NOMURA

Nomura G10 Illiquid Value Index Rulebook

December 2019

Summary Description	The Nomura G10 Illiquid Value Index (the "**Index**") is a US Dollar denominated index. The Index is based on a strategy which aims to generate a positive return based on the performance of a basket (the "**Basket**") of twenty-one G10 crosses (each a "**Currency Cross**"). The Index gains exposure to the relevant currency through the Nomura FX Return Indices. The nominal position which the index takes in each of the currency crosses in the Basket is determined by a combination of the strategy's value signal and a risk weighting mechanism. Leverage on the Basket is adjusted weekly to target an index volatility . For further information please see the Index summary disclosures document for this Index, which is to be read in conjunction with this Index Rulebook (together, the "**Index Description**").
Index Currency	U.S. Dollar ("USD")
Index Sponsor / Calculation Agent	Nomura International Plc, who is responsible for the administration of the Index.
Index Business Day	Each day which is a New York and London Business Day is an Index Business Day. Each Index Business Day is denoted by t. t+1 shall refer to the Index Business Day immediately following Index Business Day t t = 0 on 17 September 1973. **London Business Day** means a day (other than a Saturday or Sunday) on which commercial banks are open for general business in London **New York Business Day** means a day (other than a Saturday or Sunday) on which commercial banks are open for general business in New York
Index Trading Business Day	Each day which is a New York Business Day and a London Business Day
Signal Generation Day	Each day which is a Week Day is a Signal Generation Day. Each Signal generation day is denoted by d. d+1 shall refer to the Signal Generation Day immediately following Signal Generation Day d d = 0 on 17 September 1973
Index Live Date	27 March 2014
Nomura FX Return Indices	The Nomura FX Return Indices are separate indices which are administered by the Index Sponsor. The returns of each index represent the returns of a long position in a G10 currency and a short position in USD while taking account of the cost of financing such position as set out in the Index Description of the relevant Nomura FX Return Indices.
$Index_0$	100

Index$_t$	$Round[Index_{t-1} \times \{1 + Net\ Return_t\}, 8]$
Net Return$_t$	$Leveraged\ Portfolio\ Return_t\ - Portfolio\ Trading\ Costs_t$
Leveraged Portfolio Return$_t$	$Leveraged\ Portfolio\ Return_t\ =\ Portfolio\ Leverage_{t-1} \times Portfolio\ Return_t$
Portfolio Leverage$_t$	Formulas to measure potfolio leverage
Portfolio Leverage$_d$	Formulas to measure leverage
New Leverage Day	Day on which index leverage changes
Portfolio Leverage Cap$_d$	Formulas to measure portfolio leverage cap
Volatility Target	8%
Portfolio Return$_t$	$\frac{1}{21}\sum_{i=4}^{10}\sum_{j=i+1}^{10}\left(Risk\ Weighted\ Return_t^{ij}\right)$ Refer to Appendix 1, 2 for the currency corresponding to each i
Portfolio Return$_d$	If Signal Generation Day d is also an Index Business Day t, then $Portfolio\ Return_d\ =\ Portfolio\ Return_t$ Otherwise $Portfolio\ Return_d\ =\ 0$
Risk Weighted Return$^{ij}_t$	$Risk\ Weighted\ Return_t^{ij}\ =\ Value\ Signal_{t-1}^{ij} \times Risk\ Weight_{t-1}^{ij} \times Currency\ Cross\ Return_t^{ij}$
Value Signal$^{ij}_t$	formulas fro valu signal
Value Signal$^{ij}_d$	formulas to measure value signal
%DEV Fwd$^{ij}_d$	

v3, December 2019

	Formulas to measure deviation of forward
Market Implied Real Forward$^{ij}_d$	Formulas to measure market implied real forward
Estimated Real Forward$^{ij}_d$	Formulas to measure estimated real forward
Real Spot$^{ij}_d$	Formulas to measure real spot
Average Real Spot$^{ij}_d$	$Average\ Real\ Spot^i_d = Average[\ Real\ Spot^{ij}]_{d,0}$ $Where\ Real\ Spot^{ij}_0 = Real\ Spot^{ij}\ on\ the\ 4th\ January\ 1971$
CPI Index^i_d	$CPI\ Index^i_d = the\ latest\ value\ of\ CPIlevel^i_m\ available\ as\ of\ time\ d$
CPI Index^i_m	For all i, not equal to 5,6 , CPIIndex is calculated as follows: $CPIIndex^i_m = CPIIndex^i_{m-1} \times (1 + CPIchange^i_m)$ where *m* denotes the latest available monthly values and m+1 shall refer to the monthly value immediately following m, and *CPIchange* is defined as the month-on-month change in CPI levels calculated using the latest available value from the price sources in Appendix 4. Notes: $CPIIndex^i_{Jan2000} = 100$ For i = 5 and 6, $CPI\ Index^i_m = the\ latest\ available\ value\ of\ CPI\ Index^i_q$ <u>For i = 5 and 6, CPI Index is calculated on a quarterly basis due to the frequency of the data publication as displayed in Appendix 4.</u>
CPI Index^i_q	$CPIIndex^i_q = CPIIndex^i_{q-1} \times (1 + CPIchange^i_q)$ where *q* denotes the lastest available quarterly values and q+1 shall refer to the quarterly value immediately following q, and *CPIchange* is defined as the quarter-on-quarter change in CPI levels calculated using the latest available value from the price sources in Appendix 4. Notes: $CPIIndex^i_{Mar2000} = 100$, for i = 5 and 6
Inflation estimate^i_d	$Inflation\ estimate^i_d = the\ latest\ value\ of\ inflation\ estimate^i_m\ available\ as\ of\ time\ d$
Inflation estimate^i_m	Formulas to measure inflation estimate

