

Macquarie 321 Inverse Variable Beta Index

**Index Manual
January 2021**

IMPORTANT INFORMATION

BASIS OF PROVISION

This document (the **Index Manual**) sets out the rules for the Macquarie 321 Inverse Variable Beta Index (the **Index**) and reflects the methodology for determining the composition and calculation of the Index (the **Methodology**). The Methodology and the 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 Index. 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.

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” provided to you with this Index Manual (the **Risk Factors**). Investors should note in particular the following sections of the Risk Factors: *Part 1 (General Risk Factors)* and paragraphs 1 (*Component Index*) and 3 (*Commodity Indices*) of *Part 2 (Part 2 – Asset Class Specific Risk Factors)*. 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 since the Index Live Date but historical levels 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 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 6.4 (*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 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 6 (*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 the Index, including as a result of the failure of prices to be published in respect of an Underlying Contract or, as applicable, any other reference value for any reason; or as a result of an Underlying Contract failing to trade for any reason. Although the Index Calculation Agent will obtain information concerning Underlying Contracts 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 Adjustment Event or an Error has occurred or has not occurred (ii) the timing relating to the determination that a Market Disruption Event, an Adjustment 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 Adjustment Event or an Error has occurred.

CONTENTS

IMPORTANT INFORMATION	2
Basis of Provision	2
Suitability of Index.....	2
Risk Factors.....	2
Historical Data	2
Conflicts and Use of Discretion	3
Cessation or Modification of the Index	3
Disclaimer Of Liability	3
SECTION 1: OVERVIEW	6
1.1 Introduction and Index Objective.....	6
1.2 Index Calculation	6
1.3 Methodology	7
SECTION 2: INDEX METHODOLOGY	8
2.1 Component.....	8
2.2 Holdings Calculation	8
2.3 Index Level Calculation.....	9
2.4 Component Weight Calculation.....	10
SECTION 3: MARKET DISRUPTION	12
3.1 Underlying Contracts	12
3.2 Market Disruption Events.....	12
3.3 Consequences of a Market Disruption Event.....	12
SECTION 4: DEFINITIONS	15
SECTION 5: ADJUSTMENT EVENTS AND REGULATORY EVENT	17
5.1 Adjustment Events.....	17
5.2 Regulatory Event	18
5.3 BCOM Adjustment event.....	18
SECTION 6: CORRECTIONS, CHANGES, CESSATION AND DISCRETION	20
6.1 Corrections and Error Handling	20
6.2 Changes in Methodology.....	21
6.3 Cessation of Index.....	21
6.4 Discretion.....	21
SECTION 7: OVERSIGHT, ROLES, CONFLICTS AND REVIEWS	23
7.1 Index Governance	23
7.2 Index Administrator and Index Calculation Agent.....	23
7.3 Conflicts.....	24

7.4	Reviews.....	25
SECTION 8:	GENERAL INFORMATION	26
8.1	Valuation and Calculations.....	26
8.2	Publication of Index Level.....	26
8.3	Historical Values of the Index.....	26
SECTION 9:	NOTICES AND DISCLAIMERS	27
9.1	Regulatory Status.....	27
9.2	Not Research or an Offer	27
9.3	Third-Party Disclaimer	27
Bloomberg Index Disclaimers		28

SECTION 1: OVERVIEW

1.1 INTRODUCTION AND INDEX OBJECTIVE

The Macquarie 321 Inverse Variable Beta Index is a rules-based index that provides variable exposure to commodity markets designed for short commodity exposure based on a signal that aims to mitigate rises. The variable exposure can range between 0 and 100 percent with lower exposure during times when the signal (as described below) indicates the commodity markets are less likely to underperform and high exposure during times when the signal indicates the commodity markets are more likely to underperform.

The signal is calculated based on the observed shape of the Brent oil forward curve, with higher values when the prices at the front of the curve are higher than prices further out along the curve (when the forward curve is “backwardated”). Backwardation is the market condition where prices of futures contracts nearer to expiry (front of the futures curve) are higher than prices of futures contracts further from expiry (back of the futures curve). The shape of the futures curve is mainly affected by supply and demand conditions of the underlying commodity, with commodities where demand outpaces supply generally being in “backwardation” and those commodities which are oversupplied generally being in “contango” (the opposite of backwardation, with higher futures prices in the back of the futures curve than the front).

