

Macquarie Single Commodity Periodic FX Conversion Indices

**Index Manual
June 2021**

IMPORTANT INFORMATION

BASIS OF PROVISION

This document (the **Index Manual**) sets out the rules for the Macquarie Single Commodity Periodic FX Conversion Indices (each, an **Index**) and reflects the methodology for determining the composition and calculation of each Index (the **Methodology**). The Methodology and each Index derived from this Methodology are the exclusive property of Macquarie Bank Limited (the **Index Administrator**). The Index Administrator owns the copyright and all other rights to the Indices. They have been provided to you solely for your internal use and you may not, without the prior written consent of the Index Administrator, distribute, reproduce, in whole or in part, summarize, quote from or otherwise publicly refer to the contents of the Methodology or use it as the basis of any financial instrument.

For the purposes of the remainder of this document, each reference to the Index in singular form shall be interpreted as being applicable to each Index covered by this Index Manual.

SUITABILITY OF INDEX

The Index and any financial instruments based on the Index may not be suitable for all investors and any investor must make an independent assessment of the appropriateness of any transaction in light of their own objectives and circumstances including the potential risks and benefits of entering into such a transaction. If you are in any doubt about any of the contents of this document, you should obtain independent professional advice.

This Index Manual assumes the reader is a sophisticated financial market participant, with the knowledge and expertise to understand the financial mathematics and derived pricing formulae, as well as the trading concepts, described herein. Any financial instrument based on the Index is unsuitable for a retail or unsophisticated investor.

RISK FACTORS

See the risk factors relating to Macquarie indices in the document headed “Macquarie Proprietary Indices – Risk Factors” at <https://www.macquarie.com/uk/en/about/company/commodities-and-global-markets/commodities/commodity-index-documentation.html> (the **Risk Factors**). Investors should note in particular the following sections of the Risk Factors: Part 1 (*General Risk Factors*), Part 2.2 (*Commodity Indices*), Part 2.3 (*Single Futures Indices*), Part 2.4 (*Foreign Exchange Rates*) and Part 2.7 (*Emerging Markets*).

With respect to the relevant Base Index, see the section headed “Risk Factors” in the index manual of the Base Index (the **Base Index Manual**) and the risk factors referred to therein.

HISTORICAL DATA

The Index has been calculated from the Index Live Date but historical Index levels (prior to the Index Live Date) have been produced by a back-test process from the Index Start Date. For more information, see Section 7.3 (*Historical Values of the Index*).

CONFLICTS AND USE OF DISCRETION

For operational reasons the Index may, in limited circumstances, permit the exercise of discretion by the Index Calculation Agent (acting in good faith and in a commercially reasonable manner). For further information see Section 5.4 (*Discretion*).

For information on potential conflicts, see Section 6.3 (*Conflicts*).

CESSATION OR MODIFICATION OF THE INDEX

If you have been granted written consent by the Index Administrator to reference the Index in any contract or financial instrument, you should include in such contract or financial instrument robust fallback provisions to deal with cessation or material modification of the Index.

For information on corrections, changes and cessation of the Index, see Section 5 (*Corrections, Changes, Cessation and Discretion*).

DISCLAIMER OF LIABILITY

The Methodology is published for information purposes only and does not create any legally binding obligation on the part of the Index Administrator, the Index Calculation Agent and/or their affiliates. This document is intended to provide a summary of the Index it purports to describe. The Index Administrator expressly disclaims (to the fullest extent permitted by applicable law) all warranties (express, statutory or implied) regarding this document and the Methodology or the Index, including but not limited to, all warranties of merchantability, fitness for a particular purpose (including investment by regulated funds) and all warranties arising from course of performance, course of dealing or usage of trade and their equivalents under applicable laws of any jurisdiction. In particular, the Index Administrator and the Index Calculation Agent do not warrant or guarantee the completeness or accuracy of the Index or timeliness of calculations of any Index Level and do not warrant or guarantee the availability of any Index Level on any particular date or at any particular time. The Index Administrator and the Index Calculation Agent shall have no liability to any person for delays, omissions or interruptions in the delivery of any Index, including as a result of the failure of prices to be published in respect of any Component, an underlying Contract or, as applicable, any other reference value for any reason. Although the Index Calculation Agent will obtain information concerning Components and or reference values from publicly available sources it believes to be reliable, it will not independently verify this information. Accordingly, no representation, warranty or undertaking (express or implied) is made by the Index Administrator or the Index Calculation Agent as to the accuracy and completeness of information concerning any Index.

In particular, the Index Administrator and the Index Calculation Agent shall not be liable (whether in contract, tort or otherwise) for any losses (including direct, indirect, special, punitive or other damages (including loss of profits)) resulting from (i) any determination that a Market Disruption Event, an FX Disruption Event or an Error has occurred or has not occurred, (ii) the timing relating to the determination that a Market Disruption Event, an FX Disruption Event or an Error has occurred, or (iii) any actions taken or not taken by the Index Calculation Agent or the Index Administrator as a result of a determination that a Market Disruption Event, an FX Disruption Event or an Error has occurred.

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SECTION 1: OVERVIEW

1.1 INTRODUCTION AND INDEX OBJECTIVE

Each Index aims to convert its underlying index (the **Base Index**) from the Currency of the underlying index (the **Base Currency**) to another Currency (the **Target Currency**). The conversion is implemented by maintaining a Cash Balance in the Base Currency, which replicates the returns obtained by holding the Base Index, and periodically converting it to the Target Currency. The exposure of each Macquarie Single Commodity Periodic FX Conversion Index to its Base Index is periodically calculated and adjusted according to the Methodology described in Section 2 (*Index Methodology*).

1.2 INDEX CALCULATION

The Indices are calculated and maintained by the Index Calculation Agent and supervised by the Index Administrator and the Index Oversight Committee, as described in Section 6 (*Oversight, Roles, Conflicts and Reviews*). All determinations with regard to the Indices are made following the rules set out in this document, without discretion by the Index Administrator or the Index Calculation Agent, other than in the limited circumstances set out in this document – see Section 5 (*Corrections, Changes, Cessation and Discretion*) for further information.

In respect of each Index, the Index Level as of the Index Start Date is equal to the Index Start Level specified in the Index Specifications in Annex A (*Index Specifications*). Thereafter, each Index Level is calculated as set out in Section 2 (*Index Methodology*).

The Indices are not based upon submissions provided by third parties (or an affiliate of the Index Administrator or the Index Calculation Agent). The Indices are based upon actual transaction data sourced from regulated markets and exchanges.

1.3 INDEX SPECIFICATIONS

Each Index is differentiated by the Index Specifications corresponding to that Index. The Index Specifications set out (i) certain parameters specific to such Index (such as the Index Name and the Target Currency), (ii) certain parameters specific to the Base Index of such Index (such as the Base Index Name and the Base Currency), and (iii) the parameters that determine the Methodology (such as the Holdings Calculation Day and the FX Conversion Day).

The Index Administrator may, at any time, commence calculation and publication of new Indices pursuant to the Methodology. In such circumstances the Index Administrator will publish a revised version of the Methodology, revised only to augment Annex A (*Index Specifications*) with the new Index Specifications relating to the new Indices.

1.4 METHODOLOGY

The Methodology for calculating the Index is described in the Section 2 (*Index Methodology*). To facilitate an understanding of the calculations, worked examples, which demonstrate the types of calculations needed to calculate the Index Level on a particular date, can be provided upon request from the Index Administrator.

