

# Macquarie Dynamic Carry Index

**Index Manual  
January 2021**

## NOTES AND DISCLAIMERS

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### BASIS OF PROVISION

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This Index Manual sets out the rules for the Macquarie Dynamic Carry Index (the *Index*) and reflects the methodology for determining the composition and calculation of the Index (the Methodology section).

**The Index Manual assumes the reader is a sophisticated financial market participant, with the knowledge and expertise to understand the investment strategy described herein and the associated risks. It is unsuitable for a retail or unsophisticated audience.**

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### DATE OF INDEX MANUAL AND CHANGES TO THE INDICES

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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 Sponsor may, however, supplement, amend or withdraw the Methodology at any time if it determines that the Index is no longer calculable under the existing Methodology. The Index Sponsor may also determine that a change to the Methodology is required or desirable to address an error, ambiguity or omission. Such changes may include changes to eligibility requirements or construction as well as changes to the daily Index calculations. If a supplement or amendment is required and such supplement or amendment materially affects the Index Level of the Index, the Index Sponsor will publish such changes to the Methodology, together with the rationale for such changes, 30 days prior to implementation. However if prior publication of the changes is not practicable, the changes and rationale will be published as soon as is reasonably practicable.

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

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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.

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### HISTORICAL VALUES OF THE INDEX

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Hypothetical back-tested historical values of the Index are not indicative of future performance.

The Index Sponsor 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.

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### DISCLAIMER OF LIABILITY

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The Methodology is published for information purposes only and does not create any legally binding obligation on the part of the Index Sponsor, Index Calculation Agent and/or their affiliates. This document is intended to provide a summary of the index it purports to describe. The Index Sponsor 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 Sponsor and Index Calculation Agent do not warrant or guarantee the accuracy or timeliness of calculations of the Index value and do not warrant or guarantee the availability of any Index value on any particular date or at any particular time. The Index Sponsor and 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 a result of a Contract failing to trade for any reason. Although the Index Calculation Agent will obtain information concerning Underlying Contracts 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 Sponsor or Index Calculation Agent as to the accuracy and completeness of information concerning any Index.

In particular, the Index Sponsor and Index Calculation Agent are under no obligation to monitor whether or not a Market Disruption Event has occurred and shall not be liable for any losses resulting from (i) any determination that a Market Disruption Event has occurred or has not occurred in relation to a Contract, (ii) the timing relating to the determination that a Market Disruption Event has occurred

in relation to a Contract, or (iii) any actions taken or not taken by the Index Calculation Agent as a result of such determination that a Market Disruption Event has occurred.

## NOTICES

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The Index is based on Underlying Contracts, as described in the Methodology. The Index Sponsor and/or its affiliates actively trade Underlying Contracts and options on Underlying Contracts. The Index Sponsor 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 Contracts or are linked to the performance of an Index. The Index Sponsor and/or its affiliates may underwrite or issue other securities or financial instruments indexed to the Index, and the Index Sponsor 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 the Index. The Index Sponsor 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 Sponsor may make a market in such instruments (or related derivatives), which may in extreme circumstances affect the levels of the Index described.

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## INTRODUCTION

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The Macquarie Dynamic Carry index (hereinafter, the Index) is designed as a rules based index for exposure to the “commodity carry” investment strategy. The carry strategy aims to take advantage of storage-related risk premium, the existence of which can be explained by the fact that short-term storage is typically more expensive than long-term storage. The premium can be captured by taking long exposure to long-dated (deferred) commodity futures contracts and simultaneous short exposure to short-dated (front month) commodity futures contracts (a “Spread”). If the shape of the futures curve remains unchanged, the strategy aims to generate a positive return through the difference in roll yields between the contracts on which long and short exposures are taken.

The Index aims to outperform traditional static carry strategies (that take exposure to a static set of commodity spreads) by selecting, on a monthly basis, the Spreads that have exhibited positive historic momentum and negative skewness in their returns. Momentum is measured by assessing the average daily return of a given spread over a period of 120 days and can potentially serve as a good indicator for predicting subsequent performance. Skewness is used to measure the degree of asymmetry of a return distribution around its mean and is applied to the daily returns of a given spread over a period of 120 days to validate the bullish/bearish view inferred by the momentum signal.

Each of the spreads that are selected in a given month are assigned a set of initial weights that are calculated in proportion to their recent risk-adjusted returns and then subject to an iterative capping procedure to ensure that no Commodity or Group has a disproportionate effect on the Index. For each Commodity and Spread selected, the Index obtains a long (positive) exposure to a deferred futures contract in respect of that commodity and a short (negative) exposure to a front month futures contract.

## THE UNIVERSE OF SELECTABLE COMMODITIES

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The Index invests in a universe of up to 19 different Commodities across energy, industrial metals, grains, softs and livestock, chosen to have sufficient liquidity in the Underlying Contracts to sustain the trading activity resulting from the expected levels of investment in the Index.

Index exposure to deferred or front month commodity futures contracts is obtained via allocation to Macquarie Single Commodity Indices. Each such index tracks a sequence of futures contracts relating to a single commodity and a particular point on the futures curve (either deferred or front month).

Information on the Macquarie Single Commodity Indices can be found in the Index Manual, dated June 2017, available at:

<http://static.macquarie.com/dafiles/Internet/mgl/global/shared/corporate/trading-and-hedging/commodities/macquarie-single-commodity-indices.pdf>

The universe of 19 commodities has been determined by the Index Sponsor as a result of a one-off process prior to the creation of the Index and will not change for the life of the Index.

## SELECTION OF COMPONENTS

For each non-Energy Commodity, the Index can take exposure on up to two different calendar Spreads and for each Energy Commodity, on up to three different calendar Spreads. Therefore, the Macquarie Dynamic Carry Index has a universe of 41 potential Spreads (9 Spreads within Energy and 32 Spreads across all the non-Energy Commodities), as described in the Definitions section.

