercontinental Exchange spot foreign exchange rate. Should there be no current price available for an Index Component, the most recent price or the trading price for the preceding trading day is used in the calculation. For the daily index closing value calculation, trading prices of Index Components not in U.S. dollars are converted using the 4pm London time WM Fixing quoted by Reuters. If there is no 4pm London time WM Fixing for the relevant business day, the last available 4pm London time WM Fixing will be used for the index closing value calculation.

## *Index Maintenance*

### *Ordinary Adjustments*

The composition of the Silver Miners Index is reviewed on each Selection Day. Solactive will publish any changes made to the Index Components with sufficient notice before the relevant Adjustment Day.

### *Extraordinary Adjustments*

If a company included in the Silver Miners Index is removed from the Silver Miners Index between two Adjustment Days due to an extraordinary event (such as a merger, a takeover bid, a delisting, the nationalization of a company or insolvency), if necessary, the Index Committee will designate a successor. The Silver Miners Index will be adjusted that same day. This will be announced by Solactive after the close of business on the day on which the new composition of the Silver Miners Index is determined by the Index Committee.

### *Corporate Actions*

As part of the Silver Miners Index maintenance Solactive will consider various events – also referred to as corporate actions – which result in an adjustment to the Silver Miners Index between two ordinary adjustments including, but not limited to, special dividends, stock dividends, share splits, spin-offs, mergers and acquisitions, delistings, and others. These events have a material impact on the price, weighting or overall integrity of Index Components. Corporate actions will be implemented from the cum-day to the ex-day of the corporate action, so that the adjustment to the Silver Miners Index coincides with the occurrence of the price effect of the respective corporate action.

While Solactive aims at creating and maintaining its methodology for treatment of corporate actions as generic and transparent as possible and in line with regulatory requirements, it retains the right to deviate from these standard procedures in case of any unusual or complex corporate action or if such a deviation is made to preserve the comparability and representativeness of the Silver Miners Index over time.

### *Index Oversight*

A committee composed of staff from Solactive (the “**Index Committee**”) is responsible for any amendments to the rules of governing the Silver Miners Index. Any amendment to these rules must be submitted to the Index Committee for prior approval and will be made in compliance with Solactive’s methodology policy. The methodology of the Silver Miners Index is subject to regular review, at least annually. In case a need of a change of the methodology has been identified within this review, this change will be made in accordance with Solactive’s methodology policy.

## THE INVESCO S&P 500® EQUAL WEIGHT ETF

All information contained in this underlying supplement regarding the Invesco S&P 500® Equal Weight ETF (the “**RSP Fund**”) has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, Invesco Exchange-Traded Fund Trust (the “**Invesco Trust**”) and Invesco Capital Management LLC (“**Invesco**”). Invesco is currently the investment adviser to the RSP Fund. The RSP Fund is an exchange-traded fund that trades on NYSE Arca, Inc. under the ticker symbol “RSP.”

The RSP Fund seeks to track the investment results (before fees and expenses) of the S&P 500® Equal Weight Index. The S&P 500® Equal Weight Index is an equal-weighted version of the S&P 500® Index. For more information about the S&P 500® Equal Weight Index, please see “Equity Index Descriptions — The S&P Equal Weight Indices.”

The RSP Fund uses an “indexing” investment approach to seek to track the investment results, before fees and expenses, of the S&P 500® Equal Weight Index. The RSP Fund employs a “full replication” methodology in seeking to track the S&P 500® Equal Weight Index, meaning that it generally invests in all of the securities composing the S&P 500® Equal Weight Index in proportion to their weightings in the S&P 500® Equal Weight Index. However, under various circumstances, it may not be possible or practicable to purchase all of those securities in those same weightings. In those circumstances, the RSP Fund may purchase a sample of securities in the S&P 500® Equal Weight Index. A “sampling” methodology means that Invesco uses quantitative analysis to select securities from the S&P 500® Equal Weight Index universe to obtain a representative sample of securities that have, in the aggregate, investment characteristics similar to the S&P 500® Equal Weight Index in terms of key risk factors, performance attributes and other characteristics. These include industry weightings, market capitalization, return variability, earnings valuation, yield and other financial characteristics of securities. When employing a sampling methodology, Invesco bases the quantity of holdings in the RSP Fund on a number of factors, including asset size of the RSP Fund, and generally expects the RSP Fund to hold less than the total number of securities in the S&P 500® Equal Weight Index. However, Invesco reserves the right to invest the RSP Fund in as many securities as it believes necessary to achieve the RSP Fund’s investment objective.

The RSP Fund’s return may not match the return of the S&P 500® Equal Weight Index for a number of reasons. For example, the RSP Fund incurs operating expenses not applicable to the S&P 500® Equal Weight Index and incurs costs in buying and selling securities, especially when rebalancing the RSP Fund’s securities holdings to reflect changes in the composition of the S&P 500® Equal Weight Index. In addition, the performance of the RSP Fund and the S&P 500® Equal Weight Index may vary due to asset valuation differences and differences between the RSP Fund’s portfolio and the S&P 500® Equal Weight Index resulting from legal restrictions, cost or liquidity constraint.

The Invesco Trust is a registered investment company that consists of numerous separate investment portfolios, including the RSP Fund. Information provided to or filed with the SEC by the Invesco 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 333-102228 and 811-21265, respectively, through the SEC’s website at <http://www.sec.gov>.

## THE INVESCO SOLAR ETF

All information contained in this underlying supplement regarding the Invesco Solar ETF (the “**Solar Fund**”) has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, Invesco Exchange-Traded Fund Trust II (the “**Invesco Trust**”) and Invesco Capital Management LLC (“**Invesco**”). Invesco is currently the investment adviser to the Solar Fund. The Solar Fund is an exchange-traded fund that trades on NYSE Arca, Inc. under the ticker symbol “TAN.”

The Solar Fund seeks to track the investment results (before fees and expenses) of the MAC Global Solar Energy Index. For additional information about the MAC Global Solar Energy Index, see “— The MAC Global Solar Energy Index” below.

The Solar Fund uses an “indexing” investment approach to seek to track the investment results, before fees and expenses, of the MAC Global Solar Energy Index. The Solar Fund employs a “full replication” methodology in seeking to track the MAC Global Solar Energy Index, meaning that it generally invests in all of the securities (including American Depositary receipts) composing the MAC Global Solar Energy Index in proportion to their weightings in the MAC Global Solar Energy Index. However, under various circumstances, it may not be possible or practicable to purchase all of those securities in those same weightings. In those circumstances, the Solar Fund may purchase a sample of securities in the MAC Global Solar Energy Index. A “sampling” methodology means that Invesco uses quantitative analysis to select securities from the MAC Global Solar Energy Index universe to obtain a representative sample of securities that have, in the aggregate, investment characteristics similar to the MAC Global Solar Energy Index in terms of key risk factors, performance attributes and other characteristics. These include industry weightings, market capitalization, return variability, earnings valuation, yield and other financial characteristics of securities. When employing a sampling methodology, Invesco bases the quantity of holdings in the Solar Fund on a number of factors, including asset size of the Solar Fund, and generally expects the Solar Fund to hold less than the total number of securities in the MAC Global Solar Energy Index. However, Invesco reserves the right to invest the Solar Fund in as many securities as it believes necessary to achieve the Solar Fund’s investment objective.

The Solar Fund’s return may not match the return of the MAC Global Solar Energy Index for a number of reasons. For example, the Solar Fund incurs operating expenses not applicable to the MAC Global Solar Energy Index and incurs costs in buying and selling securities, especially when rebalancing the Solar Fund’s securities holdings to reflect changes in the composition of the MAC Global Solar Energy Index. In addition, the performance of the Solar Fund and the MAC Global Solar Energy Index may vary due to asset valuation differences and differences between the Solar Fund’s portfolio and the MAC Global Solar Energy Index resulting from legal restrictions, cost or liquidity constraints.

The Invesco Trust is a registered investment company that consists of numerous separate investment portfolios, including the Solar Fund. Information provided to or filed with the SEC by the Invesco 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 333-138490 and 811-21977, respectively, through the SEC’s website at <http://www.sec.gov>.

### The MAC Global Solar Energy Index

All information contained in this underlying supplement regarding the MAC Global Solar Energy 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, MAC Indexing, LLC (“**MAC Indexing**”). The MAC Global Solar Energy Index was developed by MAC Indexing and is calculated, maintained and published by S&P DJI Netherlands B.V., a subsidiary of S&P Dow Jones Indices LLC (“**S&P Dow Jones**”). Neither MAC Indexing nor S&P Dow Jones has any obligation to continue to publish, and may discontinue publication of, the MAC Global Solar Energy Index. The MAC Global Solar Energy Index is reported by Bloomberg L.P. under the ticker symbol “SUNIDX.”



The MAC Global Solar Energy Index is a modified market capitalization-weighted index that is designed to track the global solar energy equity sector. The MAC Global Solar Energy Index is calculated in U.S. dollars.

#### *The MAC Global Solar Energy Index Eligibility Criteria*

##### *Solar Stock Universe List*

The first step is to create a Solar Stock Universe List. Once each year, with an information reference date of April 30, the Solar Stock Universe List is reconstituted consisting of solar stocks that are selected in accordance with the below eligibility criteria. For each subsequent quarterly index rebalance, stocks from the Solar Stock Universe List will be eligible for inclusion in the MAC Global Solar Energy Index. Only IPOs may be added to the solar stock universe at subsequent quarterly rebalances as noted below.

##### *Solar Business Activities*

Companies with revenue, or other relevant metric (see Index Construction below), from solar business activities of at least one-third of total revenue are selected for the Solar Stock Universe List. An algorithm is used to conduct an automated scan of company description and segment data as reported on S&P Capital IQ for relevant search terms to identify a universe of solar stocks. Only the securities of those companies identified in this step qualify for inclusion in the Solar Stock Universe List. Companies that do not include in their company description or segment data a reference to a product or business service that is explicitly related to a search term are excluded from the universe even if they may be identified as engaging in solar business activities through other sources. Examples of solar business activities include, but are not limited to:

- solar power equipment producers, including ancillary or enabling products, such as tracking systems, inverters, batteries, or other solar energy storage systems;
- suppliers of raw materials, components or services to solar producers or developers;
- companies that produce solar equipment fabrication systems;
- companies involved in solar power system installation, development, integration, maintenance or finance;
- companies that produce hydrogen using solar energy;
- companies that provide solar-powered charging systems for electric vehicles or other electrical devices;
- companies selling systems that use solar thermal energy to produce heat or electricity; and
- companies that sell electricity derived from solar power.

##### *Country Inclusion Criteria*

Stocks must be listed on a primary exchange in one of the countries as shown in one of the following countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Singapore, South Korea, Spain, Sweden, Switzerland, Taiwan, the United Kingdom or the United States. There is no limitation on the country where a company's headquarters or legal domicile may be located, which may differ from where a company's stock is listed as of the Rebalance Observation Date (as defined below).

##### *Security types*

Eligible securities for inclusion in the MAC Global Solar Energy Index are common stocks, ADRs, GDRs, and REITs.

### *Multiple Share Classes and Dual-Listed Companies*

Each company is listed once by the Designated Listing, chosen as the share class listed on an eligible exchange with both the highest float-adjusted market capitalization and 1-year median daily trading value.

### *Liquidity Screens*

The minimum threshold for inclusion in the Solar Stock Universe List as of April 30 reference date is float-adjusted market capitalization of at least US\$75 million and a 3-month average daily trading value of at least US\$250,000.

### *Business Activity Exclusions*

A stock will be excluded from the Solar Stock Universe List at its annual reconstitution, and therefore from the MAC Global Solar Energy Index, if the company is engaged in the business of the extraction of coal, petroleum, or natural gas, or if the company is engaged in the business of generating electricity for sale to third parties using coal, petroleum (oil), or nuclear fuel, according to S&P Trucost Limited (“**Trucost**”) business activity data as noted in the table below, as of the information reference date of April 30. If a stock is not covered by all the necessary Trucost data to test for exclusionary business activities, then the stock will be included in the annual Solar Stock Universe List and therefore otherwise qualifies for inclusion in the MAC Global Solar Energy Index. Any IPOs or other stocks that may otherwise qualify to be added to the Solar Stock Universe List at the quarterly index rebalance will be included in the Solar Stock Universe List if the stock does not have the necessary Trucost data coverage, but will be excluded from the Solar Stock Universe List and the MAC Global Solar Energy Index if the stock has Trucost data coverage and the Trucost data flags an excluded business activity as noted in the table below.

<b>Business Activity Exclusions</b>		
<b>Exclusion Type</b>	<b>Trucost Revenue Sector</b>	<b>Revenue Threshold</b>
Power Generation	Coal Power Generation	> 0
	Petroleum Power Generation	
	Nuclear Power Generation	
Fossil Fuel Extraction	Crude Petroleum and Natural Gas Extraction	> 0
	Bituminous Coal Underground Mining	
	Bituminous Coal and Lignite Surface Mining	

### *Governance Screen*

At the annual reconstitution of the Solar Stock Universe List, stocks with an S&P Global Governance & Economic Score of zero as of the April 30 reference date will be excluded from the Solar Stock Universe List and therefore cannot qualify for inclusion in the MAC Global Solar Energy Index. If a stock is not covered by S&P Global and does not have a S&P Global Governance & Economic score, that stock will be included in the Solar Stock Universe List and therefore qualifies for inclusion in the MAC Global Solar Energy Index, *provided* the stock meets the eligibility criteria detailed above. Any IPOs or other stocks that may qualify to be added to the Solar Stock Universe List at the quarterly index rebalance will be included in the Solar Stock Universe List if the stock does not have an S&P Global Governance and Economic score, but will be excluded from the Solar Stock Universe List if the stock has a current S&P Global Governance & Economic score of zero.

### *Calculating the Solar Exposure Scores*

Companies that derive approximately two-thirds to 100% of their revenue, or other relevant metric as described below, from solar business activities are assigned a Solar Exposure Score of 1.0. Companies that derive between approximately one-third and two-thirds of their revenue, or other relevant metric as described below, from solar business activities are assigned a Solar Exposure Score of 0.5. Companies that derive less than approximately one-third of their revenue, or other relevant metric as described below, from solar business activities are excluded from consideration for inclusion in the MAC Global Solar Energy Index. Solar Exposure Scores are assigned at the annual index reconstitution of April 30. Solar Exposure Scores are typically based on information provided in a company's most recent annual report as of the information reference date of April 30, although other company information sources may be used if necessary.

Segment revenue is the primary metric used to determine a company's solar business activity exposure, but if a company does not report a solar revenue breakdown, then other metrics may be used for determining solar exposure, with an order of preference of EBITDA, net income, earnings, cash available for distribution (CAFD), cash flow, balance sheet assets, portfolio holdings, or solar electricity capacity or production in energy terms.

A company will be excluded from the Solar Stock Universe List at the annual reconstitution if that company does not provide sufficient publicly-available information for a determination to be made of whether the company derives more than approximately one-third of its revenue, or other relevant metric stated above, from solar business activities.

### *IPOs*

An algorithm is used to search company description and segment data as reported by S&P Capital IQ to identify IPOs. Stocks that are not in the group identified by the search algorithm will not be included in the MAC Global Solar Energy Index even if that company may be identified as engaging in solar business activities through other sources. As of the Rebalance Observation Date at each quarterly rebalance, a company that recently completed an initial public offering, a direct public offering, or a reverse merger of a private company into a publicly traded company is considered for addition into the Solar Stock Universe List if it meets the following criteria:

- The stock has at least two months of trading history prior to the Rebalance Observation Date. This trading history requirement does not apply to companies that were spun off from an existing index constituent.
- The stock satisfies all the eligibility criteria listed under Solar Stock Universe List, with an exception for stocks with less than three months of trading history listed below.

If a stock considered for addition into the Solar Stock Universe List under this section has traded for less than three months, then the minimum average daily trading value will be for the number of days that the stock has actually traded, rather than the normal 3-month period specified in the Liquidity Screens section above. For a reverse merger, the trading value day count shall begin on the day that the merger takes effect.

### *The MAC Global Solar Energy Index Construction*

#### *Minimum Number of Stocks*

The MAC Global Solar Energy Index seeks to have 20 or more constituent stocks. If there is a risk of the number of stocks falling below 20, the eligibility criteria for the inclusion of a constituent in the MAC Global Solar Energy Index will be relaxed as specified in the Liquidity Screens section.

#### *Liquidity Screens*

The minimum threshold for initial inclusion of a stock in the MAC Global Solar Energy Index is US\$250 million of float-adjusted market capitalization and a 3-month average daily trading value of

US\$750,000 as of the quarterly Data Reference Date, which is the market close on the first business day of March, June, September, and December. The minimum threshold for the continued inclusion of a constituent in the MAC Global Solar Energy Index at the quarterly index rebalance is US\$125 million of float-adjusted market capitalization and a 3-month average daily trading value of US\$375,000 as of the quarterly Data Reference Date. If this leads to the stock count dropping under 20 stocks, the minimum thresholds for initial and continued inclusion will be relaxed such that the 20-stock minimum can be met by progressively adding otherwise eligible stocks from the annual Solar Stock Universe list in the order of the stocks with the highest float-adjusted market capitalization first. If there are no eligible stocks to choose from, the stocks identified to be dropped will be retained in the MAC Global Solar Energy Index to meet the 20-stock minimum rule.

### *Stock Weights*

At each quarterly rebalance, the MAC Global Solar Energy Index is rebalanced according to the following weighting methodology:

- The new rebalance weights are determined as of the reweighting reference date, which is the market close on the first business day of the rebalance month (*i.e.*, March, June, September, and December) before the index rebalance's effective date of the third Friday in March, June, September, and December. The stocks in the MAC Global Solar Energy Index are first assigned a raw weight based on a standard float-adjusted market capitalization weighting scheme, with any stock having a Solar Exposure Score of 0.5 first having its float-adjusted market capitalization *multiplied* by 0.5 to reduce its raw weight by half.
- If necessary, the raw weighting factors are modified through a weighting-gap rebalancing algorithm to ensure that, at the time of the reweighting reference date, a Diversification Rule applies such that the aggregate weighting of securities in the MAC Global Solar Energy Index with individual weightings of more than 4.5% is no more than 45.0% of the MAC Global Solar Energy Index. The weight of each individual stock is capped at 10%, with any excess weight distributed pro-rata to the other stocks in the MAC Global Solar Energy Index. The weighting-gap rebalancing algorithm progressively reduces the weighting gap between adjacent securities, as ranked by their raw weighting factors, on a proportional basis, until the weighting parameters specified above are met. If the algorithm is unable to produce a result that meets the Diversification Rule, then the weighting outcome that is available with the lowest total weight of stocks above 4.5% will be used, and the Diversification Rule will be relaxed so that the total weight of stocks over 4.5% can exceed 45% for that quarterly index rebalance.
- The MAC Global Solar Energy Index shall also seek to meet a rule (70% Minimum Liquidity Rule) that constituent stocks, that in the aggregate account for at least 70% of the weight of the MAC Global Solar Energy Index, each have a minimum global monthly trading volume of 250,000 shares, or minimum global notional volume traded per month of US\$25,000,000, averaged over the last six months. If this rule is not met, then individual stocks that do not meet this rule will be progressively dropped from the MAC Global Solar Energy Index beginning with the stocks that have the smallest trading volume, until the rule is met, subject to the constraint that the number of the stocks in the MAC Global Solar Energy Index do not drop below 20.
- The index follows an "80% investment policy" whereby at least 80% of the combined weight of the index constituents will be represented by companies that derive at least 50% of their revenue from solar business activities. In order to comply with this policy, if necessary, stocks with less than 50% solar revenue will not be initially included in the MAC Global Solar Energy Index, and if still necessary, stocks with less than 50% solar revenue will be progressively dropped from the MAC Global Solar Energy Index in the order of the smallest float-adjusted market capitalization stocks first, until the policy requirement is met, subject to the constraint that the number of stocks in the MAC Global Solar Energy Index do not drop below 20.

The stock weights will always be determined to satisfy the constraints specified in the following order: the minimum number of stocks, the Diversification Rule, the 70% Minimum Liquidity Rule and the 80% investment policy.

### *The MAC Global Solar Energy Index Calculation*

The MAC Global Solar Energy Index is a modified market capitalization-weighted index where index constituents have a defined weight in the MAC Global Solar Energy Index. The index value of the MAC Global Solar Energy Index is simply the market value of the MAC Global Solar Energy Index divided by the index divisor:

$$\text{Index Value} = (\text{Index Market Value}) / \text{Divisor}$$

$$\text{Index Market Value} = \sum_i P_i \times \text{Shares}_i \times IWF_i \times FxRate_i \times AWF_i$$

where,  $P_i$  the price of stock  $i$ ,  $\text{Shares}_i$  are the outstanding shares of stock  $i$ ,  $IWF_i$  is the float factor of stock  $i$  (as defined below),  $AWF_i$  is the adjustment factor of stock  $i$  assigned at each index rebalancing date,  $t$ , which adjusts the market capitalization for all index constituents to achieve the user-defined weight, while maintaining the total market value of the overall index and  $FxRate_i$  is the exchange rate from the local currency into index currency for stock  $i$ . The  $AWF$  for each index constituent,  $i$ , at rebalancing date,  $t$ , is calculated as:

$$AWF_{i,t} = Z / \text{FloatAdjustedMarketValue}_{i,t} \times W_{i,t} \times FxRate_i$$

where  $Z$  is an index specific constant set for the purpose of deriving the  $AWF$  and, therefore, each stock's share count used in the index calculation (often referred to as modified index shares).  $W_{i,t}$  is the user-defined weight of stock  $i$  on rebalancing date  $t$  and  $FxRate$  is the exchange rate from the local currency into index currency for stock  $i$ .

**Float Adjustment.** Float adjustment means that the number of shares outstanding is reduced to exclude closely held shares from the calculation of the index value because such shares are not available to investors. The goal of float adjustment is to adjust each company's total shares outstanding for long-term, strategic shareholders, whose holdings are not considered to be available to the market.

For each component, S&P Dow Jones calculates an Investable Weight Factor ("**IWF**"), which represents the portion of the total shares outstanding that are considered part of the public float for purposes of the MAC Global Solar Energy Index.

The purpose of the MAC Global Solar Energy Index divisor is to maintain continuity of the MAC Global Solar Energy Index level following the implementation of corporate actions, index rebalancing events, or other non-market driven actions. To assure that the MAC Global Solar Energy Index's value, or level, does not change when stocks are added or deleted, the divisor is adjusted to offset the change in market value of the MAC Global Solar Energy Index. Thus, the divisor plays a critical role in the MAC Global Solar Energy Index's ability to provide a continuous measure of market valuation when faced with changes to the stocks included in the MAC Global Solar Energy Index. In a similar manner, some corporate actions that cause changes in the market value of the stocks in the MAC Global Solar Energy Index should not be reflected in the MAC Global Solar Energy Index level. Adjustments are made to the divisor to eliminate the impact of these corporate actions on the MAC Global Solar Energy Index value.

### *The MAC Global Solar Energy Index Maintenance*

#### *Rebalancing*

The MAC Global Solar Energy Index is rebalanced on a quarterly basis as of the close of the 3rd Friday of in March, June, September, and December. The S&P Dow Jones' SP MAC Custom Index Committee (the "**Index Committee**") at each quarterly rebalance will (1) determine any new additions or deletions of index constituents and (2) implement a rebalancing of the constituent weights as defined by the index methodology.

To determine new index constituents and deletions and to rebalance index constituent weights, the Index Committee at each quarterly index rebalance will add to the annual Solar Stock Universe List any solar company IPOs, direct listings or reverse mergers that took place since the last review and that otherwise meet the eligibility criteria. Also, any new stock for inclusion in the MAC Global Solar Energy



Index will first be reassessed with the latest available information to determine the percentage of its solar business activities, and if that percentage is below one-third of total revenue or other relevant metric, it will not be included in the MAC Global Solar Energy Index and will be dropped from the Solar Stock Universe List. At the June quarterly review, the Index Committee will implement the new annual Solar Stock Universe List that was compiled with information that was current as of the reference date of April 30.

After any revisions are made to the Solar Stock Universe List, then stocks are added to or deleted from the MAC Global Solar Energy Index using the Solar Stock Universe List and the eligibility requirements for the minimum float-adjusted market cap and average daily trading value, subject to the other methodology constraints described above.

Proforma data will be generated starting as of the Reference Date (*i.e.*, the close of the second Friday of the relevant rebalance month), based on data as of the market close on the first business day of the relevant rebalance month (*i.e.*, March, June, September, and December)

The “**Rebalance Observation Date**” is as of the market close on the first business day of the relevant rebalance month (*i.e.*, March, June, September, and December).

The “**Rebalancing Reference Date**” or “**Reference Date**” for weighting occurs as of the close of the second Friday of the relevant Rebalance month and if that day is not a business day then the immediately following Business Day.

The “**Rebalancing Effective Date**” or “**Rebalancing Date**” is after the close of the third Friday of the Rebalance Month effective at next day market open, or if that Friday is not an Index Business Day, the immediately following Index Business Day.

The “**Rebalance Month**” is March, June, September, and December.

An “Index Business Day” is any day where an index constituent is open for trading.

Stocks are assigned index shares and rebalance weights using the closing prices as of the Reference Date. Because index shares are assigned based on prices a number of days prior to the Rebalancing Date, the actual weight of each stock at the Rebalancing Date differs from its final stock weight due to market movements.

#### *Additions and Deletions*

Except for spin-offs, companies can only be added to the MAC Global Solar Energy Index during the rebalancing. Between Rebalancing Dates, deletions can occur due to acquisitions, mergers and spin-offs, or due to bankruptcies or suspensions. As the MAC Global Solar Energy Index does not have a fixed number of constituents, additions to and deletions from the MAC Global Solar Energy Index may not be equal in number.

