

# Macquarie Vol Matched Spreads F3vF0 ex Agriculture & Livestock Curve Carry

**Index Manual  
December 2022**

## IMPORTANT INFORMATION

---

### BASIS OF PROVISION

---

This document (the **Index Manual**) sets out the rules for the Macquarie Vol Matched Spreads F3vF0 ex Agriculture & Livestock Curve Carry Index (the **Index**) and reflects the methodology for determining the composition and calculation of the Index (the **Methodology**).

The Component Index Methodology of each of the Components reflects the methodology for determining the composition and calculation of each Component.

The Methodology and the Index derived from this Methodology and the Component Index Methodology and the Component Indices derived from the Component Index Methodology are the exclusive property of Macquarie Bank Limited (the **Index Administrator**). The Index Administrator owns the copyright and all other rights to the Index and the Component 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 the Component Index Methodology or use any of them as the basis of any financial instrument.

### SUITABILITY OF INDEX

---

The Index, the Component Indices and any financial instruments based on the Index or the Component Indices 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 or the Component Indices is unsuitable for a retail or unsophisticated investor.**

### RISK FACTORS

---

See the risk factors relating to Macquarie indices in the document headed 'Macquarie Indices – Risk Factors' provided to you with this Index Manual (the **Risk Factors**). Investors should note, in particular, the following sections of such document: Part 1 (*General Risk Factors*) and Part 2.2 (*Commodity Indices*). A copy of the Risk Factors may be obtained free of charge upon request to the Index Administrator.

## HISTORICAL DATA

---

The Index has been calculated from the relevant 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 8.3 (*Historical Values of the Index*).

## CONFLICTS AND USE OF DISCRETION

---

For operational reasons the Index or the Component Indices 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 7.3 (*Conflicts*).

## CESSATION OR MODIFICATION OF THE INDEX

---

If you have been granted written consent by the Index Administrator to reference the Index or the Component Indices 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 or the Component Indices.

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

## DISCLAIMER OF LIABILITY

---

The Methodology, and each Component Index Methodology, is published for information purposes only and does not create any legally binding obligation on the part of the Index Administrator, Index Calculation Agent and/or their affiliates. This document is intended to provide a summary of the Index and the Component Indices 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, each Component Index Methodology or the Index or each Component 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 Index Calculation Agent do not warrant or guarantee the completeness or accuracy of the Index or the Component Indices or timeliness of calculations of the Index Level (or a Component Level) and do not warrant or guarantee the availability of the Index Level (or a Component 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 the Index (or a Component Index), including as a result of the failure of prices to be published in respect of an underlying Contract or, as applicable, as a result of a Contract failing to trade for any reason or, as applicable, as a result of the failure of prices or any other reference value to be published in respect of any Contract for any reason.

Although the Index Calculation Agent will obtain information concerning Components from publicly available sources it believes 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 the 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, and Adjustment Event or Error has occurred or has not occurred, (ii) the timing relating to the determination that a Market Disruption Event, an Adjustment Event or 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 Adjustment Event or Error has occurred.

## CONTENTS

---

<b>Important Information</b> .....	1
Basis of Provision .....	1
Suitability of Index.....	1
Risk Factors.....	1
Historical Data .....	2
Conflicts and Use of Discretion .....	2
Cessation or Modification of the Index .....	2
Disclaimer of Liability .....	3
<b>Section 1: Overview</b> .....	6
1.1 Introduction and index objective.....	6
1.2 Index Calculation .....	7
1.3 Methodology .....	7
<b>Section 2: Index Methodology</b> .....	8
2.1 Holdings Calculation.....	8
2.2 Daily Index Calculation .....	9
2.3 Weights Calculation.....	10
<b>Section 3: Market Disruption</b> .....	14
3.1 Underlying Contracts .....	14
3.2 Market Disruption Events.....	14
3.3 Consequences of a Market Disruption Event.....	15
<b>Section 4: Definitions</b> .....	17
<b>Section 5: Corrections, Changes, Cessation and Discretion</b> .....	21
5.1 Corrections and Error Handling.....	21
5.2 Changes in Methodology.....	22
5.3 Cessation of Index.....	22
5.4 Discretion.....	22
<b>Section 6: Adjustment Events and Regulatory Event</b> .....	23
6.1 Adjustment Events.....	23
6.2 Asset Class Specific Definitions – Adjustment Events .....	24
6.3 Regulatory Event .....	24
6.4 BCOM Adjustment event.....	24
<b>Section 7: Oversight, Roles, Conflicts and Reviews</b> .....	26

7.1	Index Governance.....	26
7.2	Index Administrator and Index Calculation Agent.....	26
7.3	Conflicts.....	27
7.4	Reviews.....	28
<b>Section 8: General Information .....</b>		<b>29</b>
8.1	Valuation and Calculations.....	29
8.2	Publication of Index Level.....	29
8.3	Historical Values of the Index.....	29
<b>Section 9: Notices and Disclaimers .....</b>		<b>30</b>
9.1	Regulatory Status.....	30
9.2	Not Research or an Offer.....	30
9.3	Third-party Disclaimers .....	30

## SECTION 1: OVERVIEW

---

### 1.1 INTRODUCTION AND INDEX OBJECTIVE

---

The Macquarie Vol Matched Spreads F3vF0 ex Agriculture & Livestock Curve Carry Index (the **Index**) is designed as a rules based index for exposure to the “commodity carry” investment strategy. The Index provides exposure to the Commodities by way of certain Macquarie Commodity Indices (the **Components**, as more particularly described in Section 4 (*Definitions*)).

Each Component provides exposure to a futures contract on the corresponding Commodity. The commodities selected for inclusion in commonly traded commodity indices (and the Components) are not easily investable on a direct and replicable basis. Futures contracts on commodities, however, represent a widely utilized synthetic proxy for direct investment in commodities. Accordingly, the components of such indices (and the contracts underlying the Components) reflect the price performance of exchange traded futures contracts relating to the underlying commodities (or commodity futures). In order to ensure the continuity of each component, when the futures contract approaches expiration, it will be replaced by an identical contract with a later expiration (the exposure of the index to that commodity future will ‘roll’ from one contract into the next). Each Component thus tracks a sequence of futures contracts relating to a single Commodity.