yoy CPI change^i_m	$$yoy\ CPI\ change^i_m = \frac{CPIIndex^i_m}{CPIlevel^i_{m-12}} - 1$$ Where m denotes monthly values and m+1 shall refer to the monthly value immediately following m
yoy CPI change^i_q	$$yoy\ CPI\ change^i_q = \frac{CPIIndex^i_q}{CPIlevel^i_{q-4}} - 1$$ Where q denotes quarter values and q+1 shall refer to the quarterly value immediately following q
Currency Cross Spot$^{ij}_d$	Formulas to measure cross currency spot
Currency Cross 1 year Forward$^{ij}_d$	Formulas to measure cross currency year forward
Risk Weight$^{ij}_t$	If t is a New Leverage Day, then $$Risk\ Weight^{ij}_t = Risk\ Weight^{ij}_d$$ where d is the Signal Generation Day that is same as the Index Business day t Otherwise $$Risk\ Weight^{ij}_t = Risk\ Weight^{ij}_{t-1}$$
Risk Weight$^{ij}_d$	Formulas to measure risk weight
Risk Weight Cap$^{ij}_d$	Formulas to measure risk weight cap
Risk Weight Volatility Target	Index component volatility target
Currency Cross Return$^{ij}_t$	$$Currency\ Cross\ Return^{ij}_t = \frac{Index^i_t}{Index^i_{t-1}} - \frac{Index^j_t}{Index^j_{t-1}}$$ Where Index$^{i\ or\ j}$ refers to the Nomura FX Return Index for Currency^i. Whilst the level of the relevant Nomura FX Return Index as published on the Price Source is typically rounded to two decimal places, to determine the G10 Illiquid Value Index no such published level will be used, but the level as calculated in accordance with the Index Description of the relevant Nomura FX Return Index. Refer to Appendix 1 and 2 for the currency corresponding to each i, the corresponding Price Source for the relevant Nomura FX Return Index and the corresponding Index$_t$.
Currency Cross Return$^{ij}_d$	If d is also an Index Business Day t, then $$Currency\ Cross\ Return^{ij}_d = Currency\ Cross\ Return^{ij}_t$$ Otherwise $$Currency\ Cross\ Return^{ij}_d = 0$$

Portfolio Trading Costs$_t$	$$Portfolio\ Trading\ Costs_t\ =\sum_{x=1}^{10} Portfolio\ Trading\ Costs_t^x$$
Portfolio Trading Costs^x_t	$$Portfolio\ Trading\ Costs_t^x = Portfolio\ Transaction\ Cost_{t-1,t}^x + Portfolio\ Roll\ Cost_{t-1,t}^x$$
Portfolio Transaction Cost$^x_{t\text{-}k,t}$	For each Net Position^x, $$Portfolio\ Transaction\ Cost_{t-k,t}^x = T^x \times ABS[Net\ Position_t^x - Net\ Position_{t-k}^x]$$ Where ABS denotes the absolute value of the function between the brackets, T^x can be found in Appendix 3, and where k can take any integer value.
Portfolio Roll Cost$^x_{t\text{-}k,t}$	For each Net Position^x, $$Portfolio\ Roll\ Cost_{t-k,t}^x = R^x \times (ABS[Net\ Position_{t-k}^x]) \times \left(\frac{1}{250}\right)$$ Where ABS denotes the absolute value of the function between the brackets, where R^x can be found in Appendix 3, and where k can take any integer value
Net Position^x_t	For any currency x, $$Net\ Position_t^x\ =\sum_j Currency\ Cross\ Position_t^{xj} - \sum_i Currency\ Cross\ Position_t^{ix}$$ $$where\ i < x < j$$ Refer to Appendix 3 for the currency corresponding to each value of i
Currency Cross Position$^{ij}_t$	For i = 1,2,3: $$Currency\ Cross\ Position_t^{ij}\ =\ 0$$ For i > 3: $$Currency\ Cross\ Position_t^{ij} = Value\ Signal_t^{ij} \times Risk\ Weight_t^{ij} \times Portfolio\ Leverage\ _t\ \times \frac{1}{21}$$
General Definitions	
Average [α] $_{a,b}$	$$\frac{1}{(b-a+1)} \times \sum_{k=a}^{b} \alpha_k$$
Standard Deviation [α] $_{a,b}$	$$\sqrt{\frac{\sum_{k=a}^{b}(\alpha_k - Average[\ \alpha\ ]_{a,b})^2}{b-a}}$$
Annualised	$$Standard\ Deviation[\ \alpha\ ]_{a,b} \times \sqrt{250}$$

Volatility[α] $_{a,b}$	
Round [α , β]	Rounds value **α** to the βth decimal place.

