DEUTSCHE BANK MOMENTUM ASSET ALLOCATOR 5.50% VOLATILITY CONTROL INDEX

The Deutsche Bank Momentum Asset Allocator 5.50% Volatility Control Index (Bloomberg: DBMUAU55 <Index>) (the "**Volatility Control Index**") is a proprietary index of Deutsche Bank AG, London Branch (together with any successor index sponsor, the "**Volatility Control Index Sponsor**") that provides dynamically adjusted exposure to an unfunded notional position in the Deutsche Bank Momentum Asset Allocator Index (the "**Momentum Index**"). Because the exposure to the Momentum Index is unfunded, the Volatility Control Index reflects the performance of the Momentum Index, less a deemed borrowing cost equal to the performance of the Deutsche Bank Momentum Money Market Index (the "**Cash Index**"). We refer to the Momentum Index less the performance of the Cash Index as the "**Cash Adjusted Momentum Index**." The Volatility Control Index is also subject to the deduction of a fee of 0.25% per annum deducted daily (the "**Index Fee**").

The Volatility Control Index aims to maintain an annualized volatility of 5.50% or less each day by adjusting the notional exposure to the Cash Adjusted Momentum Index by reference to the *higher* of the exponentially weighted realized twenty-day volatility and exponentially weighted realized sixty-day volatility of the Cash Adjusted Momentum Index. The notional exposure to the Cash Adjusted Momentum Index will generally decrease if the higher realized volatility increases and will, in turn, generally increase if the higher realized volatility decreases, subject to a maximum notional exposure to the Cash Adjusted Momentum Index of 100%. The actual realized volatility of the Volatility Control Index at any time may be higher than 5.50%. At any time that the notional exposure to the Cash Adjusted Momentum Index is lower than 100%, the return of the Volatility Control Index will reflect less than 100% of the return of the Cash Adjusted Momentum Index.

The Momentum Index is a proprietary index of Deutsche Bank AG, London Branch that aims to follow a momentum strategy in allocating exposure to some or all of its four underlying indices (each, an "**Underlying Index**") set forth below:

- the Deutsche Bank Forward Gold Index (the "**Gold Index**"), which is intended to provide exposure to gold by reflecting the economic performance over time of a rolling notional exposure to the one-month forward price of gold (as described under "Deutsche Bank Momentum Asset Allocator Index — The Underlying Indices — Deutsche Bank Forward Gold Index" below);

- the Deutsche Bank Forward Swaps Index (the "**Swaps Index**"), which is intended to provide a rolling notional exposure to the economic performance of ten-year fixed interest rates as compared to floating interest rates and, therefore, a return that generally increases as interest rates decrease and generally decreases as interest rates increase (as described under "Deutsche Bank Momentum Asset Allocator Index — The Underlying Indices — Deutsche Bank Forward Swaps Index" below);

- the Deutsche Bank Forward Equities Index (the "**Equities Index**"), which is intended to provide exposure to U.S. equities by reflecting the economic performance over time of a rolling notional exposure to the one-month forward price of the S&P 500® Index (as described under "Deutsche Bank Momentum

Asset Allocator Index — The Underlying Indices — Deutsche Bank Forward Equities Index" below); and

- the Cash Index, which is intended to provide a short-term interest rate return by reflecting the economic performance over time of a rolling notional exposure to one-month money market instruments based on 1-Month USD Libor (as described under "Deutsche Bank Momentum Asset Allocator Index — The Underlying Indices — Deutsche Bank Momentum Money Market Index" below).

The Momentum Index tracks nine sub-indices (each, a "**Sub-Index**") that each provides exposure to one or two Underlying Indices. Each of the Sub-Indices is reweighted once during each nine-month period, resulting in the entire exposure provided by the Momentum Index being reweighted in monthly increments over each successive nine-month period.

The Momentum Index aims to follow a momentum strategy by allocating exposure in each Sub-Index to the best-performing Underlying Indices. Specifically, in connection with the reweighting of each Sub-Index, 70% of the weight of the relevant Sub-Index will be allocated to the best performing Underlying Index over the preceding nine months, and the remaining 30% of the weight of the relevant Sub-Index will be allocated to the next best performing Underlying Index during the same period. However, if the best performing Underlying Index is the Cash Index, 100% of the weight of the relevant Sub-Index will be allocated to the Cash Index. The Momentum Index is described in more detail under "Deutsche Bank Momentum Asset Allocator Index" below.

The closing level of the Volatility Control Index (the "**Volatility Control Index Closing Level**") is calculated in U.S. dollars. The Volatility Control Index has been retrospectively calculated by the Volatility Control Index Sponsor on a hypothetical basis from June 30, 2003 (the "**Volatility Control Index Commencement Date**") and calculated on a live basis since May 1, 2015 (the "**Volatility Control Index Live Date**"). All potential investors should be aware that no actual investment which allowed tracking of the performance of the Volatility Control Index was possible before the Volatility Control Index Live Date. Furthermore, the index methodology of the Volatility Control Index was designed, constructed and tested using historical market data and based on knowledge of factors that may have affected its performance. Any returns prior to the Volatility Control Index Live Date were achieved by means of a retroactive application of the back-tested index methodology designed with the benefit of hindsight.

Unless otherwise provided, all determinations referred to below will be made by the Volatility Control Index Sponsor in good faith and in a commercially reasonable manner by reference to such factors as it deems appropriate and such determinations will, save for manifest error, be binding on all parties. The Volatility Control Index Sponsor may delegate and/or transfer any of its obligations and/or functions to one or more third parties as it deems appropriate from time to time. In the event of any ambiguity in, or dispute about the meaning of, any of the provisions of the methodology described herein, the Volatility Control Index Sponsor's interpretation of such provision will be final.

Calculation of the Volatility-Adjusted Exposure to the Cash Adjusted Momentum Index

The Volatility Control Index aims to maintain an annualized volatility of 5.50% or less by adjusting the notional exposure to the Cash Adjusted Index on a daily basis. On each Index Business Day (as defined under "Deutsche Bank Momentum Asset Allocator Index" below), the Volatility Control Index Sponsor calculates the notional exposure to the Cash Adjusted Momentum Index (the "**Percentage Exposure**") as the ratio of (i) 5.50% (the "**Target Volatility Cap**") over (ii) the higher of the twenty- and sixty-day realized volatility of the Cash Adjusted Momentum Index calculated on such Index Business Day (the "**Realized Volatility**"), rounded down to the nearest 5% (i.e., 79% would be rounded down to 75%) and subject to a maximum notional exposure of 100%. Although the Percentage Exposure is designed to reduce the volatility of the Volatility Control Index as compared to the Cash Adjusted Momentum Index, the actual realized volatility of the Volatility Control Index at any time may be higher than 5.50%.

The realized twenty-day volatility and realized sixty-day volatility on each Index Business Day are calculated using an exponential weighting methodology that references the daily returns on each of the 60 or 180 Index Business Days (as applicable) in the period ending on and including such Index Business Day. Although 60 or 180 daily returns (as applicable) are used to calculate the relevant realized volatility, the resulting realized volatilities are referred to as the realized twenty-day volatility and realized sixty-day volatility because the exponential methodology allocates greater weight to more recent daily returns and lesser weight to less recent daily returns.

Using the higher of the twenty- and sixty-day realized volatility of the Cash Adjusted Momentum Index captures any recent increase in volatility of the Cash Adjusted Momentum Index and lessens the impact of any recent decrease in volatility of the Cash Adjusted Momentum Index. Generally, the Percentage Exposure will increase when the Realized Volatility decreases and decrease when the Realized Volatility increases.

For example, if on an Index Business Day, the twenty-day realized volatility of the Cash Adjusted Momentum Index were 7% and the sixty-day realized volatility of the Cash Adjusted Momentum Index were 6%, the Realized Volatility would be 7%, and the Percentage Exposure would be 5.50% *divided by* 7%, or 78.57%, which would be rounded down to 75%.

If the Realized Volatility is less than the Target Volatility Cap of 5.50%, the Percentage Exposure will equal the maximum notional exposure of 100%. Under these circumstances, the actual realized volatility of the Volatility Control Index may be significantly less than 5.50%.

Calculation and Publication of the Volatility Control Index Closing Level

The Volatility Control Index Sponsor will calculate the Volatility Control Index Closing Level on each Index Business Day and will publish the Volatility Control Index Closing Level as soon as practicable following 5:00 p.m. New York time on such Index Business Day on Bloomberg page "DBMUAU55 <Index>" or on any successor to such page or service as selected by the Volatility Control Index Sponsor from time to time and on the Volatility Control Index Sponsor's website. The Volatility Control Index will be expressed in United States dollars ("**USD**"). The Volatility Control Index Sponsor may, at any time and without notice, change the place or frequency of publication of the Volatility Control Index Closing Level.

On the Volatility Control Index Commencement Date, the Volatility Control Index Closing Level was set at 100. On each Index Business Day following the Volatility Control Index Commencement Date, the Volatility Control Index Closing Level reflects the Volatility Control Index Closing Level from the immediately preceding Index Business Day, as adjusted to reflect the return of the Volatility Control Index before deducting the Index Fee (the "**Volatility Capped Gross Index**") from the immediately preceding Index Business Day to the relevant Index Business Day, minus the portion of the Index Fee that has accrued since that immediately preceding Index Business Day. Accordingly, the Volatility Control Index Closing Level on the relevant Index Business Day is calculated as follows:

$$\mathrm{VCICL}_{(t)} = \mathrm{VCICL}_{(t-1)} \times \left[\left(\mathrm{VCGICL}_{(t)} / \mathrm{VCGICL}_{(t-1)}\right) - \left(\mathrm{Fee} \times \mathrm{DCF}_{(t)}\right)\right]$$

Where:

$\mathrm{VCICL}_{(t)}$	means the Volatility Control Index Closing Level on the relevant Index Business Day;
$\mathrm{VCICL}_{(t-1)}$	means the Volatility Control Index Closing Level on the immediately preceding Index Business Day;
$\mathrm{VCGICL}_{(t)}$	means the closing level of the Volatility Capped Gross Index (the "**Volatility Capped Gross Index Closing Level**") on the relevant Index Business Day;
$\mathrm{VCGICL}_{(t-1)}$	means the Volatility Capped Gross Index Closing Level on the immediately preceding Index Business Day;
$\mathrm{Fee}_{(t)}$	means 0.25%; and
DCF(t)	means (i) the number of calendar days in the period from (but excluding) the immediately preceding Index Business Day to (and including) the relevant Index Business Day (ii) divided by 360;

As a result of the deduction of the Index Fee, the levels of the Volatility Control Index will be lower than would be the case if the Index Fee was not deducted and will decrease if the Index does not generate sufficient returns to offset the effect of the deduction of the Index Fee.

Calculation of the Volatility Capped Gross Index Closing Level

On the Volatility Control Index Commencement Date, the Volatility Capped Gross Index Closing Level was set at 100. The Volatility Control Index Closing Level will trail the Volatility Capped Gross Index Closing Level due to the deduction of the Index Fee.

On each Index Business Day following the Volatility Control Index Commencement Date, the Volatility Capped Gross Index Closing Level reflects the Volatility Capped Gross Index Closing Level from the immediately preceding Index Business Day, as adjusted to reflect the volatility-weighted return of the Cash Adjusted Momentum Index from the immediately preceding Index Business Day to the relevant Index Business Day.

The volatility-weighted return of the Cash Adjusted Momentum Index from the immediately preceding Index Business Day to the relevant Index Business Day is calculated by determining the change in the Cash Adjusted Momentum Index Closing Level from the immediately preceding Index Business Day to the relevant Index Business Day and scaling that change by the Unit Weight on the immediately preceding Index Business Day. The Unit Weight reflects the Percentage Exposure of the Index and the ratio of the Volatility Capped Gross Index Closing Level over the Cash Adjusted Momentum Index Closing Level.