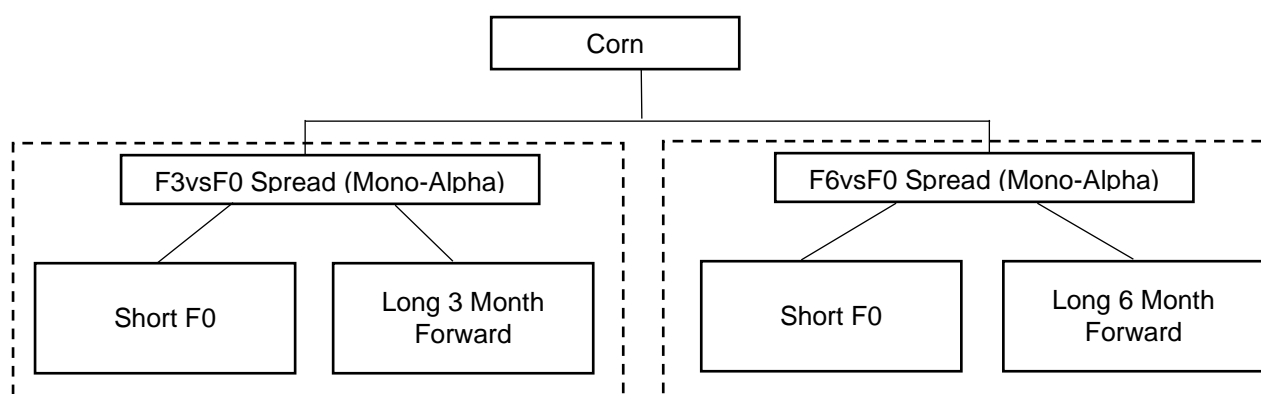
Each month, the Index selects a subset of Spreads and Commodities from the universe of 19 Commodities and 41 potential Spreads. The selection is made with reference to the momentum and return skewness of each of the Spreads in respect of each Commodity. Spreads that have exhibited positive momentum and negative return skewness are considered as eligible Spreads on which the Index takes exposure. Spreads that exhibit negative momentum or positive return skewness are excluded from the Index (unless selected by invocation of the Fall back Procedure described in Section 4).

Once the provisional list of Commodities and the associated Spreads has been determined, an Initial Weight is allocated to each Spread in proportion to the Risk Adjusted Return of each such Spread.

### ***Eligible Spreads for Selection***

Commodity	F3vsF0 Spread (Long 3 Month Forward / Short F0)	F6vsF0 Spread (Long 6 Month Forward / Short F0)	AnnRollvsF0 Spread (Long Annual Roll / Short F0)	Sector
WTI Crude Oil	Yes	Yes	Yes	Energy
Gasoline	Yes	Yes	Yes	Energy
Natural Gas	Yes	Yes	Yes	Energy
Zinc	Yes	Yes	No	Metals
Nickel	Yes	Yes	No	Metals
Aluminum	Yes	Yes	No	Metals
Copper	Yes	Yes	No	Metals
Corn	Yes	Yes	No	Grains
Soybeans	Yes	Yes	No	Grains
Soybeans Oil	Yes	Yes	No	Grains
Soybean Meal	Yes	Yes	No	Grains
Wheat (CBOT)	Yes	Yes	No	Grains
Wheat (KCBOT)	Yes	Yes	No	Grains
Sugar No.11	Yes	Yes	No	Softs
Coffee	Yes	Yes	No	Softs
Cotton	Yes	Yes	No	Softs
Lean Hogs	Yes	Yes	No	Livestock
Live Cattle	Yes	Yes	No	Livestock
Feeder Cattle	Yes	Yes	No	Livestock

Below is an example of Commodity Corn and its associated Spreads and Components.




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### THE DIVERSIFICATION REQUIREMENTS

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After the Initial Weights have been assigned, they are adjusted such that the weights satisfy the specific Commodity and Group caps defined under the definition of “Components”.

The process of selection and the application of the diversification requirements are described in Section 4.

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### GENERAL NOTES ON THE INDEX AND THE METHODOLOGY

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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 various worked examples which demonstrate the types of calculations needed to calculate the level of the Index on a particular date. The Index is calculated and maintained by the Index Calculation Agent and supervised by the Index Sponsor and Oversight Committee, as described below. Once the Index has been created, the Components and Weights (or if appropriate, formula for calculating Weights) will not be amended going forward. All determinations with regard to the Index are made following the rules set out in this document, without discretion by the Index Sponsor or Index Calculation Agent. The Index is not based upon submissions provided by third parties (or an affiliate of the Index Sponsor or Index Calculation Agent) or expert judgment. The Index is based upon actual transaction data sourced from regulated markets and exchanges.



## INDEX GOVERNANCE

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

- A Managing Director in the Commodity Markets and Financing division of the Commodities and Global Markets group;
- A Director from the Legal and Governance group;
- A representative from the Technology division of the Corporate Operations Group;
- A representative from the Risk division of the Risk Management Group; and
- A representative from the Compliance division of the Risk Management Group.

Each member of the Oversight Committee is sufficiently knowledgeable about commodity futures contracts and the commodities markets in general, and is required to act in good faith and in a commercially reasonable manner.

The Index Sponsor will make available upon request the names of the individuals forming the Oversight Committee.

The 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 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 approval of any changes to the Methodology, any contemplated cancellation of the Index and the resolution of any issues which arise in relation to the Index.

## INDEX SPONSOR AND INDEX CALCULATION AGENT

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### THE INDEX SPONSOR

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Macquarie Bank Limited is the Index Sponsor. Notwithstanding anything to the contrary, the Index Sponsor 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. The Index Calculation Agent is appointed by the Index Sponsor to calculate and maintain the Index from and until such time that the Index Sponsor 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 Oversight Committee.

The Index Sponsor may, from time to time, revise, amend and/or supplement this Manual. If such revisions or supplement materially affect the calculation of the Index, the Index Sponsor shall publish a new Manual no later than 30 days prior to implementation of the revised or supplemented rules. If it is not reasonably practicable to publish revised Manual 30 days prior to such changes, the revised Manual will be published as soon as reasonably practicable.

### THE INDEX CALCULATION AGENT

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The Technology division of the Corporate Operations Group of Macquarie Bank Limited acts as “Index Calculation Agent” in respect of the Index as of the date of this 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.

### RELATIONSHIP OF THE INDEX SPONSOR AND THE INDEX CALCULATION AGENT

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The Index Calculation Agent is appointed by the Index Sponsor, subject to the approval of the Index Oversight Committee. While, as of the date of publication of these rules, both the Index Sponsor and the Index Calculation Agent form part of Macquarie Bank Limited, they are independent divisions within the bank and 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 Sponsor.