In respect of each Index, the Base Index Manual sets out the rules for the Base Index and, in each case, reflects the methodology for determining the composition and calculation of the relevant Base Index. Investors in a financial product linked to an Index must read the Base Index Manual.

SECTION 2: INDEX METHODOLOGY

On a daily basis, each Macquarie Single Commodity Periodic FX Conversion Index converts its Base Index from the Base Currency to the Target Currency by maintaining a Cash Balance in the Base Currency and periodically converting it to the Target Currency. The exposure of each Macquarie Single Commodity Periodic FX Conversion Index to its Base Index is periodically calculated and adjusted according to the Methodology described in Section 2.2 (*Incremental Units Calculation*).

The following sections detail how the Index Calculation Agent will calculate the Index Level of each Macquarie Single Commodity Periodic FX Conversion Index on each Index Business Day, based on the inputs set out in Annex A (*Index Specifications*), Annex B (*Time Value Factors*) and Annex C (*FX Spot Rates*).

Section 2.1 (<i>Time Value Factors Calculation</i>)	describes how the Time Value Factor for Funding and the Time Value Factor for Growth are calculated;
Section 2.2 (<i>Incremental Units Calculation</i>)	describes the daily calculation of the Incremental Units of the Base Index and the Cash Balance;
Section 2.3 (<i>Units Calculation</i>)	describes the daily calculation of the Units of the Base Index and the Cash Balance; and
Section 2.4 (<i>Daily Index Calculation</i>)	describes the daily calculation of the Index Level.

2.1 TIME VALUE FACTORS CALCULATION

2.1.1 Time Value Factor for Funding

The **Time Value Factor for Funding**, $TVFF_t^c$, in respect of a Currency (a **Currency**, c), and an Index Business Day (an **Index Business Day**, t), is calculated according to the formula below:

$$TVFF_t^c = r_t^c \times DCF_t^c$$

Where:

r_t^c	is the TVFF Funding Rate Value in respect of such Currency, c , and such Index Business Day, t , as defined in Section 4 (<i>Definitions</i>); and
DCF_t^c	is the Day Count Fraction in respect of such Currency, c , and such Index Business Day, t , and is calculated according to the formula below:

$$DCF_t^c = \frac{\Delta t}{DC^c}$$

Where:

Δt	is the number of calendar days from, and including, the Index Business Day immediately preceding to the Index Business Day, t , to, but excluding, such Index Business Day, t ; and
DC^c	is the Day Count in respect of such Currency, c , as defined in Section 4 (<i>Definitions</i>).

2.1.2 Time Value Factor for Growth

The **Time Value Factor for Growth**, $TVFG_t^c$, in respect of a Currency, c , and an Index Business Day, t , is calculated according to the formula below:

$$TVFG_t^c = \prod_{g \in G_t^c} (1 + r_g^c \times DCF_g^c) - 1$$

Where:

- G_t^c is the Growth Days Set in respect of such Currency, c , and such Index Business Day, t , and is defined as a set of Funding Rate Days from, but excluding, the Index Business Day immediately preceding to the Index Business Day, t , to, and including, such Index Business Day, t ;
- g is each Funding Rate Day in the Growth Days Set, G_t^c ;
- r_g^c is the TVFG Funding Rate Value in respect of such Currency, c , and such Funding Rate Day, g , as defined in Section 4 (*Definitions*); and
- DCF_g^c is the Day Count Fraction in respect of such Currency, c , and such Funding Rate Day, g , and is calculated according to the formula below:

$$DCF_g^c = \frac{\Delta g}{DC^c}$$

Where:

- Δg is the number of calendar days from, and including, the Funding Rate Day immediately preceding to the Funding Rate Day, g , to, but excluding, such Funding Rate Day, g ; and
- DC^c is the Day Count (as specified in Annex B (*Time Value Factors*)) in respect of such Currency, c .

2.2 INCREMENTAL UNITS CALCULATION

For the purpose of calculating the Units of the Base Index and the Units of the Cash Balance in order to calculate the Index Level, the Incremental Units of the Base Index, the Incremental Units of the Cash Balance and the FX Conversion need to be determined.

2.2.1 Incremental Units of the Base Index

The **Incremental Unit of the Base Index**, IU_t^i , in respect of an Index Business Day, t , is calculated according to the rules below:

- (a) if such Index Business Day, t , is not a Holdings Calculation Day:

$$IU_t^i = 0$$

- (b) If such Index Business Day, t , is a Holdings Calculation Day:

$$IU_t^i = \frac{I_{t-1}}{I_{t-1}^{\text{base}} \times FX_{t-1}} - U_t^i$$

Where:

I_{t-1}	is the Index Level in respect of the Index Business Day immediately preceding such Index Business Day, t ;
I_{t-1}^{base}	is the Base Index Level in respect of the Index Business Day immediately preceding such Index Business Day, t ;
FX_{t-1}	is the FX Spot Rate in respect of the Index Business Day immediately preceding such Index Business Day, t , as defined in Section 4 (<i>Definitions</i>); and
U_t^i	is the Unit of the Base Index in respect of such Index Business Day, t , as defined in Section 2.3 (<i>Units Calculation</i>).

2.2.2 Incremental Units of the Cash Balance

The **Incremental Unit of the Cash Balance**, IU_t^c , in respect of an Index Business Day, t , is calculated according to the formula below:

$$IU_t^c = U_t^i \times (I_t^{\text{base}} - I_{t-1}^{\text{base}}) + U_t^c \times TVFG_t^{\text{base}}$$

Where:

U_t^i	is the Unit of Base Index in respect of such Index Business Day, t , as defined in Section 2.3 (<i>Units Calculation</i>);
U_t^c	is the Unit of Cash Balance in respect of such Index Business Day, t , as defined in Section 2.3 (<i>Units Calculation</i>);
I_t^{base}	is the Base Index Level in respect of such Index Business Day, t ;
I_{t-1}^{base}	is the Base Index Level in respect of the Index Business Day immediately preceding such Index Business Day, t ; and
$TVFG_t^{\text{base}}$	is the Time Value Factor for Growth in respect of a Base Currency and an Index Business Day, t , as defined in Section 2.1 (<i>Time Value Factors Calculation</i>).

2.2.3 FX Conversion

The **FX Conversion**, IU_t^{cs} , in respect of an Index Business Day, t , is calculated according to the rule below:

- (a) if such Index Business Day, t , is not an FX Conversion Day:

$$IU_t^{cs} = 0$$

- (b) if such Index Business Day, t is an FX Conversion Day:

$$IU_t^{cs} = -U_t^c \times (1 + TVFG_t^{\text{base}})$$

Where:

U_t^c	is the Unit of Cash Balance in respect of such Index Business Day, t , as defined in Section 2.3 (<i>Units Calculation</i>); and
$TVFG_t^{\text{base}}$	is the Time Value Factor for Growth in respect of a Base Currency and such Index Business Day, t , as defined in Section 2.1 (<i>Time Value Factors Calculation</i>).

2.3 UNITS CALCULATION

For the purpose of calculating the Index Level, the Units of the Base Index and the Units of the Cash Balance need to be determined.