Appendices

Appendix 1:

Nomura FX Return Indices and Price Sources

i,j	Currency^i or Currency^j	Source: Index^i or Index^j
1	Euro ("EUR")	NMFXEUR
2	US Dollar ("USD")	Refer to Appendix 2
3	Japanese Yen ("JPY")	NMFXJPY
4	Great British Pound ("GBP")	NMFXGBP
5	Australian Dollar ("AUD")	NMFXAUD
6	New Zealand Dollar ("NZD")	NMFXNZD
7	Canadian Dollar ("CAD")	NMFXCAD
8	Norwegian Krone ("NOK")	NMFXNOK
9	Swedish Krone ("SEK")	NMFXSEK
10	Swiss Franc ("CHF")	NMFXCHF

Appendix 2: FX Return Index for USD (Currency^2)

FX returns for USD index, Index^2

$$Index_t^2 = 100, \text{ for all t}$$

Appendix 3:

Transaction and Roll Costs

The Index deducts transaction-based charges from the level of the Index. The amounts T^i and R^i are fixed for each Currency^j, and were determined by the Calculation Agent based on a variety of factors including the costs that would be incurred if an investor were to execute hypothetical transactions to maintain equivalent notional positions to those held by the Index. Such costs would include bid-ask spreads and costs associated with forward margining. The fixed charge amounts also include fees that accrue to the benefit of the index sponsor in consideration for establishing and maintaining the index.

Appendix 4:

CPI Data

i	Currency^i	Source (Bloomberg Ticker)	Notes and Publication Frequency
1	EUR	CPALEMU Index	Level– published monthly
2	USD	CPURNSA Index	Level – published monthly
3	JPY	JCPNGEN Index	Level– published monthly

4	GBP	UKRPCHVJ Index	Level– published monthly
5	AUD	AUCPI Index	Level– published quarterly
6	NZD	NZCPCCPI Index	Level– published quarterly
7	CAD	CACPICHG Index	Change– published monthly
8	NOK	NOCPI Index	Level– published monthly
9	SEK	SWCPI Index	Level– published monthly
10	CHF	SZCPIMOM Index	Change– published monthly

Appendix 5:

Spot data

i,j	Currency USD spot^i or Currency USD spot^j	Source (Reuters RIC):
1	Euro ("EUR")	USDEURFIXM=WM
2	US Dollar ("USD")	
3	Japanese Yen ("JPY")	1/(USDJPYFIXM=WM)
4	Great British Pound ("GBP")	USDGBPFIXM=WM
5	Australian Dollar ("AUD")	USDAUDFIXM=WM
6	New Zealand Dollar ("NZD")	USDNZDFIXM=WM
7	Canadian Dollar ("CAD")	1/(USDCADFIXM=WM)
8	Norwegian Krone ("NOK")	1/(USDNOKFIXM=WM)
9	Swedish Krone ("SEK")	1/(USDSEKFIXM=WM)
10	Swiss Franc ("CHF")	1/(USDCHFFIXM=WM)

Appendix 6:

1-year forward data

i,j	Currency USD 1 year Forward points^i or Currency USD 1 year Forward points^j	Source (Reuters RIC):	Currency USD 1 year Forward^i or Currency USD 1 year Forward^j
1	Euro ("EUR")	USDEUR1YFIXM=WM	Currency USD spot^1 + Currency USD 1 year Forward points^1
2	US Dollar ("USD")		