#### *Corporate Actions*

Between two Rebalancing Dates the maintenance of index constituents is based on the following principle: all share and price adjustments that do not alter the membership of stocks in the universe or their risk characteristics do not lead to changes in the index value or composition. The following table describes the maintenance rules for the most common corporate actions.

Type of Corporate Action	Comments	Divisor Adjustment
Stock Split, Forward/Reverse	Market capital neutral treatment, share change offset by price Adjustment	No
IWF Change	IWF changes do not affect index market capitalization as the AWF will adjust to negate any IWF changes.	No



Type of Corporate Action	Comments	Divisor Adjustment
Share Issuance	Share changes do not affect index market capitalization as the AWF will adjust to negate any share changes.	No
Rights Offering	If the rights are in the money, the spot price of the underlying security will be adjusted after market close of the day prior to the ex-date and the index shares of the underlying security will adjust to offset the price adjustment, thus making the event a market cap neutral event.	No
Special Dividend	Price adjustment will be applied after market close on ex-date <i>minus</i> 1.	Yes
Delisting	The delisted security will be deleted from the MAC Global Solar Energy Index (at either the last traded price of a zero price).	Yes
Spin-Off	S&P DJI practice is to follow a zero price spin off treatment. No price adjustment applied to the parent, the spinoff company is added to the MAC Global Solar Energy Index at price of zero and at the terms of the spinoff so it is market capitalization neutral on the ex-date (no divisor change). The spun-offs are added to the MAC Global Solar Energy Index. In the event that S&P DJI applies the event as a non-ZPSO event, the spun-off company is added to the MAC Global Solar Energy Index with respect to spinoff ratio. The spot price of the underlying security is adjusted after market close of the day prior to the ex-date by the closing spot price of the spun-off company <i>multiplied</i> by the spin-off ratio, thus making it a market cap neutral event. The divisor will not be adjusted.	No
M&A (constituent acquired for cash)	The acquired company is deleted from the MAC Global Solar Energy Index.	Yes
M&A (constituent acquired by another constituent for stock or cash and stock)	The acquired company is deleted from the MAC Global Solar Energy Index. The shares outstanding and IWF of the acquirer will be adjusted with respect to the stock terms of the acquisition.	Yes

A distribution by an existing index constituent to its shareholders of a publicly-traded spin-off will automatically be included in the MAC Global Solar Energy Index initially, but will be dropped from the MAC Global Solar Energy Index at the next quarterly review if the spun-off company does not meet the standard index constituent criteria. The average daily trading value for testing whether a spin-off should remain in the MAC Global Solar Energy Index will be for the number of days the spin-off has actually been trading, which is likely to be less than the normal 3-month period specified in the Liquidity Screens section. The parent company that conducted the spin-off will also be reevaluated at the next quarterly index rebalance and will be dropped from the MAC Global Solar Energy Index if it no longer meets the index criteria, including the required minimum of one-third of its revenue derived from solar business

activities. The Solar Exposure Scores for the parent and the spun-off company will also be reevaluated at the quarterly rebalance.

#### *Exchange Rate*

WM/Reuters foreign exchange rates are taken daily at 04:00 PM London time and used in the calculation of the MAC Global Solar Energy Index. These mid-market fixings are calculated by the WM Company based on Reuters' data and appear on Reuters pages WMRA.

#### *Other Adjustments*

In cases where there is no achievable market price for a stock being deleted, it can be removed at a zero or minimal price at the Index Committee's discretion, in recognition of the constraints faced by investors in trading bankrupt or suspended stocks.

#### *Index Committee*

The Index Committee maintains the MAC Global Solar Energy Index. The Index Committee meets at regular intervals. At each meeting, the Index Committee reviews matters that may affect the MAC Global Solar Energy Index, including the index methodology, constituents and any significant market events. In addition, the Index Committee may revise index policy and procedures.

S&P Dow Jones considers information regarding changes to the MAC Global Solar Energy Index and related matters to be potentially market moving and material; therefore, all Index Committee discussions are confidential.

## THE INVESCO QQQ TRUST<sup>SM</sup>, SERIES 1

All information contained in this underlying supplement regarding the Invesco QQQ Trust<sup>SM</sup>, Series 1 (the “**QQQ Fund**”) has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, The Bank of New York Mellon, as trustee of the QQQ Fund (the “**QQQ Fund Trustee**”), and Invesco Capital Management LLC, as sponsor of the QQQ Fund (the “**QQQ Fund Sponsor**”). The QQQ Fund is a unit investment trust that issues securities called “Invesco QQQ Shares.” The QQQ Fund is an exchange-traded fund that trades on The Nasdaq Stock Market under the ticker symbol “QQQ.”

The QQQ Fund is a unit investment trust. The investment objective of the QQQ Fund is to seek to track the investment results, before fees and expenses, of the Nasdaq-100 Index<sup>®</sup>. For more information about the Nasdaq-100 Index<sup>®</sup>, please see “Equity Index Descriptions — The Nasdaq-100 Index<sup>®</sup>.”

The QQQ Fund holds all of the stocks in the Nasdaq-100 Index<sup>®</sup> and cash and is not actively managed by traditional methods, which typically involve effecting changes in the holdings of securities on the basis of judgments made relating to economic, financial and market considerations. To maintain the correspondence between the composition and weights of the securities held by the QQQ Fund and the component securities of the Nasdaq-100 Index<sup>®</sup> (“**QQQ Index Securities**”), the QQQ Fund Trustee adjusts the holdings of the QQQ Fund from time to time to conform to periodic changes in the identity and/or relative weights of the QQQ Index Securities.

The QQQ Fund will not be able to replicate exactly the performance of the Nasdaq-100 Index<sup>®</sup> because the total return generated by the securities held by the QQQ Fund will be reduced by transaction costs incurred in adjusting the actual balance of the securities held by the QQQ Fund and other expenses of the QQQ Fund, whereas such transaction costs and expenses are not included in the calculation of the Nasdaq-100 Index<sup>®</sup>. It is also possible that for short periods of time, the QQQ Fund may not fully replicate the performance of the Nasdaq-100 Index<sup>®</sup> due to the temporary unavailability of certain QQQ Index Securities in the secondary market or due to other extraordinary circumstances. Such events are unlikely to continue for an extended period of time because the QQQ Fund Trustee is required to correct such imbalances by means of adjusting the composition of the securities held by the QQQ Fund. It is also possible that the composition of the QQQ Fund may not exactly replicate the composition of the Nasdaq-100 Index<sup>®</sup>.

The QQQ Fund is a registered investment company. Information provided to or filed with the SEC by the QQQ Fund 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 333-61001 and 811-08947, respectively, through the SEC's website at <http://www.sec.gov>.

## THE iSHARES® 20+ YEAR TREASURY BOND ETF

All information contained in this underlying supplement regarding the iShares® 20+ Year Treasury Bond ETF (the “**20+ Treasury Fund**”) has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, iShares® Trust and BlackRock Fund Advisors (“**BFA**”). The 20+ Treasury Fund is an investment portfolio of iShares® Trust and is maintained and managed by BFA. BFA is currently the investment adviser to the 20+ Treasury Fund. The 20+ Treasury Fund is an exchange-traded fund that trades on The NASDAQ Stock Market under the ticker symbol “TLT.”

The 20+ Treasury Fund seeks to track the investment results, before fees and expenses, of an index composed of U.S. Treasury bonds with remaining maturities greater than twenty years. On March 31, 2016, the 20+ Treasury Fund ceased tracking the Barclays U.S. 20+ Year Treasury Bond Index and began tracking the ICE U.S. Treasury 20+ Year Bond Index (the “**ICE 20+ Year Index**”). The ICE 20+ Year Index measures the performance of the U.S. dollar-denominated, fixed-rate U.S. Treasury market that has a remaining maturity of greater than or equal to twenty years. For more information on the ICE 20+ Year Index, please see “The ICE U.S. Treasury 20+ Year Bond Index” below.

BFA uses a representative sampling indexing strategy to manage the 20+ Treasury Fund. “Representative sampling” is an indexing strategy that involves investing in a representative sample of securities that collectively has an investment profile similar to that of an applicable underlying index. The securities selected are expected to have, in the aggregate, investment characteristics (based on factors such as market value and industry weightings), fundamental characteristics (such as return variability, duration, maturity or credit ratings and yield) and liquidity measures similar to those of an applicable underlying index. The 20+ Treasury Fund may or may not hold all of the securities in the ICE 20+ Year Index.

The ICE 20+ Year Index is a financial calculation, based on a grouping of financial instruments, and is not an investment product, while the 20+ Treasury Fund is an actual investment portfolio. The performance of the 20+ Treasury Fund and the ICE 20+ Year Index may vary for a number of reasons, including transaction costs, non-U.S. currency valuations, asset valuations, corporate actions (such as mergers and spin-offs), timing variances and differences between the 20+ Treasury Fund’s portfolio and the ICE 20+ Year Index resulting from the 20+ Treasury Fund’s use of representative sampling or from legal restrictions (such as diversification requirements) that apply to the 20+ Treasury Fund but not to the ICE 20+ Year Index.

“Tracking error” is the divergence of the performance of the 20+ Treasury Fund’s portfolio from that of the ICE 20+ Year Index. Because the 20+ Treasury Fund uses a representative sampling indexing strategy, it can be expected to have a larger tracking error than if it used a replication indexing strategy. “Replication” is an indexing strategy in which a fund invests in substantially all of the securities in its underlying index in approximately the same proportions as in the underlying index.

iShares® Trust is a registered investment company that consists of numerous separate investment portfolios, including the 20+ Treasury Fund. Information provided to or filed with the SEC by iShares® 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 333-92935 and 811-09729, respectively, through the SEC’s website at <http://www.sec.gov>.

### The ICE U.S. Treasury 20+ Year Bond Index

All information contained in this underlying supplement regarding the ICE 20+ Year Index is derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, ICE Data Indices, LLC or its affiliates (collectively “**IDI**”), a subsidiary of Intercontinental Exchange, Inc. IDI has no obligation to continue to publish, and may discontinue publication of, the ICE 20+ Year Index.

The ICE 20+ Year Index is a market-value weighted index that is designed to measure the performance of the U.S. dollar-denominated, fixed-rate U.S. Treasury market that has a remaining

maturity of greater than 20 years. The ICE 20+ Year Index was launched on December 31, 2015. The ICE 20+ Year Index is reported by Bloomberg L.P. under the ticker symbol “IDCOT20.”

### ***Index Eligibility Criteria and Inclusion Rules***

The ICE 20+ Year Index consists of securities that meet the criteria listed below (the “**Eligible Bond universe**”). The basis of the Eligible Bond universe are those securities for which content is available daily, including evaluations and reference data, through ICE Data Pricing & Reference Data, LLC (“**PRD**”).

**Maturity.** Each security must have greater than twenty years remaining term to final maturity as of the last calendar day of the month.

**Size.** Each security is required to have a minimum amount outstanding of U.S. \$300 million, excluding those held by the Federal Reserve. Amount outstanding is defined as the par amount outstanding of each U.S. Treasury security, inclusive of any announced auctions or re-openings, less the par amount of that U.S. Treasury security held in the Federal Reserve System Open Market Account or bought at issuance by the Federal Reserve. A new issuance bought at auction by the Federal Reserve is not included in the Eligible Bond universe. Secondary market purchases by the Federal Reserve that occur in the current month are not reflected in the Eligible Bond universe until the following month.

**Coupon.** The Eligible Bond universe includes only fixed-rate securities, excluding zero coupon Separate Trading of Registered Interest and Principal of Securities (STRIPS).

**Currency.** The Eligible Bond universe includes only securities with principal and interest denominated in U.S. dollars.

**Bond Type.** The Eligible Bond universe includes U.S. Treasury issued debt, excluding the following: Inflation-linked securities, U.S. Treasury bills, floating-rate notes, cash-management bills and any government agency debt issued with or without a government guarantee.

### ***Index Maintenance***

The ICE 20+ Year Index is rebalanced monthly. Securities are required to meet the inclusion rules highlighted in the previous section to be considered for inclusion at the beginning of any given month. This includes the availability of evaluated pricing and reference data through PRD.

**Rebalancing.** The ICE 20+ Year Index is rebalanced on the last calendar day of the month based on information available up to and including the third business day before the last business day of the month. No changes are made to constituents holdings other than on month end rebalancing dates.

**Reinvestment of Cash Flows.** Cash that has accrued intra-month from interest and principal payments by the securities included in the ICE 20+ Year Index earns no reinvestment return during the month. Accumulated cash (from coupon and principal payments) is removed from the ICE 20+ Year Index at month-end, such that the cash is reinvested pro rata across the ICE 20+ Year Index.

**New Issues.** New issues must be auctioned on or before the calendar month end rebalancing date in order to qualify for inclusion in the coming month.

### ***Calculation***

Returns and risk measures, such as yield duration, are first calculated at the constituent level and then aggregated to the ICE 20+ Year Index level using constituents’ market weights.

#### ***Constituent Level Calculations***

$P_0$ ,  $A_0$ ,  $PAR_0$ ,  $C_0$  and  $MV_0$  and  $P_1$ ,  $A_1$ ,  $PAR_1$ ,  $C_1$  and  $MV_1$  denote the price, accrued interest, par amount, cumulative coupon payments and market values at date  $T_0$  and date  $T_1$ , respectively.  $C$  denotes the

coupon payments during the period (excluding any coupon payment on date  $T_0$  but including any coupon payment on date  $T_1$ ).

Coupon payments during the period are calculated as follows:  $C = C_1 - C_0$ .

The market values at time  $T_0$  and  $T_1$  are:  $MV_0 = PAR_0 \times (P_0 + A_0)$  and  $MV_1 = PAR_1 \times (P_1 + A_1)$ , respectively.

The price return  $R_1^{\text{price}}$  and coupon return  $R_1^{\text{coupon}}$  (whenever applicable) are defined as follows:

- Price return: return due to price appreciation over the return period:

$$R_1^{\text{price}} = \frac{P_1 - P_0}{(P_0 + A_0)}$$

- Coupon return: return due to coupon accrual during the period:

$$R_1^{\text{coupon}} = \frac{(A_1 - A_0) + C}{(P_0 + A_0)}$$

The total return is the sum of the price return and the coupon return,:

$$\text{Total Return}_1 = \text{Price Return}_1 + \text{Coupon Return}_1$$

### **Index Level Calculations**

The ICE 20+ Year Index had an initial level of 100 at the inception date. As time passes, the ICE 20+ Year Index level is calculated in an iterative way as follows:

$$\text{Index Level}_1 = \text{Index Level}_0 + (\text{Index Level}_0 \times \text{Index Total Returns}_1)$$

The ICE 20+ Year Index total return is calculated by aggregating the constituent level total returns using market weights. To calculate the ICE 20+ Year Index total return for the period from dates  $T_0$  and  $T_1$ , market value weights at date  $T_0$  are used. The total market value of the ICE 20+ Year Index at time  $T_0$  is  $\sum_n MV_0^n$  plus any intra-month cash from coupon payment or principal repayment and the weight for constituent security, which is calculated as follows:

$$w_o^i = \frac{MV_o^i}{(\text{Cash} + \sum_n MV_0^n)}$$

The ICE 20+ Year Index's level will be provided to four decimal places.

### **Index Policies**

#### **Timing and Pricing Source.**

The ICE 20+ Year Index's level is calculated using 4:00 p.m. Eastern Standard Time using bid-side evaluations from PRD. These evaluations are based upon methodologies designed to reflect the market upon which the ICE 20+ Year Index is based.

**Calendar.** The ICE 20+ Year Index follows the SIFMA U.S. bond market holiday schedule. The ICE 20+ Year Index's level is calculated daily at the end of each day on which SIFMA declares the U.S. fixed income markets open. When the bond market closes early per the SIFMA schedule, the ICE 20+ Year Index's level may be calculated at a time in accordance with the recommended close. However, evaluated pricing from PRD must be available to calculate the ICE 20+ Year Index's level.

**Exceptional Market Conditions and Corrections.** IDI retains the right to delay the publication of the level of the ICE 20+ Year Index. Furthermore, IDI retains the right to suspend the publication of the level



of the ICE 20+ Year Index if it believes that circumstances prevent the proper calculation of the ICE 20+ Year Index. If evaluated prices are not available, the ICE 20+ Year Index will not be recalculated unless IDI decides otherwise. Reasonable efforts are made to ensure the correctness and validity of data used in index calculations. Where errors have occurred in the determination or calculation of the ICE 20+ Year Index, the decision to make a restatement will be assessed on a case by case basis. Such decision will take account of the significance, impact; age; and scale of the error. Errors involving security reference data discovered after the rebalancing will typically not result in a restatement.

In the event that there is a market-wide event resulting in evaluated prices not being available, IDI will determine its approach on a case by case basis, taking into account information and notifications provided by PRD. Market-wide events include, but are not limited to, technological problems or failures, natural disaster or other business continuity planning-related event. IDI will communicate any issues with publication of the ICE 20+ Year Index during the day through the regular client communication channels; in addition, IDI may also contact clients directly; post a notice on the IDI website; send a message via the market data portal; or use other such forms of communication.

*Annual Rules Review.* Potential rule changes are considered on an annual basis. An initial set of proposed changes under consideration is published in April. Investor clients are encouraged to comment on the proposals by way of an online survey. At the end of a three-month commentary period, final decisions are announced in July and adopted changes, if any, are generally implemented at the September month end rebalancing.

IDI, at its sole discretion, reserves the right to issue rule changes apart from this annual cycle in the event that such a change is deemed necessary in order to deal with extraordinary circumstances including, but not limited to, changes in data availability.

*Expert Judgment.* "Expert Judgment" refers to the exercise of discretion by IDI with respect to the use of data in determining the ICE 20+ Year Index. Expert Judgment includes extrapolating values from prior or related transactions, adjusting values for factors that might influence the quality of data such as market events or impairment of a buyer or seller's credit quality, or weighting firm bids or offers greater than a particular concluded transaction.

While IDI mostly relies on input data obtained from its sources, on certain occasions, where decisions relating to the pricing of the ICE 20+ Year Index are required to maintain the integrity of the values and ensure that the ICE 20+ Year Index continues to operate in line with the methodology, IDI may apply Expert Judgment. Where it is required in the determination of the ICE 20+ Year Index, it may only be applied by suitably experienced and qualified staff members on the IDI team. Using their expertise and knowledge, and the information available to them, they will make an assessment of what input data or security evaluation would be most appropriate to use to correctly reflect the ICE 20+ Year Index objective.

Ultimately any exercise of Expert Judgment is overseen by the governance committee of IDI, which ensures that the published methodologies have been followed.

## THE iSHARES® ETFS

All information contained in this underlying supplement regarding the iShares® Biotechnology ETF, the iShares® China Large-Cap ETF, the iShares® ESG Aware MSCI USA ETF, the iShares® Global Clean Energy ETF, the iShares® MSCI ACWI ETF, the iShares® MSCI Brazil ETF, the iShares® MSCI China ETF, the iShares® Core MSCI EAFE ETF, the iShares® MSCI EAFE ETF, the iShares® MSCI Emerging Markets ETF, the iShares® MSCI Japan ETF, the iShares® MSCI Mexico ETF, the iShares® Russell 1000 ETF, the iShares® Russell 2000 ETF, the iShares® Russell 3000 ETF, the iShares® Russell 1000 Growth ETF, the iShares® Russell 2000 Growth ETF, the iShares® Russell 1000 Value ETF, the iShares® Russell 2000 Value ETF, the iShares® S&P 500 Growth ETF, the iShares® S&P 500 Value ETF, the iShares® Semiconductor ETF and the iShares® U.S. Real Estate ETF (each, an “iShares® ETF” and collectively, the “iShares® ETFs”), including, without limitation, their make-up, method of calculation and changes in their components, has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, the fund manager of each iShares® ETF and BlackRock Fund Advisors (“BFA”). The iShares® ETFs are investment portfolios of either iShares® Trust or iShares®, Inc. and are maintained and managed by their respective fund managers. BFA is currently the investment adviser to the iShares® ETFs. The iShares® ETFs (except for the iShares® Biotechnology ETF, the iShares® ESG Aware MSCI USA ETF, the iShares® Global Clean Energy ETF, the iShares® Core MSCI EAFE ETF and the iShares® Semiconductor ETF) are exchange-traded funds that trade on the NYSE Arca, Inc. (“**NYSE Arca**”) under their respective ticker symbols. The iShares® Biotechnology ETF, the iShares® ESG Aware MSCI USA ETF, the iShares® Global Clean Energy ETF and the iShares® Semiconductor ETF are exchange-traded funds that trade on The Nasdaq Stock Market LLC (“**Nasdaq**”) under their respective ticker symbols. iShares® Core MSCI EAFE ETF is an exchange-traded fund that trades on the Cboe Global Markets, Inc (“**CBOE BZX**”).

BFA uses a representative sampling indexing strategy to manage each iShares® ETF. “Representative sampling” is an indexing strategy that involves investing in a representative sample of securities that collectively has an investment profile similar to that of an applicable underlying index. The securities selected are expected to have, in the aggregate, investment characteristics (based on factors such as market capitalization and industry weightings), fundamental characteristics (such as return variability and yield) and liquidity measures similar to those of an applicable underlying index. Each iShares® ETF may or may not hold all of the securities in its underlying index.

Each iShares® ETF’s underlying index is a financial calculation, based on a grouping of financial instruments, and is not an investment product, while each iShares® ETF is an actual investment portfolio. The performance of each iShares® ETF and its underlying index may vary for a number of reasons, including transaction costs, non-U.S. currency valuations, asset valuations, corporate actions (such as mergers and spin-offs), timing variances and differences between that iShares® ETF’s portfolio and its underlying index resulting from that iShares® ETF’s use of representative sampling or from legal restrictions (such as diversification requirements) that apply to that iShares® ETF but not to its underlying index. “**Tracking error**” is the divergence of the performance (return) of an iShares® ETF’s portfolio from that of its underlying index. Because each iShares® ETF uses a representative sampling indexing strategy, it can be expected to have a larger tracking error than if it used a replication indexing strategy. “**Replication**” is an indexing strategy in which a fund invests in substantially all of the securities in its underlying index in approximately the same proportions as in the underlying index.

iShares® Trust and iShares®, Inc. are registered investment companies that consist of numerous separate investment portfolios, including the iShares® ETFs. Information provided to or filed with the SEC by iShares® Trust and iShares®, Inc. 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 333-92935 and 811-09729, respectively, for iShares® Trust, and SEC file numbers 033-97598 and 811-09102, respectively, for iShares®, Inc., through the SEC’s website at <http://www.sec.gov>.

### The iShares® Biotechnology ETF

The iShares® Biotechnology ETF (the “**IBB Fund**”) seeks to track the investment results, before fees and expenses, of an index composed of U.S.-listed equities in the biotechnology sector, which is currently the ICE Biotechnology Index. Effective June 2021, the IBB Fund’s underlying index changed from the

Nasdaq Biotechnology Index to the ICE Biotechnology Index, and the IBB Fund's name accordingly changed from the iShares® Nasdaq Biotechnology ETF to the iShares® Biotechnology ETF. For more information about the ICE Biotechnology Index, please see "Additional Information About the Underlying Indices for Certain iShares® ETFs — The ICE Biotechnology Index" below. The IBB Fund is an investment portfolio of iShares® Trust. The IBB Fund trades on Nasdaq under the ticker symbol "IBB."

### **The iShares® China Large-Cap ETF**

The iShares® China Large-Cap ETF (the "**FXI Fund**") seeks to track the investment results, before fees and expenses, of an index composed of large-capitalization Chinese equities that trade on the Hong Kong Stock Exchange, which is currently the FTSE China 50 Index. For more information about the FTSE China 50 Index, please see "Equity Index Descriptions — The FTSE China 50 Index" in this underlying supplement. The FXI Fund is an investment portfolio of iShares® Trust. The FXI Fund trades on the NYSE Arca under the ticker symbol "FXI."

### **The iShares® ESG Aware MSCI USA ETF**

The iShares® ESG Aware MSCI USA ETF (the "**ESGU Fund**") seeks to track the investment results, before fees and expenses, of an index composed of U.S. companies that have positive environmental, social and governance characteristics as identified by the index provider while exhibiting risk and return characteristics similar to those of the parent index, which is currently the MSCI USA Extended ESG Focus Index. For more information about the MSCI USA Extended ESG Focus Index, please see "— Additional Information about the Underlying Indices for Certain iShares® ETFs — The MSCI USA Extended ESG Focus Index" below. The ESGU Fund is an investment portfolio of iShares® Trust. The ICLN Fund trades on Nasdaq under the ticker symbol "ESGU."

### **The iShares® Global Clean Energy ETF**

The iShares® Global Clean Energy ETF (the "**ICLN Fund**") seeks to track the investment results, before fees and expenses, of an index composed of global equities in the clean energy sector, which is currently the S&P Global Clean Energy Index™. For more information about the S&P Global Clean Energy Index™, please see "— Additional Information about the Underlying Indices for Certain iShares® ETFs — The S&P Global Clean Energy Index™" below. The ICLN Fund is an investment portfolio of iShares® Trust. The ICLN Fund trades on Nasdaq under the ticker symbol "ICLN."

### **The iShares® MSCI ACWI ETF**

The iShares® MSCI ACWI ETF (the "**ACWI Fund**") seeks to track the investment results, before fees and expenses, of an index composed of large- and mid-capitalization developed and emerging markets equities, which is currently the MSCI ACWI Index. For more information about the MSCI ACWI Index, please see "Equity Index Descriptions -The MSCI Indices" in this underlying supplement. The ACWI Fund is an investment portfolio of iShares®, Inc. The ACWI Fund trades on the NYSE Arca under the ticker symbol "ACWI."