The strategy of the Index aims to take advantage of storage-related risk premium, the existence of which can be explained by the fact that short-term storage of commodities is typically more expensive than long-term storage of commodities. The Index seeks to capture the premium by taking notional long exposure to long-dated (*deferred*) commodity futures contracts, by way of holdings in the Deferred Components (which are indices that provide notional exposure to deferred commodity futures contracts) and simultaneous notional short exposure to short-dated commodity futures contracts, by way of holdings in the Nearby Components (which are indices that provide notional exposure to nearby commodity futures contracts). If the shape of the futures curve remains unchanged, the strategy will generate a positive return.

Volatility can serve as a measure of systematic risk of an asset, such as a commodity futures contract. Volatility tends to be higher at the front of the curve and accordingly, for each commodity, the volatility of the Nearby Component is typically higher than the volatility of the Deferred Component. The Index aims to establish long (Deferred Component) and short (Nearby Component) notional exposures with matching volatility profiles (i.e. volatility matched spreads) and as such will adjust the short notional exposure based on the volatility adjustment factor, which will typically reduce the rebalance weight of the Nearby Component for each commodity with the aim of matching the realized volatility of such Nearby Component to the realized volatility of the respective Deferred Component, subject to a maximum adjustment of 25%. This volatility spread adjustment has the effect of reducing the negative convexity of the strategy to commodity beta, i.e. the Index is more likely to outperform during rising commodity markets. In between the rebalances and where the volatility adjustment is capped by the maximum adjustment of 25%, the realized volatility of the Nearby Component may not perfectly match the realized volatility of the corresponding Deferred Component.

The Index is designed to be replicable and readily accessible to market participants and is calculated daily in an excess return format. To facilitate an understanding of the calculations, this Index Manual contains worked examples that demonstrate certain types of calculations needed to calculate the level of the Index on a particular date – see Section 2.1 (*Holdings Calculation*). The Index Administrator will provide a complete worked example of the Index Level calculation on request.

## 1.2 INDEX CALCULATION

---

The Index, and each Component Index, is calculated and maintained by the Index Calculation Agent and supervised by the Index Administrator and the Index Oversight Committee, as described in Section 7 (*Oversight, Roles, Conflicts and Reviews*). All determinations with regard to the Index or a Component Index 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.

The Index Level of the Index as of the Index Start Date is equal to the Index Start Level. Thereafter, each Index Level is calculated as set out in Section 2 (*Index Methodology*). The Component Level of each of the Component Indices as of the relevant Component Index Start Date is equal to the relevant Index Start Level of the Component Indices. Thereafter, each Component Level of each of the Component Indices is calculated, in accordance with the Component Index Methodology for each Component.

The Index, and each Component Index, is not based upon submissions provided by third parties (or an affiliate of the Index Administrator or the Index Calculation Agent). The Index is based upon end-of-day settlement price data sourced from regulated markets and exchanges.

## 1.3 METHODOLOGY

---

The Methodology for calculating the Index is described in Section 2 (*Index Methodology*). The Component Index Methodology for calculating each of the Component Indices is set out in each Component Index Methodology, which may be obtained free of charge upon request to the Index Administrator.

## SECTION 2: INDEX METHODOLOGY

---

On a daily basis, the Index replicates the returns obtained by notionally holding a basket of Components, the Weights of which are determined in accordance with the weighting methodology (as set out in Section 2.3 (*Weights Calculation*)) and rebalanced periodically according to Section 2.1 (*Holdings Calculation*). The following sections detail how the Index Calculation Agent will calculate the daily Index Levels of the Index:

- **Section 2.1 (*Holdings Calculation*)** describes how the Holdings of the Components of the Index are calculated;
- **Section 2.2 (*Daily Index Calculation*)** describes the daily calculation of the Index Level; and
- **Section 2.3 (*Weights Calculation*)** describes how the Weights of the Components of the Index are calculated.

### 2.1 HOLDINGS CALCULATION

---

On any Index Business Day (an **Index Business Day  $t$** ), each Component (a **Component  $i$** ) has a Holding,  $H_{i,t}$  (as defined in Section 2.1.2 below), associated with it. This Holding,  $H_i$ , represents the proportion in which the Index Level will change when the level of that Component  $i$  changes. In this section, we outline the Holdings,  $\{H_{1,t}, \dots, H_{n,t}\}$ , calculations on any Index Business Day  $t$ .

On each Holdings Calculation Date (as defined in Section 4 (*Definitions*)), the Holding,  $H_i$ , of each Component  $i$ , is rebalanced in accordance with the Target Holdings (as defined in Section 2.1.1 below) and the Weights (as defined in Section 2.3 (*Weights Calculation*)) below.

#### 2.1.1 Target Holdings Calculation on a Holdings Calculation Date

On any Holdings Calculation Date (a **Holdings Calculation Date  $R$** ), the target holdings (the **Target Holdings** or  **$TH_{i,R}$** ), for each of the number of (or  $n$ ) Components in the Index,  $\{TH_{1,R}, \dots, TH_{n,R}\}$ , are calculated according to the following formula:

$$TH_{i,R} = I_{R-1} \times \frac{W_{i,R}}{C_{i,R-1}} \text{ for every Component } i = 1, \dots, n$$

Where:

$I_{R-1}$  means the Index Level on the Index Business Day immediately preceding Holdings Calculation Date  $R$ ;

$C_{i,R-1}$  in respect of a Component  $i$  and a Holdings Calculation Date  $R$ , means the Component Level of such Component (as defined in Section 4 (*Definitions*)) on the Index Business Day immediately preceding such Holdings Calculation Date  $R$ ; and

$W_{i,R}$  (or **Weight**), in respect of a Component  $i$  and a Holdings Calculation Date  $R$ , is defined in Section 2.3 (*Weights Calculation*)).