## DEFINITIONS

**Active Mono-Alpha Set**, on an Index Calculation Date, the group of Mono-Alpha indices with Spreads in which the Deferred Contract is different to the F0 Contract (i.e. resulting in a non-zero spread exposure by taking long exposure to the Deferred Contract and short exposure to the F0 contract).

**AnnRollvsF0 Spread**, is the Mono-Alpha Index generated by taking long exposure to the annual roll (Deferred Index) and short exposure to the F0 Index in respect of a Commodity.

**Cap**, in respect of each Commodity is the maximum aggregate weight that can be allocated to the Mono-Alpha Indices that comprise the long/short spread exposure, as specified in Table 1 under the definition of Components.

**Commodity**, is each commodity corresponding to each Component.

**Components**, are the Macquarie Single Commodity Indices specified in the columns “Deferred Index” and “F0 Index” specified in the table below:

**TABLE 1**

COMMODITY	F3VSF0 SPREAD		F6VSF0 SPREAD		ANNROLLVSF0 SPREAD		GROUP	GROUP CAP	CAP
	DEFERRED INDEX	F0 INDEX	DEFERRED INDEX	F0 INDEX	DEFERRED INDEX	F0 INDEX			
WTI Crude Oil	MQSDCL3E	MQSDCLER	MQSDCL6E	MQSDCLER	MQSYCLRA	MQSDCLER	PETROLEUM	35%	35%
Gasoline	MQSDXB3E	MQSDXBER	MQSDXB6E	MQSDXBER	MQSYXBRA	MQSDXBER	PETROLEUM		35%
Natural Gas	MQSDNG3E	MQSDNGER	MQSDNG6E	MQSDNGER	MQSYNGRA	MQSDNGER	NONE		20%
Zinc	MQSDLX3E	MQSDLXER	MQSDLX6E	MQSDLXER			NONE		20%
Nickel	MQSDLN3E	MQSDLNER	MQSDLN6E	MQSDLNER			NONE		20%
Aluminum	MQSDLA3E	MQSDLAER	MQSDLA6E	MQSDLAER			NONE		20%
Copper	MQSDHG3E	MQSDHGER	MQSDHG6E	MQSDHGER			NONE		20%
Corn	MQSDC3E	MQSDCER	MQSDC6E	MQSDCER			NONE		20%
Soybeans	MQSDS3E	MQSDSER	MQSDS6E	MQSDSER			NONE		15%
Soybeans Oil	MQSDBO3E	MQSDBOER	MQSDBO6E	MQSDBOER			NONE		5%
Soybean Meal	MQSDSM3E	MQSDSMER	MQSDSM6E	MQSDSMER			NONE		5%
Wheat (CBOT)	MQSDW3E	MQSDWER	MQSDW6E	MQSDWER			WHEAT	10%	10%
Wheat (KCBOT)	MQSDKW3E	MQSDKWER	MQSDKW6E	MQSDKWER			WHEAT		10%
Sugar [No. 11]	MQSDSB3E	MQSDSBER	MQSDSB6E	MQSDSBER			NONE		10%
[Arabica] Coffee	MQSDKC3E	MQSDKCER	MQSDKC6E	MQSDKCER			NONE		5%
Cotton	MQSDCT3E	MQSDCTER	MQSDCT6E	MQSDCTER			NONE		5%

Lean Hogs	MQSDLH3E	MQSDLHER	MQSDLH6E	MQSDLHER			NONE		7.5 %
Live Cattle	MQSDLC3E	MQSDLCER	MQSDLC6E	MQSDLCER			NONE		10%
Feeder Cattle	MQSCFC3E	MQSCFCER	MQSCFC6E	MQSCFCER			NONE		5%

The calculation and methodology of each Deferred Index and F0 Index in the “Macquarie Single Commodity Indices” Index Manual, which is available on request or at [\[http://static.macquarie.com/dafiles/Internet/mgl/global/shared/corporate/trading-and-hedging/commodities/macquarie-single-commodity-indices.pdf\]](http://static.macquarie.com/dafiles/Internet/mgl/global/shared/corporate/trading-and-hedging/commodities/macquarie-single-commodity-indices.pdf). For ease of reference, only ticker references have been included.

Each non-energy Commodity is represented by four Components, two Spreads and one Group. Each Energy Commodity is represented by six Components, three Spreads and one Group.

For example:

**Commodity:** WTI Crude Oil

**Group:** Petroleum

**Components:**

**F3vsF0 Spread:** MQSDCL3E which can be assigned a positive/long weight and MQSDCLER which can be assigned a negative/short weight, together referred to as WTI Crude Oil F3vsF0 Spread.

**F6vsF0 Spread:** MQSDCL6E which can be assigned a positive/long weight and MQSDCLER which can be assigned a negative/short weight, together referred to as WTI Crude Oil F6vsF0 Spread.

**AnnRollvsF0 Spread:** MQSYCLRA which can be assigned a positive/long weight and MQSDCLER which can be assigned a negative/short weight, together referred to as WTI Crude Oil AnnRollvsF0 Spread.

**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 most recent available Component Level on the most recent publication day.

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

**Deferred Contract**, in respect of each Commodity and Spread, on Holding Calculation Date *R*, is the contract that the Deferred Index (either 3 Month Forward, 6 Month Forward or Annual Roll) will be fully invested by the end of the month in which the Holding Calculation Date *R* falls.

**Deferred Index**, in respect of each Commodity and Spread, is the Single Commodity Index described in Table 1 in the definition of Components under the relevant Commodity row and relevant “Deferred Index” column.

**Equivalent Holdings**, in respect of an Index Business Day, are numbers which, if applied as Holdings to the Underlying Contracts of the Index, would perfectly describe the performance of the Index in respect of that Index Business Day. Equivalent Holdings are determined in order to facilitate calculation of the Index where any Underlying Contract is subject to a Market Disruption Event. The

calculation of Equivalent Holdings is set out in Section 3 (*Market Disruption Events*) of the Index Calculation section below.

**Equivalent Target Holdings**, in respect of an Index Business Day, are numbers which, if applied as Holdings to the Underlying Contracts of the Index, would perfectly describe what the performance of the Index would have been if the Holdings of the Index were instead equal to the Target Holdings of the Index. Equivalent Target Holdings are determined in order to facilitate calculation of the Index where any Underlying Contract is subject to a Market Disruption Event. The calculation of Equivalent Target Holdings is set out in Section 3 (*Market Disruption Events*) of the Index Calculation section below.