### **The iShares® MSCI Brazil ETF**

The iShares® MSCI Brazil ETF (the "**EWZ Fund**") seeks to track the investment results, before fees and expenses, of an index composed of Brazilian equities, which is currently the MSCI Brazil 25/50 Index. For more information about the MSCI Brazil 25/50 Index, please see "Equity Index Descriptions — The MSCI 25/50 Indices" in this underlying supplement. The EWZ Fund is an investment portfolio of iShares®, Inc. The EWZ Fund trades on the NYSE Arca under the ticker symbol "EWZ."

### **The iShares® MSCI China ETF**

The iShares® MSCI China ETF (the "**MCHI Fund**") seeks to track the investment results, before fees and expenses, of an index composed of Chinese equities that are available to international investors, which is currently the MSCI China Index. For more information about the MSCI China Index, please see "Equity Index Descriptions — The MSCI Indices" in this underlying supplement. The MCHI Fund is an investment portfolio of iShares®, Inc. The MCHI Fund trades on Nasdaq under the ticker symbol "MCHI."

### **The iShares® Core MSCI EAFE ETF**

The iShares® Core MSCI EAFE ETF (the “**IEFA Fund**”) seeks to track the investment results, before fees and expenses, of an index composed of large-, mid- and small-capitalization developed market equities, excluding the U.S. and Canada, which is currently the MSCI EAFE® Investable Market Index. For more information about the MSCI EAFE® Investable Market Index, please see “Equity Index Descriptions -The MSCI Indices” in this underlying supplement. The IEFA Fund is an investment portfolio of iShares® Trust. The IEFA Fund trades on the CBOE BZX under the ticker symbol “IEFA.”

### **The iShares® MSCI EAFE ETF**

The iShares® MSCI EAFE ETF (the “**EFA Fund**”) seeks to track the investment results, before fees and expenses, of an index composed of large- and mid-capitalization developed market equities, excluding the U.S. and Canada, which is currently the MSCI EAFE® Index. For more information about the MSCI EAFE® Index, please see “Equity Index Descriptions -The MSCI Indices” in this underlying supplement. The EFA Fund is an investment portfolio of iShares® Trust. The EFA Fund trades on the NYSE Arca under the ticker symbol “EFA.”

### **The iShares® MSCI Emerging Markets ETF**

The iShares® MSCI Emerging Markets ETF (the “**EEM Fund**”) seeks to track the investment results, before fees and expenses, of an index composed of large- and mid-capitalization emerging market equities, which is currently the MSCI Emerging Markets Index. For more information about the MSCI Emerging Markets Index, please see “Equity Index Descriptions — The MSCI Indices” in this underlying supplement. The EEM Fund is an investment portfolio of iShares®, Inc. The EEM Fund trades on the NYSE Arca under the ticker symbol “EEM.”

### **The iShares® MSCI Japan ETF**

The iShares® MSCI Japan ETF (the “**EWJ Fund**”) seeks to track the investment results, before fees and expenses, of an index composed of Japanese equities, which is currently the MSCI Japan Index. For more information about the MSCI Japan Index, please see “Equity Index Descriptions — The MSCI Indices” in this underlying supplement. The EWJ Fund is an investment portfolio of iShares®, Inc. The EWJ Fund trades on the NYSE Arca under the ticker symbol “EWJ.”

### **The iShares® MSCI Mexico ETF**

The iShares® MSCI Mexico ETF (the “**EWX Fund**”) seeks to track the investment results, before fees and expenses, of a broad-based index composed of Mexican equities, which is currently the MSCI Mexico IMI 25/50 Index. For more information about the MSCI Mexico IMI 25/50 Index, please see “Equity Index Descriptions — The MSCI 25/50 Indices” in this underlying supplement. The EWW Fund is an investment portfolio of iShares®, Inc. The EWW Fund trades on the NYSE Arca under the ticker symbol “EWW.”

### **The iShares® Russell 1000 ETF**

The iShares® Russell 1000 ETF (the “**IWB Fund**”) seeks to track the investment results, before fees and expenses, of an index composed of large- and mid-capitalization U.S. equities, which is currently the Russell 1000® Index. For more information about the Russell 1000® Index, please see “Equity Index Descriptions — The Russell Indices” in this underlying supplement. The IWB Fund is an investment portfolio of iShares® Trust. The IWB Fund trades on the NYSE Arca under the ticker symbol “IWB.”

### **The iShares® Russell 2000 ETF**

The iShares® Russell 2000 ETF (the “**IWM Fund**”) seeks to track the investment results, before fees and expenses, of an index composed of small-capitalization U.S. equities, which is currently the Russell 2000® Index. For more information about the Russell 2000® Index, please see “Equity Index Descriptions — The Russell Indices” in this underlying supplement. The IWM Fund is an investment portfolio of iShares® Trust. The IWM Fund trades on the NYSE Arca under the ticker symbol “IWM.”

### **The iShares® Russell 3000 ETF**

The iShares® Russell 3000 ETF (the “**IWV Fund**”) seeks to track the investment results, before fees and expenses, of a broad-based index composed of U.S. equities, which is currently the Russell 3000® Index. For more information about the Russell 3000® Index, please see “Equity Index Descriptions — The Russell Indices” in this underlying supplement. The IWV Fund is an investment portfolio of iShares® Trust. The IWV Fund trades on the NYSE Arca under the ticker symbol “IWV.”

### **The iShares® Russell 1000 Growth ETF**

The iShares® Russell 1000 Growth ETF (the “**IWF Fund**”) seeks to track the investment results, before fees and expenses, of an index composed of large- and mid-capitalization U.S. equities that exhibit growth characteristics, which is currently the Russell 1000® Growth Index. For more information about the Russell 1000 Growth Index, please see “Equity Index Descriptions — The Russell Style Indices” in this underlying supplement. The IWF Fund is an investment portfolio of iShares® Trust. The IWF Fund trades on the NYSE Arca under the ticker symbol “IWF.”

### **The iShares® Russell 2000 Growth ETF**

The iShares® Russell 2000 Growth ETF (the “**IWO Fund**”) seeks to track the investment results, before fees and expenses, of an index composed of small-capitalization U.S. equities that exhibit growth characteristics, which is currently the Russell 2000® Growth Index. For more information about the Russell 2000 Growth Index, please see “Equity Index Descriptions — The Russell Style Indices” in this underlying supplement. The IWO Fund is an investment portfolio of iShares® Trust. The IWO Fund trades on the NYSE Arca under the ticker symbol “IWO.”

### **The iShares® Russell 1000 Value ETF**

The iShares® Russell 1000 Value ETF (the “**IWD Fund**”) seeks to track the investment results, before fees and expenses, of an index composed of large- and mid-capitalization U.S. equities that exhibit value characteristics, which is currently the Russell 1000® Value Index. For more information about the Russell 1000® Value Index, please see “Equity Index Descriptions — The Russell Style Indices” in this underlying supplement. The IWD Fund is an investment portfolio of iShares® Trust. The IWD Fund trades on the NYSE Arca under the ticker symbol “IWD.”

### **The iShares® Russell 2000 Value ETF**

The iShares® Russell 2000 Value ETF (the “**IWN Fund**”) seeks to track the investment results, before fees and expenses, of an index composed of small-capitalization U.S. equities that exhibit value characteristics, which is currently the Russell 2000® Value Index. For more information about the Russell 2000® Value Index, please see “Equity Index Descriptions — The Russell Style Indices” in this underlying supplement. The IWN Fund is an investment portfolio of iShares® Trust. The IWN Fund trades on the NYSE Arca under the ticker symbol “IWN.”

### **The iShares® S&P 500 Growth ETF**

The iShares® S&P 500 Growth ETF (the “**IVW Fund**”) seeks to track the investment results, before fees and expenses, of an index composed of large-capitalization U.S. equities that exhibit growth characteristics, which is currently the S&P 500® Growth Index. For more information about the S&P 500® Value Index, please see “Equity Index Descriptions — The S&P Style Indices” in this underlying supplement. The IVW Fund is an investment portfolio of iShares® Trust. The IVW Fund trades on the NYSE Arca under the ticker symbol “IVW.”

### **The iShares® S&P 500 Value ETF**

The iShares® S&P 500 Value ETF (the “**IVE Fund**”) seeks to track the investment results, before fees and expenses, of an index composed of large-capitalization U.S. equities that exhibit value characteristics, which is currently the S&P 500® Value Index. For more information about the S&P 500® Value Index, please see “Equity Index Descriptions — The S&P Style Indices” in this underlying



supplement. The IVE Fund is an investment portfolio of iShares® Trust. The IVE Fund trades on the NYSE Arca under the ticker symbol “IVE.”

### **The iShares® Semiconductor ETF**

The iShares® Semiconductor ETF (the “**SOXX Fund**”) seeks to track the investment results, before fees and expenses, of an index composed of U.S.-listed equities in the semiconductor sector, which is currently the ICE Semiconductor Index. Effective June 2021, the SOXX Fund’s underlying index changed from the PHLX Semiconductor Sector Index to the ICE Semiconductor Index, and the SOXX Fund’s name accordingly changed from the iShares® PHLX Semiconductor ETF to the iShares® Semiconductor ETF. For more information about the ICE Semiconductor Index, please see “— Additional Information about the Underlying Indices for Certain iShares® ETFs — The ICE Semiconductor Index” below. The SOXX Fund is an investment portfolio of iShares® Trust. The SOXX Fund trades on Nasdaq under the ticker symbol “SOXX.”

### **The iShares® U.S. Real Estate ETF**

The iShares® U.S. Real Estate ETF (the “**IYR Fund**”) seeks to track the investment results, before fees and expenses, of an index composed of U.S. equities in the real estate sector, which is currently the Dow Jones U.S. Real Estate Capped Index. For more information about the Dow Jones U.S. Real Estate Capped Index, please see “— Additional Information About the Underlying Indices for Certain iShares® ETFs — Dow Jones U.S. Real Estate Capped Index” below. The IYR Fund is an investment portfolio of iShares® Trust. The IYR Fund trades on the NYSE Arca under the ticker symbol “IYR.”

### **Additional Information About the Underlying Indices for Certain iShares® ETFs**

#### ***The ICE Biotechnology Index®***

All information contained in this underlying supplement regarding the ICE Biotechnology 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 ICE Data Indices, LLC (“**IDI**”). The ICE Biotechnology Index is calculated, maintained and published by IDI. IDI has no obligation to continue to publish, and may discontinue publication of, the ICE Biotechnology Index.

The ICE Biotechnology Index is reported by Bloomberg L.P. under the ticker symbol “ICEBIO.”

The ICE Biotechnology Index is a modified float-adjusted market capitalization-weighted index that is designed to track the performance of qualifying U.S.-listed biotechnology companies. IDI defines biotechnology companies as those classified within the biotechnology sub-industry group of the ICE Uniform Sector Classification schema, which is a multi-asset class industry classification taxonomy developed by ICE. This includes companies that are engaged in the research and development of therapeutic treatments but are not focused on the commercialization and mass production of pharmaceutical drugs. This also includes companies that are engaged in the production of tools or systems that enable biotechnology processes.

#### ***ICE Biotechnology Index Constituent Selection***

The ICE Biotechnology Index includes common stocks, ordinary shares, American depositary receipts (“**ADRs**”), shares of beneficial interest and limited partnership interest that meet the following criteria:

- (1) Listed on one of the following U.S. exchanges: New York Stock Exchange (“**NYSE**”), NYSE American, Cboe BZX, Nasdaq Global Select Market, Nasdaq Global Market;
- (2) Classified within the biotechnology sub-industry group of the ICE Uniform Sector Classification schema;
- (3) A minimum \$200 million security-level non-float-adjusted market capitalization;



- (4) A minimum 5% security-level free float;
- (5) 100,000 share minimum U.S. consolidated average daily volume over the ten months preceding the reference date;
- (6) Initial public offerings and new listings must be at least three full calendar months past the listing date, not including the listing month but including the reconstitution reference date month of October;
- (7) If a company has multiple listed share classes that qualify, then they will all be included in the ICE Biotechnology Index at their respective float-adjusted security-level market capitalization weighting.

#### *ICE Biotechnology Index Construction*

The ICE Biotechnology Index is subject to the following exposure limits:

- (1) All constituents are capped at 8% with any excess weight redistributed on a pro-rata basis to constituents below that cap, provided none can be increased above 8%.
- (2) The weights of constituents outside the initial five largest are capped at 4% with any excess weight redistributed on a pro-rata basis to (i) any of the five largest constituents that are below 8% (provided they cannot be increased above 8%), and (ii) any other constituents that are below 4% (provided none are increased above 4%).
- (3) The cumulative weight of all ADRs is capped at 10% with the reductions applied proportionately across that group. Excess weight is redistributed on a pro-rata basis to (i) any non-ADR constituents among the resulting five largest constituents that are below 8% (provided they cannot be increased above 8%) and (ii) any other non-ADR constituents that are below 4% (provided they cannot be increased above 4%).

#### *ICE Biotechnology Index Calculation*

The ICE Biotechnology Index level is calculated by dividing the current index market capitalization by the index divisor. The index market capitalization represents the sum product of index constituent shares and prices. The divisor is determined as a function of the initial index market capitalization and base index level. The divisor is updated as a result of corporate actions, reconstitutions, rebalances and any other composition changes.

Free float levels are calculated by dividing the security free float shares by the total security shares outstanding. The security free float shares are equal to the security shares outstanding minus treasury shares and strategic holdings by other corporations, holding companies, individuals, and government agencies. Individual holdings are deemed strategic if the individual, or a member of the individual's immediate family, is an officer or director of the company, or if they comprise a significant percentage of total shares outstanding (commonly 5% or more). Shares held by banks and financial institutions in a fiduciary capacity are not deemed strategic.

#### *ICE Biotechnology Index Maintenance and Adjustments*

The ICE Biotechnology Index undergoes a full reconstitution of constituent holdings annually after the close of the third Friday of December. At the annual reconstitution, qualifying constituents are re-selected based on the above criteria, and float-adjusted market capitalization weights are determined subject to the above exposure limits. The reference date for the input data used to determine security qualification is the close of the last trading day of October, and reference data for the input data used to determine weights is the close of the last trading day of November. The announcement date is the close of the first Friday of December.

In addition to the annual reconstitution, the ICE Biotechnology Index undergoes a rebalancing after the close of the third Friday of March, June, and September. At the quarterly rebalancings, no

constituents are added to or removed from the ICE Biotechnology Index; however, constituent weights are recalculated based on updated float-adjusted market capitalizations subject to the issuer and ADR exposure limits. The reference date for all input data used in the quarterly rebalances is the close of the last trading day of the month preceding the month of effectiveness (February, May, August) and the announcement date is the close of the first Friday of the rebalance month.

The ICE Biotechnology Index is adjusted for corporate actions that affect constituents and implements any intra-quarter float-adjusted shares outstanding updates greater than 10% in scheduled monthly share updates that take effect after the close of the last trading day of each month. Securities are removed from the ICE Biotechnology Index only when both the transaction and delisting is either confirmed or deemed imminent. If a security is suspended prior to its removal from the ICE Biotechnology Index, then the security is deleted at the close of the next trading day at either the last traded price (cash only terms) or the value of the deal terms (share or cash/share terms), if available. There are no intra-quarter replacements of constituents in the ICE Biotechnology Index. The ICE Biotechnology Index implements a zero-price spin-off policy. A spin-co is added into the ICE Biotechnology Index effective for the spin-off ex-date with a \$0 price and no price adjustment is made on the parent constituent. After the close of the first day of trading for the spin-co, it is deleted from the ICE Biotechnology Index at its last traded price.

### ***The MSCI USA Extended ESG Focus Index***

All information contained in this underlying supplement regarding the MSCI USA Extended ESG Focus 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, MSCI Inc. (“**MSCI**”). The MSCI USA Extended ESG Focus Index is calculated, maintained and published by MSCI. MSCI has no obligation to continue to publish, and may discontinue publication of, the MSCI USA Extended ESG Focus Index.

The MSCI USA Extended ESG Focus Index is designed to maximize exposure to positive environmental, social and governance (“**ESG**”) factors while exhibiting risk and return characteristics similar to those of its parent index, the MSCI USA Index, which includes securities across the U.S. equity markets. The MSCI USA Extended ESG Focus Index is constructed by selecting constituents from MSCI USA Index through an optimization process that aims to maximize exposure to ESG factors for a target tracking error budget set to 50bps under certain constraints. The index is sector-diversified and targets companies with high ESG ratings in each sector. Tobacco, Controversial Weapons, Producers of or ties with Civilian Firearms, Thermal Coal and Oil Sands are not eligible for inclusion. The gross return version of the MSCI USA Extended ESG Focus Index is reported by Bloomberg L.P. under the ticker symbol “GU719471.”

### ***Constructing the MSCI USA Extended ESG Focus Index Universe***

#### ***Defining the Parent Index***

The starting security universe for the MSCI USA Extended ESG Focus Index includes all the constituents of its parent index, the MSCI USA Index. The MSCI USA Index is a free float-adjusted, capitalization-weighted index that is designed to measure the performance of the large- and mid-capitalization segments of the U.S. equity market.

#### ***Defining the Exclusion Criteria***

#### ***Value- and Climate Change-Based Exclusions***

The MSCI USA Extended ESG Focus Index uses MSCI ESG Business Involvement Screening Research provided by MSCI ESG Research LLC to identify companies that are involved in the following business activities. Companies that meet the business involvement criteria below are not eligible for inclusion in the MSCI USA Extended ESG Focus Index.

### *Value-Based Exclusions*

- Controversial Weapons: All companies with any tie to Controversial Weapons (cluster munitions, landmines, depleted uranium weapons, biological/chemical weapons, blinding lasers, non-detectable fragments and incendiary weapons)
- Tobacco:
- All companies classified as “Producer” or “Licensor”
- All companies classified as “Distributor,” “Retailer” or “Supplier” that earn 15% or more of revenues from tobacco products
- All companies classified as “Ownership by a Tobacco Company” or “Ownership of a Tobacco Company”
- Civilian Firearms:
- All companies classified as a “Producer”
- All companies classified as a “Retailer” that earn 5% or more in revenue or more than \$ 20 million in revenue, from civilian firearms-related products

### *Climate Change-Based Exclusions*

- Thermal Coal:
- All companies deriving 5% or more revenue (either reported or estimated) from the mining of thermal coal (including lignite, bituminous, anthracite and steam coal) and its sale to external parties, excluding revenue from metallurgical coal; coal mined for internal power generation (e.g., in the case of vertically integrated power producers); intra-company sales of mined thermal coal; and revenue from coal trading
- All companies deriving 5% or more revenue (either reported or estimated) from the thermal coal based power generation
- Oil Sands: This factor identifies the maximum percentage of revenue (either reported or estimated) greater than 5% that a company derives from oil sands extraction for a set of companies that own oil sands reserves and disclose evidence of deriving revenue from oil sands extraction, but excludes revenue from non-extraction activities (e.g., exploration, surveying, processing, refining); ownership of oil sands reserves with no associated extraction revenues; revenue from intra-company sales.

### *ESG Controversies Score Exclusions*

The MSCI USA Extended ESG Focus Index uses MSCI ESG Controversies Scores provided by MSCI ESG Research LLC to identify those companies that are involved in very serious controversies involving the environmental, social, or governance impact of their operations and/or products and services. Constituents of the MSCI USA Index with ESG Controversy Score = 0 (“Red Flag” companies) are excluded from the eligible universe.

### *Other Exclusion Criteria*

- Missing Controversy Score: Companies not assessed by MSCI ESG Research LLC on ESG Controversies are not eligible for inclusion in the MSCI USA Extended ESG Focus Index.
- Missing ESG Rating or ESG Score: Companies not assessed by MSCI ESG Research LLC on ESG Rating or ESG Score are not eligible for inclusion in the MSCI USA Extended ESG Focus Index.

## Defining the Optimization Constraints

Constituents from the eligible universe are selected to maximize exposure to higher ESG scores, subject to maintaining risk and return characteristics similar to the MSCI USA Index. ESG scores are normalized and used in the optimization process. Optimization maximizes the MSCI USA Extended ESG Focus Index's exposure to ESG scores for a given predicted tracking error. A predicted tracking error target of 0.5% is used for the construction of the MSCI USA Extended ESG Focus Index.

An MSCI ESG Rating provided by MSCI ESG Research LLC is designed to measure a company's resilience to long-term, industry material ESG risks. MSCI ESG Research LLC identifies industry leaders and laggards according to their exposure to ESG risks and how well they manage those risks relative to peers. The MSCI ESG Ratings range from leader (AAA, AA), average (A, BBB, BB) to laggard (B, CCC).

ESG risks and opportunities can vary by industry and company. The MSCI ESG Ratings model identifies the ESG risks (the "**Key Issues**"), that are most material to a GICS® sub-industry or sector.

MSCI ESG Research LLC assesses thousands of data points across 35 ESG Key Issues that focus on the intersection between a company's core business and the industry-specific issues that may create significant risks and opportunities for the company. The Key Issues are weighted according to impact and time horizon of the risk or opportunity. All companies are assessed for corporate governance and corporate behavior.

Optimization is a quantitative process that considers the market capitalization weights from the MSCI USA Index, ESG scores and additional constraints (including minimum constituent weight, constituent active weight, security weight as a multiple of its weight in the MSCI USA Index, active sector weight, active country weight, one-way turnover during the quarterly and semi-annual index reviews, specific risk aversion and common factor risk aversion) to select and weight the constituents of the MSCI USA Extended ESG Focus Index. If there is no optimal solution that satisfies all the optimization constraints, certain of the optimization constraints will be relaxed until an optimal solution is found. If a feasible solution is not found for maximum predicted error, the MSCI USA Extended ESG Focus Index will not be rebalanced for the relevant index review.

Normalization of the ESG scores allows the optimization process to assess each score in the context of the overall distribution of the ESG scores.

## Determining the Optimized Portfolio

The MSCI USA Extended ESG Focus Index is constructed using the Barra Open Optimizer in combination with the relevant Barra Equity Model. The optimization uses universe of eligible securities and the specified optimization objective and constraints to determine the constituents of the MSCI USA Extended ESG Focus Index.

### *The MSCI USA Extended ESG Focus Index Maintenance*

The MSCI USA Extended ESG Focus Index is rebalanced on a quarterly basis to coincide with the regular index reviews (semi-annual index reviews in May and November and quarterly index reviews in February and August) of the MSCI Global Investable Market Indexes. The changes are implemented at the end of February, May, August and November. The pro forma index is in general announced nine business days before the effective date.

ESG scores used for the quarterly index reviews will be taken as of the end of the month preceding the index review, *i.e.*, January, April, July and October. At each index review, the optimization process outlined in above is implemented. Companies can only be added to the MSCI USA Extended ESG Focus Index only at regular index reviews.

In general, MSCI uses MSCI ESG Research data (including MSCI ESG Ratings, MSCI ESG Controversies Scores and MSCI Business Involvement Screening Research) as of the end of the month preceding the index reviews. For some securities, these data may not be published by MSCI ESG

Research by the end of the month preceding the index review. For these securities, MSCI will use ESG data published after the end of month, when available.

The general treatment of corporate events in the MSCI USA Extended ESG Focus Index aims to minimize turnover outside of index reviews. The methodology aims to appropriately represent an investor's participation in an event based on relevant deal terms and pre-event weighting of the index constituents that are involved. Further, changes in index market capitalization that occur as a result of corporate event implementation will be offset by a corresponding change in the Variable Weighting Factor of the constituent. Additionally, if the frequency of index reviews in the MSCI USA Index is greater than the frequency of index reviews in the MSCI USA Extended ESG Focus Index, the changes made to the MSCI USA Index during intermediate index reviews will be neutralized in the MSCI USA Extended ESG Focus Index. The following table briefly describes the treatment of common corporate events within the MSCI USA Extended ESG Focus Index. No new securities will be added (except where noted below) to the MSCI USA Extended ESG Focus Index between index reviews. MSCI USA Index deletions will be reflected simultaneously.

<b>Type of Corporate Action</b>	<b>Comments</b>
<b>New Addition to MSCI USA Index</b>	A new security added to the MSCI USA Index (such as IPO and other early inclusions) will not be added to the MSCI USA Extended ESG Focus Index.
<b>Spin-Offs</b>	All securities created as a result of the spin-off of an existing index constituent will be added to the MSCI USA Extended ESG Focus Index at the time of event implementation. Reevaluation for continued inclusion in the MSCI USA Extended ESG Focus Index will occur at the subsequent index review.
<b>Merger / Acquisition</b>	For mergers and acquisitions, the acquirer's post-event weight will account for the proportionate amount of shares involved in deal consideration, while cash proceeds will be invested across the MSCI USA Extended ESG Focus Index.  If an existing index constituent is acquired by a non-index constituent, the existing constituent will be deleted from the MSCI USA Extended ESG Focus Index and the acquiring non-constituent will not be added to the MSCI USA Extended ESG Focus Index.
<b>Change in Security Characteristics</b>	A security will continue to be an index constituent if there are changes in characteristics (country, sector, size segment, etc.). Reevaluation for continued inclusion in the MSCI USA Extended ESG Focus Index will occur at the subsequent index review.

### ***The S&P Global Clean Energy Index™***

All information contained in this underlying supplement regarding the S&P Global Clean Energy 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, S&P Dow Jones Indices LLC ("S&P Dow Jones"). The S&P Global Clean Energy Index™ is calculated, maintained and published by S&P Dow Jones. S&P Dow Jones has no obligation to continue to publish, and may discontinue publication of, the S&P Global Clean Energy Index™.

The S&P Global Clean Energy Index™ is reported by Bloomberg L.P. under the ticker symbol "SPGTCLEN."

The S&P Global Clean Energy Index™ is a modified market capitalization-weighted index that is designed to measure the performance of companies in global clean energy related businesses from both developed and emerging markets, with a target constituent count of 100.