The rationale of the signal is based on the assumption that the international oil benchmark (Brent futures) can be used as a proxy for the wider macro-economic environment, with the forward curve being more likely to be backwardated during times of macro-economic expansion on the back of increased demand for energy and more likely to be in contango during macro-economic contraction, when demand for energy is typically decreasing. During expansionary times, the demand for commodities is typically increasing and commodity markets are less likely to underperform in contrast to contractionary times when commodity markets are more likely to underperform.

The Index has a single component index, the Bloomberg Commodity Index (Bloomberg ticker: BCOM Index) (the **Component**). **Investors in this Index should read the Component Methodology.**

The Index rebalances the allocation to the Component on a daily basis.

The Index is designed as a tradable index that is readily accessible to market participants and is calculated daily in an Excess Return format.

1.2 INDEX CALCULATION

The 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 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 6 (*Corrections, Changes, Cessation and Discretion*) for further information.

The 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 actual transaction data sourced from regulated markets and exchanges.

1.3 METHODOLOGY

The Methodology for calculating the Index is described in the Section 2 (*Index Methodology*). The Component Methodology, which sets out the methodology for calculating the Component, is described in Section 2.1 (*Component*).

SECTION 2: INDEX METHODOLOGY

On a daily basis the Index seeks to replicate synthetically the returns obtained by notionally holding the Components, the Component Weight of which is defined in Section 2.4 (*Component Weight Calculation*) and rebalanced periodically according to Section 2.2 (*Holdings Calculation*). The following sections detail how the Index Calculation Agent will calculate the daily Index Levels of the Index:

- **Section 2.1** describes the Component underlying the Index;
- **Section 2.2** describes the calculation of Holdings, which are intermediate calculations that enable the Index Calculation Agent to reflect the changes stemming from the Index rebalance in the returns of the Index;
- **Section 2.3** describes the day-to-day calculation of the Index Level; and
- **Section 2.4** describes the calculation of the Component Weight used in the calculation of the Holdings.

2.1 COMPONENT

The Index takes exposure to a single Component, the Bloomberg Commodity Index, which is calculated, administered and published by Bloomberg Index Services Limited (**Bloomberg**):

<i>Component</i>	<i>Index Ticker of Component</i>
Bloomberg Commodity Index	BCOM

The methodology of the Component (the **Component Methodology**) is set out in the Bloomberg Commodity Index Methodology, as published by Bloomberg on its website (<https://www.bloomberg.com/professional/product/indices/>).

2.2 HOLDINGS CALCULATION

On each Index Business Day (an **Index Business Day t**), the Component (**Component i**) has a Holdings, $H_{i,t}$ (as defined in Section 2.2.2 below) associated with it. This Holding represents the proportion in which the Index Level will change when the level of such Component i changes.

On each Index Business Day t (each, a **Holdings Calculation Date**), the Holding, $H_{i,t}$ of Component i is rebalanced in accordance with the Target Holdings (as defined in Section 2.2.1 below) and the Component Weight (as defined in Section 2.4 (*Component Weight Calculation*)).

2.2.1 Target Holdings Calculation on a Holdings Calculation Date

The calculation of the Target Holdings on a Holdings Calculation Date (a **Holdings Calculation Date R**), requires as input the Component Weight and the Component Level in respect of such Holdings Calculation Date R .

On a Holdings Calculation Date R , the target holdings (the **Target Holdings** or $TH_{i,R}$) for Component i is calculated according to the following formula:

$$TH_{i,R} = I_R \times \frac{W_{i,R}}{C_{i,R}}$$

Where:

I_R is the Index Level on Holdings Calculation Date R ;

$W_{i,R}$ is the Component Weight of such Component i (as defined in Section 2.4 (*Component Weight Calculation*)); and

$C_{i,R}$, in respect of Component i and a Holdings Calculation Date R , is the Component Level of such Component i (as defined in Section 4 (*Definitions*)) on such Holdings Calculation Date R .

For example, if, on Holdings Calculation Date R , the Index level is 100, the Component Level is 80 and the Component Weight is 40%, then the Target Holding in respect of that Holdings Calculation Date will be equal to: $100 \times (0.4) / 80 = 0.5$.

2.2.2 Daily Holdings Calculation

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

- (a) If such Index Business Day t is the Index Business Day immediately following the Holdings Calculation Date R , the Holdings, $H_{i,t}$ is calculated according to the following formula:

$$H_{i,t} = TH_{i,R}$$

- (b) On any other Index Business Day t (that is not the Index Business Day immediately following a Holdings Calculation Date R), the Holdings, $H_{i,t}$, is set to be equal to the Holdings of Component i on the previous Index Business Day, $H_{i,t-1}$.