**Expiration**, is the date established by relevant Trading Facility for each Contract and is typically the date on which trading on that particular Contract ceases.

**F0 Contract**, in respect of each Commodity and Spread, on Holding Calculation Date  $R$ , is the contract that the F0 Index will be fully invested by the end of the month in which the Holding Calculation Date  $R$  falls.

**F0 Index**, in respect of each Commodity and Spread, is the Single Commodity Index described in Table 1 in the definition of Components under the relevant Commodity row and relevant "F0 Index" column.

**F3vsF0 Spread**, is the Mono-Alpha Index generated by taking long exposure to the 3 month forward (Deferred Index) and short exposure to the F0 Index in respect of a Commodity.

**F6vsF0 Spread**, is the Mono-Alpha Index generated by taking long exposure to the 6 month forward (Deferred Index) and short exposure to the F0 Index in respect of a Commodity.

**Final Weight**, is weight applied (after capping) to each Component represented in the Index from one rebalancing to the next.

**Group**, in respect of each Commodity as specified in Table 1 in the definition of Components. Groups are utilised in the capping procedure described in Section 4 (*Weighting Methodology*).

**Holding**, in respect of a Component and an Index Business Day, is a number which is determined by the Index Calculation Agent as described in Section 2 (*Holdings Calculation*) of the Index Calculation section below. The Holding in respect of a Component is determined in order to calculate the daily Index Level and represents the proportionate effect on the Index Level of a change in the relevant Component level.

**Holdings Calculation Date**, is the Index Business Day on which the Target Holdings are periodically calculated in order to rebalance the Holding of each Component back to the specified Weights. The Holdings Calculation Date is the **tenth Index Business Day** of each calendar month.

**Index Business Days**, are the days in the Index Calendar.

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

**Initial Index Level**, is 100.

**Index Level**, is the level of the Index that is calculated according to the relevant section of this Methodology.

**Index Rebalance Days**, is the set of Index Business Days comprised of the Holdings Calculation Date and the subsequent two Index Business Days.

**Index Sponsor**, is Macquarie Bank Limited (Macquarie), the entity that calculates and publishes or announces (directly or through an agent) the daily level of the Index.

**Index Start Date**, is 12 Aug 2004.

**Index Ticker**, is Excess Return – **MQCP710E** Index (Bloomberg).

**Initial Weight**, is the starting weight applied (before capping) to each Component represented in the Index from one rebalancing to the next.

**Mono-Alpha Index**, in respect of each Commodity and Spread, the index series (rounded to 12 decimal places) generated by taking +100% exposure to the Deferred Index and -100% \* VAF exposure to the corresponding F0 Index. Each such Mono-Alpha Index is rebalanced, on each Holdings Calculation Date, (using prices as of the Holdings Calculation Date) and calculated in accordance with the methodology laid out in Section 1 (*Holdings Calculation*) (assuming the holdings are calculated on one day only) and Section 2 (*Daily Index Calculation*) of this document, as though such Mono-Alpha Index was the “Index”, where Market Disruptions are *not* taken into account. The dates on which the Mono-Alpha Index series is calculated is with reference to the Index Calendar.

**Potential Mono-Alpha Set**, the group of Mono-Alpha Indices that are determined to exhibit strictly positive momentum and strictly negative skewness.

**Settlement Prices**, are the prices, expressed in US dollars, published by the relevant exchange or trading facility and referred by them as the settlement price for that particular contract. If any Index Business Day is not a business day of the relevant exchange or trading facility, then the Settlement Price of that particular contract will be the most recent available price on the most recent business day of the relevant exchange or trading facility.

**Spread**, is either F3vsF0 (closer to the front of the curve), F6vsF0 (6 Month Forward spread) or AnnRollvsF0 (further down the curve) and describes the relative spread exposure by reference to the contracts along a commodity futures curve.

**Target Holdings**, are a set of multipliers, derived from the Weights, which are utilized to rebalance the Components of the Index on each Holdings Calculation Date. Calculation of Target Holdings is described in Section 1 (*Holdings Calculation*) of the Index Calculation section below.

**Temporary Weight**, is the weight assigned to each Mono-Alpha Index during the iterative capping procedure before they are finalised.

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

The **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.

**Volatility Adjustment Factor (VAF)**, in respect of each Mono-Alpha Index, is the scalar by which the exposure of the short leg (applied to the F0 Index) is multiplied such that the realised volatility of the long exposure (Deferred Index) is equal to the realised volatility of the short exposure (F0 Index). The

Volatility Adjustment Factor is a number **between 0.75 and 1.25** (i.e. an adjustment either upwards or downwards by a maximum of 25%). The volatility in respect of each of the long and short legs of the Mono-Alpha index are calculated using 63 days of returns up to and including the day immediately preceding the Holdings Calculation Date.

**Weights**, are the weights periodically established by the Weighting Methodology for each Component.

**Weighting Methodology**, on each Holdings Calculation Date, the Weights of the Index, which are used to determine the Holdings of the Index in respect of each Holdings Calculation Date, shall be set according to Section 4.

## INDEX CALCULATION

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On a daily basis the Index replicates the returns obtained by holding a basket of Components (each a Single Commodity Index), the Weights of which are determined according to Weighting Methodology and rebalanced periodically according to Section 1 (*Holdings Calculation*) of this Index Calculation section. The following sections detail how the Index Calculation Agent will calculate the daily Index Levels of the Index:

- **Section 1** 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** describes the day-to-day calculation of the Index Level;
- **Section 3** describes Market Disruption Events and the additional calculations that the Index Calculation Agent will perform to determine the Index Level during and following any market disruptions.
- **Section 4** describes the Weighting Methodology;

### SECTION 1: HOLDINGS CALCULATION

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

On each Index Rebalance Day, the Holding of each Component  $i$ , is rebalanced in accordance with the Target Holdings and the Weighting Methodology.

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#### TARGET HOLDINGS CALCULATION ON A HOLDINGS CALCULATION DATE

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The calculation of the Target Holdings on a Holdings Calculation Date,  $R$ , requires as input the set of Weights in respect of that Holdings Calculation Date  $R$  and the Component Levels of the Components on the Index Business Day immediately preceding Holdings Calculations Date,  $R$ .