### *S&P Global Clean Energy Index™ Eligibility*

To be eligible for inclusion in the S&P Global Clean Energy Index™, an eligible stock must have a minimum total market capitalization of US\$ 300 million and a minimum float-adjusted market capitalization (“**FMC**”) of US\$ 100 million. Eligible stocks must also maintain a 6-month median daily value traded (“**MDVT**”) liquidity threshold of US\$ 3 million for new constituents and US\$ 2 million for current constituents. If a stock has traded for less than six months, the MDVT amount for as long as the stock has been trading is used. Eligible stocks must be trading on a developed market exchange and included in the S&P® Global BMI in order to be considered for inclusion in the S&P Global Clean Energy Index™. For more information about the S&P® Global BMI’s constituent selection process, please see “S&P® Global BMI Constituent Selection” below.

### *S&P® Global BMI Constituent Selection*

The S&P® Global BMI (the “**BMI**”) is designed to measure global stock market performance. Securities issued by companies domiciled in countries classified as developed or emerging markets are eligible for inclusion in the BMI. The BMI covers all publicly listed equities with FMCs of at least \$100 million that meet the minimum liquidity criteria measured by MDVT figures. At the BMI reconstitution, a BMI constituent is removed if its FMC falls below US\$ 75 million.

At the annual reconstitution, the liquidity of each stock being considered for inclusion is evaluated using two median daily value traded metrics:

- (1) Eligible stocks must have a minimum USD 12 month median value traded ratio (“**MVTR**”) to be eligible. The ratio is calculated by taking the US\$ MDVT amount for each of the 12 months preceding the rebalancing reference date, multiplying the monthly amount by the number of days that the stock traded during that month, and then dividing by its end-of-month FMC, also calculated in US\$. The sum of the 12 monthly values is the MVTR for that stock. If a stock has traded for less than 12 months, the average of the available monthly values is taken and multiplied by 12. Monthly MDVT is defined as the median of the daily value traded for a given company in a given month. The value traded is calculated by multiplying the number of shares traded by each stock’s price.
- (2) Eligible stocks must have a minimum USD MDVT over the six months prior to the rebalancing reference date to be eligible. If a stock has traded for less than six months, the MDVT amount for as long as the stock has been trading is used. The requirements vary based on a stock’s country classification, whether emerging or developed. These requirements are summarized in the following table:

Liquidity Thresholds for Potential Constituents		
Region	12-Month MVTR (%)	6-Month MDVT (US\$M)
Emerging	10	0.1
Developed	20	0.25

At annual reconstitution, current constituents of the BMI are removed if either of the liquidity metrics fall below the thresholds in the following table:

Liquidity Thresholds for Current Constituents		
Region	12-Month MVTR (%)	6-Month MDVT (US\$M)
Emerging	7	0.07



Liquidity Thresholds for Current Constituents		
Region	12-Month MVTR (%)	6-Month MDVT (US\$M)
Developed	14	1.175

BMI 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. 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. Real estate investment trusts (“REITs”), listed property trusts, and similar real-property-owning pass-through structures taxed as REITs by their domiciles are eligible. In Canada, income trusts (including Canadian REITs) are eligible, however, income-participating securities that combine stock and debt ownership are ineligible. All publicly listed multiple share class lines are eligible for inclusion in the BMI, subject to meeting the eligibility criteria and foreign investors may hold shares in the class.

If the practical available limit for an existing constituent (as defined by the known shares actually available to foreign investors) falls below 5%, then it will be removed from the BMI at the next quarterly rebalancing. A stock can be added only if the practical available limit is 10% or more. All stocks are reviewed for this at each quarterly rebalancing, with any additions made only at the annual reconstitution.

Initial Public Offerings (“IPOs”), as well as new listings on eligible exchanges and issues that emerged from bankruptcy status can be added to the BMI on a quarterly basis. The criteria for inclusion are the same as that used at the annual reconstitution. In addition, the stock must have a trading history of at least three months as of the reference date. The reference date for quarterly inclusions is five weeks prior to the effective rebalancing date, and additions are effective at the open of Monday following the third Friday of March, June, September and December. Market cap and liquidity are evaluated as of the reference date. Since the stocks will have traded less than a full year, the trading value data that is available is annualized to determine BMI eligibility.

Certain large IPOs are eligible for fast track entry to the BMI subject to the following conditions:

- Only newly public IPOs and direct placement listings will be considered eligible for fast track entry. Formerly bankrupt companies that switch from an over-the-counter exchange or a non-covered exchange to an S&P Dow Jones covered exchange are ineligible.
- Fast-track IPO additions must meet a minimum FMC threshold of US\$ 2 billion, calculated using the shares offered (excluding over-allotment options) and the closing price on the first day of trading on an eligible exchange. The threshold level is reviewed from time to time and updated as needed to assure consistency with market conditions.
- In addition, the IPO will need to meet all other applicable BMI eligibility rules except for the liquidity requirement. If all necessary public information is available, S&P Dow Jones verifies that the fast track conditions have been met. Once S&P Dow Jones announces that the IPO is eligible for fast track addition, it is added to the BMI with five business days lead time. Fast track IPO additions eligible to be added during a quarterly rebalancing freeze period will be added on the rebalancing effective date.

Between rebalancings, a company can be deleted from the BMI due to corporate events such as mergers, acquisitions, delistings or bankruptcies. Companies that fall below US\$ 25 million FMC are removed from the BMI. Evaluations are made quarterly using data from the reference date which is five weeks prior to the effect rebalancing date. Deletions are effective at the open of Monday following the third Friday in March, June, September and December.

A company is deleted from the BMI if it is involved in a merger, acquisition or significant restructuring such that it no longer meets the eligibility criteria. If a company’s shares are no longer available or are no longer trading, the company is deleted from the BMI as soon as reasonably possible providing that five

days' notice is given. In the event the information of delisting, bankruptcy or ineligible status becomes public after the fact, the stock may be removed with a one-day notice period.

#### *S&P Global Clean Energy Index™ Construction*

Stocks that meet the eligibility criteria are reviewed for specific practices related to clean energy. The preliminary universe of companies is identified based on any of the following screens:

- Companies that derive at least 25% in aggregate revenue from clean energy-related businesses as defined by data from FactSet's Revere Business Industry Classification System ("**RBICS**"). RBICS is a comprehensive structured taxonomy designed to offer precise classification of global companies and their individual business units.
- Companies from "General Utilities" as defined by the following GICS® sub-industries that generate at least 20% of their power (as measured by S&P Trucost Limited ("**Trucost**") data) from renewable sources (*i.e.*, wind, solar, hydroelectric, biomass and geothermal): electric utilities; multi-utilities and independent power producers & energy traders.
- Companies from "Renewable Utilities" as defined by the GICS® renewable electricity sub-industry.
- Companies that had an exposure score of at least 0.5 in the universe for consideration as of the previous rebalancing.

*Sustainalytics Business Activity Screenings.* As of each rebalancing reference date, companies with specific levels of involvement and/or significant ownership thresholds, as specified and measured by Sustainalytics, are excluded from the eligible universe:

<b>Sustainalytics Product Involvement</b>	<b>Sustainalytics Category of Involvement and Description</b>	<b>Sustainalytics Involvement Proxy</b>	<b>S&amp;P Dow Jones Level of Involvement Threshold</b>	<b>S&amp;P Dow Jones Significant Ownership Threshold</b>
<b>Controversial Weapons</b>	Tailor Made and Essential & Non-Tailor Made and Non-Essential: The company is involved in the core weapon system, or components/services of the core weapon system that are, and are not, considered tailor-made and essential for the lethal use of the weapon.	N/A	>0%	≥25%
<b>Small Arms</b>	Civilian Customers (Assault and Non-Assault Weapons): The company manufactures and sells assault weapons and/or small arms (Non-assault weapons) to civilian customers.	Revenue	>0%	Not Relevant
	Military/Law Enforcement Customers: The company manufactures and sells small arms to military/law enforcement customers.			
	Key Components: The company manufactures and sells key			

<b>Sustainalytics Product Involvement</b>	<b>Sustainalytics Category of Involvement and Description</b>	<b>Sustainalytics Involvement Proxy</b>	<b>S&amp;P Dow Jones Level of Involvement Threshold</b>	<b>S&amp;P Dow Jones Significant Ownership Threshold</b>
	components of small arms.			
	Retail/Distribution (Assault and Non-Assault Weapons): The company is involved in the retail and/or distribution of assault weapons and/or small arms (Non-assault weapons).			
<b>Military Contracting</b>	Weapons: The company manufactures military weapon systems and/or integral, tailor-made components or these weapons.	Revenue	>5%	Not Relevant
	Weapon-related products and/or services: The company provides tailor-made products and/or services that support military weapons.		>10%	
<b>Tobacco</b>	Production: The company manufactures tobacco products.		>0%	Not Relevant
	Related Products/Services: The company supplies tobacco-related products/services.		≥5%	
	Retail: The company derives revenues from the distribution and/or retail sale of tobacco products.		≥5%	
<b>Thermal Coal</b>	Extraction: The company extracts thermal coal.		≥5%	Not Relevant
	Power Generation: The company generates electricity from thermal coal.		≥25%	
<b>Oil Sands</b>	Extraction: The company extracts oil sands.		≥5%	Not Relevant
<b>Shale Energy</b>	Extraction: The company is involved in shale energy exploration and/or production.		≥5%	Not Relevant
<b>Arctic Oil &amp; Gas Exploration</b>	Extraction: The company is involved in oil and gas exploration in Arctic regions.		≥5%	Not Relevant

*Exclusions Based on Sustainalytics' Global Standards Screening.* Sustainalytics' Global Standards Screening ("GSS") provides an assessment of a company's impact on stakeholders and the extent to

which a company causes, contributes or is linked to violations of international norms and standards. The basis of the GSS assessments are the United Nations Global Compact (“**UNGC**”) Principles. Information regarding related standards is also provided in the screening, including the Organization for Economic Co-operation and Development (“**OECD**”) Guidelines for Multinational Enterprises and the UN Guiding Principles on Business and Human Rights, as well as their underlying conventions. Sustainalytics classifies companies into the following three statuses:

- **Non-Compliant.** Classification given to companies that do not act in accordance with the UNGC principles and its associated standards, conventions and treaties.
- **Watchlist.** Classification given to companies that are at risk of violating one or more principles, for which all dimensions for Non-Compliant status could not be established or confirmed.
- **Compliant.** Classification given to companies that act in accordance with the UNGC principles and its associated standards, conventions and treaties.

As of each rebalancing reference date, companies classified as Non-Compliant, according to Sustainalytics, are ineligible for S&P Global Clean Energy Index™ inclusion. Companies without Sustainalytics coverage are ineligible for S&P Global Clean Energy Index™ inclusion until they receive such coverage.

***Media and Stakeholder Analysis Overlay.*** S&P Dow Jones uses RepRisk, a provider of business intelligence on environmental, social and governance risks, for daily filtering, screening and analysis of controversies related to companies within the S&P Global Clean Energy Index™.

In cases where risks are presented, S&P Dow Jones releases a Media and Stakeholder Analysis (“**MSA**”) which includes a range of issues such as economic crime and corruption, fraud, illegal commercial practices, human rights issues, labor disputes, workplace safety, catastrophic accidents and environmental disasters.

The Index Committee (as defined below) will review constituents that have been flagged by S&P Dow Jones’ MSA to evaluate the potential impact of controversial company activities on the composition of the S&P Global Clean Energy Index™. In the event that the Index Committee decides to remove a company in question, that company would not be eligible for re-entry into the S&P Global Clean Energy Index™ for one full calendar year, beginning with the subsequent rebalancing.

***Component Selection.*** After determining the eligible universe, the S&P Global Clean Energy Index™ components are selected as follows:

- (1) S&P Dow Jones defines exposure scores for each company based on RBICS classifications, as set out in the following table, and Trucost’s Power Generation Data for utility companies.

Exposure Scores			
0	0.5	0.75	1
Eliminated, no exposure	Moderate clean energy exposure	Significant clean energy exposure	Maximum clean energy exposure

- (2) For all companies with an exposure score of 1, 0.75, and 0.5, after introducing the exclusion criteria described above, those with a Trucost carbon-to-revenue footprint standard score greater than three are excluded from S&P Global Clean Energy Index™ inclusion. The calculation uses all stocks in the preliminary universe (before introducing the exclusion criteria described above) with an exposure score of 1. The carbon-to-revenue footprint standard score is calculated by subtracting the mean carbon-to-revenue footprint of all preliminary universe stocks with an exposure score of 1 as of the rebalancing reference date from each stock’s carbon-to-revenue footprint and then dividing the difference by the standard deviation (also determined based on

preliminary universe stocks with an exposure score of 1). The top and bottom five percent are excluded from the mean and standard deviation calculations.

Companies without Trucost coverage are eligible for S&P Global Clean Energy Index™ inclusion. Companies without a Trucost carbon-to-revenue footprint are excluded from the carbon-to-revenue footprint standard score calculation process.

- (3) For all remaining stocks from the previous step, stocks are first ranked by the exposure scores then FMC. All exposure score 1 stocks are selected, with a target constituent count of 100. If more than 100 exposure score 1 stocks are eligible, all exposure score 1 stocks are selected. If fewer than 100 exposure score 1 stocks are eligible the following selection steps are performed.
- (4) If, after step 3 there are still not 100 constituents, the highest-ranking stock with an exposure score of 0.75 is selected until the target constituent count of 100 is reached. This process continues iteratively until the target constituent count is reached.
- (5) If, after step 4 there are still not 100 constituents, the highest-ranking stock with an exposure score of 0.5 is selected until the target constituent count of 100 is reached.
- (6) If, after step 5, the S&P Global Clean Energy Index™'s weighted average exposure score falls below 0.85, the lowest ranking stock with an exposure score of 0.5 is removed until the S&P Global Clean Energy Index™'s weighted average exposure score reaches 0.85. If after removing all stocks with an exposure score of 0.5 and the weighted average exposure score is still below 0.85, the lowest ranking stock with an exposure score of 0.75 is removed until the S&P Global Clean Energy Index™'s weighted average exposure score reaches 0.85. Therefore, it is possible for the final S&P Global Clean Energy Index™ constituent count to be below 100. The weighted average exposure score described above is the sum of the product between each constituents' exposure score and its final optimized weights.

*Exposure Score Calculations: Exposure Score Assignment Steps.* The calculation and thresholds used to determine the Exposure Scores used in the constituent selection and weighting are as follows:

(1) Calculate a Clean Revenue Score

- Calculate a revenue score for all eligible companies by aggregating the percentage of revenue across all in-scope sub-industries based on RBICS data. The following RBICS sub-industries have been identified to capture the scope of the S&P Global Clean Energy Index™: photovoltaic and solar cells and systems providers; wind energy equipment manufacturing; biodiesel fuel manufacturing; ethanol fuel manufacturing; Canada biomass wholesale power; Canada geothermal wholesale power; Canada hydroelectric wholesale power; Canada solar wholesale power; Canada wind wholesale power; Canada mixed alternative wholesale power; Latin America biomass wholesale power; Latin America geothermal wholesale power; Latin America hydroelectric wholesale power; Latin America solar wholesale power; Latin America wind wholesale power; Latin America mixed alternative wholesale power; China biomass wholesale power; China geothermal wholesale power; China hydroelectric wholesale power; China solar wholesale power; China wind wholesale power; China mixed alternative wholesale power; other Asia/Pacific biomass wholesale power; other Asia/Pacific geothermal wholesale power; other Asia/Pacific hydroelectric wholesale power; other Asia/Pacific solar wholesale power; other Asia/Pacific wind wholesale power; other Asia/Pacific mixed alt. wholesale power; Europe biomass wholesale power; Europe geothermal wholesale power; Europe hydroelectric wholesale power; Europe solar wholesale power; Europe wind wholesale power; Europe mixed alternative wholesale power; Middle East and Africa biomass wholesale power; Middle East and Africa geothermal wholesale power; Middle East and Africa hydroelectric wholesale power; Middle East and Africa solar wholesale power; Middle East and Africa wind wholesale power; Middle East and Africa mixed alt. wholesale power; United States biomass wholesale power; United States geothermal wholesale power; United States hydroelectric wholesale power; United States solar wholesale power; United States wind wholesale power; United States mixed alternative

wholesale power; hydroelectric power generation equipment providers; hydrogen fuel manufacturing; waste-to-energy services and; fuel cell equipment and technology providers.

(2) Calculate Clean Power Generation Score for Utilities/Power Generation companies.

- Calculate the percentage of clean power generation for companies that are involved in power generation businesses. These are companies that belong to “General Utilities” or “Renewable Utilities.”
- Adjust the percentage of clean power generation for each company by multiplying into relevant revenue, where relevant revenue is considered revenue sourced from power generation and distribution activities, as defined by RBICS data.

(3) Step 3: Calculate Final Exposure Score

For non-power generation companies, assign scores based on the following clean revenue thresholds:

Non-Power Generation Companies	Exposure Scores			
	1	0.75	0.5	0
Clean Revenue Score (x)	$x \geq 75\%$	$50\% \leq x < 75\%$	$25\% \leq x < 50\%$	$x < 25\%$

For power generation-related companies, including companies classified as “General Utilities” and “Renewable Utilities,” there are two scores available for each company: Clean Revenue Score and Clean Power Generation Score. Score assignment is based on the maximum of the two scores:

Clean Score = Max (Clean Revenue Score, Clean Power Generation Score)

Power Generation Companies (Utilities)	Exposure Scores			
	1	0.75	0.5	0
Clean Revenue Score (x)	$x \geq 75\%$	$50\% \leq x < 75\%$	$25\% \leq x < 50\%$	$x < 25\%$

- (4) Companies with zero clean revenue score or clean power generation score but had an exposure score of at least 0.5 as of the previous rebalancing are possible being assigned a non-zero score based on factors such as a company’s business description and its most recent reported revenue by segment.

**Carbon-to-Revenue Footprint.** The carbon-to-revenue footprint data used in the methodology is calculated by Trucost, and is defined as the company’s annual greenhouse gas (“GHG”) emissions (direct and first tier indirect), expressed as metric tons of carbon dioxide equivalent (tCO<sub>2</sub>e) emissions, divided by annual revenues for the corresponding year, expressed in millions of US dollars. Trucost’s annual research process evaluates environmental performance of a given company with one output of this process being its annual GHG emissions profile.

*Trucost Environmental Register Research Process*

- (1) *Map company business segments.* Trucost maps company business segments to more than 450 business activities in the Trucost model. The model is based on the North American Industry Classification System, but goes into greater granularity in some areas, such as power generating utilities.
- (2) *Estimate data-modelled profile.* Once company business segments have been mapped to Trucost sectors and their share of revenue apportioned to each, Trucost is able to generate a data-modelled profile for the company. Trucost uses its environmentally extended input-output



model to estimate data for over 800 environmental and operational metrics across the entire operations of companies; from the raw materials they depend on in their supply chains to the electricity they purchase to power their operations.

- (3) *Collect public disclosure.* Trucost searches for environmental performance information in annual reports, sustainability reports, websites and other publicly disclosed sources. Third party datasets, like disclosures to the Carbon Disclosure Project (“CDP”), are also reviewed. Trucost then standardizes reported environmental performance data to best practice guidelines so that it can be compared across companies, regions and business activities. To correct errors in company reporting, data control procedures are applied, including sector specialist data reviews, automated outlier identifications and year-on-year comparisons. Wherever a material metric is not disclosed, Trucost uses the modelled value, to estimate the missing data fields. CDP is a not-for-profit charity that surveys companies on Climate, Water and Forestry issues and aggregates the collected disclosures.
- (4) *Engage with company.* Trucost then conducts an annual engagement with each company, providing the opportunity to verify environmental performance and provide additional information. Companies are further welcomed to contact Trucost analysts at any point in their environmental reporting cycle to provide their most recently available data. This supports Trucost’s efforts to utilize the most up-to-date company information and to maximize data quality.

#### *Greenhouse Gas Emissions Data*

The S&P Global Clean Energy Index™ uses Trucost’s greenhouse gas emissions data set. Quantities of greenhouse gas emissions are normalized by sales to calculate the company’s carbon intensity, or “carbon-to-revenue footprint.” The S&P Global Clean Energy Index™ uses direct and first-tier indirect emissions in the carbon-to-revenue footprints.

#### *Constituent Weighting*

At each rebalancing, constituents are weighted based on the product of each constituent’s FMC and exposure score, subject to the below constraints. This is done by using an optimization procedure that chooses final weights in such a way to minimize the sum of the squared difference of capped weight and uncapped weight, divided by uncapped weight for each stock, subject to the following constraints:

- Constituents with an exposure score of 1 are capped at the lower of 8% or five times the constituent’s liquidity weight.
- Constituents with an exposure score of 0.75 are capped at the lower of 6% or five times the constituent’s liquidity weight.
- Constituents with an exposure score of 0.5 are capped at the lower of 4% or five times the constituent’s liquidity weight.
- The cumulative weight of all constituents within the S&P Global Clean Energy Index™ that have a weight greater than 4.5% cannot exceed 40%.

The liquidity weight of a given stock is defined as the stock liquidity of that stock *divided by* the aggregate stock liquidity of all selected stocks, where the stock liquidity of a given stock is the 6-month MDVT of that stock, calculated as the median of the number of shares traded each day *multiplied by* that day’s closing price over the six months prior to the relevant rebalancing reference date.

#### *S&P Global Clean Energy Index™ Calculation*

The S&P Global Clean Energy Index™ is a modified market capitalization-weighted index where index constituents have a defined weight in the S&P Global Clean Energy Index™. The index value of the S&P Global Clean Energy Index™ is simply the market value of the S&P Global Clean Energy Index™ divided by the index divisor:

$$\text{Index Value} = (\text{Index Market Value}) / \text{Divisor}$$

$$\text{Index Market Value} = \sum_i P_i \times \text{Shares}_i \times \text{IWF}_i \times \text{FxRate}_i \times \text{AWF}_i$$

where,  $P_i$  the price of stock  $i$ ,  $\text{Shares}_i$  are the outstanding shares of stock  $i$ ,  $\text{IWF}_i$  is the float factor of stock  $i$  (as defined below),  $\text{AWF}_i$  is the adjustment factor of stock  $i$  assigned at each index rebalancing date,  $t$ , which adjusts the market capitalization for all index constituents to achieve the user-defined weight, while maintaining the total market value of the overall index and  $\text{FxRate}_i$  is the exchange rate from the local currency into index currency for stock  $i$ . The  $\text{AWF}$  for each index constituent,  $i$ , at rebalancing date,  $t$ , is calculated as:

$$\text{AWF}_{i,t} = Z / \text{FloatAdjustedMarketValue}_{i,t} \times W_{i,t} \times \text{FxRate}_i$$

where  $Z$  is an index specific constant set for the purpose of deriving the  $\text{AWF}$  and, therefore, each stock's share count used in the index calculation (often referred to as modified index shares),  $W_{i,t}$  is the user-defined weight of stock  $i$  on rebalancing date  $t$  and  $\text{FxRate}$  is the exchange rate from the local currency into index currency for stock  $i$ .

**Float Adjustment.** Float adjustment means that the number of shares outstanding is reduced to exclude closely held shares from the calculation of the index value because such shares are not available to investors. The goal of float adjustment is to adjust each company's total shares outstanding for long-term, strategic shareholders, whose holdings are not considered to be available to the market.

For each component, S&P Dow Jones calculates an Investable Weight Factor ("**IWF**"), which represents the portion of the total shares outstanding that are considered part of the public float for purposes of the S&P Global Clean Energy Index™.

The purpose of the S&P Global Clean Energy Index™ divisor is to maintain continuity of the S&P Global Clean Energy Index™ level following the implementation of corporate actions, index rebalancing events, or other non-market driven actions. To assure that the S&P Global Clean Energy Index™'s value, or level, does not change when stocks are added or deleted, the divisor is adjusted to offset the change in market value of the S&P Global Clean Energy Index™. Thus, the divisor plays a critical role in the S&P Global Clean Energy Index™'s ability to provide a continuous measure of market valuation when faced with changes to the stocks included in the S&P Global Clean Energy Index™. In a similar manner, some corporate actions that cause changes in the market value of the stocks in the S&P Global Clean Energy Index™ should not be reflected in the S&P Global Clean Energy Index™ level. Adjustments are made to the divisor to eliminate the impact of these corporate actions on the S&P Global Clean Energy Index™ value.

#### *S&P Global Clean Energy Index™ Maintenance and Adjustments*

Semi-annual reconstitutions of the S&P Global Clean Energy Index™ occur after the close of trading on the third Friday of April and October. The reference date is after the close of trading on the third Friday of March and September, respectively. In addition, quarterly reweightings occur after the close on the third Friday of January and July.

The table below summarizes the type of index maintenance adjustments and indicate whether or not an index adjustment is required.

Type of Corporate Action	Comments	Divisor Adjustment?
Spin-Off	All spun-off companies are added to and remain in the S&P Global Clean Energy Index™ until the subsequent rebalancing.	No

Type of Corporate Action	Comments	Divisor Adjustment?
Constituent Change	There are no intra-rebalancing additions with the exception of spin-offs.	-
	Deletions due to delistings, acquisition or any other corporate event resulting in the deletion of the stock from the S&P Global Clean Energy Index™ will cause the weights of the rest of the stocks in the S&P Global Clean Energy Index™ to change. Relative weights will stay the same.	Yes
	Constituents changing their GICS® classification to a non-eligible GICS® classification will be removed at the next rebalancing.	-
	Rebalancing changes including additions, deletions and weight changes.	Yes

### *Index Committee*

The S&P Global Clean Energy Index™ is maintained by an S&P Dow Jones index committee (the “**Index Committee**”). The Index Committee meets regularly. At each meeting, the Index Committee may review pending corporate actions that may affect the S&P Global Clean Energy Index™ constituents, statistics comparing the composition of the S&P Global Clean Energy Index™ to the market, companies that are being considered as candidates for addition to the S&P Global Clean Energy Index™ and any significant market events. In addition, the Index Committee may revise index policy covering rules for selecting companies, treatment of dividends, share counts or other matters.