2.3.1 Unit of the Base Index

The **Unit of the Base Index**, U_t^i , in respect of an Index Business Day, t , is calculated according to the formula below:

- (a) if such Index Business Day, t is the Index Start Date:

$$U_t^i = 0$$

- (b) if such Index Business Day, t is not the Index Start Date:

$$U_t^i = U_{t-1}^i + IU_{t-1}^i$$

Where:

- U_{t-1}^i is the Unit of the Base Index in respect of the Index Business Day immediately preceding to the Index Business Day, t ; and
 IU_{t-1}^i is the Incremental Unit of the Base Index in respect of the Index Business Day immediately preceding to the Index Business Day, t , as defined in Section 2.2 (*Incremental Units Calculation*).

2.3.2 Unit of the Cash Balance

The **Unit of the Cash Balance**, U_t^c , in respect of an Index Business Day, t , is calculated according to the formula below:

- (a) if such Index Business Day, t is the Index Start Date:

$$U_t^c = 0$$

- (b) if such Index Business Day, t is not the Index Start Date:

$$U_t^c = U_{t-1}^c + IU_{t-1}^c + IU_{t-1}^{cs}$$

Where:

- U_{t-1}^c is the Unit of the Cash Balance in respect of the Index Business Day immediately preceding to the Index Business Day, t ;
 IU_{t-1}^c is the Incremental Unit of the Cash Balance in respect of the Index Business Day immediately preceding to the Index Business Day, t , as defined in Section 2.2 (*Incremental Units Calculation*); and
 IU_{t-1}^{cs} is the FX Conversion in respect of the Index Business Day immediately preceding to the Index Business Day, t , as defined in Section 2.2 (*Incremental Units Calculation*).

2.4 DAILY INDEX CALCULATION

On each Index Business Day, t , the Index Level of the Index, I_t , is calculated (rounded to eight decimal places) according to the formula below:

$$I_t = I_{t-1} + UR_t + AR_t$$

Where:

I_{t-1} is the Index Level in respect of the Index Business Day immediately preceding to such Index Business Day, t ;

UR_t is the Unit Return in respect of such Index Business Day, t , and is calculated according to the following formula:

$$UR_t = U_t^i \times (I_t^{\text{base}} - I_{t-1}^{\text{base}}) \times FX_t + U_t^c \times (FX_t - FX_{t-1})$$

Where:

U_t^i is defined in Section 2.3.1 (*Unit of the Base Index*);

U_t^c is defined in Section 2.3.2 (*Unit of the Cash Balance*);

I_t^{base} is the Base Index Level in respect of such Index Business Day, t ;

I_{t-1}^{base} is the Base Index Level in respect of the Index Business Day immediately preceding to such Index Business Day, t ;

FX_t is the FX Spot Rate in respect of such Index Business Day, t , as defined in Section 4 (*Definitions*); and

FX_{t-1} is the FX Spot Rate in respect of the Index Business Day immediately preceding to such Index Business Day, t , as defined in Section 4 (*Definitions*).

AR_t is the Adjustment Return in respect of the Index Business Day, t , and is calculated according to the following formula:

$$AR_t = -U_t^c \times FX_{t-1} \times TVFF_t^{\text{target}} + U_t^c \times TVFG_t^{\text{base}} \times FX_t$$

Where:

$TVFF_t^{\text{target}}$ is the Time Value Factor for Funding in respect of a Target Currency and such Index Business Day, t , as defined in Section 2.1 (*Time Value Factors Calculation*); and

$TVFG_t^{\text{base}}$ is the Time Value Factor for Growth in respect of a Base Currency and such Index Business Day, t , as defined in Section 2.1 (*Time Value Factors Calculation*).

SECTION 3: MARKET DISRUPTION EVENTS AND FX DISRUPTION EVENTS

3.1 UNDERLYING CONTRACTS

The Index is calculated on a daily basis based on the settlement prices of the contracts that underlie the Index (the **Underlying Contracts**). The Underlying Contracts may directly or ultimately underlie the Index, depending on how the Index is constructed. If the Components of the Index are futures or other contracts, then the Underlying Contracts will refer to the Components of the Index. If the Components of the Index are indices, then the Underlying Contracts of the Index will refer to the contracts that underlie those Component indices either directly (where the Component indices are comprised of constituents that are contracts) or ultimately (where the Components indices are comprised of constituents that are indices, in which case the underlying contracts of those constituent indices will be the Underlying Contracts).

The determination of a Market Disruption Event (as defined below) is made in respect of the Underlying Contracts of the Index.

3.2 MARKET DISRUPTION EVENTS

With respect to the calculation of the Index, a **Market Disruption Event** means the occurrence, in respect of one or more Underlying Contracts, of one or more of the following events, as determined by the Index Calculation Agent:

- (i) a failure by the relevant Trading Facility to report or announce a settlement price for an Underlying Contract (including each Index Business Day on which the Trading Facility is not open for business);
- (ii) all trading in an Underlying Contract of the Index is suspended and does not recommence at least ten minutes prior to the actual closing time of the regular trading session;
- (iii) the settlement price published by the relevant Trading Facility for one (or more) Underlying Contracts is a “limit price”, which typically means that the Trading Facility published settlement price for such Contract for a trading day has increased or decreased from the previous trading day’s settlement price by the maximum amount permitted under applicable rules of the Trading Facility;
- (iv) any other event, if the Index Administrator reasonably determines that the event materially interferes with the ability of market participants to hedge the Index; or
- (v) in respect of an Underlying Contract that is a Commodity futures contract, the occurrence of a Market Disruption Event (as defined in sub-paragraphs (i) to (iv) (inclusive), above) in respect of an Underlying Contract that shares the same Commodity (such Underlying Contract, a **Linked Contract**).

For the avoidance of doubt, the occurrence of a Market Disruption Event in accordance with sub-paragraph (v) above shall be deemed to occur in respect of an Underlying Contract regardless of whether or not any other Market Disruption Event (in accordance with sub-paragraphs (i) to (iv) (inclusive), above) has occurred in respect of such Underlying Contract.

The Index Calculation Agent will determine the Index Level under Market Disruption Events in accordance with the following section.

INDEX CALCULATION UNDER MARKET DISRUPTION EVENTS

When a Market Disruption Event occurs or is continuing on a particular Index Business Day, the Index Calculation Agent will determine the basket of futures contracts that is equivalent to the basket of Components that the Index represents in respect of that Index Business Day. Once this basket is determined, the Index Calculation Agent will make such adjustments as are necessary to ensure the Index Level reflects contract prices that were attainable in the market at the times they would need to be traded in order to replicate the performance of the Index, as described below.

If, on a Holdings Calculation Day R , a Market Disruption Event with respect to one or more Underlying Contracts occurs (such day, a **Disrupted Holdings Calculation Day** and each such Contract, a **Disrupted Contract**), then the Index Calculation for subsequent Index Business Days, until the second consecutive non-disrupted Index Business Day, will be modified as follows:

- (i) As long as a Market Disruption Event that occurred or was continuing on the Holdings Calculation Day R is continuing, the Index Level will be calculated according to the following formula:

$$I_t = I_{t-1} + \sum_j H'_{j,t} (f_{j,t} - f_{j,t-1}) \times FX_t + U_t^c \times (FX_t - FX_{t-1}) - U_t^c \times FX_{t-1} \times TVFF_t^{\text{target}} + U_t^c \times TVFG_t^{\text{base}} \times FX_t$$

Where:

$H'_{j,t}$ is the Equivalent Holding for Underlying Contract j as calculated according to sub-paragraphs (ii)-(v) below; and
 $f_{j,t}$ is the settlement price of Underlying Contract j as of the Index Business Day, t .

- (ii) The Index Calculation Agent shall determine the Equivalent Holdings and the Equivalent Target Holdings with respect to the Index.