For example if, on the Index Business Day preceding a Holdings Calculation Date  $R$ , the Index level ( $I_{R-1}$ ) is 100, the Component Level ( $C_{i,R-1}$ ) is 80 and the Weight ( $W_{i,R}$ ) of that Component is 40%, then the Target Holding ( $TH_{i,R}$ ) of that Component in respect of that Holdings Calculation Date will be equal to  $100 \times (0.4) / 80 = 0.5$ .

### 2.1.2 Daily Holdings Calculation

On any Index Business Day  $t$ , the holdings of each Component  $i$  (the **Holdings** or  $H_{i,t}$ ), is calculated according to the following rules:

- (a) If such Index Business Day  $t$  falls within an Index Rebalance Window, the Holding,  $H_{i,t}$  of such Component in the Index is calculated in respect of the Holdings Calculation Date  $R$  to which such Index Rebalance Window relates, according to the following formula:

$$H_{i,t} = H_{i,R} + \frac{k}{|\text{IndexRebalanceDays}|} \times (TH_{i,R} - H_{i,R}),$$

$\forall k \in \{1..|\text{IndexRebalanceDays}|\}$

- (b) On any other Index Business Day  $t$  (that does not fall within an Index Rebalance Window), the Holding of such Component  $i$  on such Index Business Day  $t$ ,  $H_{i,t}$ , is set to be equal to the Holding of that particular Component on the previous Index Business Day,  $H_{i,t-1}$ .

Where:

$H_{i,R}$  means, in respect of a Component  $i$  and an Index Business Day  $t$ , the Holdings of such Component  $i$  on the immediately preceding Holdings Calculation Date  $R$ ;

$k$  means, in respect of a Component  $i$  and an Index Business Day  $t$  that falls within an Index Rebalance Window, the number of days (from 1-5) within such Index Rebalance Window on which such Index Business Day  $t$  falls. For example, if the Index Business Day  $t$  falls on the first day in the Index Rebalance Window,  $k=1$  or on the second day in the Index Rebalance Window,  $k=2$ , etc;

**Index Rebalance Window**, in respect of a Holdings Calculation Date  $R$ , means the period starting on (and including) the Index Business Day directly subsequent to such Holdings Calculation Date  $R$  and ending on (and including) the Index Business Day that falls five Index Business Days immediately following such Holdings Calculation Date  $R$ ; and

$|\text{IndexRebalanceDays}|$ , in respect of an Index Rebalance Window, means the total number of Index Rebalance Days in such Index Rebalance Window.

## 2.2 DAILY INDEX CALCULATION

---

The Index represents the performance of a synthetic, unfunded exposure to the Underlying Contracts in an Index; that is, the Index tracks what an investor would receive if it purchased or sold the futures contracts ultimately underlying the Index without taking into consideration the cost of investment capital. On each Index Business Day  $t$ , the Index Level,  $I_t$ , is calculated (rounded to eight decimal places) based on the value of the Index on the preceding Index Business Day,  $I_{t-1}$ , and the change in Component Level of each of the Components, according to the formula:

$$I_t = I_{t-1} + \sum_i H_{i,t} (C_{i,t} - C_{i,t-1})$$

Where:

$H_{i,t}$  means the Holding of Component  $i$  on Index Business Day  $t$  (as defined in Section 2.1.2 (*Daily Holdings Calculation*));

$C_{i,t}$  means the Component Level of Component  $i$  on the Index Business Day,  $t$ ; and

$t-1$  means the Index Business Day immediately preceding Index Business Day  $t$ .

The Index Start Date and the Index Start Level, which is the value of the Index on the Index Start Date, are specified in Section 4 (*Definitions*).

For example, if the Index were comprised of two Components which had the following Component Levels ( $C_{i,t}$ ):

	Component 1	Component 2
Index Business Day t-1	32.48	31.49
Index Business Day t	32.83	31.21

and the following Holdings ( $H_{i,t}$ ):

	Holding
Component 1	1.72
Component 2	1.48

then if the Index Level on Index Business Day t-1 ( $I_{t-1}$ ) was equal to 102.0564, the Index Level on Index Business Day t will be equal to:

$$I_t = 102.0564 + 1.72 \times (32.83 - 32.48) + 1.48 \times (31.21 - 31.49) = 102.244$$

The Index Level on Index Business Day t would be 102.244.

## 2.3 WEIGHTS CALCULATION

On each Holdings Calculation Date  $R$ , the calculations set out below are used to determine the Weights ( $W_{i,R}$ ) of the Components that are used to calculate the Target Holdings ( $TH_{i,R}$ ).

### 2.3.1 Commodity Weight

The calculation of the Weight ( $W_{i,R}$ ) of each Component depends on the value of the proportional weight of the Commodity to which such Component relates (as specified in the definition of "Components" in Section 4 (*Definitions*)) in the Bloomberg Commodity ex-Agriculture and Livestock Capped Index (Bloomberg Ticker: BBUXALC) (the **Reference Index**). On a Holdings Calculation Date  $R$ , the weight of each Commodity (a **Commodity C**) in the Reference Index (the **Commodity Weight** or  $\overline{W}_{C,R}$ ) is calculated in accordance with the following formula:

$$\overline{W}_{C,R} = \frac{M_{C,R}^1 \times S_{C,R-1}^1 \times RW_{C,R} + M_{C,R}^2 \times S_{C,R-1}^2 \times (1 - RW_{C,R})}{\sum_{l \in \mathbb{K}} [M_{l,R}^1 \times S_{l,R-1}^1 \times RW_{C,R} + M_{l,R}^2 \times S_{l,R-1}^2 \times (1 - RW_{C,R})]}$$

Where:

$\mathbb{K}$  means a set comprised of all of the Commodities specified in the column headed “Commodity” in Table 1 under the definition of “Components” (in Section 4 (*Definitions*));

$l$  means each Commodity in the set,  $\mathbb{K}$ ;

$M_{C,R}^1$ , in respect of a Commodity  $C$  and a Holdings Calculation Date  $R$ , means the Commodity Index Multiplier (or CIM1) (as defined in the Reference Index Methodology) applied to the Lead Futures (as defined in the Reference Index Methodology) for Commodity  $C$  with respect to Holdings Calculation Date  $R$  as defined in the Reference Index Methodology.