S&P Dow Jones considers information about changes to the S&P Global Clean Energy Index™ and related matters to be potentially market moving and material. Therefore, all Index Committee discussions are confidential.

The Index Committee reserves the right to make exceptions when applying the methodology if the need arises. In any scenario where the treatment differs from the general rules S&P Dow Jones will provide sufficient notice, whenever possible.

In addition to the daily governance of the S&P Global Clean Energy Index™ and maintenance of index methodologies, at least once within any 12-month period, the Index Committee reviews the methodology to ensure the S&P Global Clean Energy Index™ continues to achieve the stated objectives, and that the data and methodology remain effective. In certain instances, S&P Dow Jones may publish a consultation inviting comments from external parties.

### ***The ICE Semiconductor Index***

All information contained in this underlying supplement regarding the ICE Semiconductor 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, ICE Data Indices, LLC (“**IDI**”). The ICE Semiconductor Index is calculated, maintained and published by IDI. IDI has no obligation to continue to publish, and may discontinue publication of, the ICE Semiconductor Index.

The ICE Semiconductor Index is reported by Bloomberg L.P. under the ticker symbol “ICESEMI.”

The ICE Semiconductor Index is a modified float-adjusted market capitalization-weighted index that is designed to track the performance of the thirty largest U.S.-listed semiconductor companies. IDI defines semiconductor companies as those classified within the semiconductors industry of the ICE Uniform

Sector Classification schema, which is a multi-asset class industry classification taxonomy developed by ICE. This includes companies that either manufacture materials that have electrical conductivity (semiconductors) to be used in electronic applications or utilize LED and OLED technology. It also includes companies that provide services or equipment associated with semiconductors such as packaging and testing.

#### *ICE Semiconductor Index Constituent Selection*

The ICE Semiconductor Index includes common stocks, ordinary shares, American depositary receipts (“**ADRs**”), shares of beneficial interest and limited partnership interest that meet the following criteria:

- (1) Listed on one of the following U.S. exchanges: New York Stock Exchange (“**NYSE**”), NYSE American, Cboe BZX, Nasdaq Global Select Market, Nasdaq Global Market and Nasdaq Capital Market;
- (2) Classified within the semiconductors industry of the ICE Uniform Sector Classification schema;
- (3) A minimum \$100 million security-level non-float-adjusted market capitalization;
- (4) A minimum 5% security-level free float;
- (5) 1.5 million share minimum U.S. consolidated traded volume in each of the six calendar months preceding the reference date;
- (6) Initial public offerings and new listings must be at least three full calendar months past the listing date, not including the listing month but including the reconstitution reference date month of July; and
- (7) If a company has multiple listed share classes that qualify, then only the largest share class based on float-adjusted market capitalization is eligible for selection.

The thirty largest securities, ranked by security-level float-adjusted market capitalization as of the reference date, are included in the ICE Semiconductor Index.

#### *ICE Semiconductor Index Construction*

The ICE Semiconductor Index is subject to the following exposure limits:

- (1) All constituents are capped at 8% with any excess weight redistributed on a pro-rata basis to constituents below that cap, provided none can be increased above 8%.
- (2) The weights of constituents outside the initial five largest are capped at 4% with any excess weight redistributed on a pro-rata basis to (i) any of the five largest constituents that are below 8% (provided they cannot be increased above 8%) and (ii) any other constituents that are below 4% (provided none are increased above 4%).
- (3) The cumulative weight of all ADRs is capped at 10% with the reductions applied proportionately across that group. Excess weight is redistributed on a pro-rata basis to (i) any non-ADR constituents among the resulting five largest constituents that are below 8% (provided they cannot be increased above 8%) and (ii) any other non-ADR constituents that are below 4% (provided they cannot be increased above 4%).

#### *ICE Semiconductor Index Calculation*

The level of the ICE Semiconductor Index is calculated by dividing the current index market capitalization by the index divisor. The index market capitalization represents the sum product of index constituent shares and prices. The divisor is determined as a function of the initial index market

capitalization and base index level. The divisor is updated as a result of corporate actions, reconstitutions, rebalances and any other composition changes.

Free float levels are calculated by dividing the security free float shares by the total security shares outstanding. The security free float shares are equal to the security shares outstanding minus treasury shares and strategic holdings by other corporations, holding companies, individuals, and government agencies. Individual holdings are deemed strategic if the individual, or a member of the individual's immediate family, is an officer or director of the company, or if they comprise a significant percentage of total shares outstanding (commonly 5% or more). Shares held by banks and financial institutions in a fiduciary capacity are not deemed strategic.

#### *ICE Semiconductor Index Maintenance and Adjustments*

The ICE Semiconductor Index undergoes a full reconstitution of constituent holdings annually after the close of the third Friday of September. At the annual reconstitution, qualifying constituents are re-selected based on the above criteria, and float-adjusted market capitalization weights are determined subject to the above exposure limits. The reference date for the input data used to determine security qualification is the close of the last trading day of July, and reference data for the input data used to determine weights is the close of the last trading day of August. The announcement date is the close of the first Friday of September.

In addition to the annual reconstitution, the ICE Semiconductor Index undergoes a rebalancing after the close of the third Friday of March, June and December. At the quarterly rebalancings, no constituents are added to or removed from the ICE Semiconductor Index; however, constituent weights are recalculated based on updated float-adjusted market capitalizations subject to the issuer and ADR exposure limits. The reference date for all input data used in the quarterly rebalances is the close of the last trading day of the month preceding the month of effectiveness (February, May, November) and the announcement date is the close of the first Friday of the rebalance month.

The ICE Semiconductor Index is adjusted for corporate actions that affect constituents and implements any intra-quarter float-adjusted shares outstanding updates greater than 10% in scheduled monthly share updates that take effect after the close of the last trading day of each month. Securities are removed from the ICE Semiconductor Index only when both the transaction and delisting is either confirmed or deemed imminent. If a security is suspended prior to its removal from the ICE Semiconductor Index, then the security is deleted at the close of the next trading day at either the last traded price (cash only terms) or the value of the deal terms (share or cash/share terms), if available. If a constituent is removed from the ICE Semiconductor Index intra-quarter, then it is replaced with the eligible security with the next highest free float market capitalization as of the last reconstitution or rebalance. The replacement is made at the security-level free float market capitalization of the new security, with no additional capping rules applied. The ICE Semiconductor Index implements a zero-price spin-off policy. A spin-co is added into the ICE Semiconductor Index effective for the spin-off ex-date with a \$0 price and no price adjustment is made on the parent constituent. After the close of the first day of trading for the spin-co, it is deleted from the ICE Semiconductor Index at its last traded price.

#### *The Dow Jones U.S. Real Estate Capped Index*

All information contained in this underlying supplement regarding the Dow Jones U.S. Real Estate Capped 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, S&P Dow Jones Indices LLC ("**S&P Dow Jones**"). The Dow Jones U.S. Real Estate Capped Index is calculated, maintained and published by S&P Dow Jones. S&P Dow Jones has no obligation to continue to publish, and may discontinue publication of, the Dow Jones U.S. Real Estate Capped Index.

The Dow Jones U.S. Real Estate Capped Index is reported by Bloomberg L.P. under the ticker symbol "DJUSRCUP."



The Dow Jones U.S. Real Estate Capped Index is a modified market capitalization-weighted index that is designed to track the performance of real estate investment trusts (“REITs”) and other companies that invest directly or indirectly in real estate through development, management or ownership, including property agencies, with a cap applied to ensure diversification among constituents.

Index composition of the Dow Jones U.S. Real Estate Capped Index is the same as the underlying sector index, which is the Dow Jones U.S. Real Estate Index. Constituent changes are incorporated in the Dow Jones U.S. Real Estate Capped Index as and when they are made in the Dow Jones U.S. Real Estate Index. Any addition not coinciding with a reweighting effective date, except for spin-offs, will be added to the Dow Jones U.S. Real Estate Capped Index with the largest additional weight factor currently represented in the Dow Jones U.S. Real Estate Capped Index.

For capping purposes, the Dow Jones U.S. Real Estate Capped Index is rebalanced quarterly after the close of business on the third Friday of March, June, September and December. The reference date for capping is the Wednesday before the second Friday of the rebalancing month. The Dow Jones U.S. Real Estate Capped Index is also reviewed daily based on each company’s capped market capitalization weight. Daily capping is only performed when the sum of companies with a weight greater than 5% exceeds 25%. When daily capping is necessary, the changes are announced after the close of business on the day in which the daily weight cap is exceeded, with the reference date after the close of that same business day. Changes are effective after the close of the next trading day. While capping is reviewed daily, the Dow Jones U.S. Real Estate Capped Index may be capped on a less frequent basis. Both the quarterly capping process and the daily capping process are performed according to the following procedures:

- (1) With prices reflected on the rebalancing price reference date, adjusted for any applicable corporate actions, and membership, shares outstanding and investable weight factors (“IWFs”) as of the rebalancing effective date, each company is weighted by float-adjusted market capitalization (“FMC”). Modifications are made as defined below.
- (2) If any company’s weight exceeds the weight cap of 10%, that company’s weight is capped at 10% and all excess weight is proportionally redistributed to all uncapped companies within the index. If after this redistribution any company breaches the weight cap, the process is repeated iteratively until no company breaches the company capping rule.
- (3) Then, the aggregate weight of the companies with a weight greater than 4.5% cannot exceed the aggregate cap of 22.5%.
- (4) If the rule in step 3 is breached, all the companies are ranked in descending order of their weights and the company with the smallest weight above 4.5% is identified. The weight of this company is, then, reduced either until the rule in step 3 is satisfied or it reaches 4.5%.
- (5) This excess weight is proportionally redistributed to all companies with weights below 4.5%. Any company that receives weight cannot breach the 4.5% cap. This process is repeated iteratively until step 3 is satisfied.
- (6) Index share amounts are assigned to each constituent to arrive at the weights calculated above. Since index shares are assigned based on prices prior to rebalancing, the actual weight of each constituent at the rebalancing differs somewhat from these weights due to market movements.

#### *Dow Jones U.S. Real Estate Index Composition and Maintenance*

The Dow Jones U.S. Real Estate Index is designed to track the performance of REITs and other companies that invest directly or indirectly in real estate through development, management, or ownership, including property agencies. 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 20 supersector indices that make up the Dow Jones U.S. Index. The Dow Jones U.S. Real Estate Index is a subset of the Dow Jones U.S. Index, which is designed to be a measure of the U.S. stock market, covering 95% of U.S. stocks by FMC,



excluding the most thinly traded securities. The Dow Jones U.S. Real Estate Index is weighted by FMC, rather than full market capitalization, to reflect the actual number of shares available to investors.

The Dow Jones U.S. Real Estate Index universe is defined as all stocks traded on the major U.S. stock exchanges, minus any non-common issues and illiquid stocks. Index component candidates are filtered through screens for share class and eligibility. For share class, 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. 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 also eligible. In some cases, companies issue multiple share classes. All publicly listed multiple share class lines are eligible for index inclusion. A separate IWF, which is an adjustment factor that accounts for publicly available shares of a company, is calculated for each included share class. For liquidity, each stock must meet two separate liquidity criteria to be considered eligible for inclusion:

- 12-Month Median Value Traded Ratio (MVTR). Stocks must have a MVTR of at least 20%. Current constituents remain eligible if they have a MVTR of at least 14%. This ratio is calculated by taking the median daily value traded amount for each of the 12 months preceding the rebalancing reference date, multiplying the amount by the number of days that the stock traded during that month, and then dividing by its end-of-month FMC. The sum of the 12 monthly values is the MVTR for that stock. If a stock has traded for less than 12 months, the average of the available monthly values is taken and multiplied by 12.
- 6-Month Median Daily Value Traded (MDVT). Stocks must have a MDVT over the six months prior to the rebalancing reference date of at least US\$ 250,000. Current constituents remain eligible if they have a MDVT of at least US\$ 175,000. If a stock has traded for less than six months, the MDVT amount for as long as the stock has been trading is used.

Stocks in the index universe are sorted by FMC. Stocks in the top 95% of the index universe by FMC are selected as constituents of the Dow Jones U.S. Index. Selection is subject to a 2% buffer for current and non-current stocks. Current constituents remain eligible up to the 97th percentile as ranked by FMC. Non-constituents are eligible up to the 93rd percentile as ranked by FMC. The capitalization thresholds are calculated once a year during the annual reconstitution and used for screening potential additions during the quarterly rebalancings.

Stocks selected as components of the Dow Jones U.S. Index are then categorized into subsectors based on their primary source of revenue. The subsectors are rolled up into sectors, which in turn are rolled up into supersectors and finally into industries. Subsectors, sectors, supersectors and industries are defined by a proprietary classification system used by S&P Dow Jones. The Dow Jones U.S. Real Estate Index is a supersector that is a subset of the Dow Jones U.S. Index.

The Dow Jones Real Estate Index is calculated by means of the divisor methodology. On any given day, the index value is the quotient of the total FMC of the Dow Jones Real Estate Index’s constituents and its divisor. The key to index maintenance is the adjustment of the divisor. Index maintenance – reflecting changes in shares outstanding, corporate actions, addition or deletion of stocks to the index – should not change the level of the index. This is accomplished with an adjustment to the divisor. Any change to the stocks in the index that alters the total market value of the index while holding stock prices constant will require a divisor adjustment.

The Dow Jones U.S. Real Estate Index is reconstituted annually in September. The process includes the review of all stocks in their respective markets to determine eligibility according to the existing criteria. The reference date for data used in the annual reconstitution is the last business day in July. In addition, the IWF for each stock is reviewed and updated as needed. Changes are implemented at the opening of trading on the Monday following the third Friday of September. Changes to shares and IWFs are implemented at the open of trading on the Monday following the third Friday of March, June and December.

*Additions.* Except for quarterly additions, initial public offerings (“**IPOs**”) and spin-offs, there are no additions between rebalancings. Any stocks considered for addition at a quarterly rebalancing must have an FMC larger than the smallest stock included in the Dow Jones U.S. Real Estate Index at the time of the previous reconstitution.

*Quarterly Additions.* IPOs as well as new listings on eligible exchanges and issues that emerged from bankruptcy status can be added to the Dow Jones U.S. Real Estate Index on a quarterly basis. The criteria for inclusion are the same as that used at the annual reconstitution. Market cap and liquidity are evaluated as of the reference date. Any stocks considered for addition at the quarterly rebalancing must have an FMC larger than the smallest stock included in the Dow Jones U.S. Real Estate Index at the time of the previous reconstitution. In addition, the stock must have a trading history of at least three months as of the reference date. Since the stocks will have traded less than a full year, the trading value data that is available is annualized to determine index eligibility. The reference date for quarterly inclusions is five weeks prior to the effective rebalancing date, and additions are effective at the open of Monday following the third Friday of March, June, September, and December.

*Spin-offs.* Spin-offs from current index constituents are eligible for index inclusion and are included in the Dow Jones U.S. Real Estate Index on their ex-dates. Spin-offs are assigned the same size and style as the parent company at the time of the event. All spin-off sizes are evaluated at the next quarterly review.

*Deletions.* Between rebalancings, a company can be deleted from the Dow Jones U.S. Real Estate Index due to corporate events such as mergers, acquisitions, takeovers, delistings or bankruptcies. A company is deleted from the Dow Jones U.S. Real Estate Index if it is involved in a merger, acquisition, or significant restructuring such that it no longer meets the eligibility criteria. If a company’s shares are no longer available or are no longer trading, the company is deleted from the Dow Jones U.S. Real Estate Index as soon as reasonably possible providing that five days’ notice is given. In the event the information of delisting, bankruptcy or ineligible status becomes public after the fact, the stock may be removed with a one-day notice period.

*Corporate Actions.* 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. Share changes resulting from exchange offers are applied on the ex-date.

#### *Governance of the Dow Jones U.S. Real Estate Index*

An S&P Dow Jones index committee maintains the Dow Jones U.S. Real Estate Index. All committee members are full-time professional members of S&P Dow Jones’ staff. The index committee meets regularly. At each meeting, the index committee may review pending corporate actions that may affect index constituents, statistics comparing the composition of the Dow Jones U.S. Real Estate Index to the market, companies that are being considered as candidates for addition to the Dow Jones U.S. Real Estate Index, and any significant market events. In addition, the index committee may revise index policy covering rules for selecting companies, treatment of dividends, share counts or other matters.

## THE iSHARES® SILVER TRUST

All information contained in this underlying supplement regarding the iShares® Silver Trust (the “**Silver Trust**”) has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, the sponsor of the Silver Trust, iShares Delaware Trust Sponsor LLC (“**iShares Delaware**”), an indirect subsidiary of BlackRock, Inc. The Bank of New York Mellon is the trustee of the Silver Trust, and JPMorgan Chase Bank, N.A., London branch, is the custodian of the Silver Trust. The Silver Trust is an investment trust that trades on the NYSE Arca, Inc. under the ticker symbol “SLV.”

The Silver Trust seeks to reflect generally the performance of the price of silver before the payment of its expenses and liabilities. The assets of the Silver Trust consist primarily of silver held by the custodian on behalf of the Silver Trust. The Silver Trust issues blocks of shares in exchange for deposits of silver and distributes silver in connection with the redemption of blocks of shares. The shares of the Silver Trust are intended to constitute a simple and cost-effective means of making an investment similar to an investment in silver.

The shares of the Silver Trust represent units of fractional undivided beneficial interest in and ownership of the Silver Trust. The Silver Trust is a passive investment vehicle and the trustee of the Silver Trust does not actively manage the silver held by the Silver Trust. The trustee of the Silver Trust sells silver held by the Silver Trust to pay the Silver Trust’s expenses on an as-needed basis irrespective of then-current silver prices. Currently, the Silver Trust’s only ordinary recurring expense is expected to be iShares Delaware’s fee, which is accrued daily at an annualized rate equal to 0.50% of the net asset value of the Silver Trust and is payable monthly in arrears. The trustee of the Silver Trust will, when directed by iShares Delaware, and, in the absence of such direction, may, in its discretion, sell silver in such quantity and at such times as may be necessary to permit payment of iShares Delaware’s fee and of expenses or liabilities of the Silver Trust not assumed by iShares Delaware. As a result of the recurring sales of silver necessary to pay the Silver Trust sponsor’s fee and the Silver Trust expenses or liabilities not assumed by the Silver Trust sponsor, the net asset value of the Silver Trust will decrease over the life of the Silver Trust. New deposits of silver, received in exchange for additional new issuances of shares by the Trust, do not reverse this trend.

Information provided to or filed with the SEC by the Silver Trust pursuant to the Securities Act of 1933, as amended, and the Securities Exchange Act of 1934, as amended, can be located by reference to SEC file numbers 333-268747 and 001-32863, respectively, through the SEC’s website at <http://www.sec.gov>. The Silver Trust 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. The Silver Trust is not a commodity pool for purposes of the Commodity Exchange Act of 1936, as amended, and is not subject to regulation thereunder, and iShares Delaware is not subject to regulation by the Commodity Futures Trading Commission as a commodity pool operator or a commodity trading advisor.

### Silver

The price of silver is primarily affected by global demand for and supply of silver. Silver prices can fluctuate widely and may be affected by numerous factors. These include general economic trends, increases in silver hedging activity by silver producers, significant changes in attitude by speculators and investors in silver, technical developments, substitution issues and regulation, as well as specific factors including industrial and jewelry demand, expectations with respect to the rate of inflation, the relative strength of the U.S. dollar (the currency in which the price of silver is generally quoted) and other currencies, interest rates, central bank sales, forward sales by producers, global or regional political or economic events and production costs and disruptions in major silver-producing countries, such as Mexico, China and Peru. The demand for and supply of silver affect silver prices, but not necessarily in the same manner as supply and demand affect the prices of other commodities. The supply of silver consists of a combination of new mine production and existing stocks of bullion and fabricated silver held by governments, public and private financial institutions, industrial organizations and private individuals. In addition, the price of silver has on occasion been subject to very rapid short-term changes due to speculative activities. From time to time, above-ground inventories of silver may also influence the

market. The major end uses for silver include industrial applications, jewelry and silverware. It is not possible to predict the aggregate effect of all or any combination of these factors.

## THE SELECT SECTOR SPDR® FUNDS

All information contained in this underlying supplement regarding the Select Sector SPDR® Funds set forth in the table below (each, a “**Select Sector SPDR® Fund**” and collectively, the “**Select Sector SPDR® Funds**”) has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, the Select Sector SPDR® Trust (the “**Select Sector Trust**”) and SSGA Funds Management, Inc. (“**SSGA FM**”). Each Select Sector SPDR® Fund is an investment portfolio maintained and managed by SSGA FM, the investment adviser to the Select Sector SPDR® Funds. Each Select Sector SPDR® Fund is an exchange-traded fund (“**ETF**”) that trades on the NYSE Arca, Inc. under the ticker symbol set forth in the table below.

Each Select Sector SPDR® Fund seeks to provide investment results that, before expenses, correspond generally to the price and yield performance of publicly traded equity securities of companies included in a Select Sector Index, as specified in the table below. The companies included in each Select Sector Index are selected on the basis of general industry classifications from a universe of companies defined by the S&P 500® Index. For more information about the Select Sector Indices, please see “Equity Index Descriptions — The S&P Select Sector Indices” in this underlying supplement.

<b>Select Sector SPDR® Fund</b>	<b>Ticker</b>	<b>Select Sector Index</b>
Communication Services Select Sector SPDR® Fund	XLC	Communication Services Select Sector Index
Consumer Discretionary Select Sector SPDR® Fund	XLY	Consumer Discretionary Select Sector Index
Consumer Staples Select Sector SPDR® Fund	XLP	Consumer Staples Select Sector Index
Energy Select Sector SPDR® Fund	XLE	Energy Select Sector Index
Financial Select Sector SPDR® Fund	XLF	Financial Select Sector Index
Health Care Select Sector SPDR® Fund	XLV	Health Care Select Sector Index
Industrial Select Sector SPDR® Fund	XLI	Industrials Select Sector Index
Materials Select Sector SPDR® Fund	XLB	Materials Select Sector Index
Real Estate Select Sector SPDR® Fund	XLRE	Real Estate Select Sector Index
Technology Select Sector SPDR® Fund	XLK	Technology Select Sector Index
Utilities Select Sector SPDR® Fund	XLU	Utilities Select Sector Index

In seeking to track the performance of the relevant Select Sector Index, each Select Sector SPDR® Fund employs a replication strategy, which means that each Select Sector SPDR® Fund typically invests in substantially all of the securities represented in the relevant Select Sector Index in approximately the same proportions as that Select Sector Index. However, under various circumstances, it may not be possible or practical to purchase all of the securities in the relevant Select Sector Index, or amounts of those securities in proportion to their weighting in that Select Sector Index. Under these circumstances, SSGA FM intends to employ a sampling strategy in managing the relevant Select Sector SPDR® Fund. Sampling means that SSGA FM will use quantitative analysis to select securities, including securities in the relevant Select Sector Index, outside of the relevant Select Sector Index and derivatives that have a similar investment profile as the relevant Select Sector Index in terms of key risk factors, performance attributes and other economic characteristics. These include industry weightings, market capitalization and other financial characteristics of securities.

While SSGA FM seeks to track the performance of the relevant Select Sector Index (*i.e.*, achieve a high degree of correlation with the relevant Select Sector Index), each Select Sector SPDR® Fund's return may not match the return of the relevant Select Sector Index. Each Select Sector SPDR® Fund incurs a number of operating expenses not applicable to the relevant Select Sector Index and incurs costs in buying and selling securities. In addition, a Select Sector SPDR® Fund may not be fully invested at times, generally as a result of cash flows into or out of that Select Sector SPDR® Fund or reserves of cash held by that Select Sector SPDR® Fund to meet redemptions.

The Select Sector Trust is a registered investment company that consists of a separate investment portfolio for each of the Select Sector SPDR® Funds. Information provided to or filed with the SEC by the Select Sector 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 333-57791 and 811-08837, respectively, through the SEC's website at <http://www.sec.gov>.



## THE SPDR® DOW JONES INDUSTRIAL AVERAGE<sup>SM</sup> ETF TRUST

All information contained in this underlying supplement regarding the SPDR® Dow Jones Industrial Average<sup>SM</sup> ETF Trust (the “**DIA Fund**”) has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, State Street Global Advisors Trust Company (“**SSGA TC**”), as trustee of the DIA Fund, and PDR Services LLC (“**PDRS**”), as sponsor of the DIA Fund. The DIA Fund is a unit investment trust that issues securities called “Units.” The DIA Fund trades on NYSE Arca, Inc. under the ticker symbol “DIA.”

The DIA Fund seeks to provide investment results that, before expenses, correspond generally to the price and yield performance of the Dow Jones Industrial Average®. For more information about the Dow Jones Industrial Average®, please see “Equity Index Descriptions — The Dow Jones Industrial Average®” in this underlying supplement.

The DIA Fund seeks to achieve its investment objective by holding a portfolio of the common stocks that are included in the Dow Jones Industrial Average®, with the weight of each stock in the portfolio substantially corresponding to the weight of that stock in the Dow Jones Industrial Average®. At any time, the portfolio of the DIA Fund will consist of as many of the component stocks of the Dow Jones Industrial Average® as is practicable. To maintain the correspondence between the composition and weightings of the stocks held by the DIA Fund and the component stocks of the Dow Jones Industrial Average®, SSGA TC or its parent company, State Street Bank and Trust Company (“**SSBT**”) adjusts the portfolio of the DIA Fund from time to time to conform to periodic changes in the identity and/or relative weightings of the component stocks of the Dow Jones Industrial Average®. SSGA TC or SSBT generally makes these adjustments to the portfolio of the DIA Fund within 3 NYSE business days (which are days on which the New York Stock Exchange is open for business) before or after the day on which changes in the Dow Jones Industrial Average® are scheduled to take effect.