On any Holdings Calculation Date,  $R$ , let the Weight of each Component  $i$  be denoted by  $W_{i,R}$  so that  $\{W_{1,R}, \dots, W_{n,R}\}$  are the Weights of the  $n$  Components in the Index as determined by the Weighting Methodology of the Index in respect of Holdings Calculation Date  $R$ . Analogously, let  $\{C_{1,R-1}, \dots, C_{n,R-1}\}$  be the set of Component Levels of the Components on the Index Business Day immediately preceding the Holdings Calculation Date,  $R$ . The Index Target Holdings,  $\{TH_{1,R}, \dots, TH_{n,R}\}$ , for each of the  $n$  Components in the Index are calculated according to the formula below:

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

where  $I_{R-1}$  is the Index Level on the Index Business Day immediately preceding Holdings Calculation Date  $R$ .

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



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## DAILY HOLDINGS CALCULATION

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On any Index Business Day,  $t$ , the set of Holdings  $\{H_{1,t}, \dots, H_{n,t}\}$  is calculated according to the following rule:

- (i) If  $t$  is the Index Business Day immediately following the Holdings Calculation Date  $R$ , the Holdings  $\{H_{1,t}, \dots, H_{n,t}\}$  for each of the  $n$  Components in the Index are calculated according to the formula below:

$$H_{i,t} = H_{i,R} + \frac{TH_{i,R} - H_{i,R}}{3} \text{ for every Component } i = 1, \dots, n$$

- (ii) If  $t$  is the second Index Business Day immediately following the Holdings Calculation Date  $R$ , the Holdings  $\{H_{1,t}, \dots, H_{n,t}\}$  for each of the  $n$  Components in the Index are calculated according to the formula below:

$$H_{i,t} = H_{i,R} + 2 \times \frac{TH_{i,R} - H_{i,R}}{3} \text{ for every Component } i = 1, \dots, n$$

- (iii) If  $t$  is the third Index Business Day immediately following the Holdings Calculation Date  $R$ , the Holdings  $\{H_{1,t}, \dots, H_{n,t}\}$  for each of the  $n$  Components in the Index are calculated according to the formula below:

$$H_{i,t} = TH_{i,R} \text{ for every Component } i = 1, \dots, n$$

- (iv) On any other Index Business Day,  $t$ , the Holding of each Component  $i$  on that day,  $H_{i,t}$ , is set to be equal to the Holding of that particular Component on the previous Index Business Day,  $H_{i,t-1}$ .

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## SECTION 2: DAILY INDEX CALCULATION

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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 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:

- $I_t$  is the Index Level on the close of day  $t$ ;  
 $H_{i,t}$  is the Holding of Component  $i$  on the Index Business Day  $t$ ;  
 $C_{i,t}$  is the level of Component  $i$  on the Index Business Day  $t$ ;  
 $t-1$  is the Index Business Day immediately preceding Index Business Day  $t$

The Index Start Date as well as the Initial Index Level, which is the value of the Index on the Index Start Date, are specified in the Definitions section above.

For example, if the Index were comprised of two components (for simplicity) which had the following Component levels:

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

and the following Holdings:

	Holding
Component 1	1.72
Component 2	1.48

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:

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

The Index Level on Business Day t would be 102.244.

### SECTION 3: MARKET DISRUPTION EVENTS

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The Index is ultimately comprised of a set of futures on physical commodities (the *Underlying Contracts*). On any given Index Business Day, disruptions can occur that prevent these Underlying Contracts from being traded. When this happens, it is necessary for the calculations of the Index to be adjusted so that it remains replicable by market participants i.e. adjustments must be made to the Index calculations to ensure that the Index Levels reflect futures prices that were attainable in the market at the times they would need to be traded in order to replicate the performance of the Index.

On an Index Rebalance Day, this is generally achieved by delaying any changes to the composition of each Component (or component of a Component) that is directly dependent on the disrupted Underlying Contracts. On any other Index Business Day, given that the replication of the Index does not require trading of Underlying Contracts on such days, in the event that a price is not available for a particular Underlying Contract, that price will be appropriately substituted by the Index Calculation Agent in order for the calculations in respect of a particular Index Business Day to take place.

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;
- (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 Sponsor reasonably determines that the event materially interferes with the ability of market participants to hedge the Index;
- (v) the occurrence of a Market Disruption Event in respect of an Underlying Contract that shares the same Commodity.

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

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### INDEX CALCULATION UNDER MARKET DISRUPTION EVENTS

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

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

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

$$I_t = I_{t-1} + \sum_j H'_{j,t} (f_{j,t} - f_{j,t-1})$$

where

$H'_{j,t}$  is the Equivalent Holding for Underlying Contract  $j$  as calculated according to sub-paragraphs (ii)-(v) below

$f_{j,t}$  is the settlement price of Underlying Contract  $j$  as of the Index Business Day  $t$

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

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

The Equivalent Target Holdings is a set of target holdings  $\{TH'_{1,R}, \dots, TH'_{m,R}\}$  for the Underlying Contracts, which perfectly describes the returns of the Index on the

days following the Disrupted Index Rebalance Day  $R$  and until the first subsequent Index Rebalance Day.

The Equivalent Holdings and the Equivalent Target Holdings shall be determined for all Underlying Contracts, therefore some  $H'_{j,R}$  and/or  $TH'_{j,R}$  may have a value of 0.

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

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

where:

$TH'_{j,R}$  means the Equivalent Target Holding of Contract  $j$  on Index Rebalance Day  $R$

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

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

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

Further explanation of Holdings and Equivalent Holdings:

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

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## SECTION 4: WEIGHTING METHODOLOGY

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The Weights of the Components (each Deferred and F0 Macquarie Single Commodity Index) are derived from the Final Weights of the Mono-Alpha Indices as described in Section 4.1 (*Component Weights*) below.

The Final Weights of the Mono-Alpha Indices are determined in four steps and are described in Section 4.2 (*Mono-Alpha Index Weights*) below.