$M_{C,R}^2$ , in respect of a Commodity  $C$  and a Holdings Calculation Date  $R$ , means the Commodity Index Multiplier (or CIM2) (as defined in the Reference Index Methodology) applied to the Next Futures (as defined in the Reference Index Methodology) for Commodity  $C$  with respect to Holdings Calculation Date  $R$ , as defined in the Reference Index Methodology;

$S_{C,R-1}^1$ , in respect of a Commodity  $C$  and a Holdings Calculation Date  $R$ , is the Settlement Price of the Lead Futures (as defined in the Reference Index Methodology) in respect of such Commodity  $C$  and the Index Business Day immediately preceding such Holdings Calculation Date  $R$ ;

$S_{C,R-1}^2$ , in respect of a Commodity  $C$  and a Holdings Calculation Date  $R$ , is the Settlement Price of the Next Futures (as defined in the Reference Index Methodology) in respect of such Commodity  $C$  and the Index Business Day immediately preceding such Holdings Calculation Date  $R$ ; and

$RW_{C,R}$ , in respect of a Commodity  $C$  and a Holdings Calculation Date  $R$ , means the Roll Weight (or RW) (as defined in Reference Index Methodology) of such Commodity  $C$  in the Reference Index in respect of such Holdings Calculation Date  $R$ .

### 2.3.2 Volatility Adjustment Factor (VAF) Calculations

The calculation of the Weight ( $W_{i,R}$ ) of a Nearby Component in respect of a Commodity  $C$  on a Holdings Calculation Date  $R$  is determined based on the Commodity Weight ( $\bar{W}_{C,R}$ ) (determined in accordance with Section 2.3.1 (*Commodity Weight*)) and a volatility adjustment factor, which seeks to match the realized volatility of the Nearby Component for such Commodity  $C$  to the realized volatility of the Deferred Component (subject to a maximum adjustment of 25%), as described below.

#### (a) Volatility Adjustment Factor

In respect of a Commodity  $C$ , on a Holdings Calculation Date  $R$ , the volatility adjustment factor (the **Volatility Adjustment Factor** or  $VAF_{C,R}$ ) is calculated as the bounded ratio of the standard deviation of prior 63 daily log returns of the Deferred Component over the standard deviation of prior 63 daily log returns of the Nearby Component in accordance with the following formula:

$$VAF_{C,R} = \min \left( 1.25, \max \left( 0.75, \frac{\sigma_{C,DEF,R}}{\sigma_{C,NBY,R}} \right) \right)$$

Where:

$\sigma_{C,DEF,R}$  means, in respect of a Commodity  $C$  and the Deferred Component ( $DEF$ ) in respect of such Commodity  $C$  on a Holdings Calculation Date  $R$ , the Standard Deviation of Daily Log Returns ( $\sigma_{C,DEF,R}$ ) of such Deferred Component ( $DEF$ ) on such Holdings Calculation Date  $R$ ; and

$\sigma_{C,NBY,R}$  means, in respect of a Commodity  $C$  and the Nearby Component ( $NBY$ ) in respect of such Commodity  $C$  on a Holdings Calculation Date  $R$ , the Standard Deviation of Daily Log Returns ( $\sigma_{C,NBY,R}$ ) of such Nearby Component ( $NBY$ ) on such Holdings Calculation Date  $R$ .

If  $\sigma_{C,NBY,R}$  is zero, the Volatility Adjustment Factor ( $VAF_{C,R}$ ) is set equal to 1.

(b) **Volatility Adjustment Factor Intermediate Calculations**

In order to determine the Volatility Adjustment Factor ( $VAF_{C,R}$ ) in respect of a Commodity  $C$  on a Holdings Calculation Date  $R$ , the standard deviation of the daily log returns (the **Standard Deviation of Daily Log Returns** or  $\sigma_{C,X,R}$ ) in respect of the Nearby Component and the Deferred Component (each, a **Component Index  $X$** ) in respect of such Commodity  $C$  needs to be determined and is calculated, in respect of each Component Index  $X$  on a Holdings Calculation Date  $R$ , based on the mean return ( $\mu_{C,X,R}$ ) of such Component Index  $X$  in respect of such Commodity  $C$  on such Holdings Calculation Date  $R$ , which (in turn) is calculated based on the daily log returns (**DailyReturn $_{C,X,R-i}$** ) of such Component Index  $X$  calculated over the Daily Return Period, in accordance with the following formulae:

$$\mu_{C,X,R} = \frac{1}{63} \times \sum_{i=1}^{63} (\text{DailyReturn}_{C,X,R-i})$$

$$\text{DailyReturn}_{C,X,R-i} = \ln \frac{CL_{C,X,R-i}}{CL_{C,X,R-i-1}}$$

$$\sigma_{C,X,R} = \sqrt{\frac{1}{62} \sum_{i=1}^{63} (\text{DailyReturn}_{C,X,R-i} - \mu_{C,X,R})^2}$$

Where:

$CL_{C,X,R-i}$  in respect of a Commodity  $C$ , a Component Index  $X$  and an Index Business Day  $R - i$ , means the Component Level in respect of such Component Index  $X$  on such Index Business Day  $R - i$ ;

$CL_{C,X,R-i-1}$ , in respect of a Commodity  $C$ , a Component Index  $X$  and an Index Business Day  $R - i$ , means the Component Level in respect of such Component Index  $X$  on the Index Business Day immediately preceding such Index Business Day  $R - i$ ;

**Index Business Day  $R - i$**  means, in respect of a Holdings Calculation Date  $R$ , the Index Business Day in the Daily Return Period that is  $i$  Index Business Days preceding such Holdings Calculation Date  $R$ ; and

**Daily Return Period** means, in respect of a Holdings Calculation Date  $R$ , the 63 Index Business Days preceding such Holdings Calculation Date  $R$ .