The **Equivalent Holdings** is the set of holdings $\{H'_{1,R}, \dots, H'_{m,R}\}$ of Underlying Contracts $\{F_1 \dots F_m\}$ which perfectly describes the returns of the Index in the time period from the immediately preceding Holdings Calculation Day to the Holdings Calculation Day R .

The **Equivalent Target Holdings** is a set of target holdings $\{TH'_{1,t}, \dots, TH'_{m,t}\}$ for the Underlying Contracts, which perfectly describes the returns of the Index on the days following the Disrupted Holdings Calculation Day and until the first subsequent Holdings Calculation Day.

The Equivalent Holdings and the Equivalent Target Holdings shall be determined for all Underlying Contracts, therefore some $H'_{j,t}$ and/or $TH'_{j,t}$ may have a value of 0.

- (iii) On the Index Business Day immediately following a Disrupted Holdings Calculation Day and until all Market Disruption Events that occurred on the Disrupted Holdings Calculation Day have ceased, the Equivalent Holdings $\{H'_{1,t}, \dots, H'_{m,t}\}$ are calculated based on the following formula:

$$H'_{j,t} = TH'_{j,R} + SCH_{j,t}$$

Where:

$TH'_{j,R}$ means the Equivalent Target Holding of Underlying Contract j on Holdings Calculation Day R

$SCH_{j,t}$ means $\begin{cases} H'_{j,t-1} - TH'_{j,R} & \text{if } j \text{ is a Disrupted Contract; or} \\ 0 & \text{otherwise} \end{cases}$

$H'_{j,t-1}$ means the Equivalent Holding of Underlying Contract j on the Index Business Day immediately preceding Index Business Day t

- (iv) For each Disrupted Contract j , the **Equivalent Holding**, $H'_{j,t}$ shall be equal to the Equivalent Target Holding, $TH'_{j,t}$ on the first Index Business Day following a Disrupted Holdings Calculation Day on which no Market Disruption Event in respect of that Contract j occurs or is continuing. If a Market Disruption Event continues for more than 5 Index Business Days following a Disrupted Holdings Calculation Day, the Index Calculation Agent shall, in good faith, determine the levels of each Disrupted Component j that will be used in the calculation of Holdings and Index Levels.
- (v) For each Underlying Contract that is not a Disrupted Contract, the Holding, $H_{j,t}$ on the Index Business Day immediately following the Disrupted Holdings Calculation Day shall be the Equivalent Target Holding.
- (vi) On the second consecutive non-disrupted Index Business Day immediately following a Disrupted Holdings Calculation Day, the Index Calculation Agent will resume calculation of the Index in accordance with Section 2 (*Index Methodology*).

Further explanation of Holdings and Equivalent Holdings:

In respect of any given Index Business Day, the Index is represented as a basket of its Components with a Holding in respect of each Component determined on the immediately preceding Holdings Calculation Day. For the purposes of determination of whether disruption to futures trading affects the Index, however, the Holdings of the Index must instead be expressed in terms of the futures contracts that ultimately underlie the Index. As the Index is a linear basket of its Components, and because the same holds true of all components of those Components, (whether they themselves are futures or indices), it is possible to work through the Holdings of the Index, and, by ultimately breaking down each Index to the futures contracts that comprise it, determine a new set of Holdings that, in respect of that Index Business Day, exactly represents the composition of the Index in terms of its Underlying Contracts.

3.3 FX DISRUPTION EVENTS

On an FX Conversion Date, an **FX Disruption Event** means any of the following events:

- (i) Illiquidity Event;
- (ii) Price Source Disruption; and
- (iii) Policy Event.

Currency Pair means the Base Currency and the Target Currency.

Illiquidity Event means, in respect of a Currency Pair and an Index Business Day, the Index Calculation Agent determines that it becomes impossible to obtain a firm quote of the relevant foreign exchange rate for such Currency Pair on such Index Business Day (or, if different, the day on which rates for that Index Business Day would, in the ordinary course, be published or announced by the relevant price source).

Policy Event means that (a) the government (or any agency or instrumentality thereof) or any administrative or other governmental authority (or any other person charged with regulation of the financial markets of such jurisdiction) of the jurisdiction of the Base Currency or the Target Currency, as the case may be, has (i) pegged the Base Currency to the Target Currency (or vice versa), (ii) imposed a “hard” or “soft” floor to the exchange rate of a the Currency Pair or (iii) imposed controlled appreciation or devaluation by the jurisdiction of the Base Currency relative to the Target Currency (or vice versa) or (iv) taken any other action and (b) the Calculation Agent determines that such action would reasonably affect an investment in the Target Currency or the Base Currency, as applicable.

Price Source Disruption means, in respect of a Currency Pair and an Index Business Day, it becomes impossible to obtain the FX Spot Rate on such Index Business Day (or, if different, the day on which rates for that Index Business Day would, in the ordinary course, be published or announced by the relevant price source).

The Index Calculation Agent will determine the Index Level under Market Disruption Events in accordance with the following section.

INDEX CALCULATION UNDER FX DISRUPTION EVENTS

When an FX Disruption Event occurs or is continuing on an FX Conversion Day, the Index Calculation Agent will take the following action:

- (i) the FX Conversion Day will be postponed to the first Index Business Day (which is also an Index Business Day of the Base Index and an FX Publication Day) not affected by an FX Disruption Event.

In the event that the FX Disruption Event is continuing for more than five (5) Index Business Days (each of which is also an Index Business Day of the Base Index and an FX Publication Day), then on such fifth Index Business Day the Index Calculation Agent will determine in its sole discretion, but subject to the approval of the Index Oversight Committee, its good faith estimate of the FX Spot Rate in order to effect that FX Conversion. It is anticipated, however, that the Index Calculation Agent will only need to make such determination under extraordinary circumstances.

SECTION 4: DEFINITIONS

Affected Index Level is defined in Section 5.1.1 (*Errors*).

Base Currency, in respect of an Index, is the Currency of the Base Index in respect of such Index, as specified in Annex A (*Index Specifications*).

Base Index, in respect of an Index, is specified in Annex A (*Index Specifications*).

Base Index Level, in respect of a Base Index and an Index Business Day, is the level of such Index as calculated and published by the index calculation agent of such Base Index.

Base Index Manual is defined in the section entitled “Important Information”.

Bloomberg Ticker, in respect of an Index, is the ticker under which the relevant Index Level will be published, as specified in Annex A (*Index Specifications*).

Bloomberg Ticker of Base Index, in respect of an Index, is the ticker under which the relevant Base Index of such Index will be published, as specified in Annex A (*Index Specifications*).

Calculation Error is defined in Section 5.1.1 (*Errors*).

Currency, is Base Currency or Target Currency.

Day Count, in respect of a Currency, is specified in Annex B (*Time Value Factors*).

Day Count Fraction, in respect of a Currency and an Index Business Day, is defined in Section 2.1 (*Time Value Factors Calculation*).

Disrupted Contract is defined in Section 3.1 (*Market Disruption Events*).

Disrupted Holdings Calculation Day is defined in Section 3.1 (*Market Disruption Events*).

Equivalent Holdings is defined in Section 3.1 (*Market Disruption Events*).

Equivalent Target Holdings is defined in Section 3.1 (*Market Disruption Events*).

Error is defined in Section 5.1.1 (*Errors*).

Funding Rate, in respect of a Currency, is specified in Annex B (*Time Value Factors*).