Accordingly, on each Index Business Day following the Volatility Control Index Commencement Date, the Volatility Capped Gross Index Closing Level is calculated as follows:

$$\mathrm{VCGICL}_{(t)} = \mathrm{VCGICL}_{(t-1)} + \mathrm{UW}_{(t-1)} \times \left(\mathrm{CAMICL}_{(t)} - \mathrm{CAMICL}_{(t-1)}\right)$$

Where:

$\mathrm{VCGICL}_{(t)}$ means the Volatility Capped Gross Index Closing Level on the relevant Index Business Day;

$\mathrm{VCGICL}_{(t-1)}$ means the Volatility Capped Gross Index Closing Level on the immediately preceding Index Business Day;

$\mathrm{CAMICL}_{(t)}$ means the closing level of the Cash Adjusted Momentum Index (the "**Cash Adjusted Momentum Index Closing Level**") on the relevant Index Business Day;

$\mathrm{CAMICL}_{(t-1)}$ means the Cash Adjusted Momentum Index Closing Level on the immediately preceding Index Business Day; and

$\mathrm{UW}_{(t-1)}$ means the Unit Weight on the immediately preceding Index Business Day.

On the Volatility Control Index Commencement Date, the "**Unit Weight**" was set equal to 1.036242. On each Index Business Day following the Volatility Control Index Commencement Date, the Unit Weight on that Index Business Day is set equal to the Unit Weight on the immediately preceding Index Business Day if (i) the Percentage Exposure on the immediately preceding Index Business Day equals (ii) the Percentage Exposure on the second immediately preceding Index Business Day. Otherwise, the Unit Weight on that Index Business Day is calculated as follows:

$$\mathrm{UW}_{(t)} = \mathrm{PE}_{(t-1)} \times \frac{\mathrm{VCGICL}_{(t-1)}}{\mathrm{CAMICL}_{(t-1)}}$$

Where:

$\mathrm{UW}_{(t)}$ means the Unit Weight on the relevant Index Business Day;

$\mathrm{PE}_{(t-1)}$ means the Percentage Exposure on the immediately preceding Index Business Day;

$VCGICL_{(t-1)}$ means the Volatility Capped Gross Index Closing Level on the immediately preceding Index Business Day; and

$CAMICL_{(t-1)}$ means the Cash Adjusted Momentum Index Closing Level on the immediately preceding Index Business Day.

Calculation of the Cash Adjusted Momentum Index Closing Level

On September 30, 2002 (the "**Cash Adjusted Momentum Index Commencement Date**"), the Cash Adjusted Momentum Index Closing Level was set at 49.564006. On each Index Business Day following the Cash Adjusted Momentum Index Commencement Date, the Cash Adjusted Momentum Index Closing Level reflects the Cash Adjusted Momentum Index Closing Level from the immediately preceding Monthly Roll Day (as defined below), as adjusted to reflect the return of the Momentum Index from the immediately preceding Monthly Roll Day to the relevant Index Business Day minus the return of Cash Index from the immediately preceding Monthly Roll Day to the relevant Index Business Day (which represents the deemed borrowing cost), and is calculated as follows:

$$CAMICL_{(t)} = CAMICL_{(r)} \times \left[1 + \left(\frac{MICL_{(t)}}{MICL_{(r)}}\right) - \left(\frac{CICL_{(t)}}{CICL_{(r)}}\right)\right]$$

Where:

$CAMICL_{(r)}$ means the Cash Adjusted Momentum Index Closing Level on the relevant Index Business Day;

$CAMICL_{(r)}$ means the Cash Adjusted Momentum Index Closing Level on the immediately preceding Monthly Roll Day;

$MICL_{(t)}$ means the Momentum Index Closing Level on the relevant Index Business Day;

$MICL_{(r)}$ means the Momentum Index Closing Level on the immediately preceding Monthly Roll Day;

$CICL_{(t)}$ means the Cash Index Closing Level on the relevant Index Business Day; and

$CICL_{(r)}$ means the Cash Index Closing Level on the immediately preceding Monthly Roll Day.

"**Momentum Index Closing Level**" means, in respect of an Index Business Day, the closing level of the Momentum Index in respect of such Index Business Day, calculated as set forth under "Deutsche Bank Momentum Asset Allocator Index" below.

"**Cash Index Closing Leve**l" means, in respect of an Index Business Day, the closing level of the Cash Index in respect of such Index Business Day as determined by the Volatility Control Index Sponsor by reference to Bloomberg code DBMUAUSC <Index>.

"**Monthly Roll Day**" means each of the Cash Adjusted Momentum Index Commencement Date and the last Scheduled Index Business Day of each calendar month.

"**Scheduled Index Business Day**" means any original date that, but for the occurrence of a Volatility Control Index Disruption Event, would have been an Index Business Day.

Volatility Control Index Disruption Events and Consequences

If a Volatility Control Index Disruption Event occurs or is existing on a Scheduled Index Business Day and that Volatility Control Index Disruption Event, in the determination of the Volatility Control Index Sponsor, prevents or otherwise affects its determinations with respect to the Volatility Control Index Closing Level or any other relevant value that requires determination or calculation by the Volatility Control Index Sponsor in relation to such Scheduled Index Business Day (including, but not limited to, the determination of any price, value, rate or level of any Instrument relating to the Volatility Control Index), then:

(i) first, the Volatility Control Index Sponsor may make such adjustments and/or determinations in relation to the Volatility Control Index (including, but not limited to, the methodology described herein) and any relevant value as it may determine appropriate to facilitate the calculation and publication of the Volatility Control Index Closing Level in respect of such Scheduled Index Business Day;

(ii) secondly, if the Volatility Control Index Sponsor determines that any such adjustment or determination referred to in paragraph (i) above cannot be made on such Scheduled Index Business Day, then the Volatility Control Index Sponsor may defer calculation and publication of the Volatility Control Index Closing Level until the next Scheduled Index Business Day on which the Volatility Control Index Sponsor determines that no Volatility Control Index Disruption Event exists, *provided* that where any such deferral of calculation and publication continues for a period of ten consecutive Scheduled Index Business Days, then the Volatility Control Index Sponsor may:

  (a) calculate and publish the Volatility Control Index Closing Level relating to each Scheduled Index Business Day falling in or after such period having regard to the then prevailing market conditions, the last reported price, value, rate or level of any Instrument relating to the Volatility Control Index and such other factor(s) and condition(s) that the Volatility Control Index Sponsor considers relevant for the purpose of determining the Volatility Control Index Closing Levels in respect of the Volatility Control Index including, but not limited to, any modifications that the Volatility Control Index Sponsor determines to be appropriate in relation to reconstitution relating to the Volatility Control Index; and/or

  (b) permanently cease to calculate and publish the Volatility Control Index Closing Level as of the later of (x) the date when such Volatility Control Index Disruption Event commenced or (y) the Scheduled Index Business Day following the last Scheduled Index Business Day for which the Volatility Control Index Sponsor calculated and published the Volatility Control Index

Closing Level in accordance with paragraph (i) above (if any) and, in each case, as applicable, the Volatility Control Index will terminate.

An “**Instrument**” means any instrument relevant to the calculation, or necessary or desirable for purposes of hedging by market participants, of the Volatility Control Index, the Momentum Index or any Underlying Index.

A “**Volatility Control Index Disruption Event**,” in respect of a Scheduled Index Business Day, means an event (including, without limitation, a Volatility Control Index Force Majeure Event, a national holiday or a day of national mourning) that would require the Volatility Control Index Sponsor to calculate the Volatility Control Index on an alternative basis were such event to occur or exist on such Scheduled Index Business Day, all as determined by the Volatility Control Index Sponsor. The Volatility Control Index Sponsor may determine that the occurrence of any of the following events constitutes a Volatility Control Index Disruption Event:

(i) Price Source Disruption: any Price Source (as defined under “Deutsche Bank Momentum Asset Allocator Index” below below) of an Underlying Index, any Instrument or any other information relevant to the calculation of the Volatility Control Index or the level of the Momentum Index is temporarily or permanently discontinued, unavailable or not announced or published thereby preventing or restricting the availability of the information necessary for determining the Volatility Control Index.

(ii) Trading Suspension: the material suspension of trading in any Instrument or the inability of market participants to realize, recover or remit the proceeds of transactions in any such Instrument.

(iii) Disappearance of any Instrument: the failure of trading to commence, or the permanent discontinuation of trading in any Instrument.

(iv) Material Change in Formula: the occurrence of a material change in the formula for or the method of calculating the Momentum Index.

(v) De Minimis Trading: the number of Instruments traded on any relevant date is materially reduced or liquidity in the market for any Instrument is otherwise reduced for any reason.

(vi) Change of Law or Rules: there is a change in, or amendment to, the laws, rules, regulations or standard form contracts relating to any Instrument or a change in any application or interpretation of such laws, rules, regulations or standard form contracts that has a material effect on such Instrument.

(vii) Settlement Disruption: the Volatility Control Index Sponsor determines that trading in, or settlement in respect of, any Instrument is subject to any material disruption temporarily or permanently.

(viii) Tax Disruption: the imposition of, change in, removal of or change in the interpretation of, any tax (including, without limitation, any excise, severance, sales, use, value-added, transfer, stamp, documentary, recording or similar tax) on, or in relation to any Instrument, by any government or taxation authority after the Volatility

Control Index Commencement Date, if the effect of such imposition, change, removal or change in interpretation is to raise or lower the price, rate or level at which such Instrument trades on the relevant exchange or in the relevant market on any relevant date from the price, rate or level at which it would have traded without that imposition, change, removal or change in interpretation.

(ix) Hedging Disruption: The Volatility Control Index Sponsor determines that market participants would be unable, after using commercially reasonable efforts, to: (a) acquire, establish, re-establish, substitute, maintain, unwind or dispose of any transaction(s) or asset(s) necessary to hedge positions in relation to any securities issue, financial instrument or other relevant financial transaction relating to or calculated by reference to the Volatility Control Index; or (b) realize, recover or remit the proceeds of any such transaction(s) or asset(s).

"**Volatility Control Index Force Majeure Event**" means, in respect of the Volatility Control Index, an event or circumstance (including, without limitation, a systems failure, fire, building evacuation, natural or man-made disaster, act of God, armed conflict, act of terrorism, riot or labour disruption or any similar intervening circumstance) that affects the ability of the Volatility Control Index Sponsor to calculate or determine the Volatility Control Index and that is beyond the reasonable control of the Volatility Control Index Sponsor.

Volatility Control Index Adjustment Provisions

If, at any relevant time, the Momentum Index is:

(i) not calculated and published by the Momentum Index Sponsor but is calculated and published by a successor sponsor (the "**Successor Momentum Index Sponsor**") acceptable to the Volatility Control Index Sponsor; or

(ii) replaced by a successor index using, in the determination of the Volatility Control Index Sponsor, the same or a substantially similar formula and method of calculation as used in the calculation of the Momentum Index,

then, in each case, the Momentum Index will be deemed to be the Momentum Index so calculated and published by that successor sponsor or that successor index, as the case may be.

"**Momentum Index Sponsor**" means, in respect of the Momentum Index, the entity identified as the index sponsor in "Deutsche Bank Momentum Asset Allocator Index" below.

If, at any relevant time, the Momentum Index Sponsor or the Successor Momentum Index Sponsor (a) makes, or announces that it will make, a material change in the formula for, or the method of calculating, the Momentum Index or in any other way materially modifies the Momentum Index (other than a modification prescribed in that formula or method to maintain the Momentum Index in the event of changes in constituent stock and capitalization and other routine events) (an "**Index Modification**"); (b) permanently cancels the Momentum Index (an "**Index Cancellation**"); or (c) fails to calculate and announce the Momentum Index (an "**Index Disruption**"), then the Volatility Control Index Sponsor may:

(i) determine the level of the Momentum Index at the relevant time using, in lieu of a published level for the Momentum Index, the level of the Momentum Index as at the relevant time as determined by the Volatility Control Index Sponsor in accordance with the formula for, and method of calculating, the Momentum Index last in effect prior to the Index Modification, Index Cancellation or Index Disruption; or

(ii) select a successor underlying index having similar characteristics to the Momentum Index to replace the Momentum Index; or

(iii) cease to calculate and publish the Index.