2.3 INDEX LEVEL CALCULATION

The Index represents the performance of a synthetic, unfunded exposure to the Underlying Contracts of the 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 (the **Index Level** or 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 level of the Component, according to the following formula:

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

Where:

$H_{i,t}$ is defined in Section 2.2.2 (*Daily Holdings Calculation*);

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

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

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

For example, if the Index had the following Component Levels:

	Component <i>i</i>
Index Business Day <i>t-1</i>	32.48
Index Business Day <i>t</i>	32.83

and the following Holdings:

	Holding
Component <i>i</i>	1.72

then if the Index Level on Index Business Day *t-1* was equal to 102.0564, the Index Level on Index Business Day *t* will be equal to:

$$I_t = 102.0564 + 1.72 \times (32.83 - 32.48) = 102.6584$$

The Index Level on Index Business Day *t* would be 102.6584.

2.4 COMPONENT WEIGHT CALCULATION

On each Index Business Day *t*, the Component weight (the **Component Weight** or w_t) for Component *i* is determined based on the value of the signal (the **Signal** or s_t) calculated as the z-score of the 5-day moving average of the Backwardation Ratio ($BRMA_i$) (as defined below) on the Brent Trading Day immediately preceding Index Business Day *t*, according to the following formulae:

$$w_t = 1 - \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{s_t} e^{(-z^2/2)} dz$$

$$s_t = \frac{BRMA_{t-1} - 1/252 \times \sum_{i \in A} BRMA_i}{\sqrt{1/251 \times \sum_{i \in A} (BRMA_i - 1/252 \times \sum_{i \in A} BRMA_i)^2}}$$

Where:

$BRMA_{t-1}$, in respect of an Index Business Day *t*, is the average of the Backwardation Ratios ($BRMA_i$) in respect of each Brent Trading during the period from, and including, the Brent Trading Day that falls five Brent Trading Days prior to (and excluding) such Index Business Day *t* to, and including, the Brent Trading Day immediately preceding Index Business Day *t*;

A is the set of 252 Brent Trading Days that ends on (and includes) the Brent Trading Day immediately preceding Index Business Day *t*; and

$BRMA_i$ (or **Backwardation Ratio**), in respect of each Brent Trading Day (*d*), is calculated in accordance with the following formula:

$$BWR_d = \frac{CO1_d}{CO3_d}$$

Where:

$CO1_d$ is the official settlement price as of Brent Trading Day *d* of the ICE Brent Crude Oil contract that is closest to expiry; and

$CO3_d$ is the official settlement price as of Brent Trading Day d of the ICE Brent Crude Oil contract that is third closest to expiry.

SECTION 3: MARKET DISRUPTION

3.1 UNDERLYING CONTRACTS

The Index is calculated on a daily basis based on the settlement prices of the futures contracts that underlie the Index (the Underlying Contracts, as defined in Section 4 (*Definitions*)). 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 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; or
- (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.

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 (i.e. rolling or rebalancing) 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 5.1 (*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” (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, if the Disrupted Contract underlies a Component (or its constituents), then the Disruption Price will be used to calculate the Component Level ($C_{i,t}$) in respect of such Component in the Index Level calculation (see Section 2.3 (*Index Level Calculation*)) for 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. rolling or rebalancing) the Disrupted Contract (a **Disrupted Rebalancing Day**), then the Index will defer the Index action (i.e. the roll or rebalance, as the case may be) relating to the Disrupted Contract (the **Disrupted Action**) until the earlier of (i) the next Rebalancing Day or (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) 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 roll/rebalancing on the New Rebalancing Day shall be determined in accordance with Section 2.2 (*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 5.1 (*Adjustment Events*).

3.2.3 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.

SECTION 4: DEFINITIONS

Adjustment Event is defined in Section 5.1 (*Adjustment Events*).

Affected Index Level is defined in Section 6.1.1 (*Errors*).

Backwardation Ratio ($BRMA_i$) is defined in Section 2.4 (Component Weight Calculation).

BCOM Adjustment Event is defined in Section 5.3 (*BCOM Adjustment Event*).

Bloomberg is defined in Section 2.1 (Component).

Brent Trading Day means a day that is a trading day for ICE Brent Crude Oil contracts according to the Intercontinental Exchange (ICE).

Calculation Error is defined in Section 6.1.1 (*Errors*).

Change in Economic Assumptions is defined in Section 5.1 (*Adjustment Events*).

Component is defined in Section 2.1 (*Component*).