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### 4.1 COMPONENT WEIGHTS

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Once the Final Weights of each Mono-Alpha Index in respect of each Commodity and Spread have been determined, the Weight (rounded to 12 decimal places) applied to each Deferred Index and F0 Index (i.e. each Component) comprising each Mono-Alpha Index in respect of commodity  $C$  and Spread  $S$  on Holdings Calculation date  $R$  and for the purpose of the Holdings Calculation is:

$$W_i = \begin{cases} FW_{C,S,R}, & \text{if Component } i \text{ is a Deferred Index with underlying Commodity } C \text{ and Spread } S \\ -1 \times VAF_{C,S,R} \times FW_{C,S,R}, & \text{if Component } i \text{ is a F0 Index with underlying Commodity } C \text{ and Spread } S \end{cases}$$

Where  $VAF_{C,S,R}$  is the Volatility Adjustment Factor in respect of each Commodity and Spread and calculated as the ratio of the standard deviation of returns of the Deferred Index to the standard deviation of returns of the F0 Index over a period of 63 days ending on the day immediately preceding the Holdings Calculation Date. The formula for standard deviation is given below in section 4.2.1.

The Volatility Adjustment Factor is applied to adjust the exposure of the short leg of each Mono-Alpha Index such that the historic volatility of the long leg is equal to the historic volatility of the short leg.

That is, for each Mono-Alpha Index Final Weight, the Index takes a long position in its respective Deferred Index and a short position in its respective F0 Index.

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### 4.2 MONO-ALPHA INDEX WEIGHTS

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A number of intermediate calculations used in the subsequent Mono-Alpha Index weights calculation is described in Section 4.2.1 (*Intermediate Calculations*).

Section 4.2.3 (*Mono-Alpha Index Weights Steps*) provides an overview of the subsequent Mono-Alpha Index weight calculation steps. The Final Weights of the Mono-Alpha Indices are determined pursuant to the four steps described therein.

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#### 4.2.1 INTERMEDIATE CALCULATIONS

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In order to determine the Final Weights of the Mono-Alpha Indices, the average daily return (mean return), standard deviation and risk adjusted return (ratio of the mean return to the standard deviation) of each Mono-Alpha Index in respect of each Commodity and Spread is calculated.

Each non-Energy Commodity will have two Mono-Alpha Indices associated with it with differing Spreads, either a F3vsF0 Mono-Alpha Index or a F6vsF0 Mono-Alpha Index. Each Energy Commodity will have three (including the AnnRollvsF0 Mono-Alpha Index) Indices associated with it. For example, WTI Crude Oil will have:

- 1) a F3vsF0 Mono-Alpha Index constructed by taking +100% exposure to the 3 Month Forward Index and  $-100\% \times VAF_{CL,F3,R}$  exposure to the corresponding F0 Index,
- 2) a F6vsF0 Mono-Alpha Index constructed by taking +100% exposure to the 6 Month Forward Index and  $-100\% \times VAF_{CL,F6,R}$  exposure to the corresponding F0 Index, and
- 3) a AnnRollvsF0 Mono-Alpha Index constructed by taking +100% exposure to the Annual Roll Index and  $-100\% \times VAF_{CL,AR,R}$  exposure to the corresponding F0 Index.

Each Mono-Alpha Index is rebalanced on each Holdings Calculation Date using the most recent Volatility Adjustment Factor. That is, the Volatility Adjustment Factor calculated on the current Holdings Calculation Date is applied, for the purpose of the Mono-Alpha rebalance, as though it was the Volatility Adjustment Factor calculated throughout the entire history of the Mono-Alpha Index.

Therefore, in respect of each Commodity,  $C$ , each Spread,  $S$ , on a given Holdings Calculation Date  $R$  the Index calculates:

- (i) **Volatility Adjustment Factor**, as the bounded ratio of the standard deviation of prior 63 daily returns of the Deferred index over the standard deviation of prior 63 daily returns of the F0 Index

$$MUR_{C,X,R} = \frac{1}{63} \times \sum_{i=1}^{63} (DUR_{C,X,R-i})$$

$$DUR_{C,X,R-i} = \frac{U_{C,X,R-i}}{U_{C,X,R-i-1}} - 1$$

$$SDU_{C,X,R} = \sqrt{\frac{1}{62} \sum_{i=1}^{62} (DUR_{C,X,R-i} - MUR_{C,X,R})^2}$$

$$VAF_{C,S,R} = \min \left( 1.25, \max \left( 0.75, \frac{SDU_{C,DEF,R}}{SDU_{C,F0,R}} \right) \right)$$

Where:

$MUR_{C,X,R}$  is the Mean Return of the Underlying Index in respect of Commodity  $C$  and Component of Spread  $X$  (i.e. F0, F3, F6 or Annual Roll) on Holdings Calculation Date  $R$ .

$DUR_{C,X,R-i}$  is the Daily Return of the Underlying Index in respect of Commodity  $C$  and Component of Spread  $X$  on Holdings Calculation Date  $R - i$ .

$U_{C,X,R-i}$  is the Underlying Index Level in respect of Commodity  $C$  and Component of Spread  $X$  on Holdings Calculation Date  $R - i$ .

$SDU_{C,X,R}$  is the Standard Deviation of the Daily Returns of the Underlying Index in respect of commodity  $C$  and Component of Spread  $X$  on Holdings Calculation Date  $R$ .

$VA_{C,S,R}$  is the Volatility Adjustment Factor for the Mono-Alpha respect of Commodity  $C$  and Spread  $S$  on Holdings Calculation Date  $R$ , where  $DEF$  is the Deferred Component of Spread  $S$ , and  $F0$  is the F0 component of Spread  $S$

Spread  $S$  can either be F3vsF0, F6vsF0 or AnnRollvsF0.

- (ii) **Mean Return**, as the average of the prior 120 daily returns, ending on the Index Business Day immediately preceding  $R$ .

$$MR_{C,S,R} = \frac{1}{120} \times \sum_{i=1}^{120} (DR_{C,S,R-i})$$

$$DR_{C,S,R-i} = \frac{MA_{C,S,R-i}}{MA_{C,S,R-i-1}} - 1$$

Where:

$MR_{C,S,R}$  is the Mean Return of the Mono-Alpha Index in respect of Commodity  $C$  and Spread  $S$  on Holdings Calculation Date  $R$ .

$DR_{C,S,R-i}$  is the Daily Return of the Mono-Alpha Index in respect of Commodity  $C$  and Spread  $S$  on Holdings Calculation Date  $R - i$ .

$MA_{C,S,R-i}$  is the Mono-Alpha Index level in respect of Commodity  $C$  and Spread  $S$  on Holdings Calculation Date  $R - i$ .

Spread  $S$  can either be F3vsF0, F6vsF0 or AnnRollvsF0.