Change in Methodology

In calculating and determining the value of the Volatility Control Index, the Volatility Control Index Sponsor will, except as provided below, employ the methodology described herein and the Volatility Control Index Sponsor's application of that methodology will be conclusive and binding. While the Volatility Control Index Sponsor currently employs the above described methodology to calculate the Volatility Control Index, no assurance can be given that market, regulatory, judicial, financial, fiscal or other circumstances (including, but not limited to, any changes to or any suspension or termination of any constituent of the Volatility Control Index or any other events affecting transactions on the same or similar terms to any described herein) will not arise that would, in the view of the Volatility Control Index Sponsor, necessitate or make desirable a modification of or change to that methodology.

Accordingly:

(i) The Volatility Control Index Sponsor will be entitled to make such modifications and/or changes as it deems appropriate, including (without limitation):

(a) to correct any manifest error or proven error contained in the methodology described herein; and/or

(b) to cure, correct or supplement any defective provision contained in the methodology described herein; and/or

(c) if market, regulatory, juridical, financial, fiscal or other circumstances arise, and such circumstances would, in the determination of the Volatility Control Index Sponsor, necessitate or make desirable such a modification or change of the methodology described herein (including, but without limitation, a change in the frequency of calculation of any Volatility Control Index Closing Level) in order for the Volatility Control Index to continue being calculated and determined notwithstanding the relevant circumstances. In deciding what is necessary, the Volatility Control Index Sponsor will consider and/or take into account what the Volatility Control Index Sponsor determines to be the intended strategy of the Volatility Control Index;

(ii) Further, and without limitation to the above provisions, the Volatility Control Index Sponsor will be entitled to make such modifications and/or changes as it deems appropriate:

(a) to preserve the intended strategy of the Volatility Control Index, where such modification and/or change is of a formal, minor or technical nature; and/or

(b) if market, regulatory, juridical, financial, fiscal or other circumstances arise, and in the determination of the Volatility Control Index Sponsor, such modifications and/or changes would assist in maintaining the intended strategy of the Volatility Control Index and/or would ensure that the Volatility Control Index can continue to be calculated and determined by the Volatility Control Index Sponsor in light of such circumstances.

The Volatility Control Index Sponsor may, in its discretion, at any time and without notice, terminate the calculation and publication of the Volatility Control Index.

Corrections

In the event that any price or level published on any date which is utilized for any calculation or determination in respect of the Volatility Control Index is subsequently corrected, or the Volatility Control Index Sponsor identifies an error or omission in any of its calculations or determinations in respect of the Volatility Control Index, the Volatility Control Index Sponsor may, in its sole discretion, adjust or correct any relevant terms, calculations or determinations in respect of the Volatility Control Index to take into account such correction(s), error(s) or omission(s) (as the case may be) but is not obliged to do so.

DEUTSCHE BANK MOMENTUM ASSET ALLOCATOR INDEX

The Deutsche Bank Momentum Asset Allocator Index (Bloomberg: DBMUAUSM <Index>) (the "**Momentum Index**") is a proprietary index of Deutsche Bank AG, London Branch (together with any successor index sponsor, the "**Index Sponsor**") that aims to follow a momentum strategy in allocating exposure to some or all of its four underlying indices (each, an "**Underlying Index**") set forth below:

- the Deutsche Bank Forward Gold Index (the "**Gold Index**"), which is intended to provide exposure to gold by reflecting the economic performance over time of a rolling notional exposure to the one-month forward price of gold (as described under "The Underlying Indices — Deutsche Bank Forward Gold Index" below);

- the Deutsche Bank Forward Swaps Index (the "**Swaps Index**"), which is intended to provide a rolling notional exposure to the economic performance of ten-year fixed interest rates as compared to floating interest rates and, therefore, a return that generally increases as interest rates decrease and generally decreases as interest rates increase (as described under "The Underlying Indices — Deutsche Bank Forward Swaps Index" below);

- the Deutsche Bank Forward Equities Index (the "**Equities Index**"), which is intended to provide exposure to U.S. equities by reflecting the economic performance over time of a rolling notional exposure to the one-month forward price of the S&P 500® Index (as described under "The Underlying Indices — Deutsche Bank Forward Equities Index" below); and

- the Deutsche Bank Momentum Money Market Index (the "**Cash Index**"), which is intended to provide a short-term interest rate return by reflecting the economic performance over time of a rolling notional exposure to one-month money market instruments based on 1-Month USD Libor (as described under "The Underlying Indices — Deutsche Bank Momentum Money Market Index" below).

The Momentum Index tracks nine sub-indices (each, a "**Sub-Index**") that each provides exposure to one or two Underlying Indices. On each monthly Sub-Index Reweighting Day (as defined under "Monthly Sub-Index Reweighting" below), one of the nine Sub-Indices is reweighted as described below, and that Sub-Index will retain its new weighting for nine months before being reweighted again. Accordingly, each of the Sub-Indices is reweighted once during each nine-month period, resulting in the entire exposure provided by the Momentum Index being reweighted in monthly increments over each successive nine-month period.

The concept of a momentum strategy is founded on the market view that assets that have recently performed well may continue to perform well and assets that have recently performed poorly may continue to perform poorly. The Momentum Index aims to follow a momentum strategy by allocating exposure in each Sub-Index to the best-performing Underlying Indices. Specifically, in connection with the reweighting of each Sub-Index, 70% of the weight of the relevant Sub-Index will be allocated to the best performing Underlying Index over the preceding nine months, and the remaining 30% of the weight of the relevant Sub-Index will be allocated to the next best performing Underlying Index during the same period. However, if the best performing Underlying Index is the Cash Index, 100% of the weight of the relevant Sub-Index will be allocated to the Cash Index.

Because each Sub-Index is reweighted based on the performances of the Underlying Indices over the nine months preceding the reweighting, and because the entire exposure provided by the Momentum Index is reweighted incrementally over a nine-month period, the composition of the Momentum Index will not change quickly in response to sudden increases or decreases in the values of the Underlying Indices. The Momentum Index generally will provide more continuity in its allocations than would an index that adjusted its exposure to the Underlying Index based on their performances as measured over periods shorter than nine months or that adjusted its entire exposure each month rather than incrementally, Sub-Index by Sub-Index, over a nine-month period.

The Momentum Index has been retrospectively calculated by the Index Sponsor on a hypothetical basis from September 30, 2002 (the "**Index Commencement Date**") and calculated on a live basis since June 30, 2005 (the "**Index Live Date**"). All potential investors should be aware that no actual investment that allowed tracking of the performance of the Momentum Index was possible before the Index Live Date. Furthermore, the index methodology of the Momentum Index was designed, constructed and tested using historical market data and based on knowledge of factors that may have affected its performance. Any returns prior to the Index Live Date were achieved by means of a retroactive application of the back-tested index methodology designed with the benefit of hindsight.

Unless otherwise provided, all determinations referred to below will be made by the Index Sponsor in good faith and in a commercially reasonable manner by reference to such factors as it deems appropriate and such determinations will, save for manifest error, be binding on all parties.

Monthly Sub-Index Reweighting

On each monthly Sub-Index Reweighting Day, one of the nine Sub-Indices is reweighted, and that Sub-Index will retain its new weighting for nine months before being reweighted again. The following table sets forth the nine Sub-Indices and the "**Sub-Index Commencement Date**" and "**Initial Sub-Index Reweighting Day**" for each Sub-Index.

Sub-Index	**Sub-Index Commencement Date**	**Initial Sub-Index Reweighting Day**
Sub-Index 1	January 31, 2002	October 31, 2002
Sub-Index 2	February 28, 2002	November 29, 2002
Sub-Index 3	March 28, 2002	December 31, 2002
Sub-Index 4	April 30, 2002	January 31, 2003
Sub-Index 5	May 31, 2002	February 28, 2003
Sub-Index 6	June 28, 2002	March 31, 2003
Sub-Index 7	July 31, 2002	April 30, 2003
Sub-Index 8	August 30, 2002	May 30, 2003
Sub-Index 9	September 30, 2002	June 30, 2003

For each Sub-Index, the Initial Sub-Index Reweighting Day for that Sub-Index and the last scheduled Index Business Day of the ninth calendar month following that Initial Sub-Index Reweighting Day, as well as the ninth calendar month following each subsequent Sub-Index Reweighting Day for that Sub-Index is a "**Sub-Index Reweighting Day**."

On each Sub-Index Reweighting Day:

- if the Best Performing Underlying Index is not the Cash Index, 70% of the weight of the relevant Sub-Index is assigned to the Best Performing Underlying Index and 30% of the weight of the relevant Sub-Index is assigned to the Next Best Performing Underlying Index (which may be the Cash Index); or

- if the Best Performing Underlying Index is the Cash Index, 100% of the weight of the relevant Sub-Index is assigned to the Cash Index.

The "**Best Performing Underlying Index**" means, with respect to a Sub-Index Reweighting Day, the Underlying Index with the highest Nine-Month Underlying Index Return.

The "**Next Best Performing Underlying Index**" means, with respect to a Sub-Index Reweighting Day, the Underlying Index with the second highest Nine-Month Underlying Index Return.

The "**Nine-Month Underlying Index Return**," with respect to an Underlying Index and a Sub-Index Reweighting Day, reflects the nine-month return of that Underlying Index, and is calculated as follows:

$$\left(\frac{\text{UnderlyingIndex}_{(r)}}{\text{UnderlyingIndex}_{(r-1)}}\right) - 1$$

Where:

$\text{UnderlyingIndex}_{(r)}$	means the Underlying Index Closing Level of the relevant Underlying Index on the Index Business Day that is two Index Business Days immediately preceding the relevant Sub-Index Reweighting Day; and
$\text{UnderlyingIndex}_{(r-1)}$	means the Underlying Index Closing Level of the relevant Underlying Index on the Sub-Index Reweighting Day immediately preceding the relevant Sub-Index Reweighting Day (or, if none, the relevant Sub-Index Commencement Date).

"**Underlying Index Closing Level**" means (i) in respect of the Gold Index, the Gold Index Closing Level (as defined under "The Underlying Indices — Deutsche Bank Forward Gold Index" below); (ii) in respect of the Swaps Index, the Swaps Index Closing Level (as defined under "The Underlying Indices — Deutsche Bank Forward Swaps Index" below); (iii) in respect of the Equities Index, the Equities Index Closing Level (as defined under "The Underlying Indices — Deutsche Bank Forward Equities Index" below); and (iv) in respect of the Cash Index, the Cash Index Closing Level (as defined under "The Underlying Indices — Deutsche Bank Momentum Money Market Index" below).

"**Index Business Day**" means a day (other than a Saturday or Sunday) (i) on which the Trans-European Automated Real-time Gross settlement Express Transfer system ("**TARGET**") is open; (ii) on which commercial banks and foreign exchange markets settle payments and are open for general business (including dealings in foreign exchange and foreign currency deposits) in London and New York City; and (iii) that is an Underlying Index Business Day.

"**Underlying Index Business Day**" means a day that is (i) a Gold Index Business Day (as defined under "The Underlying Indices — Deutsche Bank Forward Gold Index" below); (ii) a Swaps Index Business Day (as defined under "The Underlying Indices — Deutsche Bank Forward Swaps Index" below); (iii) an Equities Index Business Day (as defined under "The Underlying Indices — Deutsche Bank Forward Equities Index" below) and (iv) a Cash Index Business Day (as defined under "The Underlying Indices — Deutsche Bank Momentum Money Market Index" below).