### 2.3.3 Weight Calculation

On a Holdings Calculation Date  $R$ , the weight (the **Weight** or  $W_{i,R}$ ) of each Component  $i$  is calculated in accordance with the applicable following formula based on the Commodity Weight and the Volatility Adjustment Factor ( $VAF_{C,R}$ ) calculated for the Commodity  $C$  associated with that Component:

- (a) If such Component  $i$  is a Deferred Component:

$$W_{i,R} = \overline{W}_{C,R}$$

- (b) If such Component  $i$  is a Nearby Component, then:

$$W_{i,R} = -\overline{W}_{C,R} \times VAF_{C,R}$$

Where:

$\overline{W}_{C,R}$  is defined in Section 2.3.1 (*Commodity Weight*); and

$VAF_{C,R}$  is defined in Section 2.3.2 (*Volatility Adjustment Factor (VAF) Calculations*).

## SECTION 3: MARKET DISRUPTION

---

### 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 where 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.

### 3.3 CONSEQUENCES OF A MARKET DISRUPTION EVENT

---

If a Market Disruption Event occurs or is continuing in respect of an Underlying Contract (the **Disrupted Contract**) on an Index Business Day (the **Disrupted Day**), the impact of such Market Disruption Event on the calculation of the Index Level on such Disrupted Day will depend on certain factors, including whether the Index is synthetically trading in the Disrupted Contract (in accordance with the Methodology) and the availability of the settlement price of the Disrupted Contract, as described below.

#### 3.3.1 Consequences of a Market Disruption Event on a Disrupted Day (no rebalancing)

If a Market Disruption Event occurs (or is continuing) on a Disrupted Day that is not a Disrupted Rebalancing Day (as defined below), then the Index Level will be calculated on such Disrupted Day using the Disruption Price (as defined below) of such Disrupted Contract; provided that, if the Market Disruption Event is continuing on the Market Disruption Longstop Date, then a Market Disruption Adjustment Event shall occur and the Index Calculation Agent may take action in accordance with Section 6.1 (*Adjustment Events*).

The determination of the Disruption Price of the Disrupted Contract on a Disrupted Day (that is not a Disrupted Rebalancing Day) prior to the Market Disruption Longstop Date, depends on whether or not the settlement price of the Disrupted Contract is available on the Publication Source on such Disrupted Day. The availability of the settlement price of a Disrupted Contract will generally depend on the type of Market Disruption Event; for example, a Market Disruption Event caused by the settlement price of the Disrupted Contract being a “limit price” or by a disruption of a Linked Contract (available) or a Market Disruption Event caused by the failure of the Trading Facility to publish the settlement price of the Disrupted Contract (unavailable).

The **Disruption Price** is determined as follows: (i) if the settlement price of the Disrupted Contract for such Disrupted Day (the **Disrupted Day Price**) is available from the Publication Source, then (notwithstanding the occurrence of the Market Disruption Event) the Disruption Price will be the Disrupted Day Price; or (ii) if the settlement price of the Disrupted Contract for such Disrupted Day is not available from the Publication Source, then the Disruption Price will be the settlement price of the Disrupted Contract on the Index Business Day prior to such Disrupted Day on which no Market Disruption Event (causing the settlement price to be unavailable) occurred or was continuing (the **Previous Price**).

On the Disrupted Day (that is not a Disrupted Rebalancing Day), the Index Calculation Agent will use the relevant Disruption Price to calculate the Index in place of the price of the Disrupted Contract that would otherwise be used in accordance with the Methodology. By way of further explanation, the Disruption Price will be substituted for the settlement price of the Underlying Contract in determining the Component Level ( $C_{i,t}$ ) for the relevant Component that will be used in the Index Level calculation (see Section 2.2 (*Daily Index Calculation*)) on the Disrupted Day.

### 3.3.2 Consequences of a Market Disruption Event on a Disrupted Rebalancing Day

If a Market Disruption Event occurs (or is continuing) on an Index Business Day on which the Index is synthetically trading in (i.e. rebalancing) the Disrupted Contract (a **Disrupted Rebalancing Day**), then the Index will defer the rebalancing of the Index relating to the Disrupted Contract (the **Disrupted Action**) until the earlier of (i) the next Rebalancing Day and (ii) the Market Disruption End Date. On the Disrupted Rebalancing Day and on each Disrupted Day on which the relevant Market Disruption Event is continuing until (but excluding) the Market Disruption End Date or the next Rebalancing Day (as applicable) (the **Rebalancing Deferral Period**), the calculation of the Index Level will be modified to reflect such deferral of the Disrupted Action. For the avoidance of doubt, the Index actions relating to the other Underlying Contracts (in respect of which no Market Disruption Event has occurred on such Disrupted Rebalancing Day and which are not Linked Contracts) will continue to be calculated in accordance with the Methodology during the Rebalancing Deferral Period.

If the Rebalancing Deferral Period ends due to a subsequent Rebalancing Day (a **New Rebalancing Day**), then the Disrupted Action in respect of the original Disrupted Rebalancing Day shall not be completed and the rebalancing on the New Rebalancing Day shall be determined in accordance with Section 2.1 (*Holdings Calculation*) (and this Section 3 (*Market Disruption*), where applicable). For the avoidance of doubt, determinations on the New Rebalancing Day shall be made without reference to any Disrupted Action (whether or not completed) that has occurred in respect of any previous Rebalancing Day, and the determination of a Market Disruption Event in respect of an Underlying Contract and any consequences thereof shall be determined in accordance with this Section 3 (*Market Disruption*) without reference to any Market Disruption Event determined in respect of any prior Rebalancing Day.

If the Rebalancing Deferral Period ends on the Market Disruption End Date, then the Disrupted Action will be completed and the calculation of the Index Level will be modified accordingly to reflect the completion of such Disrupted Action; provided that, if the Market Disruption End Date falls on the Market Disruption Longstop Date, then a Market Disruption Adjustment Event shall occur and the Index Calculation Agent may take action in accordance with Section 6.1 (*Adjustment Events*).

### 3.3.3 Market Disruption Date Definitions

**Market Disruption Adjustment Event** means the existence of a Market Disruption Event on the Market Disruption Longstop Date.

**Market Disruption End Date** means the earlier of (i) the Index Business Day on which the Market Disruption Event ceases to occur; (ii) the Index Business Day immediately preceding the expiry date of the Disrupted Contract; (iii) Index Business Day immediately preceding the first notice date of the Disrupted Contract (if applicable) and (iv) the Market Disruption Longstop Date.