While the DIA Fund is intended to track the performance of the Dow Jones Industrial Average® as closely as possible (*i.e.*, to achieve a high degree of correlation with the Dow Jones Industrial Average®), the DIA Fund’s return may not match or achieve a high degree of correlation with the return of the Dow Jones Industrial Average® due to expenses and transaction costs incurred in adjusting the DIA Fund’s portfolio. In addition, it is possible that the DIA Fund may not always fully replicate the performance of the Dow Jones Industrial Average® due to the unavailability of certain Dow Jones Industrial Average® securities in the secondary market or due to other extraordinary circumstances (*e.g.*, if trading in a security has been halted). In addition, the DIA Fund’s portfolio may deviate from the Dow Jones Industrial Average® to the extent required to ensure continued qualification as a “regulated investment company” under Subchapter M of the Internal Revenue Code of 1986, as amended.

The DIA Fund is a registered investment company. Information provided to or filed with the SEC by the DIA Fund 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 333-31247 and 811-09170, respectively, through the SEC’s website at <http://www.sec.gov>.

## THE SPDR® EURO STOXX 50® ETF

All information contained in this underlying supplement regarding the SPDR® EURO STOXX 50® ETF (the “**FEZ Fund**”) has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, SSGA Funds Management, Inc. (“**SSGA FM**”), the investment advisor for the FEZ Fund. The FEZ Fund is an investment portfolio maintained and managed by SSGA FM. The FEZ Fund is an exchange-traded fund that trades on the NYSE Arca, Inc. under the ticker symbol “FEZ.”

The FEZ Fund seeks to provide investment results that, before fees and expenses, correspond generally to the total return performance of the EURO STOXX 50® Index. For more information about the EURO STOXX 50® Index, please see “Equity Index Descriptions — The STOXX Benchmark Indices” in this underlying supplement.

In seeking to track the performance of the EURO STOXX 50® Index, the FEZ Fund employs a sampling strategy, which means that the FEZ Fund is not required to purchase all of the securities represented in the EURO STOXX 50® Index. Instead, the FEZ Fund may purchase a subset of the securities 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. The quantity of holdings in the FEZ Fund will be based on a number of factors, including asset size of the FEZ Fund. Based on its analysis of these factors, SSGA FM, either may invest the FEZ Fund’s assets in a subset of securities in underlying index or may invest the FEZ Fund’s assets in substantially all of the securities represented in the EURO STOXX 50® Index in approximately the same proportions as the EURO STOXX 50® Index.

While SSGA FM seeks to track the performance of the EURO STOXX 50® Index (*i.e.*, achieve a high degree of correlation with the EURO STOXX 50® Index), the FEZ Fund’s return may not match the return of the EURO STOXX 50® Index. The FEZ Fund incurs a number of operating expenses not applicable to the EURO STOXX 50® Index, and incurs costs in buying and selling securities. In addition, the FEZ Fund may not be fully invested at times, generally as a result of cash flows into or out of the FEZ Fund or reserves of cash held by the FEZ Fund to meet redemptions. SSGA FM may attempt to track the EURO STOXX 50® Index return by investing in fewer than all of the securities in the EURO STOXX 50® Index, or in some securities not included in the EURO STOXX 50® Index, potentially increasing the risk of divergence between the FEZ Fund’s return and that of the EURO STOXX 50® Index.

SPDR® Index Shares Funds is a registered investment company that consists of numerous separate investment portfolios, including the FEZ Fund. Information provided to or filed with the SEC by the FEZ Fund 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 333-92106 and 811-21145, respectively, through the SEC’s website at <http://www.sec.gov>.

## THE SPDR® GOLD TRUST

All information contained in this underlying supplement regarding the SPDR® Gold Trust (the “**Gold Trust**”) has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, the Gold Trust and World Gold Trust Services, LLC (“**World Gold**”), the sponsor of the Gold Trust. BNY Mellon Asset Servicing, a division of The Bank of New York Mellon, is the trustee of the Gold Trust, and HSBC Bank plc is the custodian of the Gold Trust. The Gold Trust is an investment trust that trades on the NYSE Arca, Inc. under the ticker symbol “GLD.”

The investment objective of the Gold Trust is for its shares to reflect the performance of the price of gold bullion, less the Gold Trust’s expenses. The Gold Trust holds gold bars and from time to time, issues blocks of shares in exchange for deposits of gold and distributes gold in connection with the redemption of blocks of shares. The shares of the Gold Trust are designed for investors who want a cost-effective and convenient way to invest in gold.

The shares of the Gold Trust represent units of fractional undivided beneficial interest in and ownership of the Gold Trust. The Gold Trust is a passive investment vehicle and the trustee of the Gold Trust does not actively manage the gold held by the Gold Trust. The trustee of the Gold Trust sells gold held by the Gold Trust to pay the Gold Trust’s expenses on an as-needed basis irrespective of then-current gold prices. Currently, the Gold Trust’s only recurring fixed expense is World Gold’s fee which accrues daily at an annual rate equal to 0.40% of the daily net asset value of the Gold Trust, in exchange for World Gold assuming the responsibility to pay all ordinary fees and expenses of the Gold Trust.

Information provided to or filed with the SEC by the Gold Trust pursuant to the Securities Act of 1933, as amended, and the Securities Exchange Act of 1934, as amended, can be located by reference to SEC file numbers 333-263087 and 001-32356, respectively, through the SEC’s website at <http://www.sec.gov>. The Gold Trust 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. The Gold Trust is not a commodity pool for purposes of the Commodity Exchange Act of 1936, as amended, and is not subject to regulation thereunder, and World Gold is not subject to regulation by the Commodity Futures Trading Commission as a commodity pool operator, or a commodity trading advisor.

### Gold

The price of gold is primarily affected by the global demand for and supply of gold. The market for gold bullion is global, and gold prices are subject to volatile price movements over short periods of time and are affected by numerous factors, including macroeconomic factors such as the structure of and confidence in the global monetary system, expectations regarding the future rate of inflation, the relative strength of, and confidence in, the U.S. dollar (the currency in which the price of gold is usually quoted), interest rates, gold borrowing and lending rates and global or regional economic, financial, political, regulatory, judicial or other events, especially those of unexpected nature. Gold prices may be affected by industry factors, such as industrial and jewelry demand as well as lending, sales and purchases of gold by the official sector, including central banks and other governmental agencies and multilateral institutions that hold gold. Additionally, gold prices may be affected by levels of gold production, production costs and short-term changes in supply and demand due to trading activities in the gold market. From time to time, above-ground inventories of gold may also influence the market. It is not possible to predict the aggregate effect of all or any combination of these factors. The price of gold has recently been, and may continue to be, extremely volatile.

## THE SPDR® S&P 500® ETF TRUST

All information contained in this underlying supplement regarding the SPDR® S&P 500® ETF Trust (the “**SPY Fund**”) has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, State Street Global Advisors Trust Company (“**SSGA TC**”), as trustee of the SPY Fund, and PDR Services LLC (“**PDRS**”), as sponsor of the SPY Fund. The SPY Fund is a unit investment trust that issues securities called “Units.” The SPY Fund trades on the NYSE Arca, Inc. under the ticker symbol “SPY.”

The SPY Fund seeks to provide investment results that, before expenses, correspond generally to the price and yield performance of the S&P 500® Index. For more information about the S&P 500® Index, please see “Equity Index Descriptions — The S&P U.S. Indices” in this underlying supplement.

The SPY Fund seeks to achieve its investment objective by holding a portfolio of common stocks that are included in the S&P 500® Index, with the weight of each stock in the portfolio substantially corresponding to the weight of that stock in the S&P 500® Index. At any time, the portfolio of the SPY Fund will consist of as many of the component stocks of the S&P 500® Index as is practicable. To maintain the correspondence between the composition and weightings of the stocks held by the SPY Fund and the component stocks of the S&P 500® Index, SSGA TC or its parent company, State Street Bank and Trust Company (“**SSBT**”) adjusts the portfolio of the SPY Fund 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. SSGA TC or SSBT aggregates certain of these adjustments and makes changes to the portfolio of the SPY Fund at least monthly, or more frequently in the case of significant changes to the S&P 500® Index.

While the SPY Fund is intended to track the performance of the S&P 500® Index as closely as possible (*i.e.*, to achieve a high degree of correlation with the S&P 500® Index), the return of the SPY Fund may not match or achieve a high degree of correlation with the return of the S&P 500® Index due to expenses and transaction costs incurred in adjusting the SPY Fund’s portfolio. In addition, it is possible that the SPY Fund may not always fully replicate the performance of the S&P 500® Index due to the unavailability of certain component stocks of the S&P 500® Index in the secondary market or due to other extraordinary circumstances (*e.g.*, if trading in a security has been halted).

The SPY Fund is a registered investment company. Information provided to or filed with the SEC by the SPY Fund 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>.

## THE SPDR® S&P® INDUSTRY ETFS

All information contained in this underlying supplement regarding the SPDR® S&P® Industry ETFs set forth in the table below (each, a “**SPDR® S&P® Industry ETF**” and collectively, the “**SPDR® S&P® Industry ETFs**”) has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, the SPDR® Series Trust and SSGA Funds Management, Inc. (“**SSGA FM**”). Each SPDR® S&P® Industry ETF is an investment portfolio maintained and managed by SSGA FM, the investment adviser to the SPDR® S&P® Industry ETFs. Each SPDR® S&P® Industry ETF is an exchange-traded fund (“**ETF**”) that trades on the NYSE Arca, Inc. under the ticker symbol set forth in the table below.

Each SPDR® S&P® Industry ETF is an index fund that invests in a particular industry or group of industries represented by an S&P Select Industry as specified in the table below. The companies included in each Select Industry Index are selected on the basis of Global Industry Classification Standards and liquidity and market capitalization requirements from a universe of companies defined by the S&P® Total Market Index, a U.S. total market composite index. The investment objective of each Select Industry SPDR® Fund is to provide investment results that, before expenses, correspond generally to the total return performance of an index derived from a particular industry or group of industries, as represented by a specified Select Industry Index. For more information about the Select Industry Indices, please see “Equity Index Descriptions — The S&P® Select Industry Indices” in this underlying supplement.

<b>SPDR® S&amp;P® Industry ETF</b>	<b>Ticker</b>	<b>Select Industry Index</b>
SPDR® S&P® Bank ETF	KBE	S&P® Banks Select Industry™ Index
SPDR® S&P® Biotech ETF	XBI	S&P® Biotechnology Select Industry™ Index
SPDR® S&P® Homebuilders ETF	XHB	S&P® Homebuilders Select Industry™ Index
SPDR® S&P® Metals & Mining ETF	XME	S&P® Metals & Mining Select Industry™ Index
SPDR® S&P® Oil & Gas Exploration & Production ETF	XOP	S&P® Oil & Gas Exploration & Production Select Industry™ Index
SPDR® S&P® Regional Banking ETF	KRE	S&P® Regional Banks Select Industry™ Index
SPDR® S&P® Retail ETF	XRT	S&P® Retail Select Industry™ Index

In seeking to track the performance of the relevant Select Industry Index, each SPDR® S&P® Industry ETF employs a “sampling” strategy, which means that the SPDR® S&P® Industry ETF is not required to purchase all of the securities represented in the relevant Select Industry Index. Instead, each SPDR® S&P® Industry ETF may purchase a subset of the securities in the relevant Select Industry Index in an effort to hold a portfolio of securities with generally the same risk and return characteristics of the relevant Select Industry Index. The quantity of holdings in each SPDR® S&P® Industry ETF will be based on a number of factors, including asset size of that SPDR® S&P® Industry ETF. Based on its analysis of these factors, SSGA FM either may invest each SPDR® S&P® Industry ETF’s assets in a subset of securities in the relevant Select Industry Index or may invest that SPDR® S&P® Industry ETF’s assets in substantially all of the securities represented in the relevant Select Industry Index in approximately the same proportions as the relevant Select Industry Index, as determined by SSGA FM to be in the best interest of that SPDR® S&P® Industry ETF in pursuing its objective.

While SSGA FM seeks to track the performance of the relevant Select Industry Index (*i.e.*, achieve a high degree of correlation with the relevant Select Industry Index), a SPDR® S&P® Industry ETF’s return may not match the return of the relevant Select Industry Index for a number of reasons. For example, the return on the sample of securities purchased by a SPDR® S&P® Industry ETF (or the return on securities not included in the relevant Select Industry Index) may not correlate precisely with the return of that relevant Select Industry Index. Each SPDR® S&P® Industry ETF incurs a number of operating expenses

not applicable to the relevant Select Industry Index, and incurs costs in buying and selling securities. In addition, a SPDR® S&P® Industry ETF may not be fully invested at times, either as a result of cash flows into or out of that SPDR® S&P® Industry ETF or reserves of cash held by that SPDR® S&P® Industry ETF to meet redemptions. SSGA FM may attempt to track the relevant Select Industry Index's return by investing in fewer than all of the securities in that Select Industry Index, or in some securities not included in that Select Industry Index, potentially increasing the risk of divergence between a SPDR® S&P® Industry ETF's return and that of the relevant Select Industry Index. Changes in the composition of the relevant Select Industry Index and regulatory requirements also may impact a SPDR® S&P® Industry ETF's ability to match the return of the relevant Select Industry Index. SSGA FM may apply one or more "screens" or investment techniques to refine or limit the number or types of issuers included in the relevant Select Industry Index in which a SPDR® S&P® Industry ETF may invest. Application of such screens or techniques may result in investment performance below that of the relevant Select Industry Index and may not produce results expected by SSGA FM. Index tracking risk may be heightened during times of increased market volatility or other unusual market conditions.

The SPDR® Series Trust is a registered investment company that consists of a separate investment portfolio for each SPDR® S&P® Industry ETF. Information provided to or filed with the SEC by the 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>.



## THE SPDR® S&P MIDCAP 400® ETF TRUST

All information contained in this underlying supplement regarding the SPDR® S&P MidCap 400® ETF Trust (the “**MDY Fund**”) has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, The Bank of New York Mellon (“**BNYM**”), as trustee of the MDY Fund, and PDR Services LLC (“**PDRS**”), as sponsor of the MDY Fund. The MDY Fund is a unit investment trust that issues securities called “Units.” The MDY Fund trades on the NYSE Arca, Inc. under the ticker symbol “MDY.”

The MDY Fund seeks to provide investment results that, before expenses, correspond generally to the price and yield performance of the S&P MidCap 400® Index. For more information about the S&P MidCap 400® Index, please see “Equity Index Descriptions — The S&P U.S. Indices” in this underlying supplement.

The MDY Fund seeks to achieve its investment objective by holding a portfolio of common stocks that are included in the S&P MidCap 400® Index, with the weight of each stock in the portfolio substantially corresponding to the weight of that stock in the S&P MidCap 400® Index. At any time, the portfolio of the MDY Fund will consist of as many of the component stocks of the S&P MidCap 400® Index as is practicable. To maintain the correspondence between the composition and weightings of the stocks held by the MDY Fund and the component stocks of the S&P MidCap 400® Index, BNYM adjusts the portfolio of the MDY Fund 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 of the MDY Fund at least monthly, or more frequently in the case of significant changes to the S&P MidCap 400® Index.

While the MDY Fund is intended to track the performance of the S&P MidCap 400® Index as closely as possible (*i.e.*, to achieve a high degree of correlation with the S&P MidCap 400® Index), the return of the MDY Fund may not match or achieve a high degree of correlation with the return of the S&P MidCap 400® Index due to expenses and transaction costs incurred in adjusting the MDY Fund’s portfolio. In addition, it is possible that the MDY Fund may not always fully replicate the performance of the S&P MidCap 400® Index due to the unavailability of certain component stocks of the S&P MidCap 400® Index in the secondary market or due to other extraordinary circumstances (*e.g.*, if trading in a security has been halted).

The MDY Fund is a registered investment company. Information provided to or filed with the SEC by the MDY Fund 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>.

## THE U.S. GLOBAL JETS ETF

All information contained in this underlying supplement regarding the U.S. Global Jets ETF (the “**JETS Fund**”) has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, ETF Series Solutions and U.S. Global Investors, Inc. (“**U.S. Global Investors**”). The JETS Fund is an investment portfolio managed by U.S. Global Investors, the investment adviser to the JETS Fund. The JETS Fund is an exchange-traded fund that trades on NYSE Arca, Inc. under the ticker symbol “JETS.”

The JETS Fund seeks to track the performance, before fees and expenses, of the U.S. Global Jets Index (the “**JETSX Index**”). See “— The U.S. Global Jets Index” below for more information about the JETSX Index.

The JETS Fund uses a “passive management” (indexing) approach to track the performance, before fees and expenses, of the JETSX Index. The JETS Fund will generally use a “replication” strategy to achieve its investment objective, meaning it generally will invest in all of the component securities of the JETSX Index in approximately the same proportion as in the JETSX Index. However, the JETS Fund may use a “representative sampling” strategy, meaning it may invest in a sample of the securities in the JETSX Index whose risk, return and other characteristics closely resemble the risk, return and other characteristics of the JETSX Index as a whole, when U.S. Global Investors believes it is in the best interests of the JETS Fund (e.g., when replicating the JETSX Index involves practical difficulties or substantial costs, a JETSX Index constituent becomes temporarily illiquid, unavailable or less liquid, or as a result of legal restrictions or limitations that apply to the JETS Fund but not to the JETSX Index).

The performance of the JETS Fund and the JETSX Index may differ from each other for a variety of reasons. For example, the JETS Fund incurs operating expenses and portfolio transaction costs not incurred by the JETSX Index. In addition, the JETS Fund may not be fully invested in the securities of the JETSX Index at all times or may hold securities not included in the JETSX Index. The JETS Fund may use a representative sampling strategy to achieve its investment objective, if U.S. Global Investors believes it is in the best interest of the JETS Fund, which can generally be expected to produce a greater non-correlation risk.

ETF Series Solutions is a registered investment company that consists of numerous separate investment portfolios, including the JETS Fund. Information provided to or filed with the SEC by ETF Series Solutions 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 333-179562 and 811-22668, respectively, through the SEC’s website at <http://www.sec.gov>.

### The U.S. Global Jets Index

All information contained in this underlying supplement regarding the JETSX 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, U.S. Global Indices, LLC (“**U.S. Global Indices**”), a wholly-owned subsidiary of U.S. Global Investors. The JETSX Index is calculated by Indxx, LLC and is maintained and published by U.S. Global Indices. U.S. Global Indices has no obligation to continue to publish, and may discontinue publication of, the JETSX Index.

The JETSX Index is generally composed of 50 common stocks (or depositary receipts), listed on developed and emerging market exchanges, of U.S. and international passenger airlines, aircraft manufacturers, airports, terminal services companies and airline-related internet media and services companies (e.g., websites for purchasing airline tickets), which we collectively refer to as airline companies. The JETSX Index includes small-, mid- and large-capitalization companies across the globe, with an emphasis on domestic passenger airlines.

### The JETSX Index Eligibility Criteria

To be eligible for inclusion in the JETSX Index, companies are screened for minimum market capitalization and liquidity. At the time of each reconstitution of the JETSX Index, the minimum market

capitalization and liquidity (minimum average daily value traded) are determined based on the aggregate net assets of investment products tracking the JETSEX Index (including the JETS Fund). The minimum market capitalization increases from \$100 million to \$500 million if such products have net assets exceeding \$1 billion. The minimum liquidity increases from \$500,000 to \$5 million if such products have net assets of \$100 million to \$1 billion and increases further to \$10 million if such products have net assets of at least \$1 billion. Liquidity is measured by the average daily value traded ("**Average Daily Value Traded**"), which is the volume of a company's shares traded over the past 3 months multiplied by its last closing price.

An airline company is excluded from the JETSEX Index if: (i) its common stock is listed solely on a securities exchange in a country that does not allow the transfer of securities "free of payment" (e.g., Brazil, China, India, Russia, South Korea, Taiwan) and (ii) no depositary receipts for that company are listed on a securities exchange in a country other than those listed above.

### **The JETSEX Index Creation Process**

A master list of the securities is initially prepared from the applicable index universe by applying the criteria of market capitalization and industry classification. Those that do not meet these criteria are removed from the initial selection list. Each company on the selection list is then screened for liquidity. The companies that do not meet the minimum Average Daily Value Traded are removed to obtain the final selection list. All companies on the final selection list are included in the JETSEX Index.

### **The JETSEX Index Maintenance**

The JETSEX Index is rebalanced and reconstituted quarterly in March, June, September and December. At the time of each reconstitution of the JETSEX Index, the following tiered scheme is employed to allocate weights to the different securities in the index portfolio:

1. Each of the top four U.S. airlines, measured by market capitalization, Average Daily Value Traded and passenger load factor (ratio of revenue passenger miles to available seat miles), receives a 10% weighting.
2. Each of the next eight U.S. or Canadian airlines, measured by market capitalization, Average Daily Value Traded and passenger load factor (ratio of revenue passenger miles to available seat miles), receives a 3% weighting.
3. Each of the next eight U.S. or Canadian companies (non-airlines included), measured by a fundamental factor ranking, receives a 2% weighting.
4. Each of the top ten international companies (excluding U.S.), measured by a fundamental factor ranking, receives a 1% weighting.
5. Each of the next twenty international companies (excluding U.S.), measured by a fundamental factor ranking, receives a 0.5% weighting.

Tiers 3, 4 and 5 are scored based on multiple fundamental factors: market capitalization, Average Dollar Value Traded, cash flow return on invested capital (net cash from operating activities *divided by* the average total invested capital), sales-per-share growth, gross margins (gross income *divided by* net sales or revenue) and trailing 12-month sales yield (sales per share *divided by* price per share).

## THE UNITED STATES OIL FUND, LP

All information contained in this underlying supplement regarding the United States Oil Fund, LP (the “**USO Fund**”) has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, United States Commodity Funds LLC (“**USCF**”). The USO Fund is managed and controlled by USCF, a Delaware limited liability company that is registered as a commodity pool operator with the Commodity Futures Trading Commission and is a member of the National Futures Association. The USO Fund, a Delaware limited partnership, is a commodity pool that continuously issues common shares of beneficial interest that trade on NYSE Arca, Inc. (the “**NYSE Arca**”) under the ticker symbol “USO.”

The investment objective of the USO Fund is for the daily changes in percentage terms of its shares’ 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 daily changes in the price of a specified short-term futures contract on light, sweet crude oil (the “**benchmark oil futures contract**”), plus interest earned on USO Fund’s collateral holdings, less the USO Fund’s expenses. The benchmark oil futures contract is the futures contract on light, sweet crude oil traded on the New York Mercantile Exchange (“**NYMEX**”) 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.

The USO Fund seeks to achieve its investment objective by investing primarily 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 to a lesser extent, in order to comply with regulatory requirements or in view of market conditions, other oil-related investments such as cash-settled options on oil futures contracts, forward contracts for crude oil, cleared swap contracts and non-exchange traded (or over-the-counter) transactions that are based on the price of crude oil, other petroleum-based fuels, oil futures contracts and indices based on the foregoing. The USO Fund seeks to achieve its investment objective by investing so that the average daily percentage change in its net asset value for any period of 30 successive valuation days will be within plus/minus ten percent (10%) of the average daily percentage change in the price of the benchmark oil futures contract over the same period.

The daily changes in the price of the USO Fund’s shares on the NYSE Arca on a percentage basis, may not closely track the daily changes in the spot price of light, sweet crude oil on a percentage basis. This could happen if the price of shares traded on the NYSE Arca does not correlate closely with the value of the USO Fund’s net asset value; the changes in the USO Fund’s net asset value do not correlate closely with the changes in the price of the benchmark oil futures contract; or the changes in the price of the benchmark oil futures contract do not closely correlate with the changes in the cash or spot price of crude oil. The price relationship between the near month contract to expire and the next month contract to expire that compose the benchmark oil futures contract will vary and may impact the total return over time of the USO Fund’s net asset value. In cases in which the near month contract’s price is lower than the next month contract’s price (a situation known as “contango” in the futures markets), then absent the impact of the overall movement in crude oil prices, the value of the benchmark oil futures contract would tend to decline as it approaches expiration. In cases in which the near month contract’s price is higher than the next month contract’s price (a situation known as “backwardation” in the futures markets), then absent the impact of the overall movement in crude oil prices, the value of the benchmark contract would tend to rise as it approaches expiration.

Information provided to or filed with the SEC by the USO Fund pursuant to the Securities Act of 1933, as amended, and the Securities Exchange Act of 1934, as amended, can be located by reference to SEC file numbers 333-237750 and 001-32834, respectively, through the SEC’s website at <http://www.sec.gov>. The USO Fund 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.

## THE VANECK® ETFS

All information contained in this underlying supplement regarding the VanEck® Gold Miners ETF, the VanEck® Junior Gold Miners ETF, the VanEck® Oil Services ETF and the VanEck® Semiconductor ETF (each, a “**VanEck ETF**” and collectively, the “**VanEck ETFs**”) has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, VanEck® ETF Trust (the “**VanEck Trust**”) and Van Eck Associates Corporation (“**Van Eck**”). Each VanEck ETF is an investment portfolio of the VanEck Trust. Van Eck is currently the investment advisor to the VanEck ETFs. Prior to September 2021, VanEck® was branded as VanEck Vectors®.