Funding Rate Day, in respect of a Currency, is each day in the Funding Rate Calendar in respect of such Currency.

Funding Rate Calendar, in respect of a Currency, is specified in Annex B (*Time Value Factors*).

FX Conversion Day, in respect of an Index, is an Index Business Day, which is also an Index Business Day of the Base Index, a Trading Day of such Index and an FX Publication Day, on which the FX Conversions are periodically calculated in order to adjust the Unit of the Cash Balance. The FX Conversion Day is specified in Annex A (*Index Specifications*). If such calendar day is not an Index Business Day, an Index Business Day of the Base Index, a Trading Day of such Index or an FX Publication Day, then the FX Conversion Day will

be the Index Business Day, which is also an Index Business Day of the Base Index, a Trading Day of such Index and an FX Publication Day, immediately following such calendar day.

FX Disruption Event is defined in Section 3.2 (*FX Disruption Events*).

FX Publication Calendar is the set of each week day, excluding 1 January, Good Friday and 25 December. If 1 January or 25 December falls on a Sunday, then 2 January or 26 December are excluded from the FX Publication Calendar.

FX Publication Day is each day in the FX Publication Calendar.

FX Spot Rate, in respect of an Index Business Day, is the FX spot rate at which the Base Currency is exchanged for the Target Currency, and is determined according to the following rule:

- (a) if the Quote Convention, in respect of the Base Currency and the Target Currency, is equal to 1, then the FX Spot Rate is the Quote Spot Rate, in respect of such Base Currency and such Target Currency, as specified in Annex C (*FX Spot Rates*); or
- (b) if the Quote Convention, in respect of the Base Currency and the Target Currency, is equal to -1, then the FX Spot Rate is the reciprocal (or the multiplicative inverse) of the Quote Spot Rate, in respect of such Base Currency and such Target Currency, as specified in Annex C (*FX Spot Rates*).

If the FX Spot Rate is not available, as determined by the Index Calculation Agent, then the FX Spot Rate will be the most recent available FX Spot Rate.

Growth Days Set, in respect of a Currency and an Index Business Day, is defined in Section 2.1 (*Time Value Factors Calculation*).

Holdings Calculation Day, in respect of an Index, is an Index Business Day, which is also an Index Business Day of the Base Index, a Trading Day of such Index and an FX Publication Day, on which the Incremental Units of the Base Index are periodically calculated in order to adjust the Unit of the Base Index. The Holdings Calculation Day is specified in Annex A (Index Specifications). If such calendar day is not an Index Business Day, an Index Business Day of the Base Index, a Trading Day of such Index or an FX Publication Day, then the Holdings Calculation Day is the Index Business Day, which is also an Index Business Day of the Base Index, a Trading Day of such Index and an FX Publication Day, immediately following such calendar day.

Holiday Rate Offset, in respect of a Currency, is specified in Annex B (*Time Value Factors*).

Index is defined in the section entitled “Important Information”.

Index Administrator is defined in the section entitled “Important Information”.

Index Business Day, in respect of an Index, is each day in the Index Calendar.

Index Calculation Agent is defined in Section 6.2.2 (*Index Calculation Agent*).

Index Calendar, in respect of an Index, is the calendar of days in respect of which an Index Level will be published, and is specified in Annex A (*Index Specifications*).

Index Level, in respect of an Index and an Index Business Day, is defined in Section 2.4 (*Daily Index Calculation*) and is the level of such Index as calculated and published by the Index Calculation Agent.

Index Live Date, in respect of an Index, is 27 January 2020 being the date on which the Methodology of the Index was finalised.

Index Manual is defined in the section entitled “Important Information”.

Index Oversight Committee is defined in Section 6.1 (*Index Governance*).

Index Publication Day, in respect of an Index, is defined in Section 7.2 (*Publication of the Index Level*).

Index Specifications is a set of variables peculiar to a particular Index, as set out in the Index Specifications table for that Index in Annex A (*Index Specifications*) hereto.

Index Start Date, in respect of an Index, is the first Index Business Day on which the Index Calculation Agent will calculate and publish an Index Level for such Index, and is specified in Annex A (*Index Specifications*). The Index Calculation Agent may calculate, but not publish, the Index Level in respect of Index Business Days preceding the Index Start Date if that is required for calculating the Index Level of the Index on the Start Date or on following days.

Index Start Level, in respect of an Index, is the Index Level of such Index on the Index Start Date, and is 100.

Input Error is defined in Section 5.1.1 (*Errors*).

Market Disruption Event is defined in Section 3.1 (*Market Disruption Events*).

Material Error is defined in Section 5.1.1 (*Errors*).

Methodology is defined in the section entitled “Important Information”.

Publication Time is defined in Section 7.2 (*Publication of Index Level*).

Quote Convention, in respect of a Base Currency and a Target Currency, is specified in Annex C (*FX Spot Rates*).

Quote Spot Rate, in respect of a Base Currency and a Target Currency, is specified in Annex C (*FX Spot Rates*).

Risk Factors is defined in the section entitled “Important Information”.

Target Currency, in respect of an Index, is the Currency of such Index, as specified in Annex A (*Index Specifications*).

Time Value Factor for Funding, in respect of a Currency and an Index Business Day, is defined in Section 2.1 (*Time Value Factors Calculation*).

Time Value Factor for Growth, in respect of a Currency and an Index Business Day, is defined in Section 2.1 (*Time Value Factors Calculation*).

Trading Day, in respect of an Index, is each calendar day on which the futures contracts underlying the Base Index of such Index is scheduled to be traded on the Trading Facility in respect of such Index.

Trading Facility, in respect of an Index, is the regulated futures exchange, facility or platform on or through which the futures contracts underlying the Base Index of such Index are traded, as specified in the relevant Annex A (*Index Specifications*).

TVFF Funding Rate Day, in respect of a Currency and an Index Business Day, is determined according to the following rule:

- (A) if such Index Business Day is a Funding Rate Day in respect of such Currency, then the TVFF Funding Rate Day is an Index Business Day, which is a Funding Rate Day, immediately preceding to such Index Business Day; or
- (B) if such Index Business Day is not a Funding Rate Day in respect of such Currency, then the TVFF Funding Rate Day is a Funding Rate Day, falling Holiday Rate Offset Funding Rate Days prior to the Index Business Day immediately preceding to such Index Business Day.

TVFF Funding Rate Value, in respect of a Currency and an Index Business Day, is the annual percentage rate of interest determined by the Index Calculation Agent by reference to the Funding Rate in respect of such Currency on the TVFF Funding Rate Day in respect of such Currency and such Index Business Day. If the Funding Rate is not available, as determined by the Index Calculation Agent, then the TVFF Funding Rate Value will be the Funding Rate in respect of such Currency on the immediately preceding Funding Rate Day on which the Funding Rate is available.

TVFG Funding Rate Day, in respect of a Currency and a Funding Rate Day, is the Funding Rate Day immediately preceding to such Funding Rate Day.

TVFG Funding Rate Value, in respect of a Currency and a Funding Rate Day, is the annual percentage rate of interest determined by the Index Calculation Agent by reference to the Funding Rate in respect of such Currency on the TVFG Funding Rate Day in respect of such Currency and such Funding Rate Day. If the Funding Rate is not available, as determined by the Index Calculation Agent, then the TVFG Funding Rate Value will be the Funding Rate in respect of such Currency on the immediately preceding Funding Rate Day on which the Funding Rate is available.