**Market Disruption Longstop Date** means the date determined by the Index Calculation Agent (subject to approval by the Index Oversight Committee) on which the Market Disruption Event shall be deemed to end for the purpose of determining the Index Level. In determining the Market Disruption Longstop Date, the Index Calculation Agent (and the Index Oversight Committee) may take into account factors including (but not limited to) the objective of the Index, the expiry date of the Disrupted Contract and market practice.

**Rebalancing Day** is an Index Business Day on which the Index is synthetically trading.

## SECTION 4: DEFINITIONS

**Adjustment Event** is defined in Section 6.1 (*Adjustment Events*).

**Affected Index Level** is defined in Section 5.1 (*Corrections and Error Handling*).

**Asset Class Specific Adjustment Event** is defined in Section 6.2 (*Asset Class Specific Definitions – Adjustment Events*).

**Calculation Error** is defined in Section 5.1 (*Corrections and Error Handling*).

**Change in Economic Assumptions** is defined in Section 6.1 (*Adjustment Events*).

**Commodity** means each commodity corresponding to each Nearby Component and Deferred Component, as specified in Table 1 under the definition of “Components”.

**Commodity C** is defined in Section 2.3.1 (*Commodity Weight*).

**Commodity Weight ( $\bar{W}_{C,R}$ )** is defined in Section 2.3.1 (*Commodity Weight*).

**Components or Component Indices** means each Nearby Component and each Deferred Component (in respect of a Commodity) specified in the following table:

**TABLE 1**

Commodity	Nearby Component	Deferred Component
NYMEX WTI Crude Oil (CL)	MQSDCLER	MQSDCL3E
ICE Brent Crude Oil (CO)	MQSDCOER	MQSDCO3E
NYMEX Heating Oil (HO)	MQSDHOER	MQSDHO3E
NYMEX Unleaded Gasoline (XB)	MQSDXBER	MQSDXB3E
NYMEX Natural Gas (NG)	MQSDNGER	MQSDNG3E
ICE Gas Oil (QS)	MQSDQSER	MQSDQS3E
COMEX High Grade Copper (HG)	MQSDHGER	MQSDHG3E
LME Aluminium (LA)	MQSDLAER	MQSDLA3E
LME Nickel (LN)	MQSDLNER	MQSDLN3E
LME Zinc (LX)	MQSDLXER	MQSDLX3E
LME Lead (LL)*	MQSDLLER	MQSDLL3E
COMEX Gold (GC)	MQSDGCER	MQSDGC3E
COMEX Silver (SI)	MQSDSIER	MQSDSI3E

\* *The Lead (LL) Commodity and corresponding Components were added to the Index universe on or around the 5th business day of January 2023 due to the addition of Lead to the Bloomberg Commodity Index during the January 2023 index roll period.*

The calculation and methodology of each Deferred Component and each Nearby Component is described in the Component Index Methodology. For ease of reference, only ticker references to the Components have been included.

**Component Change Event** is defined in Section 6.1 (*Adjustment Events*).

**Component i** is defined in Section 2.1 (*Holdings Calculation*).

**Component Index Methodology**, in respect of each Component, means the methodology for calculating such Component, as set out in the “Macquarie Single Commodity (USD) Indices” index manual (as amended from time to time), provided together with this document and available on request or at <http://static.macquarie.com/dafiles/Internet/mgl/global/shared/corporate/trading-and-hedging/commodities/macquarie-single-commodity-indices.pdf> (or any successor page).

**Component Index  $X$**  is defined in Section 2.3.2 (*Volatility Adjustment Factor (VAF) Calculations*).

**Component Level**, in respect of an Index Business Day, means the closing level of each Component as determined by the Index Calculation Agent. If the Index Business Day is not a day on which the Component is scheduled to be published, the Component Level for that day will be the most recent available level for such Component on the most recent publication day.

**Component Licensing Event** is defined in Section 6.1 (*Adjustment Events*).

**Contract** means a futures contract traded in a Trading Facility and having a commodity as underlying.

**Contract Change Event** is defined in Section 6.2 (*Asset Class Specific Definitions – Adjustment Events*).

**Daily Return** $_{C,X,R-i}$  is defined in Section 2.3.2 (*Volatility Adjustment Factor (VAF) Calculations*).

**Daily Return Period** is defined in Section 2.3 (*Weights Calculation*).

**Dealer** is defined in Section 6.1 (*Adjustment Events*).

**Deferred Component**, in respect of each Commodity, is the corresponding single commodity index specified in Table 1 in the definition of “Components” in the column headed “Deferred Components”.

**Disrupted Action** is defined in Section 3.3.2 (*Consequences of a Market Disruption Event on a Disrupted Rebalancing Day*).

**Disrupted Contract** is defined in Section 3.3 (*Consequences of a Market Disruption Event*).

**Disrupted Day** is defined in Section 3.3 (*Consequences of a Market Disruption Event*).

**Disrupted Day Price** is defined in Section 3.3.1 (*Consequences of a Market Disruption Event on a Disrupted Day (no rebalancing)*).

**Disrupted Rebalancing Day** is defined in Section 3.3.2 (*Consequences of a Market Disruption Event on a Disrupted Rebalancing Day*).

**Disruption Price** is defined in Section 3.3.1 (*Consequences of a Market Disruption Event on a Disrupted Day (no rebalancing)*).

**General Adjustment Event** is defined in Section 6.1 (*Adjustment Events*).

**Holding ( $H_{i,t}$ )** is defined in Section 2.1.2 (*Daily Holdings Calculation*).

**Holdings Calculation Date** means the **tenth Index Business Day** of each calendar month.

**Holdings Calculation Date  $R$**  is defined in Section 2.1.1 (*Target Holdings Calculation on a Holdings Calculation Date*).