Calculation and Publication of the Index Closing Level

The Index Sponsor will calculate the closing level of the Momentum Index (the "**Index Closing Level**") and the closing level of each Sub-Index (each, a "**Sub-Index Closing Level**") on each Index Business Day and will publish the Index Closing Level as soon as practicable following 1:30 p.m. Eastern Standard Time (EST) on that Index Business Day on Bloomberg page "DBMUAUSM <Index>" or on any successor to such page or service as selected by the Index Sponsor from time to time and on the Index Sponsor's website. The Index and each Sub-Index will be expressed in United States dollars ("**USD**").

On the Index Commencement Date, the Index Closing Level was set at 100. On each Index Business Day following the Index Commencement Date, the Index Closing Level is equal to the weighted arithmetic average of the Sub-Index Closing Levels of the Sub-Indices on that Index Business Day. The weight of each Sub-Index was fixed on the Index Commencement Date at a value that would result in equal notional exposure to each Sub-Index as of the Index Commencement Date. Subsequently, because the weight of each Sub-Index used to calculate the Index Closing Level was fixed on the Index Commencement Date, variations in the performances of the Sub-Indices since the Index Commencement Date have caused and may continue to cause the Momentum Index's notional exposure to each Sub-Index to vary significantly.

On the Sub-Index Commencement Date for each Sub-Index, the Sub-Index Closing Level for the relevant Sub-Index was set at 100. On each Index Business Day following the relevant Sub-Index Commencement Date, the Sub-Index Closing Level of a Sub-Index reflects the Sub-Index Closing Level from the immediately preceding Sub-Index Reweighting Day for that Sub-Index (or, if none, the Sub-Index Commencement Date for that Sub-Index), as adjusted to reflect the weighted return of any Underlying Index included in that Sub-Index from the immediately preceding Sub-Index Reweighting Day (or, if none, the Sub-Index Commencement Date for that Sub-Index) to the relevant Index Business Day, and is calculated as follows:

$$\mathrm{SICL}_{(r)} \times \mathrm{R}_{(t)}$$

Where:

$\mathrm{SICL}_{(r)}$ means the Sub-Index Closing Level of the relevant Sub-Index on the immediately preceding Sub-Index Reweighting Day for that Sub-Index (or, if none, the Sub-Index Commencement Date for that Sub-Index); and

$\mathrm{R}_{(t)}$ means the Sub-Index Return of that Sub-Index on that Index Business Day, which is equal to the sum of, for each Underlying Index included in that Sub-Index, (a) the weight of that Sub-Index assigned to that Underlying Index multiplied by (b) the Underlying Index Relevant Return of that Underlying Index with respect to that Sub-Index on that Index Business Day.

The "**Underlying Index Relevant Return**," with respect to an Underlying Index included in a Sub-Index and an Index Business Day, reflects the return of that Underlying Index from the immediately preceding Sub-Index Reweighting Day for that Sub-Index (or, if none, the Sub-Index Commencement Date for that Sub-Index) to the relevant Index Business Day and is calculated as follows:

$$\left(\frac{\mathrm{UnderlyingIndex}_{(t)}}{\mathrm{UnderlyingIndex}_{(r)}}\right)$$

Where:

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$UnderlyingIndex_{(t)}$	means the Underlying Index Closing Level of that Underlying Index on the relevant Index Business Day; and
$UnderlyingIndex_{(r)}$	means the Underlying Index Closing Level of that Underlying Index on the Sub-Index Reweighting Day for the relevant Sub-Index immediately preceding the relevant Index Business Day (or, if none, the Sub-Index Commencement Date for that Sub-Index).

The Momentum Index, each Sub-Index and each Underlying Index have been calculated by the Index Sponsor on a live basis since the Index Live Date and in accordance with the methodology set forth herein, with the following differences. As of May 1, 2015, the methodology of each Underlying Index was updated to modernize references to certain data points and to account for certain calculations more transparently. Further information is provided in the relevant descriptions of the Underlying Indices below, or on application to the Index Sponsor. In addition, prior to the Index Live Date, the Underlying Index Closing Level of the Equities Index was calculated using values obtained at the scheduled closing time of the Equities Exchange (as defined below) and not at the S&P 500 Valuation Time (as defined below) and dividends were estimated using a different basis. Since May 1, 2015, all calculations are based on information obtained from various publicly available sources. The Index Sponsor has not independently verified the information obtained from these sources.

Disruption Events and Consequences

If the Index Sponsor determines that a Sub-Index Reweighting Day is not an Index Business Day (such occurrence, a "**Disruption Event**"), the Index Sponsor will determine whether the occurrence of such Disruption Event is material in respect of the reweighting of the relevant Sub-Index and/or the calculation of the Index Closing Levels.

In the event that the Index Sponsor determines that the occurrence of a Disruption Event is material to such reweighting or calculation, the Index Sponsor will make such determinations and/or adjustments that, in its determination, are required to take account of such Disruption Event. In particular (and without limitation), the Index Sponsor, in making such determination, may:

(a) determine that such day will still be such Sub-Index Reweighting Day and determine any necessary values (including, without limitation, the Sub-Index Closing Levels and/or Underlying Index Closing Levels on such day) by reference to the prevailing market conditions and such other factors it determines appropriate; or

(b) determine that such day will not be a Sub-Index Reweighting Day and that the Sub-Index Reweighting Day will be such other day as the Index Sponsor selects, in which case, the rebalancing of the relevant Sub-Index will instead take place on such new Sub-Index Reweighting Day.

In the event that the Index Sponsor determines that a Disruption Event has occurred and that the ten consecutive scheduled Index Business Days beginning on the relevant Sub-Index Reweighting Day are not Index Business Days, the Index Sponsor may permanently cease to calculate and publish the Index Closing Level, and, if the Index Sponsor does so, the Momentum Index will terminate.

Momentum Index Adjustment Provisions

General

If at any relevant time, an Underlying Index is:

(a) not calculated and published by the relevant Underlying Index Sponsor but is calculated and published by a successor sponsor (the "**Successor Underlying Index Sponsor**") acceptable to the Index Sponsor; or

(b) replaced by a successor index using, in the determination of the Index Sponsor, the same or a substantially similar formula for and method of calculation as used in the calculation of that Underlying Index,

then, in each case, the relevant Underlying Index will be deemed to be the Underlying Index so calculated and published by that successor sponsor or that successor index, as the case may be.

"**Underlying Index Sponsor**" means, in respect of an Underlying Index, the entity identified as the index sponsor in the relevant section below relating to that Underlying Index.

If, at any relevant time, the Underlying Index Sponsor or the Successor Underlying Index Sponsor (a) makes, or announces that it will make, a material change in the formula for, or the method of calculating, an Underlying Index or in any other way materially modifies an Underlying Index (other than a modification prescribed in that formula or method to maintain that Underlying Index in the event of changes in constituent stock and capitalization and other routine events) (an "**Index Modification**"); (b) permanently cancels an Underlying Index (an "**Index Cancellation**"); or (c) fails to calculate and announce an Underlying Index (an "**Index Disruption**"), then the Index Sponsor may:

(a) determine the level of the affected Underlying Index at the relevant time using, in lieu of a published level for that Underlying Index, the level of that Underlying Index as at the relevant time as determined by the Index Sponsor in accordance with the formula for, and method of calculating, that Underlying Index last in effect prior to the Index Modification, Index Cancellation or Index Disruption; or

(b) select a successor underlying index having similar characteristics to the Underlying Index to replace the Underlying Index; or

(c) cease to calculate and publish the Momentum Index.

Change in Methodology

In calculating and determining the value of the Momentum Index, the Index Sponsor will, except as provided below, employ the methodology described herein and the Index Sponsor's application of that methodology will be conclusive and binding. While the Index Sponsor currently employs the above described methodology to calculate the Momentum Index, no assurance can be given that market, regulatory, judicial, financial, fiscal or other circumstances (including, but not limited to, any changes to or any suspension or termination of any constituent of the Momentum Index or any other events affecting transactions on the same or similar terms to any described herein) will not arise that would, in the view of the Index Sponsor, necessitate or make desirable a modification of or change to that methodology.

Accordingly:

(iii) The Index Sponsor will be entitled to make such modifications and/or changes as it deems appropriate, including (without limitation):

(a) to correct any manifest error or proven error contained in the methodology described herein; and/or

(b) to cure, correct or supplement any defective provision contained in the methodology described herein; and/or

(c) if market, regulatory, juridical, financial, fiscal or other circumstances arise, and such circumstances would, in the determination of the Index Sponsor, necessitate or make desirable such a modification or change of the methodology described herein (including, but without limitation, a change in the frequency of calculation of any Index Closing Level) in order for the Momentum Index to continue being calculated and determined notwithstanding the relevant circumstances. In deciding what is necessary, the Index Sponsor will consider and/or take into account what the Index Sponsor determines to be the intended strategy of the Momentum Index;

(iv) Further, and without limitation to the above provisions, the Index Sponsor will be entitled to make such modifications and/or changes as it deems appropriate:

(a) to preserve the intended strategy of the Momentum Index, where such modification and/or change is of a formal, minor or technical nature; and/or

(b) if market, regulatory, juridical, financial, fiscal or other circumstances arise, and in the determination of the Index Sponsor, such modifications and/or changes would assist in maintaining the intended strategy of the Momentum Index and/or would ensure that the Momentum Index can continue to be calculated and determined by the Index Sponsor in light of such circumstances.

The Index Sponsor may, in its discretion, at any time and without notice, terminate the calculation and publication of the Momentum Index.

Corrections

In the event that any price or level published on any date which is utilized for any calculation or determination in respect of the Momentum Index is subsequently corrected, or the Index Sponsor identifies an error or omission in any of its calculations or determinations in respect of the Momentum Index, the Index Sponsor may, in its sole discretion, adjust or correct any relevant terms, calculations or determinations in respect of the Momentum Index to take into account such correction(s), error(s) or omission(s) (as the case may be) but is not obliged to do so.

The Underlying Indices

Deutsche Bank Forward Gold Index

The Gold Index is a proprietary index of Deutsche Bank AG, London Branch (together with any successor in such capacity, the "**Gold Index Sponsor**") and is intended to provide exposure to gold by reflecting the economic performance over time of a rolling notional exposure to the one-month forward price of Gold, as further described below.

A forward contract on Gold reflects a commitment to purchase a given amount of Gold at a specified price, referred to as the forward price, on a particular date in the future. The forward price of Gold used in the calculation of the Gold Index (the "**Gold Index Forward Price**") is determined using the methodology set forth below.

On the last scheduled Gold Index Business Day (as defined below) of each month (each, a "**Gold Roll Day**"), the Gold Index provides exposure to the Gold Index Forward Price for the delivery of Gold on the next following Gold Roll Day. The Gold Index will provide exposure to that Gold Index Forward Price from but excluding that Gold Roll Day through and including the immediately following Gold Roll Day. On the next Gold Roll Day, the Gold Index will provide exposure to the Gold Index Forward Price for the delivery of Gold on the next following Gold Roll Day. From one Gold Roll Day to the next Gold Roll Day, the return on the Gold Index will equal the return on the spot price of Gold.

Calculation of the Gold Index Closing Level

The Gold Index Sponsor will calculate the closing level of the Gold Index (the "**Gold Index Closing Level**") on each Gold Index Business Day as soon as practicable following 1:30 p.m. EST on that Gold Index Business Day. The Gold Index will be expressed in USD.