Underlying Contract is defined in Section 3.1 (*Market Disruption Events*).

SECTION 5: CORRECTIONS, CHANGES, CESSATION AND DISCRETION

5.1 CORRECTIONS AND ERROR HANDLING

5.1.1 Errors

Where the Index Administrator or the Index Calculation Agent becomes aware of an Input Error or a Calculation Error (an **Error**), the cause of such error will be investigated and steps taken, to the extent practicable and within the control of the Index Calculation Agent, to prevent such errors from recurring.

If an Error is not corrected by 11.59pm, New York time, on the Index Publication Day following the occurrence of the Error, the Index Calculation Agent shall determine whether such Error affects any published Index Level (such Error, a **Material Error** and each affected Index Level, an **Affected Index Level**).

Input Error means any error in input data that is detected by, or notified to, the Index Calculation Agent.

Calculation Error means any error in the implementation of the Methodology or arising in the Index calculation and dissemination process that is detected by or notified to the Index Calculation Agent.

5.1.2 Notification of Errors

The Index Calculation Agent shall publish an announcement regarding the occurrence of any Material Error and any change to the Methodology (see Section 5.2 (*Changes in Methodology*)).

5.1.3 Restatement of Index Levels

The Index Calculation Agent will restate any Affected Index Level resulting from a Material Error in the following circumstances:

- (1) in respect of a Material Error that is an Input Error:
 - (i) if the Index Calculation Agent becomes aware of such Input Error within 2 Index Publication Days of publication of the relevant Affected Index Level; or
 - (ii) otherwise, as determined by the Index Oversight Committee.
- (2) In respect of a Material Error that is a Calculation Error:
 - (i) if the Index Calculation Agent becomes aware of such Calculation Error prior within 30 calendar days following the Index Publication Day on which the first Affected Index Level was published; or
 - (ii) otherwise, as determined by the Index Oversight Committee.

5.2 CHANGES IN METHODOLOGY

Various factors, including external factors beyond the control of the Index Administrator, might necessitate material changes to an Index. The Index Manual contains information as of the date appearing on its cover, and such information may change from time to time. No assurance can be given that the Methodology reflects information subsequent to this date.

The Index Administrator may amend the Methodology at any time if the change is (i) of a formal, minor or technical nature, (ii) to correct any manifest or proven error or (iii) where the Index Calculation Agent determines that such change is not materially prejudicial to investors in financial products (in respect of which the Index Administrator has given consent to refer to the Index).

In any other case, a change to the Methodology will be considered to be a material change and may only be made subject to the approval of the Index Oversight Committee. The Index Oversight Committee shall determine the implementation timeline for such change and the timing for notification of such change to investors (which shall generally be at least 30 calendar days prior to implementation, but may be shorter if the Index Oversight Committee so determines), which the Index Administrator will communicate to investors by email.

5.3 CESSATION OF INDEX

The Index Administrator may withdraw the Index, at any time and without notice, if no financial instruments (in respect of which Macquarie Bank Limited has given consent to refer to the Index) are outstanding. The Index Administrator may, in any case (subject to the approval of the Index Oversight Committee), withdraw an Index, without reason, provided that either (i) it notifies all investors in financial instruments (in respect of which Macquarie Bank Limited has given consent to refer to the Index) of its intention to do so by email at least 30 calendar days prior to cessation of calculation and publication of the Index or (ii) all investors in financial instruments (in respect of which Macquarie Bank Limited has given consent to refer to the Index) have agreed to the cessation of the Index and the date of such cessation.

5.4 DISCRETION

In order to ensure continuity, the methodology of this Index permits the exercise of discretion or expert judgement in certain limited circumstances as set out in this Index Manual - see the following sections:

- Section 3 (*Market Disruption Events and FX Disruption Events*);
- The definitions of **TVFF Funding Rate Value** and **TVFG Funding Rate Value** in Section 4 (*Definitions*);
- The definition of **FX Spot Rate** in Section 4 (*Definitions*); and
- Section 5 (*Corrections, Changes, Cessation and Discretion*).

The Index Calculation Agent or the Index Oversight Committee may also exercise discretion in the administration of the Index if an event or circumstance arises in respect of which there is no fallback provided for in the methodology of this Index and which the Index Calculation Agent or Index Oversight Committee determines prevents the Index Calculation Agent from determining the Index in the normal manner, constitutes a market disruption under the relevant Index Manual or the exercise of expert judgement or discretion is otherwise appropriate in the circumstances.

The Index Calculation Agent or the Index Oversight Committee may exercise any such discretion or expert judgement acting in good faith and in a commercially reasonable manner. Any exercise of discretion or expert judgement that the Index Calculation Agent determines will have a material effect on the Index shall be subject to the approval of the Index Oversight Committee.

SECTION 6: OVERSIGHT, ROLES, CONFLICTS AND REVIEWS

6.1 INDEX GOVERNANCE

The Index Administrator has established an independent oversight committee (the **Index Oversight Committee**) to review and oversee management of the Index and resolve any issues that arise. As of the date of this document, the Index Oversight Committee is comprised of the following designees, each an employee of Macquarie Bank Limited:

- A Managing Director in the Quantitative Investment Strategies team of the Commodities and Global Markets Group;
- A Director from the Legal and Governance Group;
- A representative from the Index Calculation Agent;
- A representative from the Risk division of the Risk Management Group;
- A representative from the Compliance division of the Risk Management Group; and
- A representative from the Business Operational Risk Management department within the Central division of the Commodities and Global Markets Group.

Each member of the Index Oversight Committee is sufficiently knowledgeable about algorithmic indices and is required to act in good faith and in a commercially reasonable manner, provided that the Managing Director from the Commodities and Global Markets Group will not be a voting member of the Committee, but shall act in an advisory capacity only. In giving approval to any adjustments made to the Index in accordance with this Index Manual, the Index Oversight Committee shall give due consideration to any equivalent decisions and actions taken by relevant trading venues or trade bodies.

The Index Oversight Committee has considered the features of the Index, the intended, expected or known usage of the Index and the materiality of existing or potential conflicts of interest and, taking these into account, has approved the Methodology and this Index Manual. The Index Oversight Committee is also charged with overseeing the daily management and operations of the Index. It will be available on an ad hoc basis for the consideration or approval of any relevant Market Disruption Events, FX Disruption Events, Errors, exercises of discretion, changes to the Methodology, any contemplated cancellation of the Index and the resolution of any other issues which arise in relation to the Index.

6.2 INDEX ADMINISTRATOR AND INDEX CALCULATION AGENT

6.2.1 Index Administrator

Macquarie Bank Limited is the Index Administrator. Notwithstanding anything to the contrary, the Index Administrator will maintain all ownership rights, expressed or otherwise, with respect to the Index, including the ability to license, sell or transfer any or all of its ownership rights with respect to the Index, including but not limited to terminating and appointing any successor Index Calculation Agent.

6.2.2 Index Calculation Agent

The Index Calculation Agent is appointed by the Index Administrator to calculate and maintain each Index from and until such time that the Index Administrator terminates its relationship with the current Index Calculation Agent and appoints a successor index calculation agent. Any such termination or appointment of a successor will be subject to the approval of the Index Oversight Committee.

The Index Calculation Team within the Commodities and Global Markets Group of Macquarie Bank Limited acts as index calculation agent (the **Index Calculation Agent**) in respect of the Index as of the date of this Index Manual. The methodology employed by the Index Calculation Agent in determining the composition and calculation of the Index is set out in the calculations and procedures described in this document.