v3, December 2019

3	Japanese Yen ("JPY")	USDJPY1YFIXM=WM	$1 / [(1 / \text{Currency USD spot}^3) + \text{Currency USD 1 year Forward points}^3]$
4	Great British Pound ("GBP")	USDGBP1YFIXM=WM	$\text{Currency USD spot}^4 + \text{Currency USD 1 year Forward points}^4$
5	Australian Dollar ("AUD")	USDAUD1YFIXM=WM	$\text{Currency USD spot}^5 + \text{Currency USD 1 year Forward points}^5$
6	New Zealand Dollar ("NZD")	USDNZD1YFIXM=WM	$\text{Currency USD spot}^6 + \text{Currency USD 1 year Forward points}^6$
7	Canadian Dollar ("CAD")	USDCAD1YFIXM=WM	$1 / [(1 / \text{Currency USD spot}^7) + \text{Currency USD 1 year Forward points}^7]$
8	Norwegian Krone ("NOK")	USDNOK1YFIXM=WM	$1 / [(1 / \text{Currency USD spot}^8) + \text{Currency USD 1 year Forward points}^8]$
9	Swedish Krone ("SEK")	USDSEK1YFIXM=WM	$1 / [(1 / \text{Currency USD spot}^9) + \text{Currency USD 1 year Forward points}^9]$
10	Swiss Franc ("CHF")	USDCHF1YFIXM=WM	$1 / [(1 / \text{Currency USD spot}^{10}) + \text{Currency USD 1 year Forward points}^{10}]$

Appendix 7: Spot and 1-year forward data Fallback Price Sources (Reuters RICs)

i,j	Spot Data Fallback Price Source	1-year Forward Data Fallback Price Source
1	EUR =	EUR1Y=
2		
3	JPY =	JPY1Y=
4	GBP =	GBP1Y=
5	AUD =	AUD1Y=
6	NZD =	NZD1Y=
7	CAD =	CAD1Y=
8	NOK =	NOK1Y=
9	SEK =	SEK1Y=
10	CHF =	CHF1Y=

Appendix 8: CPI Data Usage

The following rules shall apply to the use of CPI Data obtained using the sources described in Appendix 4:

Before the 31st October 2013: The Calculation Agent shall use the CPI Data as it was made available

v3, December 2019

on the 31/10/2013 (hence this data may incorporate revisions to CPI Data published prior to that date).

After the 31st October 2013: The Calculation Agent shall use the latest CPI Data available as of date *d* (hence this data will not incorporate any revisions made to the CPI Data after date *d*).

Appendix 9: Backtest Assumptions

Prior to the Start Date of the Nomura FX Return Indices, the Calculation Agent constructs proxies using spot and deposit data from Bloomberg:

(a) Spot: Currency v. USD tickers e.g. GBP F110 Curncy (London 4pm)

   i.   DEM was used instead of EUR

(b) Deposit rates:

   i.   Please refer to the table below.

   ii.   The day counts used are:

360	360	365	360	360	365	365	360	360	365
USD	**DEM**	**GBP**	**JPY**	**CHF**	**CAD**	**AUD**	**SEK**	**NOK**	**NZD**

The Calculation Agent calculates the returns on NY LON Business Days.

	Start	End	Source	Identifier	
US	06/12/1984		BBG	US0001M Index	
	01/04/1971	05/12/1984	BBG	FDTR Index	
	02/01/1970	31/03/1971	Fed h15	Federal funds effective rate	
GER	01/11/1989		BBG	DM0001M Index	
	02/01/1986	31/10/1989	Datastream	BBDEM1M	
	02/01/1970	01/01/1986	Bundesbank	ST0104	Money market rates reported by Frankfurt banks / One-month funds / Daily quotations
UK	01/11/1989		BBG	BP0001M Index	
	03/01/1978	31/10/1989	Bank of	IUDVNEA	Daily Sterling interbank lending rate, 1 month, mean

					LIBID/LIBOR
			England		
	02/01/1975	02/01/1978	Datastream	LDNIB1M	
	01/01/1970	01/01/1975	BBG	UKBRBASE Index	
JPY	01/11/1989		BBG	JY0001M Index	
	04/01/1982	31/10/1989	Ecowin	ew:jpn36101	Japan, Deposit Rates, 1 month, Close, JPY
	02/10/1972	01/01/1982	BBG	BOJDTR Index	Base Rate
	01/01/1970	29/09/1972	Datastream	JPDISCR	BASIC DISCOUNT & LOAN RATE - MIDDLE RATE
CAD	01/10/1990		BBG	CD0001M Index	
	02/01/1980	28/09/1990	Datastream	CN13859	CANADA BANKERS ACCEPT. 30 DAY - MIDDLE RATE
	01/01/1970	01/01/1980	Ecowin	ew:can1441010	Canada, Policy Rates, Bank Rate, End of Period, CAD
AUD	04/01/1995		BBG	AU0001M Index	
	03/01/1989	03/01/1995	Ecowin	ew:aus36001	Australia, Interbank Rates, BBA LIBOR, 1 Month, Fixing, AUD
	27/09/1988	02/01/1989	Ecowin	ew:aus14101	Australia, Deposit Rates, 1 month, Close, AUD
	01/01/1970	26/09/1988	BBG	RBACTRD Index	Base Rate
CHF	01/11/1989		BBG	SF0001M Index	
	02/01/1974	31/10/1989	SNB		SNB_1mth_interbank (Zurich)
	01/01/1970	01/01/1974	SNB		SNB_Lombard_rate
SEK	02/01/1987		BBG	STIB1M Index	
	03/01/1983	01/01/1987	Ecowin	ew:swe14205	Sweden, Treasury Bills, 1 Month, Bid, Yield, Close, SEK
	01/01/1970	31/12/1982	Riksbank		Discount rate
NOK	02/01/1986		BBG	NIBOR1M Index	
	14/12/1982	01/01/1986	Datastream	NWIBNTN	NORWAY INTERBANK T/N (NOMINAL) - MIDDLE RATE