On April 30, 2001 (the "**Gold Index Commencement Date**"), the Gold Index Closing Level was 100. On each Gold Index Business Day following the Gold Index Commencement Date, the Gold Index Closing Level reflects the Gold Index Closing Level from the immediately preceding Gold Roll Day, as adjusted to reflect the percentage difference between the Gold Forward Price and the Gold Reference Price on the relevant Gold Index Business Day, and is calculated as follows:

$$\mathrm{GICL}_{(r)} \times \left(1 + \mathrm{R}_{(t)}\right)$$

Where:

$\mathrm{GICL}_{(r)}$ means the Gold Index Closing Level on the Gold Roll Day immediately preceding the relevant Gold Index Business Day; and

$\mathrm{R}_{(t)}$ means the return, as of any relevant Gold Index Business Day, calculated by the Gold Index Sponsor using the following formula:

$$\left(\frac{\text{Gold Forward}_{(t)}}{\text{Gold Spot}_{(r)}}\right) - 1$$

Where:

Gold $\text{Forward}_{(t)}$	means the Gold Forward Price on the relevant Gold Index Business Day; and
Gold $\text{Spot}_{(r)}$	means the Gold Reference Price on the Gold Roll Day immediately preceding the relevant Gold Index Business Day.

With respect to the relevant Gold Index Business Day, the "**Gold Reference Price**" means that day's afternoon London Gold price per troy ounce of Gold for delivery in London through a member of The London Bullion Market Association (or its successor) (the "**LBMA**") authorized to effect that delivery, stated in U.S. dollars, as calculated and administered by independent service provider(s), pursuant to an agreement with the LBMA, and published by the LBMA on its website that displays prices effective on that day.

"**Gold**" means gold bars or unallocated gold complying with the rules of the LBMA relating to good delivery and fineness from time to time in effect, unless otherwise agreed in writing by the parties.

With respect to the relevant Gold Index Business Day, the "**Gold Forward Price**" is derived by adjusting the Gold Reference Price on the relevant Gold Index Business Day by a portion of the spread between two Gold futures contracts proportional to the number of days between the relevant Gold Index Business Day and the Gold Roll Day falling on or after the relevant Gold Index Business Day and is calculated as follows:

$$\text{Gold Spot}_{(t)} + \left(\text{Gold Forward2}_{(t)} - \text{Gold Forward1}_{(t)}\right) \times \text{DCF}_{(t)}$$

where:

Gold $\text{Spot}_{(t)}$	means the Gold Reference Price on the relevant Gold Index Business Day;
Gold $\text{Forward1}_{(t)}$	means the Closing Price on the relevant Gold Index Business Day of the First Gold Future in respect of the relevant Gold Index Business Day;
Gold $\text{Forward2}_{(t)}$	means the Closing Price on the relevant Gold Index Business Day of the Second Gold Future in respect of the relevant Gold Index Business Day; and
$\text{DCF}_{(t)}$	means the quotient of (a) the number of calendar days from (and excluding) the relevant Gold Index Business Day to (and including) the Gold Roll Day falling on or after the relevant Gold Index Business Day (as numerator) and (b) the number of calendar days from (and including) the last trading day of the First Gold Future in respect of the relevant Gold Index Business Day to (and excluding) the last trading

day of the Second Gold Future in respect of the relevant Gold Index Business Day (as denominator), *provided* that $DCF_{(t)}$ will equal zero on each Gold Roll Day.

"**Closing Price**" means, in respect of a Gold Index Business Day and an instrument traded on the Futures Exchange, the closing price on the Futures Exchange of that instrument, expressed in USD, as published by the Futures Exchange in respect of that Gold Index Business Day.

"**First Gold Future**" means, in respect of a Gold Index Business Day, the instrument for future delivery of gold traded on the Futures Exchange with a last trading day falling on or next following that Gold Index Business Day.

"**Second Gold Future**" means, in respect of a Gold Index Business Day, the instrument for future delivery of gold traded on the Futures Exchange with last trading day next following the last trading day of the First Gold Future in respect of that Gold Index Business Day.

The "**Futures Exchange**" means the COMEX or any successor exchange or principal trading market on which Gold futures may be traded.

"**Gold Index Business Day**" means, in respect of the Gold Index, a day (other than a Saturday or Sunday):

(a) on which commercial banks and foreign exchange markets are open for general business (including dealings in foreign exchange and foreign currency deposits) in London and New York;

(b) on which TARGET is open; and

(c) on which no Gold Market Disruption Event has occurred or is existing.

Prior to February 1, 2015, calculation of the Gold Index Closing Level was made by reference to the Gold Forward Offered Rate (GOFO) dataset, as published by the LBMA and discounted through application of a yield curve. Since that date, calculation of the Gold Index Closing Level is on the basis described above, without any reference to internal data of the Gold Index Sponsor.

Gold Market Disruption Events and Consequences

If the Gold Index Sponsor determines that a Gold Market Disruption Event has occurred or exists on a Gold Roll Day, the Gold Index Sponsor will determine whether the occurrence of such Gold Market Disruption Event is material in respect of the roll of the Gold Index and/or the calculation of the Gold Index Closing Levels.

In the event that the Gold Index Sponsor determines that the occurrence of a Gold Market Disruption Event is material to such roll or calculation, the Gold Index Sponsor will make such determinations and/or adjustments that, in its determination, are required to take account of such Gold Market Disruption Event. In particular (and without limitation), the Gold Index Sponsor, in making such determination, may:

(a) determine that such day will still be such Gold Roll Day and determine any necessary values by reference to the prevailing market conditions and such other factors it determines appropriate; or

(b) determine that such day will not be a Gold Roll Day and that the Gold Roll Day will be such other day as the Gold Index Sponsor selects, in which case, the roll of the Gold Index will instead take place on such new Gold Roll Day.

In the event that the Gold Index Sponsor determines that a Gold Market Disruption Event has occurred and is continuing for ten consecutive scheduled Gold Index Business Days, the Gold Index Sponsor may permanently cease to calculate and publish the Gold Index Closing Level, and, if the Gold Index Sponsor does so, the Gold Index will terminate.

"**Gold Market Disruption Event**," in respect of the Gold Index and a day, means the occurrence or existence of any of a Gold Price Source Disruption, a Gold Trading Disruption, a Disappearance of Gold Reference Price or a Tax Disruption.

A "**Gold Price Source Disruption**" means (a) the failure of any Price Source to announce or publish any data relevant to the calculation of the Gold Index Closing Level; or (b) the temporary or permanent discontinuance or unavailability of any Price Source.

A "**Gold Trading Disruption**" means a material suspension of, or a material limitation imposed on, trading in Gold futures, forwards or options or Gold on the Gold Exchange, the Futures Exchange or any other exchange (each, a "**Gold Related Instrument**"). For these purposes:

(a) a suspension of the trading in any Gold Related Instrument on any Gold Index Business Day will be deemed to be material only if:

(i) all trading in that Gold Related Instrument is suspended for the entirety of any Gold Index Business Day; or

(ii) all trading in that Gold Related Instrument is suspended subsequent to the opening of trading on any Gold Index Business Day, trading does not recommence prior to the regularly scheduled close of trading on the exchange through which those instruments are traded on that Gold Index Business Day and that suspension is announced less than one hour preceding its commencement; and

(b) a limitation of trading in any Gold Related Instrument on any Gold Index Business Day will be deemed to be material only if the relevant exchange establishes limits on the range within which the price of the relevant instrument may fluctuate and the closing price of the relevant instrument on that day is at the upper or lower limit of that range.

A "**Disappearance of Gold Reference Price**" means (a) the permanent discontinuation of trading in any Gold Related Instrument on the relevant exchange; (b) the disappearance of, or of trading in, Gold; (c) the disappearance of, or of trading in, Gold futures; (d) the disappearance or permanent discontinuance or unavailability of a Gold Reference Price, notwithstanding the availability of the Gold Exchange or the status of trading in any Gold Related Instrument; or (e) the disappearance or permanent discontinuance or unavailability of a futures closing price, notwithstanding the availability of the Futures Exchange or the status of trading any Gold Related Instrument.

A "**Tax Disruption**" means the imposition of, change in or removal of an excise, severance, sales, use, value-added, transfer, stamp, documentary, recording or similar tax on, or measured by reference to, Gold (other than a tax on, or measured by reference to, overall gross or net income) by any government or taxation authority after the Gold Index Commencement Date, if the direct effect of that imposition, change or removal is to raise or lower the cost of buying Gold on the day that would otherwise be a Gold Index Business Day from what it would have been without that imposition, change or removal.

With respect to the Gold Index, "**Price Source**" means the Gold Exchange or the Futures Exchange.

"**Gold Exchange**" means the London Gold Market or any successor exchange or principal trading market on which Gold may be traded.

"**London Gold Market**" means the market in London on which members of the LBMA, amongst other things, quote prices for the buying and selling of Gold.

Deutsche Bank Forward Swaps Index

The Swaps Index is a proprietary index of Deutsche Bank AG, London Branch (together with any successor in such capacity, the "**Swaps Index Sponsor**") and is intended to provide a rolling notional exposure to the economic performance of ten-year fixed interest rates as compared to floating interest rates and, therefore, a return that generally increases as interest rates decrease and generally decreases as interest rates increase. While the full name of the Swaps Index is the Deutsche Bank Forward Swaps Index, the Swaps Index does not provide exposure to forwards on interest rate swap contracts.

A fixed-for-floating interest rate swap contract is an agreement between two parties to exchange interest rate cash flows over a set period of time based on a specified notional amount, where the first party makes regular payments based on a fixed interest rate to the second party and the second party makes regular payments based on a floating interest rate to the first party. These two payment streams form the two legs of the swap contract. The "fixed leg" is the payment stream based on a fixed interest rate, and the "floating leg" is the payment stream based on the floating interest rate. The notional amount is not exchanged between the parties but is used as a reference amount for calculating the payment streams. The terms of a fixed-for-floating interest rate swap contract are set so that neither party is required to make a payment to the other party to enter into the swap contract. Accordingly, the net present value of a fixed-for-floating interest rate swap contract at its initiation will be zero.

On the last scheduled Swaps Index Business Day (as defined below) of each month (each, a "**Swaps Roll Day**"), the Swaps Index notionally enters into a hypothetical 10-year fixed-for-floating interest rate swap contract with a notional amount set at 100 and an effective date on the second New York Business Day (as defined below) immediately following that Swaps Index Business Day (each, a "**Subject Interest Rate Contract**") with a notional counterparty. The

Swaps Index will provide exposure to that Subject Interest Rate Contract from but excluding that Swaps Roll Day through and including the immediately following Swaps Roll Day. On that next Swaps Roll Day, the Swaps Index will notionally unwind the prior Subject Interest Rate Contract and notionally enter into a new Subject Interest Rate Contract.

Under the terms of each Subject Interest Rate Contract, (a) the Swaps Index notionally receives in arrears fixed-rate payments (*i.e.*, the fixed leg), with payment dates falling on each annual anniversary of the effective date of that Subject Interest Rate Contract; and (b) the Swaps Index notionally pays in arrears floating-rate payments (*i.e.*, the floating leg) based on 1-Month USD Libor, with payment dates falling on each monthly anniversary of the effective date of that Subject Interest Rate Contract.

On each Swaps Index Business Day, the closing level of the Swaps Index (the "**Swaps Index Closing Level**") reflects the net present value of the relevant Subject Interest Rate Contract and, because the Swaps Index is notionally fully funded, the return of the Cash Index.

Because the Swaps Index notionally receives the fixed leg and notionally pays the floating leg of the relevant Subject Interest Rate Contract, the net present value of that Subject Interest Rate Contract, from the perspective of the Swaps Index, is the present value of the stream of payments underlying the fixed leg minus the present value of the stream of payments underlying the floating leg. As a result, if anticipated 1-Month USD Libor rates decrease, the present value of the floating leg notionally paid by the Swaps Index would generally decrease, and the Swaps Index Closing Level would increase. Conversely, if anticipated 1-Month USD Libor rates increase, the present value of the floating leg notionally paid by the Swaps Index would generally increase, and the Swaps Index Closing Level would decrease.