Each VanEck ETF uses a “passive” or indexing investment approach to attempt to approximate the investment performance of its underlying index by investing in a portfolio of securities that generally replicates its underlying index. Van Eck anticipates that, generally, each VanEck ETF will hold or gain exposure to all of the securities that comprise its underlying index in proportion to their weightings in that underlying index. However, under various circumstances, it may not be possible or practicable to purchase all of those securities in those weightings. In these circumstances, a VanEck ETF may purchase a sample of securities in its underlying index. There also may be instances in which Van Eck may choose to underweight or overweight a security in a VanEck ETF’s underlying index, purchase securities not in the VanEck ETF’s underlying index that Van Eck believes are appropriate to substitute for certain securities in that underlying index or utilize various combinations of other available investment techniques in seeking to replicate as closely as possible, before fees and expenses, the price and yield performance of the VanEck ETF’s underlying index.

Each VanEck ETF’s return may not match the return of its underlying index for a number of reasons. For example, each VanEck ETF incurs a number of operating expenses, including taxes, not applicable to its underlying index and incurs costs associated with buying and selling securities and entering into derivatives transactions (if applicable), especially when rebalancing that VanEck ETF’s securities holdings to reflect changes in the composition of its underlying index, which are not factored into the return of its underlying index. Transaction costs, including brokerage costs, will decrease a VanEck ETF’s net asset value (“**NAV**”) to the extent not offset by the transaction fee payable by an authorized participant. Market disruptions and regulatory restrictions could have an adverse effect on a VanEck ETF’s ability to adjust its exposure to the required levels in order to track its underlying index. In addition, a VanEck ETF may not be able to invest in certain securities included in its underlying index, or invest in them in the exact proportions in which they are represented in its underlying index. A VanEck ETF’s performance may also deviate from the return of its underlying index due to legal restrictions or limitations imposed by the governments of certain countries, certain listing standards of that VanEck ETF’s listing exchange, a lack of liquidity on stock exchanges in which the securities trade, potential adverse tax consequences or other regulatory reasons or legal restrictions or limitations (such as diversification requirements). A VanEck ETF may value certain of its investments and/or other assets based on fair value prices. To the extent a VanEck ETF calculates its NAV based on fair value prices and the value of its underlying index is based on securities’ closing prices (*i.e.*, the value of its underlying index is not based on fair value prices), that VanEck ETF’s ability to track its underlying index may be adversely affected. In addition, any issues a VanEck ETF encounters with regard to currency convertibility (including the cost of borrowing funds, if any) and repatriation may also increase the index tracking risk. For tax efficiency purposes, a VanEck ETF may sell certain securities, and this sale may cause that VanEck ETF to realize a loss and deviate from the performance of its underlying index. In light of the factors discussed above, a VanEck ETF’s return may deviate significantly from the return of its underlying index. Changes to the composition of its underlying index in connection with a rebalancing or reconstitution of its underlying index may cause a VanEck ETF to experience increased volatility, during which time that VanEck ETF’s index tracking risk may be heightened.

The VanEck Trust is a registered investment company that consists of numerous separate investment portfolios, including the VanEck ETFs. Information provided to or filed with the SEC by the VanEck 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 333-123257 and 811-10325, respectively, through the SEC’s website at <http://www.sec.gov>.



## **The VanEck® Gold Miners ETF**

The VanEck® Gold Miners ETF (the “**GDX Fund**”) seeks to replicate as closely as possible, before fees and expenses, the price and yield performance of the NYSE Arca Gold Miners Index (the “**Gold Miners Index**”). For more information about the Gold Miners Index, please see “— Additional Information about the Underlying Indices for the VanEck ETFs — The NYSE Arca Gold Miners Index” below. The GDX Fund is an exchange-traded fund that trades on the NYSE Arca, Inc. (the “**NYSE Arca**”) under the ticker symbol “GDX.”

## **The VanEck® Junior Gold Miners ETF**

The VanEck® Junior Gold Miners ETF (the “**GDXJ Fund**”) seeks to replicate as closely as possible, before fees and expenses, the price and yield performance of the MVIS® Global Junior Gold Miners Index (the “**Junior Gold Miners Index**”). For more information about the Junior Gold Miners Index, please see “— Additional Information about the Underlying Indices for the VanEck ETFs — The MVIS Indices” below. The GDXJ Fund is an exchange-traded fund that trades on the NYSE Arca under the ticker symbol “GDXJ.”

## **The VanEck® Oil Services ETF**

The VanEck® Oil Services ETF (the “**OIH Fund**”) 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 “**Oil Services Index**”). For more information about the Oil Services Index, please see “— Additional Information about the Underlying Indices for the VanEck ETFs — The MVIS Indices” below. The OIH Fund is an exchange-traded fund that trades on the NYSE Arca under the ticker symbol “OIH.”

## **The VanEck® Semiconductor ETF**

The VanEck® Semiconductor ETF (the “**SMH Fund**”) seeks to replicate as closely as possible, before fees and expenses, the price and yield performance of the MVIS® US Listed Semiconductor 25 Index (the “**Semiconductor Index**”). For more information about the Semiconductor Index, please see “— Additional Information about the Underlying Indices for the VanEck ETFs — The MVIS Indices” below. The SMH Fund is an exchange-traded fund that trades on the NYSE Arca under the ticker symbol “SMH.”

## **Additional Information about the Underlying Indices for the VanEck ETFs**

### ***The NYSE Arca Gold Miners Index***

All information contained in this underlying supplement regarding the Gold Miners 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, the NYSE Arca. The Gold Miners Index is calculated, maintained and published by the NYSE Arca. The NYSE Arca has no obligation to continue to publish, and may discontinue the publication of, the Gold Miners Index.

The Gold Miners Index is reported by Bloomberg L.P. under the ticker symbol “GDM.”

The Gold Miners Index is a modified market capitalization-weighted index composed of publicly traded companies involved primarily in the mining of gold or silver.

### ***Eligibility Criteria for Index Components***

The Gold Miners Index includes common stocks, American depositary receipts (“**ADRs**”) and Global depositary receipts (“**GDRs**”) of selected companies that are involved in mining for gold and silver and that are listed for trading on a major stock market that is accessible by foreign investors. Only companies with market capitalization greater than \$750 million that have 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 Gold Miners Index. For companies that were already in the Gold Miners Index prior to the September 20, 2013 rebalance, the market capitalization



requirement is \$450 million, the average daily trading volume requirement is at least 30,000 shares over the past three months and the average daily value traded requirement is at least \$600,000 over the past three months. Further, the universe of companies eligible for inclusion in the Gold Miners Index will specifically include those companies that derive at least 50% of their revenues from gold mining and related activities. Companies already in the Gold Miners Index will be removed from the Gold Miners Index in the following quarterly review only if their gold mining revenues fall below the 40% level. The Gold Miners Index will maintain an exposure, of not more than 20% of the Gold Miners Index weight at rebalance, to companies with a significant revenue exposure to silver mining as well as gold mining. These are companies that either (1) have a revenue exposure to silver mining greater than 50% or (2) have a greater revenue exposure to silver mining than gold mining and have a combined gold/silver mining revenue exposure of greater than 50%.

In addition, both streaming companies and royalty companies are eligible for inclusion in the Gold Miners Index. Companies that have not yet commenced production are also eligible for inclusion in the Gold Miners Index, *provided* that they have tangible revenues that are related to the mining of either gold or silver ore. There are no restrictions imposed on the eligibility of company in how much the company has hedged in gold or silver production via futures, options or forward contracts.

#### *Index Calculation*

The Gold Miners Index is calculated using a modified market capitalization weighting methodology. The 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 Gold Miners Index. The information utilized in this modification process will be taken from the close of trading on the second Friday of the rebalancing month:

- (1) the weight of any single component security may not account for more than 20% of the total value of the Gold Miners Index;
- (2) the component securities are split into two subgroups — (1) large and (2) small, which are ranked by their unadjusted market capitalization weight in the Gold Miners Index. Large stocks are defined as having a Gold Miners Index weight greater than or equal to 5%. Small securities are defined as having an 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 Gold Miners Index may not account for more than 45% of the total Gold Miners Index value.

The Gold Miners Index is reviewed quarterly so that the Gold Miners Index components continue to represent the universe of companies involved in the gold mining industry. The NYSE Arca may at any time and from time to time change the number of securities composing the group by adding or deleting one or more securities, or replacing one or more securities contained in the group with one or more substitute securities of its choice, if in the NYSE Arca's discretion this addition, deletion or substitution is necessary or appropriate to maintain the quality and/or character of the Gold Miners Index. Changes to the Gold Miners Index compositions and/or the component share weights in the Gold Miners Index typically take effect after the close of trading on the third Friday of each calendar quarter month in connection with the quarterly index rebalance.

At the time of the quarterly rebalance, the quantities for the components stocks (taking into account expected component changes and share adjustments), are modified in accordance with the following procedures.

- Diversification Rule 1: If any component stock exceeds 20% of the total value of the Gold Miners Index, then all stocks greater than 20% of the Gold Miners Index are reduced to represent 20% of the value of the Gold Miners Index. The aggregate amount by which all component stocks are reduced is redistributed proportionately across the remaining stocks that represent less than 20% of the index value. After this redistribution, if any other stock then exceeds 20%, the stock is set

to 20% of the index value and the redistribution is repeated. If there is no component stock over 20% of the total value of the Gold Miners Index, then Diversification Rule 1 is not executed.

- **Diversification Rule 2:** The components are sorted into two groups, (1) large components, with a starting index weight of 5% or greater, and (2) small components, with a weight of under 5% (after any adjustments for Diversification Rule 1). If there are no components that are classified as large components after Diversification Rule 1 is run, then Diversification Rule 2 is not executed. In addition, if the starting aggregate weight of the large components after Diversification Rule 1 is run is not greater than 45% of the starting index weight, then Diversification Rule 2 is not executed. If Diversification Rule 2 is executed, then the large group and the small group will represent 45% and 55%, respectively, of the final index weight. This will be adjusted for through the following process:
  - The weight of each of the large stocks will be scaled down proportionately with a floor of 5% so that the aggregate weight of the large components will be reduced to represent 45% of the Gold Miners Index. If any component stock falls below a weight equal to the product of 5% and the proportion by which the stocks were scaled down following this distribution, then the weight of the stock is set equal to the product of 5% and the proportion by which the stocks were scaled down, 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 component stock exceeds a weight equal to the product of 4.5% and the proportion by which the stocks were scaled up following this distribution, then the weight of the stock is set equal to the product of 4.5% and the proportion by which the stocks were scaled up. The redistribution of weight to the remaining stocks is repeated until the entire amount has been redistributed.

### *Index Maintenance*

The Gold Miners Index is reviewed quarterly to ensure that at least 90% of the index weight is accounted for by index components that continue to meet the initial eligibility requirements. Components will be removed from the Gold Miners Index during the quarterly review if either (1) the market capitalization falls below \$450 million or (2) the average daily volume traded for the previous three months was lower than 30,000 shares and the average daily value traded for the previous three months was lower than \$600,000. In conjunction with the quarterly review, the share quantities used in the calculation of the Gold Miners Index are determined based upon current shares outstanding modified, if necessary, to provide greater index diversification, as described above. An ADR or GDR ratio would be incorporated into this shares figure so that the shares utilized in the Gold Miners Index for a depositary receipt is equal to the shares outstanding of the local share class multiplied by the depositary receipt ratio. The index components and their share quantities are determined and announced prior to taking effect. The share quantity of each component stock in the index portfolio remains fixed between quarterly reviews except in the event of certain types of corporate actions, such as stock splits, reverse stock splits, stock dividends or similar events. The share quantities used in the index calculation are not typically adjusted for shares issued or repurchased between quarterly reviews. However, in the event of a merger between two components, the share quantity of the surviving entity may be adjusted to account for any stock issued in the acquisition. The NYSE Arca may substitute stocks or change the number of stocks included in the Gold Miners Index based on changing conditions in the industry or in the event of certain types of corporate actions, including mergers, acquisitions, spin-offs, and reorganizations. In the event of component or share quantity changes to the index portfolio, the payment of dividends other than ordinary cash dividends, spin-offs, rights offerings, re-capitalization or other corporate actions affecting a component stock of the Gold Miners Index, the index divisor may be adjusted to ensure that there are no changes to the index level as a result of non-market forces.

### *The MVIS Indices*

All information contained in this underlying supplement regarding the Junior Gold Miners Index, the Oil Services Index and the Semiconductor Index (each, an “**MVIS Index**” and collectively, the “**MVIS**

**Indices**”), including, without limitation, their make-up, method of calculation and changes in their components, has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, MarketVector Indexes GmbH (“**MVIS**”). The MVIS Indices were developed by MVIS and are maintained and published by MVIS. Each MVIS Index is calculated by Solactive AG. MVIS has no obligation to continue to publish, and may discontinue publication of, any of the MVIS Indices.

#### *The MVIS® Global Junior Gold Miners Index*

The Junior Gold Miners Index is designed to track the performance of the global gold and silver mining small-cap segment, which includes companies that derive at least 50% (25% for current components) of their revenues from gold mining/royalties/streaming and/or silver mining/royalties/streaming or with mining projects that have the potential to generate at least 50% of their revenues from gold and/or silver when developed. The Junior Gold Miners Index was launched on August 31, 2009 with a base index value of 1,000 as of December 31, 2003. The Junior Gold Miners Index is reported by Bloomberg L.P. under the ticker symbol “MVGDXJ.”

#### *The MVIS® US Listed Oil Services 25 Index*

The Oil Services Index is designed to track the performance of the largest and most liquid U.S.-listed companies that derive at least 50% (25% for current components) of their revenues from oil services to the upstream oil sector. The Oil Services Index was launched on August 12, 2011 with a base index value of 1,000 as of September 29, 2000. The Oil Services Index is reported by Bloomberg L.P. under the ticker symbol “MVOIH.”

#### *The MVIS® US Listed Semiconductor 25 Index*

The Semiconductor Index is designed to track the performance of the largest and most liquid U.S.-listed companies that derive at least 50% (25% for current components) of their revenues from semiconductors. This includes companies engaged primarily in the production of semiconductors and semiconductor equipment. The Semiconductor Index was launched on August 12, 2011 with a base index value of 1,000 as of September 29, 2000. The Semiconductor Index is reported by Bloomberg L.P. under the ticker symbol “MVSMH.”

### ***MVIS Index Composition and Maintenance***

#### *Index Universe*

The index universe for each MVIS Index includes only common stocks and stocks with similar characteristics from financial markets that are freely investable for foreign investors and that provide real-time and historical component and currency pricing. Limited partnerships and cannabis/marijuana companies are excluded. Companies from financial markets that are not freely investable for foreign investors or that do not provide real-time and historical component and currency pricing may still be eligible if they have a listing on an eligible exchange and if they meet all the size and liquidity requirements on that exchange. Only stocks that have a full market capitalization exceeding US\$50 million are eligible for the index universe.

#### *Investable Index Universe*

Only companies with a free float (or shares available to foreign investors) of 5% or more for existing index components or 10% or more for new components are eligible for inclusion in an MVIS Index. In addition, stocks that are currently not in the relevant MVIS Index must meet the following size and liquidity requirements:

- a full market capitalization exceeding US\$150 million;
- a three-month average-daily-trading volume of at least US\$1 million at the current review and also at the previous two reviews; and

- at least 250,000 shares traded per month over the last six months at the current review and also at the previous two reviews.

For stocks already in the relevant MVIS Index the following applies:

- a full market capitalization exceeding US\$75 million;
- a three-month average-daily-trading volume of at least US\$0.2 million in at least two of the latest three quarters (current review and also at the previous two reviews); and
- a three-month average-daily-trading volume of at least US\$0.6 million at current review or at one of the previous two reviews; or at least 200,000 shares traded per month over the last six months at the current review or at one of the previous two reviews.

In case the number of investable stocks drops below the minimum component number for the relevant MVIS Index, additional companies are flagged eligible by MVIS's decision until the number of eligible stocks equals the minimum component count.

Only one share line of each company is eligible. In case more than one share line fulfills the above size and liquidity rules, only the largest share line by free float market capitalization is eligible. MVIS can, in exceptional cases (e.g., significantly higher liquidity), decide for a different share line.

In case the free float market capitalization of a non-component share line:

- exceeds the free float market capitalization of a share line of the same company which is an index component by at least 25%; and
- fulfills all size and liquidity eligibility criteria for non-components,

the current component share line will be replaced by the larger one. MVIS can, in exceptional cases (e.g., significantly higher liquidity), decide to keep the current share line instead.

#### *Junior Gold Miners Index Constituent Selection*

The Junior Gold Miners Index is reviewed on a quarterly basis. The target coverage of the Junior Gold Miners Index is 100% of the free float market capitalization of the investable small-cap universe with at least 25 companies. The constituents of the Junior Gold Miners Index are selected using the following procedure:

- (1) Companies are valued by full market capitalization (all secondary lines are grouped). All companies (and not securities) are sorted by full market capitalization in descending order.
- (2) Companies covering the top 60% of the full market capitalization are excluded. Only companies ranking between 60% and 98% qualify for the selection. However, existing components ranking between 55% and 60% or 98% and 99% also qualify for the selection.
- (3) All companies which qualified in step 2 are now viewed as securities (companies with secondary lines are ungrouped and treated separately). Only securities that meet all requirements of the investable index universe are added to the Junior Gold Miners Index.
- (4) In case the number of eligible companies is below 25, additional companies are added by MVIS's decision until the number of stocks equals 25.

In addition to the periodic reviews, the Junior Gold Miners Index is continually reviewed for corporate events (e.g., mergers, takeovers, spin-offs, delistings and bankruptcies) that affect the index components.

### *MVIS US Listed 25 Index Constituent Selection*

Each of the Oil Services Index and the Semiconductor Index (each, an “**MVIS US Listed 25 Index**” and collectively, the “**MVIS US Listed 25 Indices**”) is reviewed on a semi-annual basis in March and September. The target coverage of each MVIS US Listed 25 Index is 25 companies from the investable universe that are U.S. exchange-listed companies that derive at least 50% (25% for current components) of their revenues from the relevant sector or sectors for that MVIS US Listed 25 Index. The constituents of each MVIS US Listed 25 Index are selected using the following procedure:

- (1) The largest 50 stocks (by full market capitalization) from the investable universe that are U.S. exchange-listed companies that derive at least 50% (25% for current components) of their revenues from the relevant sector or sectors for that MVIS US Listed 25 Index qualify.
- (2) The 50 stocks are ranked in two different ways — by free float market capitalization in descending order (the largest company receives rank “1”) and then by three-month average-daily-trading volume in descending order (the most liquid company receives rank “1”). These two ranks are added up.
- (3) The 50 stocks are then ranked by the sum of their two ranks in Step 2 in ascending order. If two companies have the same sum of ranks, the larger company is placed on top.
  - (a) Initially, the highest ranked 25 companies made up the relevant MVIS US Listed 25 Index.
  - (b) On-going, a 10-40 buffer is applied: the highest ranked 10 companies qualify. The remaining 15 companies are selected from the highest ranked remaining current index components ranked between 11 and 40. If the number of selected companies is still below 25, then the highest ranked remaining stocks are selected until 25 companies have been selected.

In addition to the periodic reviews, each MVIS US Listed 25 Index is continually reviewed for corporate events (e.g., mergers, takeovers, spin-offs, delistings and bankruptcies) that affect the index components.

### *MVIS Index Calculation*

The value of each MVIS Index is calculated using the Laspeyres’ formula, rounded to two decimal places, with stock prices converted to U.S. dollars:

$$Index\ Value = \frac{\sum_{i=1}^n p_i * q_i * ff_i * cf_i * fx_i}{D} = \frac{M}{D}$$

where (for all stocks (i) in the relevant MVIS Index):

$p_i$  = stock price (rounded to four decimal places);

$q_i$  = number of shares;

$ff_i$  = free float factor (rounded to two decimal places);

$fx_i$  = exchange rate (local currency to U.S. Dollar) (rounded to 12 decimal places);

$cf_i$  = sector-weighting cap factor (if applicable, otherwise set to 1) (rounded to 16 decimal places);

M = free float market capitalization of the relevant MVIS Index; and

D = divisor (rounded to six decimal places).

### *Free Float*

Each MVIS Index is free float-adjusted — that is, the number of shares outstanding is reduced to exclude closely held shares (amount larger than 5% of the company’s full market capitalization) from the



index calculation. At times, other adjustments are made to the share count to reflect foreign ownership limits or sanctions. These are combined with the block-ownership adjustments into a single factor. To avoid unwanted double counting, either the block-ownership adjustment or the restricted stocks adjustment is applied, whichever produces the higher result. Free float factors are reviewed quarterly.

#### *Junior Gold Miners Index Sector-Weighting Cap Factor*

Companies determined to be silver stocks must not constitute more than 20% of the Junior Gold Miners Index. If at a quarterly review, the aggregated weighting of all silver stocks represents more than 20% of the Junior Gold Miners Index, a sector-weighting cap factor is applied. This sector-weighting cap factor is calculated to ensure that the aggregated weighting of all gold stocks will not be less than 80% and the aggregated weighting of all silver stocks is capped at 20%.

#### *Junior Gold Miners Index Company-Weighting Cap Factors*

Companies in the Junior Gold Miners Index are ranked according to their free float market capitalization, as modified by the company-weighting cap factors. The Junior Gold Miners Index uses the company-weighting cap factors to ensure diversification to avoid overweighting. The company-weighting cap factors are reviewed quarterly and applied, if necessary. The following weighting scheme applies to the Junior Gold Miners Index:

- (1) All companies are ranked by their free float market capitalization. The maximum weight for any single stock is 8%. If a stock exceeds the maximum weight, then the weight will be reduced to the maximum weight and the excess weight shall be redistributed proportionally across all other Junior Gold Miners Index constituents. This process is repeated until no stocks have weights exceeding the respective maximum weight.
- (2) The 8%-cap weighting scheme will be applied to the largest stocks and the excess weight after each step shall be redistributed across all other (uncapped) stocks in the Junior Gold Miners Index on a proportional basis:
  - (a) If the largest two stocks exceed 8%, both will be capped at 8%.
  - (b) If the third largest stock exceeds 7%, it will be capped at 7%.
  - (c) If the fourth largest stock exceeds 6.5%, it will be capped at 6.5%.
  - (d) If the fifth largest stock exceeds 6%, it will be capped at 6%.
  - (e) If the sixth largest stock exceeds 5.5%, it will be capped at 5.5%.
  - (f) If the seventh largest stock exceeds 5%, it will be capped at 5%.
  - (g) If any other stock exceeds 4.5%, it will be capped at 4.5%.
- (3) The maximum weight of any single silver stock is 4.5% in the Junior Gold Miners Index.

#### *MVIS US Listed 25 Index Company-Weighting Cap Factors*

Companies in each MVIS US Listed 25 Index are weighted according to their free float market capitalization, as modified by the company-weighting cap factors. The MVIS US Listed 25 Indices use the company-weighting cap factors to ensure diversification to avoid overweighting. The company-weighting cap factors are reviewed quarterly and applied, if necessary. The following weighting scheme applies to the MVIS US Listed 25 Indices:

- (1) All index components are weighted by their free float market capitalization.
- (2) All companies exceeding 4.5% but at least the largest five companies and at the maximum the largest 10 companies are grouped together (so called “**Large-Weights**”). All other companies are grouped together as well (so called “**Small-Weights**”).



(3) The aggregated weighting of the Large-Weights is capped at 50%:

- (a) Large-Weights: If the aggregated weighting of all companies in Large-Weight exceeds 50%, then a capping factor is calculated to bring the weighting down to 50%; at the same time, a second capping factor for the Small-Weights is calculated to increase the aggregated weight to 50%. These two factors are then applied to all companies in the Large-Weights or the Small-Weights respectively.
- (b) Large-Weights: The maximum weight for any single stock is 20% and the minimum weighting is 5%. If a stock is above the maximum or below the minimum weight, then the weight will be reduced to the maximum weight or increased to the minimum weight and the excess weight will be re-distributed proportionally across all other remaining index constituents in the Large-Weights.
- (c) Small-Weights: The maximum weight for any single stock is 4.5%. If a stock is above the maximum weight, then the weight will be reduced to the maximum weight and the excess weight will be re-distributed proportionally across all other remaining index constituents in the Small-Weights.

#### *Divisor Adjustments*

Index maintenance (reflecting changes in, e.g., shares outstanding, capital actions, addition or deletion of stocks to the relevant MVIS Index) should not change the level of an MVIS Index. This is accomplished with an adjustment to the divisor. Any change to the stocks in the relevant MVIS Index that alters the total market value of that MVIS Index while holding stock prices constant will require a divisor adjustment.

## THE VANGUARD FTSE EMERGING MARKETS ETF

All information contained in this underlying supplement regarding the Vanguard FTSE Emerging Markets ETF has been derived from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, Vanguard International Equity Index Funds (the “**Vanguard International Trust**”) and The Vanguard Group, Inc. (“**Vanguard**”). The Vanguard FTSE Emerging Markets ETF is an investment portfolio of the Vanguard International Trust. Vanguard is the investment adviser to the Vanguard FTSE Emerging Markets ETF. The Vanguard FTSE Emerging Markets ETF is an exchange-traded fund that trades on the NYSE Arca, Inc. under the ticker symbol “VWO.”

The Vanguard FTSE Emerging Markets ETF seeks to track, before fees and expenses, the performance of a benchmark index that measures the investment return of stocks issued by companies located in emerging market countries. The benchmark index is currently the FTSE Emerging Markets All Cap China A Inclusion Index (the “**Emerging Markets Index**”). For more information about the Emerging Markets Index, see “— The FTSE Emerging Markets All Cap China A Inclusion Index” below.

The Vanguard FTSE Emerging Markets ETF employs an indexing investment approach designed to track the Emerging Markets Index. The Vanguard FTSE Emerging Markets ETF invests by sampling the Emerging Markets Index, meaning that it holds a broadly diversified collection of securities that, in the aggregate, approximates the Emerging Markets 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 Vanguard FTSE Emerging Markets ETF is subject to index sampling risk, which is the chance that the securities selected for the Vanguard FTSE Emerging Markets ETF, in the aggregate, will not provide investment performance matching that of the Emerging Markets Index. In addition, the Vanguard FTSE Emerging Markets ETF has operating expenses and transaction costs while the Emerging Markets Index does not.