	02/08/1971	13/12/1982	Ecowin	ew:nor14010	Norway Treasury Bills 3m End of Period
	01/01/1970	30/07/1971	Norges Bank		2yr bond yields
NZD	16/06/2003		BBG	NZ0001M Index	
	04/01/1985	15/06/2003	Datastream	NZBB30D	NEW ZEALAND 30 DAY BANK BILL - MIDDLE RATE
	01/01/1970	03/01/1985	Ecowin	ew:NZL14410	New Zealand, Policy Rates, Official Cash Rate (OCR), NZD

For the 1y forward rates before the Bloomberg series became available, the Calculation Agent uses

Spot * Exp(2y Bond Yield Differential)

Bond tickers:

Source: QDB
Ticker: GACGB2 Index
Field: LAST_PRICE
Notes: Australia Govt Bonds Generic Yield 2 Year

Source: QDB
Ticker: GCAN2YR Index
Field: LAST_PRICE
Notes: Canadian Govt Bonds 2 Year Note

Source: QDB
Ticker: GSWISS02 Index
Field: LAST_PRICE
Notes: Switzerland Govt Bonds 2 Year Note Generic Bid Yield

Source: QDB
Ticker: GDBR2 Index
Field: LAST_PRICE
Notes: German Government Bonds 2 Yr BKO

Source: QDB
Ticker: GUKG2 Index
Field: LAST_PRICE
Notes: UK Govt Bonds 2 Year Note Generic Bid Yield

Source: QDB
Ticker: GJGB2 Index
Field: LAST_PRICE
Notes: Japan Govt Bond Year to maturity 2 year Simple Yield

Source: QDB
Ticker: GNOR2YR Index
Field: LAST_PRICE
Notes: Norway Government Bonds 2 Year Norway NO

Source: QDB

v3, December 2019

Ticker: GNZGB2 Index
Field: LAST_PRICE
Notes: New Zealand Govt Bond 2 Year

Source: Data Stream
Ticker: TRSD2YT
Field: N/A
Notes: SWEDISH GOVERNMENT BONDS 2 YR NOTE

Source: QDB
Ticker: USGG2 Index
Field: LAST_PRICE
Notes: US Generic Govt 2 Year Yield

For JPY, CHF, DEM, SEK and NZD the 2y yield is not available back to 1971. Before the data is available the Calculation Agent uses bank base rates.

Note	Japan	Swiss	Sweden	Germany	New Zealand IMF discount rate (same as nzocrs index from when it is available)
Ticker	BOJDTR Index	SF0001M Index	STIB1M Index	GRBRLOMB Index	1966582 Index

The Calculation Agent switches to the Bloomberg Forward rate tickers on 1st Jan 1990.

Index Sponsor	Nomura International plc, who is responsible for the administration of the Index.
Disruption Events and Fallbacks	The following disruption events and fallback provisions shall apply to the Index, and the Calculation Agent's calculation of the level of the Index:

Price Source Disruption: In the event that, in the sole determination of the Calculation Agent, in relation to any day a Price Source fails to publish a level or a rate in relation to any Index Component which is required in order to determine the level of the Index, the Calculation Agent will determine the level of such Index Component: (a) using the Fallback Price Source specified in relation to such variable (if any); or (b) if no Fallback Price Source is specified or such Fallback Price Source is also subject to a Price Source Disruption, in its sole discretion then such event shall constitute an Index Disruption Event.

"**Price Source**" means, in respect of an Index Component, the publication, page (or any other origin of reference, including an exchange) containing (or reporting) the prices, levels, rates or other data utilised by the Index Sponsor for such Index Component. References to Price Source shall be construed as referring also to any successor publication, page or source on or through which the relevant prices, levels, rates or other data for an Index Component may be published or otherwise disseminated, as determined by the Index Sponsor in its sole discretion and acting in a commercially reasonable manner.

Index Disruption: If, in the opinion of the Index Sponsor, an Index Disruption Event has occurred or is occurring, including in respect of any Index Component utilised to calculate the level of the Index on any day, then the Index Sponsor may (with a view to preserving the objective of the Index):

(i)   delay or postpone the rebalancing and/or calculation of such affected Index Component; to a day not later than the Disruption Cut-off Date, notwithstanding that such day may be subject to an

IndexDisruption Event and in which case the Index Sponsor will determine the level of such affected Index Component as of that Disruption Cut-off Date in its sole discretion and acting in a commercially reasonable manner in accordance with (iii) below; and/or

(ii)   and not publish the Index level for such Index Business Day or delay the publication; and/or

(iii) determine the level of any affected Index Component, in respect of such relevant day in its sole discretion and acting in a commercially reasonable manner having regard to the standard of input data quality for the Index as determined by the Index Sponsor during the design of the Index, as set out in Appendix 2, Section 6 of the Control Framework Summary ("Data Sufficiency and Hierarchy of Input Data").

in each case regardless of whether or not a level of any such affected Index Component has been published by the Price Source in respect of such day.