Calculation of the Swaps Index Closing Level

The Swaps Index Sponsor will calculate the Swaps Index Closing Level on each Swaps Index Business Day as soon as practicable following 4:00 p.m. London time on that Swaps Index Business Day. The Swaps Index will be expressed in USD.

On April 30, 2001 (the "**Swaps Index Commencement Date**"), the Swaps Index Closing Level was 282.4989. On each Swaps Index Business Day following the Swaps Index Commencement Date, the Swaps Index Closing Level reflects the Swaps Index Closing Level from the immediately preceding Swaps Roll Day, as adjusted to reflect the return of the relevant Subject Interest Rate Contract from the immediately preceding Swaps Roll Day to the relevant Swaps Index Business Day, and is calculated as follows:

$$\mathrm{SICL}_{(r)} \times \left(1 + \mathrm{R}_{(t)}\right)$$

Where:

$\mathrm{SICL}_{(r)}$ means the Swaps Index Closing Level on the Swaps Roll Day immediately preceding the relevant Swaps Index Business Day; and

$\mathrm{R}_{(t)}$ means the sum of return of the relevant Subject Interest Rate Contract and the return of the Cash Index, as of any relevant Swaps Index Business Day, calculated by the Swaps Index Sponsor using the following formula:

$$\left(\frac{\mathrm{NPV}}{100}\right) + \left(\frac{\mathrm{CICL}_{(t)}}{\mathrm{CICL}_{(r)}}\right) - 1$$

Where:

NPV means the net present value of the relevant Subject Interest Rate Contract on the relevant Swaps Index Business Day;

$\mathrm{CICL}_{(t)}$ means the Cash Index Closing Level (as defined under "The Underlying Indices — Deutsche Bank Momentum Money Market Index" below) on the relevant Swaps Index Business Day (provided that if that level is not available for any reason, the Swaps Index Sponsor will determine the Cash Index Closing Level in respect of the relevant Swaps Index Business Day in good faith and a commercially reasonable manner); and

$\mathrm{CICL}_{(r)}$ means the Cash Index Closing Level (as defined under "The Underlying Indices — Deutsche Bank Momentum Money Market Index" below) on the Swaps Roll Day immediately preceding the relevant Swaps Index Business Day (provided that if that level is not available for any reason, the Swaps Index Sponsor will determine the Cash Index Closing Level in respect of the Swaps Roll Day immediately preceding the relevant Swaps Index Business Day in good faith and a commercially reasonable manner).

The net present value of a Subject Interest Rate Contract is calculated by subtracting the present value of the stream of payments underlying the floating leg from the present value of the stream of payments underlying the fixed leg.

To calculate the present value of the floating leg on any Swaps Index Business Day, the Swaps Index Sponsor must first determine the floating interest rate that will apply on each payment date over the term of the Subject Interest Rate Contract and the discount rate that will apply to each payment over the term of the Subject Interest Rate Contract. Each of these floating interest rates and discount rates is determined by referencing a floating-rate yield curve or a discount-rate yield curve, as applicable, constructed by the Swaps Index Sponsor. A yield curve plots the relationship between interest rates and the time to maturity of debt instruments with the same credit quality but differing maturity dates.

On each Swaps Index Business Day, the Swaps Index Sponsor generates a floating-rate yield curve and a discount-rate yield curve by applying a market-standard methodology to a collection of fixed-for-floating interest rate swaps of varying maturities as determined by the Swaps Index Sponsor at approximately 4:00 p.m. London time on that Swaps Index Business Day by reference to external inputs provided by Reuters (or any successor data source that the Swaps Index Sponsor deems appropriate). The floating-rate yield curve reflects 1-Month USD Libor and the discount-rate yield curve reflects an overnight lending rate.

Once the Swaps Index Sponsor has determined the floating interest rate that will apply on each payment date over the term of the Subject Interest Rate Contract, as forecasted by the floating-rate yield curve, the Swaps Index Sponsor will determine the amount of each floating-rate payment and will apply the relevant discount rate to each floating-rate payment to determine the present value of that payment.

To calculate the present value of the fixed leg on any Swaps Index Business Day, the Swaps Index Sponsor must first determine the fixed interest rate that will apply on all payment dates over the term of the Subject Interest Rate Contract and then the discount rate that will apply to each payment over the term of the Subject Interest Rate Contract. The fixed interest rate is determined on the Swaps Roll Day on which the Subject Interest Rate Swap is initiated, as described below. The discount rates are determined on each Swaps Index Business Day by reference to the discount-rate yield curve determined as discussed above. Once the Swaps Index Sponsor has determined the discount rate that will apply on each payment date over the term of the Subject Interest Rate Contract, the Swaps Index Sponsor will determine the amount of each fixed-rate payment and will apply the relevant discount rate to each fixed-rate payment to determine the present value of that payment.

The net present value at the initiation of a Subject Interest Rate Contact on each Swaps Roll Day will be zero. Accordingly, on each Swaps Roll Day, the Swaps Index Sponsor will determine the fixed interest rate by calculating the interest rate that would result in a present value for the fixed leg that equals the present value of the floating leg, resulting in a net present value of zero.

"**Swaps Index Business Day**" means, in respect of the Swaps Index, a day (other than a Saturday or Sunday):

(a) on which commercial banks and foreign exchange markets are open for general business (including dealings in foreign exchange and foreign currency deposits) in London and New York;

(b) on which TARGET is open;

(c) on which no Swaps Force Majeure Event in respect of the DB Swaps Index has occurred or is existing; and

(d) on which no Swaps Price Source Disruption in respect of the DB Swaps Index has occurred or is existing.

"**New York Business Day**" means each day on which commercial banks and foreign exchange markets settle payments and are open for general business (including dealings in foreign exchange and foreign currency deposits) in New York (as determined by the Swaps Index Sponsor).

Prior to May 1, 2015, calculation of the Swaps Index Closing Level was on the basis of certain information derived from the Swaps Index Sponsor and a proprietary variation of the bootstrapping methodology used to determine the present values of the fixed leg and floating legs. Since that date, calculation of the Swaps Index Closing Level is on the basis described above, without any reference to internal data or methodologies of the Swaps Index Sponsor.

Swaps Force Majeure Event and Swaps Price Source Disruption and Consequences

If the Swaps Index Sponsor determines that a Swaps Force Majeure Event or Swaps Price Source Disruption has occurred or exists on a Swaps Roll Day, the Swaps Index Sponsor will determine whether the occurrence of such Swaps Force Majeure Event or Swaps Price Source Disruption is material in respect of the roll of the Swaps Index and/or the calculation of the Swaps Index Closing Levels.

In the event that the Swaps Index Sponsor determines that the occurrence of a Swaps Force Majeure Event or Swaps Price Source Disruption is material to such roll or calculation, the Swaps Index Sponsor will make such determinations and/or adjustments that, in its determination, are required to take account of such Swaps Force Majeure Event or Swaps Price Source Disruption. In particular (and without limitation), the Swaps Index Sponsor, in making such determination, may:

(a) determine that such day will still be such Swaps Roll Day and determine any necessary values by reference to the prevailing market conditions and such other factors it determines appropriate; or

(b) determine that such day will not be a Swaps Roll Day and that the Swaps Roll Day will be such other day as the Swaps Index Sponsor selects, in which case, the roll of the Swaps Index will instead take place on such new Swaps Roll Day.

In the event that the Swaps Index Sponsor determines that a Swaps Force Majeure Event or Swaps Price Source Disruption has occurred and is continuing for ten consecutive scheduled Swaps Index Business Days, the Swaps Index Sponsor may permanently cease to calculate and publish the Swaps Index Closing Level, and, if the Swaps Index Sponsor does so, the Swaps Index will terminate.

A "**Swaps Force Majeure Event**" means an event or circumstance (including, without limitation, a systems failure, fire, building evacuation, natural or man-made disaster, act of God, armed conflict, act of terrorism, riot or labour disruption or any similar intervening circumstance) that affects the ability of the Swaps Index Sponsor to calculate or make determinations with respect to the Swaps Index and that is beyond the reasonable control of the Swaps Index Sponsor.

A "**Swaps Price Source Disruption**" means, in respect of any relevant day, (a) the failure of the Price Source to announce or publish any data relevant to the calculation of the Swaps Index Closing Level in respect of that day; or (b) the temporary or permanent discontinuance or unavailability of the Price Source.

With respect to the Swaps Index, "**Price Source**" means Reuters (or any successor thereto).

Deutsche Bank Forward Equities Index

The Equities Index is a proprietary index of Deutsche Bank AG, London Branch (together with any successor in such capacity, the "**Equities Index Sponsor**") and is intended to provide exposure to U.S. equities by reflecting the economic performance over time of a rolling notional exposure to the one-month forward price of the S&P 500® Index (Bloomberg: SPX <Index>) (the "**S&P 500**"), as further described below.

A forward contract on the S&P 500 reflects a commitment to purchase a basket of shares representing the S&P 500 at a specified price, referred to as the forward price, on a particular date in the future. The forward price of S&P 500 used in the calculation of the Equities Index (the "**Equities Index Forward Price**") is determined using the methodology set forth below.

On the last scheduled Equities Index Business Day (as defined below) of each month (each, an "**Equities Roll Day**"), the Equities Index provides exposure to the Equities Index Forward Price for the delivery of a basket of shares representing the S&P 500 on the next following Equities Roll Day. The Equities Index will provide exposure to that Equities Index Forward Price from but excluding that Equities Roll Day through and including the immediately following Equities Roll Day. On the next Equities Roll Day, the Equities Index provide exposure to the Equities Index Forward Price for the delivery of a basket of shares representing the S&P 500 on the next following Equities Roll Day. From one Equities Roll Day to the next Equities Roll Day, the return on the Equities Index will equal the return on the S&P 500.

Calculation of the Equities Index Closing Level

The Equities Index Sponsor will calculate the closing level of the Equities Index (the "**Equities Index Closing Level**") on each Equities Index Business Day as soon as practicable following the later of 11:10 a.m. EST (the "**S&P 500 Valuation Time**") and 4:00 p.m. London time (the "**LIBOR Valuation Time**") on that Equities Index Business Day. The Equities Index will be expressed in USD.

On April 30, 2001 (the "**Equities Index Commencement Date**"), the Equities Index Closing Level was 1,249,4600. On each Equities Index Business Day following the Equities Index Commencement Date, the Equities Index Closing Level reflects the Equities Index Closing Level from the immediately preceding Equities Roll Day, as adjusted to reflect the percentage difference between the Equities Forward Price and the Equities Reference Price on the relevant Equities Index Business Day, and is calculated as follows:

$$\mathrm{EICL}_{(r)} \times \left(1 + \mathrm{R}_{(t)}\right)$$

Where:

$\mathrm{EICL}_{(r)}$ means the Equities Index Closing Level on the Equities Roll Day immediately preceding the relevant Equities Index Business Day; and

$\mathrm{R}_{(t)}$ means the return, as of any relevant Equities Index Business Day, calculated by the Equities Index Sponsor using the following formula:

$$\left(\frac{\mathrm{Forward}_{(t)}}{\mathrm{Equities}_{(r)}}\right) - 1$$

Where:

$Forward_{(t)}$ means the relevant Equities Index Forward Price of the S&P 500 on the relevant Equities Index Business Day; and

$Equities_{(r)}$ means the level of the S&P 500 as determined by the Equities Index Sponsor at or around the S&P 500 Valuation Time on the Equities Roll Day immediately preceding the relevant Equities Index Business Day.