- (iii) **Standard Deviation**, as the standard deviation of the prior 120 daily returns, ending on the Index Business Day immediately preceding  $R$ .

$$SD_{C,S,R} = \sqrt{\frac{1}{119} \sum_{i=1}^{120} (DR_{C,S,R-i} - MR_{C,S,R})^2}$$

Where:

$SD_{C,S,R}$  is the Standard Deviation of the Daily Returns of the Mono-Alpha Index in respect of commodity  $C$  and Spread  $S$  on Holdings Calculation Date  $R$ .

$MR_{C,S,R}$  is the mean return of the Daily Returns of the Mono-Alpha Index in respect of commodity  $C$  and Spread  $S$  on Holdings Calculation Date  $R$ :

$$MR_{C,S,R} = \frac{1}{120} \sum_{i=1}^{120} DR_{C,S,R-i}$$

- (iv) **Risk Adjusted Return**, as ratio of the **Mean Return** divided by the **Standard Deviation**

$$RAR_{C,S,R} = \frac{MR_{C,S,R}}{SD_{C,S,R}}$$

(v) **Skewness**, as the measure of asymmetry of the Mono-Alpha Index return distribution over a period of 120 days, ending on the Index Business Day immediately preceding  $R$ .

$$SK_{C,S,R} = \frac{120}{119 * 118} \sum_{i=1}^{120} \left( \frac{DR_{C,S,R-i} - MR_{C,S,R}}{SD_{C,S,R}} \right)^3$$

Negative skewness indicates that the tail on the left side of the return distribution is longer or fatter than the right side.

Conversely, positive skewness indicates that the tail on the right side of the return distribution is longer or fatter than the left side.

On each Holdings Calculation Date  $R$ , and in respect of each Commodity and Mono-Alpha Index, if the Deferred Contract is **different** to the FO Contract (i.e. resulting in non-zero spread exposure in the Mono-Alpha Index which is taking long exposure to the Deferred Contract and short exposure to the FO Contract between the current and following Holding Calculation Dates) then such Mono-Alpha Index will be referred to as a being part of the **Active Mono-Alpha set**.

On each Holdings Calculation Date  $R$ , and in respect of each Mono-Alpha Index, if the Mean Return is **strictly positive** and the Skewness is **strictly negative**, then such Mono-Alpha Index will be considered as being part of the **Potential Mono-Alpha set**. A sub-set of the Potential Mono-Alpha set will be utilised for preliminary weight allocations, as further detailed below.

#### 4.2.3 MONO-ALPHA INDEX WEIGHTS - STEPS

After the signals are calculated and the Active Mono-Alpha and Potential Mono-Alpha sets are determined, the following steps are taken (detailed further below) to determine the Final Weights of the Mono-Alpha Indices that are then used to calculate the Component Weights, as described in the Component Weights Sub-Section:

**Step 1 (Zero Weights):** A Final Weight of zero will be allocated to all Mono-Alpha Indices that are not part of both the Active Mono-Alpha set and Potential Mono-Alpha set.

**Step 2 (Determination of Non-Zero Weights):** A non-zero Initial Weight, the determination of which is described below, will be allocated to all Mono-Alpha Indices that are the intersection of the Active Mono-Alpha set and the Potential Mono-Alpha set, i.e. Mono-Alpha indices that display a **strictly positive** Mean Return and **strictly negative** Skewness and have a non-zero spread exposure between the current Holdings Calculation Date and the following Holdings Calculation Date in respect of the long/short exposures established by the Deferred and FO Indices that comprise such Mono-Alpha Index. The Initial Weights in this step will sum up to 100%.

If the intersection of the Active Mono-Alpha set and the Potential Mono-Alpha set is empty, then Step 2 is skipped and the methodology described in the section titled **Fall Back Procedure** is applied before proceeding to Step 3 (*Iterative Capping Procedure*).

**Step 3 (Iterative Capping Procedure):** The Initial Weights are then subject to an **Iterative Capping Procedure** in order to determine the Final Weights of the Mono-Alpha Indices.



**Step 4 (Potential Activation of the Fall Back Procedure):** If at the end of the Iterative Capping Procedure, the sum of all the Final Weights in respect of each Mono-Alpha Index is **not** equal to 100%, then the **Fall Back Procedure** is applied.

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#### STEP 1: ZERO WEIGHTS

For each Mono-Alpha Index that is not part of either the Active Mono-Alpha set or the Potential Mono-Alpha set, a Weight of zero is applied:

$$IW_{C,S,R} = 0$$

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#### STEP 2: DETERMINATION OF NON-ZERO WEIGHTS

Each Mono-Alpha Index that is part of the intersection of the Active Mono-Alpha set and the Potential Mono-Alpha set is weighted according to its Risk Adjusted Returns.

$$IW_{C,S,R} = \frac{RAR_{C,S,R}}{\sum_1^n RAR_{C,S,R}}$$

Where:

$IW_{C,S,R}$  is the Initial Weight allocated to the Mono-Alpha Index in respect of Commodity  $C$  and Spread  $S$  on Holdings Calculation Date  $R$ .

$\sum_1^n RAR_{C,S,R}$  is the sum of the Risk Adjusted Returns with respect to each Mono-Alpha Index that is part of the intersection of the “Active Mono-Alpha” set and the “Potential Mono-Alpha” set.

$n$  is the total number of Mono-Alpha Indices that are part of the intersection of the “Active Mono-Alpha” set and the “Potential Mono-Alpha” set.

The Initial Weights are then subject to the Iterative Capping Procedure described below to obtain the set of Final Weights in respect of each Mono-Alpha Index.

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#### STEP 3: ITERATIVE CAPPING PROCEDURE

The following weight caps are imposed (with reference to the Table 1 under the definition of Components in the Definitions section):

- i. The sum of the weights of the Mono-Alpha Indices in respect of each Commodity belonging to a Group is capped. There are two groups; Petroleum Group which is capped at 35% and Wheat Group which is capped at 10%.
- ii. The sum of the weights of the Mono-Alpha Indices in respect of a particular Commodity is capped.