"Disruption Cut-off Date" means the 5th Index Business Day from and including the original day.

The determination by the Index Sponsor in its sole discretion that one or more of the following events (each an "Index Disruption Event") has occurred: (a) the material suspension of, a material limitation imposed on, or the cessation of the trading in any Index Component; (b) a material change by the Price Source in the content, composition, constitution of, or in the formula for or method of calculating (a **"Material Change"**) any Index Component (including where any such Material Change is due to an amendment or other modification to the rules and/or regulations of the Price Source); (c) the failure of any Price Source to open for trading during a scheduled trading session, or the early closure thereof (without 48 hours prior notice to the market); or (d) the occurrence of any event or circumstance which generally prevents, disrupts or impairs the ability of market participants in general to enter into transactions or obtain market values of the type which would be required to implement the Index in a commercially reasonable manner (including, without limitation, a significant widening in the bid/offer and/or a significant reduction in liquidity in an Index Component); (e) in respect of an Index Component or the Index, a systems failure, natural or man-made disaster, act of God, armed conflict, act of terrorism, riot or labour disruption or any similar intervening circumstances beyond the Index Sponsor's reasonable control which prevents, disrupts, or impairs the ability of the Index to achieve its economic objective, the prompt or accurate determination of the level of the Index, and/or the ability of the Index Sponsor or Index calculation agent to perform its role in respect of the Index; or (f) any other event or circumstance that, in the opinion of the Index Sponsor, prevents, disrupts or impairs the ability of the Index to achieve its economic objective or the prompt or accurate determination of the level of the Index, or any other event or circumstance which causes the Index Sponsor to reasonably conclude that as a consequence of such event or circumstance, if the level of the Index were to be determined, it should not be relied upon to represent the market or economic reality that the Index is intended to measure.

Price Materiality: If on any Business Day, the level published on any Price Source in relation to any price, level, rate or other variable necessary to determine any Index Component is, in the sole determination of the Calculation Agent, significantly different to the level of such variable prevailing in the market, such variable shall instead be determined by the Calculation Agent using its sole discretion, acting in a commercially reasonable manner with a view to achieving the objective of the Index and taking into account the prevailing market level and any other factors it deems relevant (having regard to the standard of input data quality for the Index as determined by the Index Sponsor during the design of the Index, as set out in Appendix 2, Section 6 of the Control Framework Summary ("Data Sufficiency and Hierarchy of Input Data")), and the Calculation Agent may delay the publication of the Index level for that Index Business Day.

Index Adjustment	If, due to the occurrence of an error (i) in relation to the calculation or publication of the level of the Index, or (ii) in the method for determining the Index, the Index Calculation Agent has determined on any day (an "**Adjustment Determination Date**") that an adjustment to the Index is necessary in order to correct such error (a "**Index Adjustment**"), then the Calculation Agent will make such corresponding adjustments to the Index as it deems necessary, if any, in order to reflect the Index Adjustment (in

v3, December 2019

each case in accordance with the principles and methodology of the Index).

Index Modification Event (Replacement of Index Components)

If the Calculation Agent, acting in its sole discretion, determines that on any day an Index Component which is necessary in order to determine a level of the Index: (a) is no longer available (whether due to a permanent discontinuation of trading, disappearance or otherwise); or (b) has been materially modified (including any material change in the content, composition, constitution of, or in the formula for or method of calculating such Index Component) and such modification will have a materially adverse effect on the Index achieving its objective; or (c) is subject to an Extraordinary Event, or (d) is or uses any input data/and or price source which is no longer sufficient to represent accurately and reliably the market and economic reality that the Index and/or Index Component is intended to measure, and/or no longer meets the standard of input data quality for the Index as determined by the Index Sponsor during the design of the Index, as set out in Appendix 2, Section 6 of the Control Framework Summary ("Data Sufficiency and Hierarchy of Input Data"), then the Calculation Agent may:

(1) remove or replace such affected Index Component with an alternative futures contract, currency, rate, variable or component (a "**Replacement Index Component**") which, in it its sole determination, is consistent with the objective of the Index and, where possible, is of the same or equivalent standard of quality as any input data and/or price source used prior to the occurrence of the Index Modification Event, having regard to the standard of input data quality for the Index as determined by the Index Sponsor during the design of the Index, as set out in Appendix 2, Section 6 of the Control Framework Summary ("Data Sufficiency and Hierarchy of Input Data") and which is otherwise not affected by the factors set forth in (a), (b), or (c) above. In making such removal or replacement, the Calculation Agent may make such adjustments to the Replacement Index Component as it considers necessary so that the level of the Index after event reflects a similar level to that calculated prior to the removal or replacement, acting in its sole discretion; and/or

(2) make such other adjustments as it deems appropriate to take such event into account.