With respect to the relevant Equities Index Business Day, the relevant Equities Index Forward Price of the S&P 500 will equal (a) the level of the S&P 500 as determined by the Equities Index Sponsor at or around the S&P 500 Valuation Time on the relevant Equities Index Business Day minus (b) the present value of any dividends to be paid on the component stocks of the S&P 500, as observed on the relevant Equities Index Business Day, expressed in index points of the S&P 500, from and excluding the relevant Equities Index Business Day to and excluding the immediately following Equities Roll Day, as supplied by the Dividends Source (as defined below), calculated using as the discount rate 1-Month USD Libor on the relevant Equities Index Business Day, *provided* that the value of the relevant Equities Index Forward Price of the S&P 500 on an Equities Roll Day will equal the official level of the S&P 500 at the S&P 500 Valuation Time on that Equities Roll Day.

If the Dividends Source does not supply the information described above, then the Equities Index Sponsor may identify a suitable successor. If the Equities Index Sponsor is unable to identify a suitable successor, then the Equities Index Sponsor may determine that information itself.

1-Month USD Libor means, in respect of an Equities Index Business Day, the London inter-bank offered rate for deposits in U.S. dollars for one month, as determined by the Equities Index Sponsor by reference to the Reuters screen page USDLIBOR1M= (or any successor screen page that the Equities Index Sponsor deems appropriate) at or around the LIBOR Valuation Time on that Equities Index Business Day (provided that, if that page is not available for any reason at that time in respect of that Equities Index Business Day, then the Equities Index Sponsor shall determine 1-Month USD Libor in respect of that Equities Index Business Day by reference to any relevant screen page or data source that the Equities Index Sponsor deems appropriate).

"**Equities Index Business Day**" means, in respect of the Equities Index, a day (other than a Saturday or Sunday):

(a) on which commercial banks and foreign exchange markets are open for general business (including dealings in foreign exchange and foreign currency deposits) in London and New York;

(b) on which TARGET is open;

(c) on which no Equities Market Disruption Event has occurred or is existing; and

(d) on which no Equities Force Majeure Event has occurred or is existing.

Prior to May 1, 2015, calculation of the Equities Index Closing Level involved the application of a yield curve and certain information derived from the Equities Index Sponsor. Since that date, calculation of the Equities Index Closing Level is on the basis described above, without any reference to internal data of the Equities Index Sponsor.

Equities Market Disruption Events and Equities Force Majeure Events and Consequences

If the Equities Index Sponsor determines that an Equities Market Disruption Event or Equities Force Majeure Event has occurred or exists on an Equities Roll Day, the Equities Index Sponsor will determine whether the occurrence of such Equities Market Disruption Event or Equities Force Majeure Event is material in respect of the roll of the Equities Index and/or the calculation of the Equities Index Closing Levels.

In the event that the Equities Index Sponsor determines that the occurrence of an Equities Market Disruption Event or Equities Force Majeure Event is material to such roll or calculation, the Equities Index Sponsor will make such determinations and/or adjustments that, in its determination, are required to take account of such Equities Market Disruption Event or Equities Force Majeure Event. In particular (and without limitation), the Equities Index Sponsor, in making such determination, may:

(a) determine that such day will still be such Equities Roll Day and determine any necessary values by reference to the prevailing market conditions and such other factors it determines appropriate; or

(b) determine that such day will not be an Equities Roll Day and that the Equities Roll Day will be such other day as the Equities Index Sponsor selects, in which case, the roll of the Equities Index will instead take place on such new Equities Roll Day.

In the event that the Equities Index Sponsor determines that an Equities Market Disruption Event or Equities Force Majeure Event has occurred and is continuing for ten consecutive scheduled Equities Index Business Days, the Equities Index Sponsor may permanently cease to calculate and publish the Equities Index Closing Level, and, if the Equities Index Sponsor does so, the Equities Index will terminate.

"**Equities Market Disruption Event**," in respect of the Equities Index and a day, means the occurrence or existence of:

- an Equities Trading Disruption, which the Equities Index Sponsor determines is material, at any time during the one-hour period that ends at the relevant S&P 500 Valuation Time in respect of the Equities Index; or
- an Equities Exchange Disruption, which the Equities Index Sponsor determines is material, at any time during the one-hour period that ends at the relevant S&P 500 Valuation Time in respect of the Equities Exchange; or
- an Early Closure, which the Equities Index Sponsor determines is material; or
- an Equities Price Source Disruption.

An "**Equities Trading Disruption**" means any suspension or limitation imposed on trading by the relevant Equities Exchange and whether by reason of movements in price exceeding limits permitted by the relevant Equities Exchange (a) relating to securities that in aggregate comprise 20 per cent. or more of the level of the S&P 500 or (b) in futures or options contracts relating to the S&P 500 on any Related Exchange.

An "**Equities Exchange Disruption**" means any event (other than an Early Closure) that disrupts or impairs (as determined by the Equities Index Sponsor) the ability of market participants in general to obtain market values for: (a) securities that in aggregate comprise 20 per cent. or more of the level of the S&P 500 or (b) futures or options contracts relating to the S&P 500 on any Related Exchange.

An "**Early Closure**" means the closure on any Exchange Business Day of the relevant Equities Exchange in respect of any securities that in aggregate comprise 20 per cent. or more of the level of the S&P 500 prior to the scheduled closing time unless that earlier closing is announced by that Equities Exchange or Related Exchange, as the case may be, at least one hour prior to the earlier of: (a) the actual closing time for the regular trading session on that Equities Exchange or Related Exchange, as the case may be, on that Exchange Business Day; and (b) the submission deadline for orders to be entered into the relevant Equities Exchange or Related Exchange system for execution at the S&P 500 Valuation Time on that Exchange Business Day.

An "**Equities Price Source Disruption**" means (a) the failure of any Price Source to publish any information necessary for determining the Equities Index Closing Level or (b) the temporary or permanent discontinuance or unavailability of any Price Source.

With respect to the Equities Index, "**Price Source**" means the Dividends Source and Reuters or any successor.

The "**Dividends Source**" means the Markit Dividend Forecast Data, as provided under licence to Deutsche Bank AG by the Markit Group Limited, or any successor.

For the avoidance of doubt, a limitation on the hours and number of days of trading resulting from a change in the regular business hours of any exchange will not constitute an Equities Market Disruption Event.

"**Equities Exchange**" means, in relation to the Equities Index, any stock exchange on which the securities composing the S&P 500 trade, any successor to that exchange or any substitute exchange or quotation system to which trading in the securities composing the S&P 500 has temporarily relocated (*provided* that the Equities Index Sponsor has determined that there is comparable liquidity relative to the securities composing the S&P 500 on that temporary substitute exchange or quotation system as on the original Equities Exchange).

"**Related Exchange**" means, in respect of the Equities Index, any exchange on which futures or options contracts related to the S&P 500 trade, any successor to that exchange or quotation system or any substitute exchange or quotation system to which trading in futures or options contracts relating to the S&P 500 has temporarily relocated (provided that the Equities Index Sponsor has determined that there is comparable liquidity relative to the futures or options contracts relating to the S&P 500 on that temporary substitute exchange or quotation system as on the original Related Exchange).

An "**Exchange Business Day**" means any Scheduled Trading Day on which each Equities Exchange and each Related Exchange are open for trading during their respective regular trading sessions, notwithstanding any such Equities Exchange or Related Exchange closing prior to the S&P 500 Valuation Time.

A "**Scheduled Trading Day**" means any day on which each Equities Exchange and Related Exchange is scheduled to be open for trading for their respective regular trading sessions.

An "**Equities Force Majeure Event**" means an event or circumstance (including, without limitation, a systems failure, fire, building evacuation, natural or man-made disaster, act of God, armed conflict, act of terrorism, riot or labour disruption or any similar intervening circumstance) that affects the ability of the Equities Index Sponsor to calculate or make determinations with respect to the Equities Index and that is beyond the reasonable control of the Equities Index Sponsor.

Deutsche Bank Momentum Money Market Index

The Cash Index is a proprietary index of Deutsche Bank AG, London Branch (together with any successor in such capacity, the "**Cash Index Sponsor**") and is intended to provide a short-term interest rate return by reflecting the economic performance over time of a rolling notional exposure to one-month money market instruments based on 1-Month USD Libor.

On the last scheduled Cash Index Business Day of each month (each, a "**Cash Roll Day**"), the Cash Index notionally purchases a hypothetical zero-coupon money-market instrument with a term ending on the immediately following Cash Roll Day (each, a "**Cash Index Instrument**") at a price equal to the present value of the payment at maturity on that Cash Index Instrument, calculated using 1-Month USD Libor as the discount rate. The Cash Index will provide exposure to that Cash Index Instrument from but excluding that Cash Roll Day through and including the immediately following Cash Roll Day. On the next Cash Roll Day, the prior Cash Index Instrument will notionally mature, and the Cash Index will notionally purchase a new Cash Index Instrument. From one Cash Roll Day to the next Cash Roll Day, the return on the Cash Index will equal the 1-Month USD Libor return.

Calculation of the Cash Index Closing Level

The Cash Index Sponsor will calculate the closing level of the Cash Index (the "**Cash Index Closing Level**") on each Cash Index Business Day as soon as practicable following 4:00 p.m. London time (the "**Cash Index Valuation Time**") on that Cash Index Business Day. The Cash Index will be expressed in USD.

On April 30, 2001 (the "**Cash Index Commencement Date**"), the Cash Index Closing Level was 185.9365. On each Cash Index Business Day following the Cash Index Commencement Date, the Cash Index Closing Level reflects the Cash Index Closing Level from the immediately preceding Cash Roll Day, as adjusted to reflect the 1-Month USD Libor return from the immediately preceding Cash Roll Day, and is calculated as follows:

$$\text{CICL}_{(r)} \times \left(1 + \text{R}_{(t)}\right)$$

Where:

$\text{CICL}_{(r)}$ means the Cash Index Closing Level on the Cash Roll Day immediately preceding the relevant Cash Index Business Day; and

$\text{R}_{(t)}$ means the return, as of any relevant Cash Index Business Day, calculated by the Cash Index Sponsor using the following formula:

$$\frac{\text{DF}_{(t)}}{\text{DF}_{(r)}} - 1$$

Where:

$\text{DF}_{(t)}$ means the Discount Factor in respect of the relevant Cash Index Business Day or, if the relevant Cash Index Business Day is a Cash Roll Day, one; and

$\text{DF}_{(r)}$ means the Discount Factor in respect of the Cash Roll Day immediately preceding the relevant Cash Index Business Day.

With respect to a Cash Index Business Day, the "**Discount Factor**" means the discount factor that, when multiplied by the payment at maturity on the relevant Cash Index Instrument, results in the present value of the relevant Cash Index Instrument on the relevant Cash Index Business Day, calculated using 1-Month USD Libor on that Cash Index Business Day as the discount rate, as follows:

$$\frac{1}{1 + \text{r} \times \text{DCF}}$$

Where:

r means the 1-Month USD Libor in respect of the relevant Cash Index Business Day; and

DCF means the number of calendar days from (and including) the relevant Cash Index Business Day to (and excluding) the Cash Roll Day immediately following the relevant Cash Index Business Day, divided by 360.

"**1-Month USD Libor**" means, in respect of a Cash Index Business Day, the London inter-bank offered rate for deposits in U.S. dollars for one month, as determined by the Cash Index Sponsor by reference to the Reuters screen page USDLIBOR1M= (or any successor screen page that the Cash Index Sponsor deems appropriate) at or around 4:00 p.m. (London time) on that Cash Index Business Day (provided that, if that page is not available for any reason at that time in respect of that Cash Index Business Day, then the Cash Index Sponsor shall determine 1-Month USD Libor in respect of that Cash Index Business Day by reference to any relevant screen page or data source that the Cash Index Sponsor deems appropriate).

“**Cash Index Business Day**” means, in respect of the Cash Index, a day (other than a Saturday or Sunday):

(a) on which commercial banks and foreign exchange markets are open for general business (including dealings in foreign exchange and foreign currency deposits) in London and New York;

(b) on which TARGET is open;

(c) on which no Cash Price Source Disruption has occurred or is existing; and

(d) on which no Cash Force Majeure Event has occurred or is existing.