**Step A:** The Temporary Weight applied to the Mono-Alpha Index in respect of Commodity  $C$ , Spread  $S$  on Holdings Calculation date  $R$  is assigned the Initial Weight and the Excess weight is equal to zero.

$$TW_{C,S,R} = IW_{C,S,R}$$

$$Excess = 0$$

**Step B:** For each Mono-Alpha Index belonging to the **Petroleum** Group:

If the sum of the weights of all Mono-Alpha Indices in respect of each Commodity belonging to the Petroleum Group is greater than 35% then:

$$FW_{C,S,R} = \frac{TW_{C,S,R}}{\sum_1^P TW_{C,S,R}} \times 35\%$$

$$Excess = Excess_{-1} + \sum_1^P TW_{C,S,R} - 35\%$$

Where  $\sum_1^P TW_{C,S,R}$  is the sum of the Temporary Weights of all Mono-Alpha Indices in respect of each Commodity belonging to the Petroleum Group and P is the number of Commodities of each Spread belonging to the Petroleum Group.  $Excess_{-1}$  is the Excess determined in the immediately preceding step.

In such a case where the Final Weight has been assigned as above all such Mono-Alpha Indices whose respective Commodities are belonging to the Petroleum Group will be regarded as being capped.

**Step C:** For each Mono-Alpha Index belonging to the **Wheat** Group:

If the sum of the weights of all Mono-Alpha Indices in respect of each Commodity belonging to the Wheat Group is greater than 10% then:

$$FW_{C,S,R} = \frac{TW_{C,S,R}}{\sum_1^W TW_{C,S,R}} \times 10\%$$

$$Excess = Excess_{-1} + \sum_1^W TW_{C,S,R} - 10\%$$

Where  $\sum_1^W TW_{C,S,R}$  is the sum of the Temporary Weights of all Mono-Alpha Indices in respect of each Commodity belonging to the Wheat Group and W is the number of Commodities of each Spread belonging to the Wheat Group.

In such a case where the Final Weight has been assigned as above all Mono-Alpha Indices whose respective Commodities are belonging to the Wheat Group will be regarded as being capped.

**Step D:** For each Mono-Alpha Index in respect of each Commodity that has a cap of less than 20%:

If the sum of the weight of the two Mono-Alpha Indices with respect to such Commodity is greater than the corresponding Commodity Cap (with reference to the Table 1 under the definition of Components in the Definitions section):

$$FW_{C,S,R} = \frac{TW_{C,S,R}}{\sum_1^2 TW_{C,S,R}} \times Cap_c$$

$$Excess = Excess_{-1} + \sum_1^2 TW_{C,S,R} - Cap_c$$

Where

$Cap_c$  is the weight Cap in respect of Commodity  $c$  as specified in the Table 1.

$\sum_1^2 TW_{C,S,R}$  is the sum of the Temporary Weights of the two Mono-Alpha Indices in respect of Commodity  $c$  on Holdings Calculation Date  $R$ .

At the end of this step, if the sum on the weights of the Mono-Alpha Indices in respect of any Commodity is equal to the corresponding Commodity cap, then those Mono-Alpha Indices will be regarded as being capped for the purpose of the remaining calculations.

**Step E:** For each Commodity that has a cap of 20%, if the sum of the weights of each Mono-Alpha Index in respect of that Commodity is greater than 20%:

$$FW_{C,S,R} = \frac{TW_{C,S,R}}{\sum_1^N TW_{C,S,R}} \times 20\%$$

$$Excess = Excess_{-1} + \sum_1^N TW_{C,S,R} - 20\%$$

Where  $\sum_1^N TW_{C,S,R}$  is the sum of the Temporary Weights of the  $N$  Mono-Alpha Indices (one for each Spread) in respect of Commodity  $C$  on Holdings Calculation Date  $R$ .

At the end of this step, if the sum on the weights of the Mono-Alpha Indices in respect of any Commodity is equal to the corresponding Commodity cap, then those Mono-Alpha Indices will be regarded as being capped for the purpose of the remaining calculations.

**Step F:** Distribute the final Excess weight in proportion to all eligible uncapped Commodity Spreads.

- a) If the Iterative Capping Procedure follows Step 2 (i.e. the Determination of Non-Zero Weights) then the set of eligible uncapped Commodity Spreads are those whose Mono-Alpha Indices are in the intersection of the Potential and Active Mono-Alpha Sets.
- b) If the Iterative Capping Procedure is part of the Fall back Procedure (i.e. after Step 4) then the set of eligible uncapped Commodity Spreads are those whose Mono-Alpha Indices are in the Active Mono-Alpha Set.

$$TW_{C,S,R} = TW_{C,S,R} \times \left( 1 + \frac{Excess}{\sum_1^U TW_{C,S,R}} \right)$$

$$Excess = 0$$

Where  $\sum_1^U TW_{C,S,R}$  is the sum of the weights of all Mono-Alpha Indices in respect of the uncapped Commodities and  $U$  is the number of uncapped Commodities.

Steps B to F are repeated until the sum of weights of the Mono-Alpha Indices in respect of each Commodity or Group of Commodities satisfy the Caps specified in Table 1 under the definition of Components in the Definitions section, in which case:

$$FW_{C,S,R} = TW_{C,S,R} \text{ for any uncapped Commodity}$$

#### STEP 4: POTENTIAL ACTIVATION OF THE FALL BACK PROCEDURE

If at the end of the Iterative Capping Procedure, the sum of all the Final Weights in respect of each Commodity is **not** equal to 100%, then the Fall Back Procedure is applied as described below.

That is, if:

$$\sum_1^n FW_{C,S,R} \neq 100\%$$

Where  $n$  is the number of Commodities defined in Table 1 under the definition of Components in the Definitions section, then the Fall Back Procedure is applied.

#### FALL BACK PROCEDURE

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Firstly, calculate the Residual Weight which is equal to 100% minus the sum of all the Final Weights in respect of each Commodity

$$RW = 1 - \sum_1^n FW_{C,S,R}$$

Then, allocate an equal weight to all Mono-Alpha Indices contained within the “Active Mono-Alpha” set which had a weight of zero immediately before applying the Fall Back Procedure. For each of these Mono-Alpha Indices, the Initial Weight is calculated as follows:

$$IW_{C,S,R} = \frac{RW}{N}$$

Where

$N$  is the number of Commodities contained in the “Active Mono-Alpha” set which had a weight of zero immediately before applying the Fall Back Procedure.

Then the Iterative Capping Procedure described in Step 3 (*Iterative Capping Procedure*) is applied until the Final Weights are determined for all Commodities.

## CONTACTS

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