Following the removal or replacement of an Index Component (as specified above), the Calculation Agent will promptly publish a notice which specifies the Index Component(s) removed or replaced and any resulting Replacement Index Components.

Extraordinary Event: means any of Change in Law, Instrument Disruption and/or Increased Cost of Index Implementation.

Change in Law means that, on or after the Index Live Date (i) due to the adoption of or any change in any applicable law or regulation (including, without limitation, any tax law), or (ii) due to the promulgation of or any change in the interpretation by any court, tribunal or regulatory authority with competent jurisdiction of any applicable law or regulation (including any action taken by a taxing authority), the Index Sponsor determines in good faith that (x) it has become illegal to hold, acquire or dispose of an Index Component, or (y) there is a materially increased cost of trading in an Index Component for the Index Sponsor or its affiliates (including, without limitation, due to any increase in tax liability, decrease in tax benefit or other adverse effect on its tax position).

Instrument Disruption means that the Index Sponsor or any of its affiliates or agents is unable, or it is impractical, after using commercially reasonable efforts, to (i) acquire, establish, re-establish, substitute, maintain, unwind or dispose of any transaction(s) or asset(s) it deems necessary to implement the Index, or (ii) realise, recover or remit the proceeds of any such transaction(s) or asset(s), including, without limitation, where such inability or impracticability has arisen by reason of (x) any restriction on making new or additional investments in any Index Component.

Increased Cost of Index Implementation means that the Index Sponsor or any of its affiliates would incur a materially increased (as compared with circumstances existing on the Index Live Date) amount of tax, duty, expense or fee to (i) acquire, establish, re-establish, substitute, maintain, unwind or dispose of any transaction(s) or asset(s) it deems necessary to implement the Index, or (ii) realise, recover or remit the proceeds of any transaction(s) or asset(s).

	"**Index Component**" means, in respect of the Index, each underlying component index (including, without limitation, each Strategy Index), futures contract, currency, rate, variable or other component necessary in order to determine a level of the Index (in each case, in line with the then existing methodology of the Index).
Index Cancellation	The Index Sponsor may permanently cancel and discontinue calculating and publishing the Index, in accordance with Appendix 2, Section 17 of the Control Framework Summary (as defined below).
Index Sponsor Disclaimer	The Index Sponsor and its affiliates make no representation whatsoever, whether express or implied, either as to the results to be obtained from the use of an Index and/or the levels at which the relevant Index stands at a particular time on any particular date or otherwise. The Index Sponsor and its affiliates shall not be liable (whether in contract, tort or otherwise) to any person for any error in such Index. The Index Sponsor and its affiliates make no representation whatsoever, whether express or implied, as to the advisability of purchasing or assuming any risk in connection with entering into any transactions or products which are linked to or deriving a value from an Index. Neither the Index Sponsor nor its affiliates shall have any liability for any act or failure to act by the Index Sponsor in connection with the calculation, adjustment or maintenance of an Index. Although the Index Sponsor will obtain information concerning an Index from publicly available sources it believes reliable, such information may not have been independently verified. Accordingly, no representation, warranty or undertaking (express or implied) is made and no responsibility is accepted by the Index Sponsor or its affiliates as to the accuracy, completeness and timeliness of information concerning an Index or any other information provided by any person in connection with the information described herein, or as to the continuance of calculation or publication of an Index. Nothing in this disclaimer shall exclude or limit liability to the extent such exclusion or limitation is not permitted by law or regulation to which the Index Sponsor is subject.

Additional information in respect of the Index methodology

The Index Sponsor has established a governance framework (the "**Governance Policy and Control Framework**") to ensure compliance with the European Benchmark Regulation, the IOSCO Principles and any related measures and applicable FCA rules (each as amended or replaced from time to time)[1]. The Governance Policy and Control Framework governs (amongst other things) the development, determination and operation of indices administered by the Index Sponsor. A summary of the Governance Policy and Control Framework (the "**Control Framework Summary**") is published on: www.nomuranow.com/portal/site/nnextranet/en/global-markets/structured-derivatives/quant-investment-strategies.shtml. Please refer to the summary of the Governance Policy and Control Framework in respect of the following information applying to the Index methodology:

Criteria for Index Development and Input Data and Source Selection	The criteria and procedures used to develop this Index, and for selecting the sources of data inputs used in the Index, are set out in Appendix 2, Section 3 of the Control Framework Summary ("Index Design and Creation of New Indices") and Appendix 2, Section 6 ("Data Sufficiency and Hierarchy of Data Inputs").
Exercise of Expert Judgment and discretion	The Index Sponsor has adopted guidelines and procedures designed to promote consistency in the exercise of Expert Judgment and discretion for Index determinations. Further details are contained in Appendix 2, Section 14 of the Control Framework Summary ("Expert Judgment and Discretion").