Prior to May 1, 2015, calculation of the Cash Index Closing Level was on the basis of discount factors determined by bootstrapping from a yield curve, generated by the Cash Index Sponsor using a market standard methodology. Since that date, the Cash Index Closing Level is calculated using publicly available 1-Month USD Libor rates as set out above.

Cash Price Source Disruption and Cash Force Majeure Events and Consequences

If the Cash Index Sponsor determines that a Cash Price Source Disruption or Cash Force Majeure Event has occurred or exists on an Cash Roll Day, the Cash Index Sponsor will determine whether the occurrence of such Cash Price Source Disruption or Cash Force Majeure Event is material in respect of the roll of the Cash Index and/or the calculation of the Cash Index Closing Levels.

In the event that the Cash Index Sponsor determines that the occurrence of a Cash Price Source Disruption or Cash Force Majeure Event is material to such roll or calculation, the Cash Index Sponsor will make such determinations and/or adjustments that, in its determination, are required to take account of such Cash Price Source Disruption or Cash Force Majeure Event. In particular (and without limitation), the Cash Index Sponsor, in making such determination, may:

(a) determine that such day will still be such Cash Roll Day and determine any necessary values by reference to the prevailing market conditions and such other factors it determines appropriate; or

(b) determine that such day will not be an Cash Roll Day and that the Cash Roll Day will be such other day as the Cash Index Sponsor selects, in which case, the roll of the Cash Index will instead take place on such new Cash Roll Day.

In the event that the Cash Index Sponsor determines that an Cash Price Source Disruption or Cash Force Majeure Event has occurred and is continuing for ten consecutive scheduled Cash Index Business Days, the Cash Index Sponsor may permanently cease to calculate and publish the Cash Index Closing Level, and, if the Cash Index Sponsor does so, the Cash Index will terminate.

“**Cash Price Source Disruption**” means (i) the failure of Reuters or any successor (the “**Price Source**”) to announce or publish the 1-Month USD Libor or (ii) the temporary or permanent discontinuance or unavailability of the Price Source.

“**Cash Force Majeure Event**” means, in respect of the Cash Index, an event or circumstance (including, without limitation, a systems failure, fire, building evacuation, natural or man-made disaster, act of God, armed conflict, act of terrorism, riot or labour disruption or any similar intervening circumstance) that affects the ability of the Cash Index Sponsor to calculate or determine the Cash Index and which is beyond the reasonable control of the Cash Index Sponsor.

General Terms Applicable to All Underlying Indices

Underlying Index Sponsors

Unless otherwise provided, all determinations made by each Underlying Index Sponsor will be made by it in good faith and in a commercially reasonable manner by reference to such factors as the Underlying Index Sponsor deems appropriate and will be final, conclusive and binding in the absence of manifest error.

Change in Methodology of an Underlying Index

In relation to each Underlying Index, the relevant Underlying Index Sponsor will, subject as provided below, employ the methodology described below for that Underlying Index and its application of that methodology will be conclusive and binding. While the relevant Underlying Index Sponsor currently employs that methodology to calculate the relevant Underlying Index, no assurance can be given that fiscal, market, regulatory, juridical, financial or other circumstances (including, but not limited to, any changes to or any suspension or termination of or any other events affecting transactions on the same or similar terms to any financial instrument for which values will be derived from the relevant yield curve(s)) will not arise that would, in the view of the relevant Underlying Index Sponsor, necessitate or make desirable a modification of or change to that methodology, and the relevant Underlying Index Sponsor will be entitled to make any such modification or change. The relevant Underlying Index Sponsor may also make modifications to the terms the relevant Underlying Index in any manner that it may deem necessary or desirable, including (without limitation) to correct any manifest or proven error or to cure, correct or supplement any defective provision contained in the relevant methodology.

Change in Methodology of an Underlying Index

In calculating and determining the value of an Underlying Index, the relevant Underlying Index Sponsor will, except as provided below, employ the methodology described herein and the relevant Underlying Index Sponsor’s application of that methodology will be conclusive and binding. While each Underlying Index Sponsor currently employs the relevant above described methodology to calculate the relevant Underlying Index, no assurance can be given that market, regulatory, judicial, financial, fiscal or other circumstances (including, but not limited to, any changes to or any suspension or termination of any constituent of that Underlying Index or any other events affecting transactions on the same or similar terms to any described herein) will not arise that would, in the view of that Underlying Index Sponsor, necessitate or make desirable a modification of or change to that methodology.

Accordingly:

(i) Each Underlying Index Sponsor will be entitled to make such modifications and/or changes as it deems appropriate, including (without limitation):

(a) to correct any manifest error or proven error contained in the relevant methodology described herein; and/or

(b) to cure, correct or supplement any defective provision contained in the relevant methodology described herein; and/or

(c) if market, regulatory, juridical, financial, fiscal or other circumstances arise, and such circumstances would, in the determination of the relevant Underlying Index Sponsor, necessitate or make desirable such a modification or change of the relevant methodology described herein (including, but without limitation, a change in the frequency of calculation of any Underlying Index Closing Level) in order for the relevant Underlying Index to continue being calculated and determined notwithstanding the relevant circumstances. In deciding what is necessary, the relevant Underlying Index Sponsor will consider and/or take into account what that Underlying Index Sponsor determines to be the intended strategy of the relevant Underlying Index;

(ii) Further, and without limitation to the above provisions, each Underlying Index Sponsor will be entitled to make such modifications and/or changes as it deems appropriate:

(a) to preserve the intended strategy of the relevant Underlying Index, where such modification and/or change is of a formal, minor or technical nature; and/or

(b) if market, regulatory, juridical, financial, fiscal or other circumstances arise, and in the determination of the relevant Underlying Index Sponsor, such modifications and/or changes would assist in maintaining the intended strategy of the relevant Underlying Index and/or would ensure that the relevant Underlying Index can continue to be calculated and determined by the relevant Underlying Index Sponsor in light of such circumstances.

Each Underlying Index Sponsor may, in its discretion, at any time and without notice, terminate the calculation and publication of the relevant Underlying Index.

Corrections

In the event that any price or level published on any date which is utilized for any calculation or determination in respect of an Underlying Index is subsequently corrected, or the relevant Underlying Index Sponsor identifies an error or omission in any of its calculations or determinations in respect of an Underlying Index, the relevant Underlying Index Sponsor may, in its sole discretion, adjust or correct any relevant terms, calculations or determinations in respect of that Underlying Index to take into account such correction(s), error(s) or omission(s) (as the case may be) but is not obliged to do so.

Availability of Underlying Index Closing Levels and Adjustments

Each Underlying Index Sponsor will make available (a) the relevant Underlying Index Closing Level for each Underlying Index for each applicable Underlying Index Business Day as soon as reasonably practicable after the valuation time of the relevant Underlying Index and (b) details of any adjustments made to the relevant Underlying Index, in the case of either (a) or (b), on application to Global Markets Client Valuation Group (telephone number +44 20 7545 8000) at the relevant Underlying Index Sponsor's principal office in London for the time being at Winchester House, 1 Great Winchester Street, London EC2N 2DB.

The S&P 500® Index

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

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

To be eligible for inclusion in the S&P 500, a company must be a U.S. company with a market capitalization in excess of $4 billion. Moreover, the company must have four consecutive quarters of positive as-reported earnings and maintain a public float of at least 50%. In addition, the ratio of annual dollar value traded to float adjusted market capitalization for the company should be 1.0 or greater and the company should trade a minimum of 250,000 shares in each of the six months leading up to the evaluation date.

The S&P Index Methodology

On March 21, 2005, S&P began to calculate the S&P 500 based on a half float-adjusted formula, and on September 16, 2005 the S&P Index became fully float adjusted. S&P’s criteria for selecting stocks for the S&P Index have not been changed by the shift to float adjustment. However, the adjustment affects each company’s weight in the S&P Index (i.e., its market value).

Under float adjustment, the share counts used in calculating the S&P Index reflect only those shares that are available to investors, not all of a company’s outstanding shares. S&P defines three groups of shareholders whose holdings are subject to float adjustment:

- holdings by other publicly traded corporations, venture capital firms, private equity firms, strategic partners or leveraged buyout groups;
- holdings by government entities, including all levels of government in the United States or foreign countries; and
- holdings by current or former officers and directors of the company, founders of the company, or family trusts of officers, directors or founders, as well as holdings of trusts, foundations, pension funds, employee stock ownership plans or other investment vehicles associated with and controlled by the company.

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

For each stock, an investable weight factor ("**IWF**") is calculated by dividing the available float shares, defined as the total shares outstanding less shares held in one or more of the three groups listed above where the group holdings exceed 10% of the outstanding shares, by the total shares outstanding. For companies with multiple classes of stock, S&P will calculate the weighted average IWF for each stock using the proportion of the total company market capitalization of each share class as the weights. The result is reviewed to assure that when the weighted average IWF is applied to the class included in the S&P Index, the shares to be purchased are not significantly larger than the available float for the included class.

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

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

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

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

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

Type of Corporate Action	Adjustment Factor	Divisor Adjustment
Company added/deleted	Net change in market value determines divisor adjustment	Yes
Change in shares outstanding	Any combination of secondary issuance, share repurchase or buy back – share counts revised to reflect change.	Yes
Stock split	Share count revised to reflect new count. Divisor adjustment is not required since the share count and price changes are offsetting.	No
Spin-off	If the spun-off company is not being added to the index, the divisor adjustment reflects the decline in index market value (i.e., the value of the spun-off unit).	Yes
Spin-off	Spun-off company added to the index, another company removed to keep number of names fixed. Divisor adjustment reflects deletion.	Yes
Change in IWF due to a corporate action or a purchase or sale by an inside holder	Increasing (decreasing) the IWF increases (decreases) the total market value of the index. The divisor change reflects the change in market value caused by the change to an IWF.	Yes
Special dividend	When a company pays a special dividend the share price is assumed to drop by the amount of the dividend; the divisor adjustment reflects this drop in index market value.	Yes
Rights offering	Each shareholder receives the right to buy a proportional number of additional shares at a set (often discounted) price. The calculation assumes that the offering is fully subscribed. Divisor adjustment reflects increase in market cap measured as the shares issued multiplied by the price paid.	Yes

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

Each of the corporate events exemplified in the table requiring an adjustment to the Index Divisor has the effect of altering the Market Value of the S&P component stock and consequently of altering the aggregate Market Value of the S&P component stocks (the "**Post-Event**

Aggregate Market Value"). In order that the level of the S&P Index (the "**Pre-Event Index Value**") not be affected by the altered Market Value (whether increase or decrease) of the affected component stock, a new Index Divisor ("**New Divisor**") is derived as follows:

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

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

A large part of the index maintenance process involves tracking the changes in the number of shares outstanding of each of the companies included in each S&P Index. Four times a year, on a Friday close to the end of each calendar quarter, the share totals of companies in the S&P Index are updated as required by any changes in the number of shares outstanding. After the totals are updated, the index divisor is adjusted to compensate for the net change in the total market value of the index. In addition, changes in a company's total shares outstanding of 5% or more due to public offerings, tender offers, Dutch auctions or exchange offers are made as soon as reasonably possible. Other changes of 5% or more (for example, due to company stock repurchases, private placements, an acquisition of a privately held company, redemptions, exercise of options, warrants, conversion of preferred stock, notes, debt, equity participations, at-the-market stock offerings or other recapitalizations) are made weekly, and are announced on Wednesdays for implementation after the close of trading the following Wednesday (one week later). Weekly share changes scheduled to be effective on the Wednesday of a rebalancing week are combined with the quarterly share rebalancing and implemented on Friday of that week. When appropriate, an immediate adjustment is made to the index divisor.

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