6.2.3 Relationship of the Index Administrator and the Index Calculation Agent

The Index Calculation Agent is appointed by the Index Administrator, subject to the approval of the Index Oversight Committee. While, as of the date of publication of these rules, both the Index Administrator and the Index Calculation Agent form part of Macquarie Bank Limited, they are independent teams within the bank and the employees discharging the obligations of the Index Calculation Agent have separate lines of reporting and accountability from the employees performing the functions of the Index Administrator.

6.2.4 Not acting as a fiduciary

Neither the Index Administrator nor the Index Calculation Agent owes any duty of care or acts as agent of another person in respect of its respective obligations in relation to the Index as set out in this Index Manual.

6.3 CONFLICTS

The Index is based on underlying assets, as described in the Methodology. The Index Administrator and/or its affiliates actively trade these underlying assets and options on these underlying assets. The Index Administrator and/or its affiliates also actively enter into or trade and market securities, swaps, options, derivatives, and related instruments which are linked to the performance of these underlying assets or are linked to the performance of an Index. The Index Administrator and/or its affiliates may underwrite or issue other securities or financial instruments indexed to an Index, and the Index Administrator or its affiliates may license an Index for publication or for use by unaffiliated third parties. These activities could present conflicts of interest and could affect the value of an Index. The Index Administrator trades or may trade as principal in instruments (or related derivatives) linked to an index described in this document and may have proprietary positions in the instruments (or related derivatives). The Index Administrator may make a market in such instruments (or related derivatives), which may in extreme circumstances affect the levels of the Index described.

The Index Administrator, the Index Calculation Agent and the business unit which creates instruments linked to the Index are all businesses or entities of Macquarie. Steps have been taken to manage and mitigate the inherent conflicts of interest which result, including the establishment of separate reporting lines for the respective roles, establishment of an independent Index Oversight Committee and the implementation and enforcement of policies and procedures to ensure that appropriate controls are in place.

Certain activities conducted by the Index Administrator may conflict with interests of investors in the Index. Such activities could include (but are not limited to) providing or participating in competing products (such as financial instruments linked to the Index, a Component or a similar index or component) and hedging its exposure to the Index. The Index Administrator could receive substantial returns in respect of such activities, which will not be passed on to any investors in products linked to the Index; whereas the value of investments linked to the Index may decline. Any such activities conducted by the Index Administrator around the time of a rebalancing could adversely impact the performance of the Index and therefore the level of a concurrent rebalancing.

The Index Administrator may have access to information relating to an Index, a Component or investments linked to a Component. The Index Administrator is not obliged to use that information for the benefit of any person entering into products linked to the Index.

6.4 REVIEWS

The Index Administrator has procedures in place to review a sample of its indices (which may not include these Indices) on an annual basis (or more frequently, if it determines appropriate). Such sample shall include the indices requested by the Index Oversight Committee to be reviewed. The Index Administrator shall submit a report on its reviews to the Index Oversight Committee. If the Index Administrator determines that changes are required to a methodology, the Index Oversight Committee shall review the changes the reasons therefor. Any such changes approved by the Index Oversight Committee shall be implemented in accordance with Section 5.2 (*Changes in Methodology*).

SECTION 7: GENERAL INFORMATION

7.1 VALUATION AND CALCULATIONS

The Index Calculation Agent shall, unless stated otherwise, perform all calculations in this Index Manual from the Initial Calculation Date. It shall perform such calculations in its sole and absolute discretion, acting in good faith and in a commercially reasonable manner. All such calculations shall be subject to the Index Calculation Agent's policies and procedures and will (in the absence of manifest error) be final, conclusive and binding. Neither the Index Calculation Agent nor the Index Administrator shall have any liability for errors or omissions made in good faith.

7.2 PUBLICATION OF INDEX LEVEL

The publication of the Index Level by the Index Calculation Agent for an Index Publication Day follows a publication cycle which ends at the Publication Time for such day. Any Index Level published before the Publication Time in respect of a day is indicative and may be restated up to and including the Publication Time.

In respect of an Index Publication Day, the Index Level as published by the Index Calculation Agent on the Bloomberg Ticker at the Publication Time for such day shall be the official Index Level and shall be final and binding (save for changes made pursuant to Section 5 (*Corrections, Changes, Cessation and Discretion*)). See Section 5.1.2 regarding the publication of Material Errors.

Publication Time means, in respect of an Index Publication Day, 23:59:59 (New York Time) on the Index Publication Day immediately following such Index Publication Day.

Index Publication Day means the days in the Index Calendar.

7.3 HISTORICAL VALUES OF THE INDEX

Hypothetical back-tested historical levels of the Index prior to the Index Live Date are not indicative of future performance. The Index Administrator makes no representation as to the accuracy or appropriateness of, and shall have no liability to you or any other entity for any loss or damage, direct or indirect, arising from the use of the historical values.

SECTION 8: NOTICES AND DISCLAIMERS

8.1 REGULATORY STATUS

This material is prepared and distributed in the UK by Macquarie Bank Limited, London Branch (MBLLB) and in the EEA member states (other than the UK) by Macquarie Bank International Limited (MBIL) and Macquarie Bank Europe (DAC) (MBE) where required. It is intended only for professional clients and eligible counterparties as defined in the rules of the Financial Conduct Authority. MBLLB is registered in England and Wales (Branch No: BR002678, Company No: FC018220, Firm Reference No: 170934). MBIL is incorporated and registered in England and Wales (Company No. 06309906, Firm Reference No. 471080). MBE is registered and incorporated in the Republic of Ireland (Company No. 634817). The registered office for MBLLB and MBIL is Ropemaker Place, 28 Ropemaker Street, London, EC2Y 9HD. The registered office of MBE is First Floor, Connaught House, 1 Burlington Road, Dublin 4, D04 C5Y6, Ireland. MBLLB is authorised and regulated by the Australian Prudential Regulation Authority. MBIL is authorised by the Prudential Regulation Authority and subject to regulation by the Financial Conduct Authority and limited regulation by the Prudential Regulation Authority. MBE is authorised and regulated by the Central Bank of Ireland. Details about the extent of our regulation are available from us on request.

8.2 NOT RESEARCH OR AN OFFER

This document is not a personal recommendation as defined by the Financial Conduct Authority and you should consider whether you can rely upon any opinion or statement contained in this document without seeking further advice tailored for your own circumstances. It is also not investment research, and has not been prepared in accordance with legal requirements designed to promote the independence of such. Any opinions expressed herein may differ from the opinions expressed in other departments including the research department. Nor have the contents of this document been reviewed by any regulatory authority, and the distribution of this document and availability of related financial instruments in certain jurisdictions may be restricted by law.

This document does not constitute a prospectus, offer, invitation or solicitation to buy or sell financial instruments and is not intended to provide the sole basis for any evaluation of the securities or any other financial instruments which may be discussed within, referred to or based upon an Index. Any offering or potential transaction that may be related to an Index will be made separately and subject to distinct documentation and in such case the information contained herein may be superseded in its entirety by such documentation in final form.

8.3 THIRD-PARTY DISCLAIMER

The Index is not endorsed, sponsored or promoted by the issuer or sponsor of any Component of underlying asset of any Component.