The Vanguard International 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 Vanguard 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 International Trust, Vanguard and the Vanguard FTSE Emerging Markets ETF, please see the Vanguard FTSE Emerging Markets ETF’s prospectus.

### The FTSE Emerging Markets All Cap China A Inclusion Index

All information in this underlying supplement regarding the Emerging Markets 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 Emerging Markets Index.

The Emerging Markets Index is a market-capitalization weighted index representing the performance of large-, mid- and small-capitalization companies in emerging markets. The Emerging Markets 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 securities from 24 different countries.

The Emerging Markets Index applies the same methodology as the FTSE Emerging Markets Index, except that the Emerging Markets 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 “The FTSE Emerging Markets Index” below.

### **The FTSE Emerging Markets Index**

All information in this underlying supplement regarding the FTSE Emerging Markets 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 International Limited (“**FTSE**”). FTSE Russell has no obligation to continue to publish, and may discontinue publication of, the FTSE Emerging Markets Index.

The FTSE Emerging Markets Index is included in the FTSE Global Equity Index Series. The FTSE Global Equity Index Series covers securities in 48 different countries. It attempts to represent every equity and sector relevant to international investors’ needs and has a modular structure. The universe is divided into Developed, Advanced Emerging and Secondary Emerging segments, with indexes calculated at regional, national and sector level. The FTSE Emerging Markets Index is the aggregate of the Advanced and Secondary Emerging segments of the FTSE Global Equity Index Series universe.

### ***Country Inclusion Criteria***

FTSE classifies countries included in its global indices into one of three categories: Developed, Advanced Emerging and Secondary Emerging. FTSE maintains a set of criteria to assess market status and minimum standards for each category for countries and markets to achieve in order to be eligible for that category. The minimum standards increase from Secondary Emerging to Advanced Emerging and from Advanced Emerging to Developed. A country will be classified under the category with the highest standards that it meets. FTSE conducts an annual review of all countries included in its global indices and those being considered for inclusion. A country’s classification as Developed, Advanced Emerging or Secondary Emerging is dependent on the following criteria:

- Market and regulatory environment: formal stock market regulatory authorities actively monitor the market; fair and non-prejudicial treatment of minority shareholders; no or selective incidence of foreign ownership restrictions; no objection to or significant restrictions or penalties applied to the investment of capital or the repatriation of capital and income; no or simple registration process for foreign investors.
- Foreign exchange market: developed foreign exchange market.
- Equity market: sufficient competition to ensure high-quality broker services; implicit and explicit costs to be reasonable and competitive; stock lending permitted; short sales permitted; developed derivatives market; off-exchange transactions permitted; efficient trading mechanism; market depth information/visibility and timely trade reporting process.
- Custody and settlement: rare incidence of failed trades in settlement; settlement cycle; central securities depository; central counterparty clearing house; free delivery available; sufficient competition to ensure high-quality custodian services; account structure operating at the custodian level (securities and cash).

Once a country has met the required standards, it will be eligible for inclusion in the FTSE Global Equity Index Series. However, for a country index to be constructed and included in the FTSE Global Equity Index Series, a minimum of 5 companies must pass the securities eligibility criteria and screens for index inclusion. An existing country index will remain in the FTSE Global Equity Index Series while any eligible constituents representing the country remain within the index. On the deletion of the last constituent, the country will continue to be eligible, but the country index will be immediately removed from the FTSE Global Equity Index Series and will only be reconsidered for index inclusion if it meets the minimum requirement of 3 eligible companies.

FTSE Russell conducts an annual review of all countries included in its global indices and those being considered for possible inclusion. Countries already in the indices will be assessed against the

minimum standards for each category and prior to any reclassification or removal from the index will be placed on a watch-list. Countries not in the index will be assessed against the minimum standards for each category and, if appropriate, will be added to the watch list for possible future inclusion to one of the categories. In conducting the annual review, FTSE Russell will consult the FTSE Russell Country Classification Advisory Committee. In March and September of each year, FTSE will publish a watch list of countries being monitored for possible promotion or demotion. FTSE Russell releases the results of its annual review in September of each year. FTSE Russell will normally give at least six months' notice before changing the classification of any country. Countries may be added to the indices at any time after a prior announcement. New regional indices may be added at any time after a prior announcement. Companies in the newly added countries will be reviewed in line with the relevant semi-annual regional review and any changes implemented after a prior announcement.

### ***Determining 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, FTSE Russell will allocate the company to that country. In all other circumstances, FTSE Russell will base its decision 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;
- 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 the company fails FTSE Russell's liquidity test in the country of incorporation, FTSE Russell may assign the company to the country which exhibits the greatest liquidity. However, save for certain exceptions, a company incorporated in a country other than a developed country (as classified in the FTSE Global Equity Index Series) may not be assigned to a developed country. 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. For companies incorporated in approved low taxation countries, FTSE Russell will normally assign the company to the developed country with the greatest liquidity. The country allocation of the FTSE Emerging Markets Index constituents may be reassessed at any time at the FTSE Russell's discretion.

### ***Eligible Securities***

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.

Securities that are subject to surveillance by the stock exchanges and have been assigned to any of the following segments will not be eligible for index inclusion. Where an existing constituent is assigned to an ineligible segment, it will normally be deleted from the FTSE Emerging Markets Index at the next quarterly review and it will only be reconsidered for index inclusion after a period of 12 months from its deletion subject to it no longer being under surveillance. For the purposes of the index eligibility, it will be treated as a new issue.

Country	Exchange	Segment
China	Shanghai Stock Exchange Shenzhen Stock Exchange	Special Treatment (ST)
Greece	Athens Stock Exchange	Under Surveillance Special Segment
India	Bombay Stock Exchange National Stock Exchange of India	Graded Surveillance Measure (GSM)
Malaysia	Bursa Malaysia	PN17
Poland	Warsaw Stock Exchange	Alert List
Singapore	Singapore Exchange	Watch-list
South Korea	Korea Exchange	Administrative Issues
Taiwan	Taiwan Stock Exchange	Altered Trading Method (ATM)
Thailand	Stock Exchange of Thailand	Companies facing possible delisting according to No. 9(g) of Stock Exchange of Thailand's Regulations on Delisting of Securities
Turkey	Borsa Istanbul	Watch-list
UAE	Abu Dhabi Securities Exchange Dubai Financial Market	Second Category Screen Category B Screen

Securities that are assigned to the above segments after the review announcement date but before the FTSE Emerging Markets Index review effective date are assessed on a case-by-case basis which may generally result in scheduled FTSE Emerging Markets Index review additions, instability weight and shares in issue changes no longer being implemented at the forthcoming review.

### ***Trading Screens***

Existing and non-constituent securities that have not traded on 60 or more trading days during the past year (up to and including the review cut-off date), will not be eligible for index inclusion. Regular/ad-hoc market holidays, and unscheduled market closures will not count towards the total; otherwise, the reason(s) for a security's non-trading will not be considered. If a security does not have a full year of trading, the 60 day period will be pro-rated according to the number of available trading days passed since its listing. Please note:

- All standard trading days will be incorporated within the calculation (Friday and Sundays as appropriate);
- Ad-hoc non-standard trading days will not be incorporated within the calculation (e.g. ad-hoc Saturday trading will not be considered);

- Where a pro-rata calculation is necessary, the number of available trading days on the underlying market during the previous year up to and including the review cut-off date will be used as the basis of the calculation (e.g. Market ABC has 253 available trading days for the annual period to the review cut-off date; therefore the security would not be eligible if for 23.7% (60/253) or more of its available trading days since listing, it did not trade);
- A security which has been removed from an index as a result of this screen will only be re-considered for inclusion after a period of 12 months from its deletion. For the purposes of index eligibility, it will be treated as a new issue.

### **Algorithm and Calculation Method**

The FTSE Global Equity Index Series uses actual closing mid-market or last trade prices, where available, for securities with local market quotations. Thomson Reuters real time exchange rates are used in the index calculations which are disseminated in real-time. Exchange rates used in the End of Day calculations are WM/Reuters Closing Spot Rates™, collected at 16:00 hrs London time.

The FTSE Emerging Markets Index may consist of individual securities denominated in a range of currencies, necessitating the conversion of stock prices to a common currency using the following formula:

$$CI_{j,t}^{\$} = \frac{\sum_{i=1}^n p_{i,t} \times s_{i,t} \times f_{i,t} \times e_{i,t}^{\$}}{Divisor_{j,t}^{\$}} \quad i \in j$$

Where

$CI_{j,t}^{\$}$  is the U.S. dollar capital index of country j on day t

n is the number of index constituents

$p_{i,t}$  is the price of stock i in local currency on day t

$s_{i,t}$  is the shares in issue of stock i on day t

$f_{i,t}$  is the free float percentage of ordinary shares in issue of stock i on day t

$e_{i,t}^{\$}$  is the exchange rate to U.S. dollar of stock i on day t

The currency effect is removed by holding exchange rates constant at the previous day's level using the following formula:

$$Divisor_{j,t}^L = \sum_{i=1}^n p_{i,t}^* \times s_{i,t} \times f_{i,t} \times e_{i,t-1}^L \quad i \in j$$

Where

$e_{i,t}^L$  is local currency exchange rate of stock i on day t

$p_{i,t}^*$  is the price of stock i on day t-1 adjusted for corporate actions effective on day t

The U.S. dollar index may also be derived as:

$$CI_{j,t}^{\$} = CI_{j,t}^x \times e_{x,t=0}^{\$} / e_{x,t}^{\$}$$

Where  $CI_{j,t}^x$  is country index j expressed in another currency (x) and  $e_{x,t=0}^{\$}$  is the currency x to U.S. dollar exchange rate on the index base date. Note the exchange rate is expressed in units of x per dollar. Similarly, a pound sterling index may be derived as:



$$CI_{j,t}^E = CI_{j,t}^x \times e_{x,t=0}^E / e_{x,t}^E$$

or

$$CI_{j,t}^E = CI_{j,t}^{\$} \times e_{\$,t=0}^E / e_{\$,t}^E$$

Where  $e_{\$,t}^E$  is the number of U.S. dollars per pound sterling at time t.

The performance of the FTSE Emerging Markets Index on a given day is determined by calculating the percentage difference between:

- the FTSE Emerging Markets Index's market capitalization as at the close of that day and
- 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.

Adjustments are applied whenever capital changes take place, so that the performance of the FTSE Global Equity Index Series reflects the experience of investors. Eligible companies may be subject to adjustment for free float and multiple lines.

### ***Free Float and Multiple Lines Adjustments***

Free Float: The FTSE Global Equity Index Series is adjusted for free float and foreign ownership limits. Free float restrictions include:

- Shares directly owned by State, Regional, Municipal and Local governments (excluding shares held by independently managed pension schemes 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 clause (for the duration of that clause).\*\*
- All shares where the holder has a stated incentive to retain the shares (e.g. bonus shares paid if holding is retained for a set period of time).\*\*
- Shares held by an investor, investment company or an investment fund for strategic reasons as evidenced by specific statements to that effect in publicly available announcements, has an employee on the board of directors of a company, has a shareholder agreement, has successfully placed a current member to the board of directors, or has nominated a current member to the board of directors alongside a shareholder agreement with the company.
- Shares that are subject to on-going contractual agreements (such as swaps) where they would ordinarily be treated as restricted.

\* For the analysis of U.S. company free float, holdings of options, warrants and convertibles will be removed from the officer and director holdings when those shares are provided in summed format within the footnotes of the SEC filings. Where FTSE Russell determines that a company is being excluded from index membership solely on the basis of the minimum float requirement, FTSE Russell will use the best available information contained in the SEC filings to determine the free float.

\*\* Free float changes resulting from the expiry of a lock-in or incentive will be implemented at the next quarterly review subject to the lock-in or incentive expiry date occurring on or prior to the share and float change information cut-off date.

Holdings that are not considered as restricted free float include portfolio holdings, nominee holdings, holdings by investment companies and ETFs. If in addition to the above restricted holdings, the company's shareholders are subject to legal restrictions, including foreign ownership restrictions, that are more restrictive, the legal restriction will be considered a free float restriction. While shares disclosed as being held by a nominee account are typically regarded as free float, if a restricted shareholder (as described above) is identified as holding shares through a nominee account, then that portion of shares will be restricted. If a company changes its foreign ownership restriction, the change will be implemented at the subsequent quarterly review.

Free float is calculated using available published information rounded to 12 decimal places. Except where the investable market capitalization of the security exceeds 10 times the regional inclusion percentage level, securities with a free float of 5% or below are not eligible for inclusion in the FTSE Emerging Markets Index.

The FTSE Global Equity Index Series will be periodically reviewed for changes in free float.

Multiple Lines: Where there are multiple lines of equity capital in a company, all are included and priced separately, provided that they pass index eligibility screens in their own right and 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.

### ***Liquidity***

Each security will be tested for liquidity semi-annually in March and September by calculation of its monthly median of daily trading volume.

Liquidity will be calculated for the March review from the first business day of January to the last business day of December of the previous year and for the September review from the first business day of July of the previous year to the last business day of June. When calculating the median of daily trading volume of any security for a particular month, a minimum of five trading days in that month must exist, otherwise the month will be excluded from the test.

For each month, the daily trade total 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. For newly eligible securities where the testing period is less than 12 months, the liquidity test will be applied on a pro-rata basis.

#### **Liquidity Thresholds:**

- An existing constituent which, based on its median daily trading volume per month does not turnover at least 0.04% of its shares in issue (after the application of any free float weightings\*) for at least eight of the twelve months prior to a full market review will be removed from the FTSE Global Equity Index Series. If an existing constituent fails this test, then that existing constituent will be subject to a further test whereby the last 6 months of the testing period will be assessed on a pro-rata basis. If the existing constituent passes at least 4 out of the last 6 months (equating to 8 out of 12 months on a pro-rata basis), it will be considered to have passed the liquidity test.
- A non-constituent which, based on its median daily trading volume per month, does not turnover at least 0.05% of its shares in issue (after the application of any free float weightings\*) for at least ten of the twelve months prior to a full market review will continue to be excluded from the FTSE Global Equity Index Series.

- New issues that 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 each month, on a pro-rata basis since 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. In the event that a company fails the liquidity test based on its underlying shares, and the company has an equivalent Depositary Receipt (“**DR**”), then the DR may be considered for inclusion in the FTSE Emerging Markets Index if it passes the liquidity test in its own right and is traded on an exchange within the similar regional time-zone to where the underlying shares are listed. Where the DR has been included it will remain in the FTSE Emerging Markets Index until such a time it either fails the liquidity test or the underlying share pass the liquidity test for two future consecutive reviews.

The above percentage figures may be adjusted by up to 0.01% at a market review so that, in FTSE Russell’s opinion, the FTSE Emerging Markets Index better reflects the liquid investable market of the region. This discretion may only be exercised across the whole of a region and may not be applied to individual securities or countries.

\* When testing liquidity, the free float weight as at the last date in the testing period will be used for the calculation for the whole of that period.

### ***Periodic Review of Index Constituents***

Countries are usually reviewed semi-annually in March and September, on a region by region basis, based on data as at the close of business on the last business day of December and June (where the last business day of the month falls on a Saturday or Sunday for any individual countries, data will be taken as at close of the last business day before Saturday). Any constituent changes resulting from the periodic review will be implemented after the close of business on the third Friday (*i.e.*, effective the following Monday) of March and September. The review process is designed to reflect market movements since the previous review and to minimize turnover. As of the March 2019 semi-annual review, the different China Share classes will be reviewed as a standalone region. China A Shares that passed the March 2019 semi-annual index eligibility criteria were added to the FTSE Global Equity Index Series in June 2019, subject to them continuing to be available on the Northbound China Stock Connect Scheme Buy-and-Sell List.

In order to determine which companies are included in the FTSE Emerging Markets Index, first the 100% regional universe is defined by ranking all companies in each Regional Universe by their full market capitalization. Companies are then ranked by full market capitalization (companies that are capped will be ranked based on their capped market capitalization) in descending order, and the top 98% by weight of the regional universe is selected as the Index Universe. Investability weights are assigned to all companies in accordance with the free float rules, the multiple lines rule is applied, all secondary lines which fail are eliminated, and the liquidity rule is applied to all remaining eligible lines of stock. From there, each company is evaluated for inclusion in the FTSE Emerging Markets Index:

To reduce turnover, existing and potential constituents are subject to a series of ‘buffer zones’ to determine the cut-off points between Large, Mid and Small Cap - the buffers are detailed in the table below.

	<b>Turnover Bands (Based on Index Universe)</b>	
	<b>Eligible for Inclusion</b>	<b>Eligible For Exclusion</b>
Large Cap	68%	72%
Mid Cap	86%	92%
Small Cap	98%	101%

For companies not currently in the FTSE Index:

- Companies at or above 68% of the Index Universe by full market capitalization with a weight greater than 0.04% of the current respective regional All-World Index by full market capitalization, and with a weight greater than the inclusion percentage for the respective region by investable market capitalization, will be included in the Large Cap Index for the region under review.
- Companies ranked below 68%, but within the top 86% of the Index Universe by full market capitalization with a weight greater than 0.04% of the current respective regional All-World Index by full market capitalization, and with a weight greater than the inclusion percentage levels for the respective region by investable market capitalization, will be included in the Mid Cap Index for the region under review.
- Companies ranked below the top 86%, but within the top 98% of the Index Universe by full market capitalization or have a weight less than 0.04% of the current respective regional All-World Index by full market capitalization, and with a weight greater than the inclusion percentage levels for the respective region by investable market capitalization will be included in the Small Cap Index for the region under review.

For existing FTSE constituents:

- Existing Large Cap constituents will remain in the Large Cap Index if they fall within the top 72% of the ranking described above. If they are ranked between 72% and 92% of the Index Universe they will move to the Mid Cap. If they are ranked below 92% of the Index Universe but within the top 101% of the Index Universe, they will move to the Small Cap. If they are ranked below 101% of the Index Universe by full market capitalization or have a weight less than the exclusion percentage levels for the respective region by investable market capitalization, they will be excluded from the FTSE Emerging Markets Index.
- Existing Mid Cap constituents will move to the Large Cap if they fall within the top 68% of the ranking described above. If they are ranked between 68% and 92% of the Index Universe they will remain in the Mid Cap. If they are ranked below 92% of the Index Universe but within the top 101% of the Index Universe, they will move to the Small Cap. If they are ranked below 101% of the Index Universe by full market capitalization or have a weight less than the exclusion percentage levels for the respective region by investable market capitalization, they will be excluded from the FTSE Emerging Markets Index.
- Existing Small Cap constituents will move to the Large Cap if they fall within the top 68% of the ranking described above. If they are ranked between 68% and 86% of the Index Universe by full market capitalization and have a weight greater than 0.04% of the current respective regional All-World Index by full market capitalization they will move to the Mid Cap. If they are ranked below 86% of the Index Universe or have a weight less than 0.04% of the current respective regional All-World Index by full market capitalization, but within the top 101% of the Index Universe, they will remain in the Small Cap. If they are ranked below 101% of the Index Universe by full market capitalization or have a weight less than the exclusion percentage levels for the respective region by investable market capitalization, they will be excluded from the FTSE Emerging Markets Index.

Inclusion and exclusion percentage levels by investable market capitalization for all the regions in the FTSE Global Equity Index Series to determine additions and deletions and other changes in the FTSE Emerging Markets Index are shown below. These percentages are based from the respective regional Small Cap Index. Individual securities will be tested against the relevant regional levels.

Region	For Inclusion (New Stocks)	For Inclusion (Current Stocks)
Asia Pacific ex China ex Japan	0.05%	0.01%
China (A, B, H, N Share, P, Red and S Chip)	0.10%	0.02%
Latin America	0.50%	0.20%
Emerging Europe Middle East & Africa	1.00%	0.20%

In exceptional circumstances where FTSE Russell believes that strict adherence to the inclusion and exclusion levels listed in the above table would produce either excessive turnover at an index review, or an index that inaccurately represented different size segments, FTSE Russell reserves the right to vary the percentage levels.

### ***Fast Entry Rule***

Non-constituent securities may be added to the FTSE Index in between semiannual review dates if it meets either of the following:

- Large Cap inclusion level: Full market capitalization of the smallest company that falls wholly within the top 68% of the Index Universe by full market capitalization of the respective region when ranked according to the procedure outline above under “— Periodic Review of Index Constituents.”
- Mid Cap inclusion level: Full market capitalization of the smallest company that falls wholly within the top 86% of the Index Universe by full market capitalization of the respective region when ranked according to the procedure outline above under “— Periodic Review of Index Constituents.”

A security with a free float of 5% or below must have an investable market capitalization that exceeds 10 times the regional inclusion percentage level to be eligible for fast entry. These securities will be assigned to the Large Cap index. A security with a free float exceeding 5% must meet both a full market capitalization threshold at company level and an investable market capitalization threshold at security level in order to be eligible for fast entry. The full market capitalization threshold is defined as 1.5 times the Mid Cap inclusion level above. For example, if the 86% Mid Cap inclusion level is \$10 billion, the full market capitalization fast entry threshold at company level will be \$10 billion multiplied by 1.5, which is \$15 billion. The investable market capitalization threshold is defined as 0.5 times the Mid Cap inclusion level. For example, if the 86% Mid Cap inclusion level is \$10 billion, the investable market capitalization fast entry threshold at security level will be \$10 billion multiplied by 0.5, which is \$5 billion.

Where a security passes both the full market capitalization and investable market capitalization test, it will be assigned to the Large Cap index subject to its full market capitalization breaching the Large Cap inclusion level above, otherwise it will be assigned to the Mid Cap index. Only shares offered at the time of the IPO will be included within the investable market capitalization calculation for the purposes of evaluating fast entry eligibility, and if eligible, the offering shares only will be included within the index calculation. When evaluating the investability weight of a potential IPO fast entry, FTSE Russell will restrict all shares that are only available to domestic retail investors. The shares that are only available to domestic retail investors will be evaluated for free float at a subsequent review. Additionally, any incentives to hold the offered shares will render those shares restricted from free float until the incentives have expired. Foreign investors are prohibited from participating in China A IPO's via the Stock Connect

access route; hence China A Share IPO's will be assessed for index eligibility at the next index review, subjecting to certain meeting requirements. Shares being offered as a greenshoe (over allotment option) and locked-up shares will be excluded from the investable market capitalization calculation and excluded from the index calculation at the time of fast entry.

The fast entry level thresholds will be set at the time of the semiannual reviews in March and September using data at the last trading day in December and June. The fast entry levels thresholds will be adjusted up to February 11 or August 11 (previous trading day's data will be taken if any of these dates are on a non-trading day), respectively, to reflect the performance of the regional FTSE All Cap Equity Index Series, and will be published by FTSE Russell.

The fast entry level thresholds for each region will be set at the time of the semiannual review in March and September and will be published by FTSE Russell. In June and December the fast entry levels thresholds will be adjusted up to May 11 or November 11 (previous trading day's data will be taken if any of these dates are on a non-trading day), as appropriate, to reflect the performance of the region in the regional FTSE All Cap Equity Index Series, and an updated figure will be published by FTSE Russell.

### ***Changes to Constituent Companies***

Under certain circumstances, companies can be added to the list of constituent stocks outside of a review when meeting certain market capitalization thresholds. Stocks can be deleted from the list of constituents if their market capitalization or weight falls below certain levels, there exists evidence of a change in circumstance regarding investability, or the constituent stock becomes delisted or becomes bankrupt, insolvent or is liquidated. Constituents can also be deleted under certain circumstances involving delisting, suspension or relisting.

If an existing constituent is acquired for eligible shares (or a combination of eligible shares and cash) by another constituent in its own or another country, then the existing constituent is deleted on the effective date of the acquisition. The enlarged company remains a constituent of the same benchmarks within the FTSE Global Equity Index Series as the acquired company.

Mergers between a constituent and non-constituent:

- Within one country: If an existing constituent is acquired for eligible shares (or a combination of eligible shares and cash) by a quoted non-constituent in the same country, then the purchasing company is added to the same benchmarks within the FTSE Global Equity Index Series as the acquired company on the effective date of the acquisition, if eligible in all other respects. The existing constituent is deleted on the same date.
- Cross border: If an existing constituent is acquired for eligible shares (or a combination of eligible shares and cash) by a quoted non-constituent in another country, the acquiring company will be included in its own country index on the effective date of acquisition, providing it is eligible in all other respects. The existing constituent will be deleted on the same date.

### ***Corporate Actions***

FTSE Russell applies corporate actions and events to the FTSE Emerging Markets Indices on a daily basis. A company's index membership and its weight in the index can be impacted by these corporate actions and events. FTSE Russell uses a variety of public sources to determine when an event is final, including a company's press releases and regulatory filings, local exchange notifications, and official updates from other data providers. Prior to the completion of a corporate event, FTSE Russell estimates the effective date on the basis of the same above sources. As new information becomes available, FTSE Russell may revise the anticipated effective date and the terms of the corporate event, before confirming its effective date.

Depending upon the time an event is determined to be final, FTSE Russell either (1) applies the event before the open on the ex-date or (2) applies the event providing appropriate notice if it is deemed to be "actionable" for passive index managers. The impact of the event and the effective date will be communicated to clients on a regular schedule, via the daily corporate actions and events deliverables.



If FTSE Russell has confirmed the completion of a corporate event, scheduled to become effective subsequent to a rebalance or index review, the event may be implemented in conjunction with the rebalance to limit turnover, providing appropriate notice can be given.

The FTSE Emerging Markets Indices recognize a minimum two day notice requirement for “actionable” corporate event implementation such as mergers and acquisitions. This provides an appropriate window for global managers to receive a notification of intended index treatment and consequently act upon it.