**Holdings Calculation Date  $R - 1$**  is defined in Section 2.3.1 (*Commodity Weight*).

**Index** is defined in the section headed “Important Information”.

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

**Index Business Days** means the days in the Index Calendar.

**Index Business Day  $R - i$**  is defined in Section 2.3.2 (*Volatility Adjustment Factor (VAF) Calculations*).

**Index Business Day  $t$**  is defined in Section 2.1 (*Holdings Calculation*).

**Index Calculation Agent** is defined in Section 7.2.2 (*Index Calculation Agent*).

**Index Calendar** means the set of trading days of the New York Mercantile Exchange (NYMEX) schedule.

**Index Level ( $I_t$ )** is defined in Section 2.2 (*Index Level Calculation*) and published under the Index Ticker.

**Index Live Date** means 12 February 2021, being the date on which the Methodology of the Index was finalised.

**Index Manual** is defined in the section headed "Important Information".

**Index Oversight Committee** is defined in Section 7.1 (*Index Governance*).

**Index Publication Day** is defined in Section 8.2 (*Publication of Index Level*).

**Index Rebalance Days** is defined in Section 2.1.2 (*Daily Holdings Calculation*).

**Index Rebalance Window** is defined in Section 2.1.2 (*Daily Holdings Calculation*).

**Index Start Date** is 13 May 2004.

**Index Start Level** means the Index Level on the Index Start Date, and is **100**.

**Index Ticker** is MQCP829E Index (Bloomberg).

**Initial Calculation Date** means the date on which the Index Calculation Agent first implemented the Index and published the Index Level. The Initial Calculation Date may fall on or after the Index Live Date.

**Input Error** is defined in Section 5.1 (*Corrections and Error Handling*).

**Linked Contract** is defined in Section 3.2 (*Market Disruption Events*).

**Market Disruption Adjustment Event** is defined in Section 3.3.3 (*Market Disruption Date Definitions*).

**Market Disruption End Date** is defined in Section 3.3.3 (*Market Disruption Date Definitions*).

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

**Market Disruption Longstop Date** is defined in Section 3.3.3 (*Market Disruption Date Definitions*).

**Material Error** is defined in Section 5.1 (*Corrections and Error Handling*).

**Methodology** is defined in the section headed "Important Information".

**Nearby Index**, in respect of each Commodity, means the corresponding single commodity index specified in Table 1 in the definition of "Components" in the column headed "Nearby Components".

**New Rebalancing Day** is defined in Section 3.3.2 (*Consequences of a Market Disruption Event on a Disrupted Rebalancing Day*).

**Previous Price** is defined in Section 3.3.1 (*Consequences of a Market Disruption Event on a Disrupted Day (no rebalancing)*).

**Publication Time** is defined in Section 8.2 (*Publication of Index Level*).

**Rebalancing Deferral Period** is defined in Section 3.3.2 (*Consequences of a Market Disruption Event on a Disrupted Rebalancing Day*).

**Reference Index** is defined in Section 2.3.1 (*Commodity Weight*).

**Reference Index Methodology** means the methodology of the Reference Index as published by the index administrator of the Reference Index (from time to time) and, as of the date of this Index Manual, is set out in a document headed: “Index Methodology: The Bloomberg Commodity Index Family”.

**Regulatory Event** is defined in Section 6.3 (*Regulatory Event*).

**Replicability Event** is defined in Section 6.1 (*Adjustment Events*).

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

**Settlement Price**, in respect of a futures contract and an Index Business Day, means the price that is published by the relevant Trading Facility and referred by such Trading Facility as the settlement price for that particular futures contract. If the settlement price is not available, as determined by the Index Calculation Agent, then the Settlement Price of that particular futures contract will be the most recent settlement price on the most recent business day of the relevant Exchange or Trading Facility.

**Standard Deviation of Daily Log Returns ( $\sigma_{C,X,R}$ )** is defined in Section 2.3.2 (*Volatility Adjustment Factor (VAF) Calculations*).

**Target Holdings ( $TH_{i,R}$ )** is defined in Section 2.1.1 (*Target Holdings Calculation on a Holdings Calculation Date*).

**Trading Facility** means each regulated futures exchange, facility or platform on or through which the Contracts underlying the Index are traded.

**Underlying Contracts** is defined in Section 3.1 (*Underlying Contracts*).

**Volatility Adjustment Factor ( $VAF_{C,R}$ )** is defined in Section 2.3.2 (*Volatility Adjustment Factor (VAF) Calculations*).

**Weight ( $W_{i,R}$ )** is defined in Section 2.3.3 (*Weight Calculation*).

## 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 or any Component Index Level (such Error, a **Material Error** and each affected Index Level or Component 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:

- (a) 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.
- (b) 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

---

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 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).

## 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 the 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 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*);
- The definition of "Settlement Price" in Section 4 (*Definitions*);
- Section 5 (*Corrections, Changes, Cessation and Discretion*); and
- Section 6 (*Adjustment Events and Regulatory Event*).

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: ADJUSTMENT EVENTS AND REGULATORY EVENT

---

### 6.1 ADJUSTMENT EVENTS

---

If an Adjustment Event occurs, the Index Calculation Agent may, but shall not be obliged to, take one or more of the following steps:

- (i) suspend the publication of the Index Level until such time as the Adjustment Event ceases to occur; or
- (ii) with the approval of the Index Oversight Committee:
  - (a) substitute the Component, if applicable, affected by the Adjustment Event with an asset which has similar characteristics and make such adjustments to the Index as are necessary, if any, in order to account for the substitution;
  - (b) make such adjustments to the Index (including to any of the weights or values of the Components or to the Index Level) and/or alter the methodology of the Index, in order to account for the effect of the Adjustment Event; or
  - (c) if no such adjustment or alteration could be made to preserve the objective of the Index, discontinue the Index.

**Adjustment Event** means, in respect of a Component, each General Adjustment Event and each Asset Class Specific Adjustment Event (as defined in Section 6.2 (*Asset Class Specific Definitions – Adjustment Events*)) as applicable for such Component.

**Change in Economic Assumptions** means, in respect of a Component, a material change of any economic assumptions (including, but not limited to, assumptions as to liquidity, estimated trading and/or rolling costs of the Components, bid/offer spreads in the market in respect of the Components and the funding cost associated with trading the Components) incorporated into the Component Index Methodology for such Component.