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[1] https://www.iosco.org/library/pubdocs/pdf/IOSCOPD415.pdf . *The Governance Policy and Control Framework will be periodically reviewed and has been updated to reflect the requirements of the Regulation on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds and amending Directives 2008/48/EC and 2014/17/EU and Regulation (EU) No 596/2014 (Regulation (EU) 2016/1011) (the "**Benchmark Regulation**"), as well as related level 2 measures and applicable FCA rules.*

Input Data Type Priority	The Index Sponsor applied the hierarchy for data inputs as set out in Appendix 2, Section 6 of the Control Framework Summary ("Data Sufficiency and Hierarchy of Data Inputs") when considering the data inputs used to construct the Index.
Index Error Reports and Revision	The Index Sponsor has adopted procedures for analysis and remediation of Index errors, and for potential restatement of a published Index level. Further details are contained in Appendix 2, Section 13 of the Control Framework Summary ("Correction of Errors") and Appendix 2, Section 15 ("Changes to Methodology") where remediation requires change to the Index Methodology.
Quantity and Quality of Input Data	The Index is constructed by the Index Sponsor using single prices or levels prescribed by the Index Methodology. The Index Sponsor therefore considers that the requirement to determine the thresholds of the quantity of data inputs, necessary to determine the Index accurately and reliably, has been met.
	The Index Sponsor determines the standards of quality of the data inputs used in this Index at the design stage of the Index in accordance with Appendix 2, Section 6 of the Control Framework Summary ("Data Sufficiency and Hierarchy of Data Inputs"). These standards are reflected in the Index Methodology, as described in this Rulebook. The Index Sponsor will review these standards and the data inputs on a periodic basis in accordance with Appendix 2, Section 16 of the Control Framework Summary ("Periodic Review of Indices") and in the full policies and procedures available on the Index Sponsor's public website, to ensure that the data inputs used continue to be of sufficient quality to determine the Index accurately and reliably, and will accordingly determine whether an Index Modification Event has occurred.
Internal Reviews of the Index	The Index Sponsor is required to conduct internal reviews of the Index on a periodic basis. Further details regarding the frequency of those reviews, the procedures to be followed, and the bodies or functions within the Index Sponsor's organisational structure involved in such reviews, are contained in Appendix 2, Section 16 of the Control Framework Summary ("Periodic Review of Indices") and in the full policies and procedures available on the Index Sponsor's public website.
	Reviews will further be conducted where the Index Sponsor considers it desirable or necessary to do so, including in response to specific events or otherwise. Specific events may include (without limitation) any index errors, index disruptions, or other index life-cycle events; changes in market circumstances; changes in the applicable legal or regulatory environment; any challenges or complaints or other feedback from stakeholders, and/or any material audit findings. Further information regarding the procedures to be followed in response to certain specific events, and the bodies or functions within the Index Sponsor's organisational structure involved in such reviews, can be found in Appendix 2, Sections 13 ("Correction of Errors"),14 ("Expert Judgment and Discretion"), 15 ("Changes to Methodology"), 19 ("Complaints Handling Policy"), 21 ("Audits"), and any other sections of the Control Framework Summary which may be relevant from time to time.
Index Approval	The criteria and procedures used to approve the Index, and the bodies or functions within the Index Sponsor's organisational structure involved in such approval, are set out in Appendix 3 of the Control Framework Summary ("Main Features of Index Committee Constitution and Terms of Reference") and Appendix 2, Section 3 ("Index Design and Creation of New Indices").
Investor Consultation upon Index termination and material changes to the Index methodology	The Index Sponsor is required to consult investors of index linked products when proposing material changes to the Index methodology and termination of the Index. Further details on the circumstances and procedures under which consultation takes place are contained in Appendix 2, Section 15 of the Control Framework Summary ("Changes to Methodology"), Appendix 2, Section 17 ("Termination of Indices and Transitional Arrangements") and in the full policies and procedures available on the Index Sponsor's public website.
Active Market of the Index	As of the date of this Index Description, the Index Sponsor considers the underlying market of the Index to be active, in accordance with in Appendix 2, Sections 3 ("Index Design and Creation of New Indices and Methodologies") of the Control Framework Summary.

Outsourcing of Index Determination	The Index Sponsor has outsourced certain IT, Quants, Middle Office and Structuring functions to Nomura Structured Finance Services (India) Private Limited subject to a corporate service agreement between the entities. Further details are contained in Appendix 2, Section 1 of the Control Framework Summary ("Oversight of Third Parties").

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19

v3, December 2019