Component Change Event is defined in Section 5.1 (*Adjustment Events*).

Component Level, in respect of an Index Business Day, is 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 Component Level on the most recent publication day available.

Component Licensing Event is defined in Section 5.1 (*Adjustment Events*).

Component Methodology is defined in Section 2.1 (*Component*).

Component Weight (w_t) is defined in Section 2.4 (*Component Weight Calculation*).

Contract is a futures contract traded in a Trading Facility and having a Commodity as underlying.

Dealer is defined in Section 5.1 (*Adjustment Events*).

Error is defined in Section 6.1.1 (*Errors*).

General Adjustment Event is defined in Section 5.1 (*Adjustment Events*).

Holdings ($H_{i,t}$), in respect of a Component and an Index Business Day, is defined in Section 2.2 (*Holdings Calculation*).

Holdings Calculation Date is defined in Section 2.2 (*Holdings Calculation*).

ICE Brent Crude Oil means the Brent Crude Oil futures contract listed on the Intercontinental Exchange (ICE).

Index is defined in the Section headed "Important Information".

Index Administrator is defined in the Section headed "Important Information".

Index Business Days are the days in the Index Calendar.

Index Business Day t is defined in Section 2.2 (*Holdings Calculation*).

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

Index Calendar is the set of trading days in the New York Mercantile Exchange schedule.

Index Level (I_t) is the level of the Index that is calculated according to Section 2.3 (*Index Level Calculation*).

Index Live Date is 5 November 2020.

Index Manual is defined in the Section headed “Important Information”.

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

Index Start Date is 28 December 2000.

Index Ticker is Excess Return – **MQCP321E** Index (Bloomberg).

Initial Index Level is 100.

Input Error is defined in Section 6.1.1 (*Errors*).

Material Error is defined in Section 6.1.1 (*Errors*).

Methodology is defined in the Section headed “Important Information”.

Regulatory Event is defined in Section 5.2 (*Regulatory Event*).

Replicability Event is defined in Section 5.1 (*Adjustment Events*).

Settlement Price, in respect of a Contract, is the price, expressed in US dollars, published by the relevant Exchange or Trading Facility for such Contract and referred to by such Exchange or Trading Facility as the settlement price for that particular contract. If, in respect of a Contract, any Index Business Day is not a business day of the relevant Exchange or Trading Facility, then the Settlement Price of such Contract will be the most recent available price on the most recent business day of the relevant Exchange or Trading Facility.

Signal (s_t) is defined in Section 2.4 (*Component Weight Calculation*).

Target Holdings ($TH_{i,R}$) is defined in Section 2.2.1 (*Target Holdings Calculation on a Holdings Calculation Date*).

Trading Facility, in respect of each Contract, is each regulated futures exchange, facility or platform on or through which such Contract is traded.

Underlying Contracts, in respect of an Index Business Day, are all Contracts which are, directly or indirectly, an underlying of the Index or, if that Index Business Day is a Holdings Calculation Date, scheduled to be an underlying of the Index according to the methodology of that Index or that of its Components. In respect of the Index, the Underlying Contracts are all Contracts that underlie the Components.

SECTION 5: ADJUSTMENT EVENTS AND REGULATORY EVENT

5.1 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.

Where:

Adjustment Event means, in respect of a Component, each General Adjustment Event and a Contract Change Event.

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 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.

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.

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, the Index Oversight Committee determines that 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).

5.2 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.

5.3 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),
- (iii) 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 6: CORRECTIONS, CHANGES, CESSATION AND DISCRETION

6.1 CORRECTIONS AND ERROR HANDLING

6.1.1 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.

6.1.2 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 6.2 (*Changes in Methodology*)).

6.1.3 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.

6.2 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.

6.3 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.

6.4 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*);
- Section 5 (*Adjustment Events and Regulatory Event*); and
- Section 6 (*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 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 group of the Commodities and Global Markets division.

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 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 the Index. The Index Administrator and/or its affiliates may underwrite or issue other securities or financial instruments indexed to the Index, and the Index Administrator or its affiliates may license the Index for publication or for use by unaffiliated third parties. These activities could present conflicts of interest and could affect the value of the 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 6.2 (*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. 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 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 6 (*Corrections, Changes, Cessation and Discretion*)). See Section 6.1.2 regarding the publication of Material Errors.

Where:

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 each Index Business Day.

8.3 HISTORICAL VALUES OF THE INDEX

Hypothetical back-tested historical values of the Index 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

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9.3 THIRD-PARTY DISCLAIMER

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