**Component Change Event** means, in respect of a Component, that since the Index Live Date, liquidity for the Component on the relevant trading venue has materially decreased in the context of the known or expected financial exposure to the Index.

**Component Licensing Event** means, in respect of a Component or any instrument or security on which the value of a Component depends, and for which a license has been granted to the Index Administrator (or an affiliate of the Index Administrator) in relation to the calculation, hedging or use of the Index, that either (a) such license is revoked, impaired or otherwise disputed for any reason, or (b) there is a material increase in the fee schedule applicable to such license.

**Dealer** means a hypothetical broker dealer subject to the same securities laws and rules and regulations of any securities regulators, exchanges and self-regulating organisations as apply to the Index Administrator.

**General Adjustment Event** means any of the following: a Change in Economic Assumptions, a Component Change Event, a Component Licensing Event and a Replicability Event.

**Replicability Event** means that on or after the Index Live Date one or more Dealers would be unable, after using commercially reasonable efforts, to hold, acquire, maintain, short sell or dispose of:

- (i) one or more Components;
- (ii) any instrument or security on which the value of a Component depends; or
- (iii) any instrument or security which is required to replicate the calculation methodology of the Index (including, but not limited to, interest rates and FX rates, if applicable).

## 6.2 ASSET CLASS SPECIFIC DEFINITIONS – ADJUSTMENT EVENTS

---

### 6.2.1 Exchange Traded Components

The following terms are applicable in respect of each Component.

**Asset Class Specific Adjustment Event** means Contract Change Event.

**Contract Change Event** means any of the following:

- (i) the specifications of a Component are materially altered by the relevant Trading Venue; or
- (ii) a Component is permanently no longer traded on the relevant Trading Venue.

## 6.3 REGULATORY EVENT

---

If a Regulatory Event occurs, the Index Administrator may, but shall not be obliged:

- (i) to suspend the publication of the Index Level until such time as the Regulatory Event ceases to occur; or
- (ii) with the approval of the Index Oversight Committee, to discontinue the Index.

**Regulatory Event** means that on or after the Index Live Date (a) due to the adoption of or any change in any applicable regulation, or (b) due to the promulgation of or any change in the interpretation by any court, tribunal or regulatory authority with competent jurisdiction of any applicable regulation, the Index Administrator determines that it is not permitted (or there is a reasonable likelihood that, within the next 30 Index Publication Days, it will not be permitted) to continue to sponsor, administer, maintain or calculate, as applicable, the Index.

## 6.4 BCOM ADJUSTMENT EVENT

---

If a BCOM Adjustment Event occurs, the Index Calculation Agent may, with the approval of the Index Oversight Committee:

- (a) determine to make no changes to the Index or the Methodology, notwithstanding the occurrence of the BCOM Adjustment Event;
- (b) make adjustments to the Index and/or alter the Methodology, in order to account for the effect of the BCOM Adjustment Event; or

- (c) discontinue the Index, if:
  - (i) no such adjustment could be made to preserve the objective of the Index; or
  - (ii) any adjustments to the Index to account for the BCOM Adjustment Event would result in (A) the Index not being replicable or (B) it no longer being commercially reasonable for a market participant in the commodity futures market to hedge the Index (as determined by the Index Oversight Committee).

Where:

**BCOM Administrator** means Bloomberg Index Services Limited or its successor.

**BCOM Adjustment Event** means the occurrence of one or more of the following in respect of a Component Index:

- (i) The BCOM Administrator makes a change to the BCOM Handbook; or
- (ii) the BCOM Administrator determines (by way of its oversight committee or otherwise) to make any change or adjustment to the Bloomberg Commodity Index or takes any action in respect of the Bloomberg Commodity Index (including, but not limited to, an action to account for market disruptions of the constituents of the Bloomberg Commodity Index) that is not set out in the Component Methodology (as published at the date of this Index Manual),

and, in either case, the Index Calculation Agent determines that such change, adjustment or action (as applicable) is a material change, adjustment or action (as the case may be).

## SECTION 7: OVERSIGHT, ROLES, CONFLICTS AND REVIEWS

---

### 7.1 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 division;
- 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 division 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 Adjustment Events, Regulatory 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.

### 7.2 INDEX ADMINISTRATOR AND INDEX CALCULATION AGENT

---

#### 7.2.1 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.

### **7.2.2 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 division 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.

### **7.2.3 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.

### **7.2.4 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.

## **7.3 CONFLICTS**

---

The Index and each Component Index is based on underlying assets, as described in the Methodology or the relevant Component Index Methodology, as applicable. 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 the 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.

#### 7.4 REVIEWS

---

The Index Administrator has procedures in place to review a sample of its Indices (which may not include this Index) 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 8: GENERAL INFORMATION

---

### 8.1 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.

### 8.2 PUBLICATION OF INDEX LEVEL

---

The publication of the Index Level and a Component 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 or Component 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 or a Component 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 or Component Level, as applicable, and shall in each case 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** is each Index Business Day in the Index Calendar.

### 8.3 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 9: NOTICES AND DISCLAIMERS

---

### 9.1 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 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). MBE is registered and incorporated in the Republic of Ireland (Company No. 634817). The registered office for MBLLB 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 authorized and regulated by the Australian Prudential Regulation Authority. MBE is authorized and regulated by the Central Bank of Ireland. Details about the extent of our regulation by the Prudential Regulation Authority are available from us on request. MBIL is authorized by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority.

### 9.2 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 the Index. Any offering or potential transaction that may be related to the 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.

### 9.3 THIRD-PARTY DISCLAIMERS

---

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

## **BLOOMBERG INDEX DISCLAIMERS**

“Bloomberg (R)” and Bloomberg Commodity Indices are service marks of Bloomberg Finance L.P. and its affiliates (collectively, “Bloomberg”) and have been licensed for use for certain purposes by Macquarie Bank Limited. Neither Bloomberg nor UBS Securities LLC and its affiliates (collectively, “UBS”) are affiliated with Macquarie Bank Limited, and Bloomberg and UBS do not approve, endorse, review, or recommend this Index. Neither Bloomberg nor UBS guarantees the timeliness, accurateness, or completeness of any data or information relating to this Index.