ANNEX A INDEX SPECIFICATIONS

Annex A may be supplemented from time to time by the addition of new Index Specifications for additional Indices.

i	Index	Bloomberg Ticker	Target Currency	Index Calendar	Index Start Date	Holdings Calculation Day	FX Conversion Day	Base Index	Trading Facility	Bloomberg Ticker of Base Index	Base Currency
1	Macquarie Single Commodity TTF Natural Gas (TZT) ER (USD) Index	MQSCTZTU	USD	NYMEX	30-Oct-13	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Macquarie Single Commodity TTF Natural Gas (TZT) ER Index	EDX	MQSCTZTE	EUR
2	Macquarie Single Commodity UK Natural Gas (FN) ER (USD) Index	MQSCFNUE	USD	NYMEX	28-Jan-00	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day1	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day1	Macquarie Single Commodity UK Natural Gas (FN) ER Index	ICE	MQSCFNER	GBP
3	Macquarie Single Commodity EUA Emissions (MO) ER (USD) Index	MQSDMOUE	USD	NYMEX	29-Apr-08	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Macquarie Single Commodity EUA Emissions (MO) ER Index	ICE ²	MQSDMOER	EUR
4	Macquarie Single Commodity Milling Wheat 1st Generic ER (USD) Index	MQSG1CAU	USD	NYMEX	31-Jan-05	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the	Macquarie Milling Wheat 1st Generic Rolling Futures Index	EOP	MQSG1CAE	EUR

						Index, and an FX Publication Day	Index, and an FX Publication Day				
5	Macquarie Single Commodity EUA Emissions (MO) 1 Year Forward ER (USD) Index	MQSDMO1U	USD	NYMEX	30-Apr-08	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Macquarie Single Commodity EUA Emissions (MO) 1 Year Forward ER Index	ICE ²	MQSDMO1E	EUR
6	Macquarie EOP Milling Wheat (CA) Type B 15d Roll (USD) ER Index	MQSCLCAU	USD	NYMEX	31-Jan-05	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Macquarie EOP Milling Wheat (CA) Type B 15d Roll ER Index	EOP	MQSCLCAE	EUR
7	Macquarie EOP Euronext Rapeseed (IJ) Type B 15d Roll (USD) ER Index	MQSCLIJU	USD	NYMEX	30-Apr-04	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Macquarie EOP Euronext Rapeseed (IJ) Type B 15d Roll ER Index	EOP	MQSCLIJE	EUR
8	Macquarie ICE London Cocoa (QC) Type B 15d Roll (USD) ER Index	MQSCLQCU	USD	NYMEX	31-Jan-08	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Macquarie ICE London Cocoa (QC) Type B 15d Roll ER Index	ICE	MQSCLQCE	GBP
9	Macquarie EOP Milling Wheat (CA) Type B 15d Roll (USD) SR Index	MQSCLCAUS	USD	NYMEX	31-Jan-05	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the	Macquarie EOP Milling Wheat (CA) Type B 15d Roll SR Index	EOP	MQSCLCAS	EUR

						Index, and an FX Publication Day	Index, and an FX Publication Day				
10	Macquarie EOP Euronext Rapeseed (IJ) Type B 15d Roll (USD) SR Index	MQSCLIJUS	USD	NYMEX	30-Apr- 04	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Macquarie EOP Euronext Rapeseed (IJ) Type B 15d Roll SR Index	EOP	MQSCLIJS	EUR
11	Macquarie ICE London Cocoa (QC) Type B 15d Roll (USD) SR Index	MQSCLQCUS	USD	NYMEX	31-Jan- 08	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Macquarie ICE London Cocoa (QC) Type B 15d Roll SR Index	ICE	MQSCLQCS	GBP
12	Macquarie Euronext Rapeseed 1st Generic ER (USD) Index	MQSG1IJU	USD	NYMEX	30-Dec- 04	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Macquarie Euronext Rapeseed 1st Generic Rolling Futures Index	EOP	MQSG1IJE	EUR
13	Macquarie Euronext Rapeseed 2nd Generic ER (USD) Index	MQSG2IJU	USD	NYMEX	30-Dec- 04	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Macquarie Euronext Rapeseed 2nd Generic Rolling Futures Index	EOP	MQSG2IJE	EUR
14	Macquarie Milling Wheat 2nd Generic ER (USD) Index	MQSG2CAU	USD	NYMEX	31-Jan- 05	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the	Macquarie Milling Wheat 2nd Generic Rolling Futures Index	EOP	MQSG2CAE	EUR

						Index, and an FX Publication Day	Index, and an FX Publication Day				
15	Macquarie Euronext Rapeseed 3rd Generic ER (USD) Index	MQSG3IJU	USD	NYMEX	30-Dec- 04	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Macquarie Euronext Rapeseed 3rd Generic Rolling Futures Index	EOP	MQSG3IJE	EUR
16	Macquarie Milling Wheat 3rd Generic ER (USD) Index	MQSG3CAU	USD	NYMEX	31-Jan- 05	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Macquarie Milling Wheat 3rd Generic Rolling Futures Index	EOP	MQSG3CAE	EUR
17	Macquarie London Cocoa 1st Generic ER (USD) Index	MQSG1QCU	USD	NYMEX	30-Jan- 09	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Macquarie London Cocoa 1st Generic Rolling Futures Index	ICE	MQSG1QCE	GBP
18	Macquarie London Cocoa 2nd Generic ER (USD) Index	MQSG2QCU	USD	NYMEX	30-Jan- 09	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the Index, and an FX Publication Day	Macquarie London Cocoa 2nd Generic Rolling Futures Index	ICE	MQSG2QCE	GBP
19	Macquarie London Cocoa 3rd Generic ER (USD) Index	MQSG3QCU	USD	NYMEX	30-Jan- 09	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the	Last Index Business Day of each month which is also an Index Business Day of the Base Index, a Trading Day of the	Macquarie London Cocoa 3rd Generic Rolling Futures Index	ICE	MQSG3QCE	GBP

Index, and an FX Publication Day

² From (and including) 7 June 2021, the Trading Facility for EUA Emissions (MO) will change from ICE to EDX.

ANNEX B TIME VALUE FACTORS

Annex B may be supplemented from time to time by the addition of new Time Value Factors tables.

i	Currency	Funding Rate	Bloomberg Ticker	Funding Rate Calendar	Holiday Rate Offset	Day Count
1	CNY	China CFETS Overnight Fixing Repo Rates	CNRR001	People's Bank of China	1	365
2	EUR	Euro Short-term Rate ¹	ESTRON	European Central Bank	1	360
3	GBP	SONIA Interest Rate Benchmark	SONIO/N	Bank of England	1	365
4	USD	US Federal Funds Effective Rate	FEDL01	Federal Reserve Bank of New York	1	360

¹ Prior to 2 October 2019, the Euro Short-term Rate in respect of a Funding Rate Day, t , is calculated according to the following formula:

$$\text{€STR}_t = \text{EONIA}_t - 0.085\%$$

Where:

EONIA_t is the EMNI Euro Overnight Index Average in respect of a Funding Rate Day, t .

ANNEX C FX SPOT RATES

Annex C may be supplemented from time to time by the addition of new FX Spot Rate tables.

i	Base Currency	Target Currency	Quote Convention	Quote Spot Rate	Bloomberg Ticker
1	CNY	USD	-1	CFETS USD/CNY Mid Rate	CNYMUSD Index
2	EUR	USD	1	EURUSD Spot Exchange Rate	EURUSD L160 Curncy
3	GBP	USD	1	GBPUSD Spot Exchange Rate	GBPUSD L160 Curncy