

# **Citi Risk Aversion Indicator**

Index Methodology

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Citi Investment Strategies

16 October 2015

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## Part A: Introduction

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# Introduction

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This document constitutes the “**Index Methodology**” in respect of the Index (as defined below) and is made available by Citigroup Global Markets Limited in its capacity as the Index Sponsor.

This Index Methodology and the Index General Conditions dated 16 October 2015 (as amended from time to time, the “**Index General Conditions**”) together comprise the Index Conditions applicable to the Index and must be read together. In the case of any inconsistency between this Index Methodology and the Index General Conditions, this Index Methodology shall prevail in respect of the Index.

Full information in respect of the Index is only available on the basis of the combination of this Index Methodology and the Index General Conditions.

Full information in respect of any Index Linked Product is only available on the basis of the combination of this Index Methodology and the Index General Conditions and the confirmation, prospectus or offering document (however described) in respect of such Index Linked Product.

This Index Methodology may be amended in the circumstances described in Section E (*Miscellaneous*) of the Index General Conditions, and copies will be available from the Index Sponsor. See Section E (*Miscellaneous*) of the Index General Conditions for a description of the circumstances in which a change to this Index Methodology may be required.

Terms used in this Index Methodology but not defined in this Index Methodology shall have the meanings given to them in the Index General Conditions.

## Part B: Key Information

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# Key Information

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Index:	Citi Risk Aversion Indicator (the “ <b>Index</b> ”)
Summary:	<p>The Index comprises six factors, each of which represents a particular market within the broad global financial system, such as the equity market, the emerging market debt market, the market for lending between banks, the market for buying and selling protection against the risk of a default by corporate borrowers, the foreign exchange market, and the interest rate market.</p> <p>Each factor represents the relevant market by containing one or more of the benchmarks (such as benchmark financial instruments, indices and rates) that are traded, or which reflect the financial instruments, indices or rates that are traded, in that particular market.</p> <p>The Index is calculated with reference to the levels of the factors contained in the Index, and each such factor tracks the prices or levels, as appropriate, of the benchmarks contained in such factor.</p> <p>The Index is equally-weighted, in that each of the factors makes an equal contribution to the Index.</p> <p>The level of the Index will on a particular day be within the range from 0 to 1.</p>
Index Sponsor:	Citigroup Global Markets Limited
Index Calculation Agent:	Citigroup Global Markets Limited
Index Base Currency:	Not applicable
Index Launch Date:	18 July 2014
Index Start Date:	1 January 1997
Index Start Level:	0.459
Index Fee:	Not applicable
Frequency of calculation of the Index Level:	Daily, on each Index Business Day
Index Electronic Page:	Bloomberg page CIISRAI <Index>

*The Index was launched by the Index Sponsor on the Index Launch Date. The past performance of the Index prior to the Index Launch Date has been derived by the Index Calculation Agent from a back-testing simulation by applying the Index methodology to published historical levels of the Index constituents. Any such back-testing or similar performance analysis undertaken by any person in respect of the Index for any reason must be considered illustrative only and may be based on assumptions or estimates not used by the Index Calculation Agent when determining the Index Level.*

*The Index methodology utilizes certain constituents that have been changed during the historical period*

*covered by the back-testing simulation, as detailed in the Annex to Part E (Data) of these Index Conditions. In addition, the back-testing simulation assumed that there were no market disruption events or adjustment events affecting the constituents. Therefore, the back-testing simulation may not represent exactly how the Index would actually have performed during the period covered by the back-testing simulation. A simulation based on different assumptions may produce different results. See also Part F (Specific Risks) for further risks in respect of back-testing simulation.*

## Part C: Overview of the Index

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# Overview of the Index

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## 1. GENERAL OVERVIEW

The overview set out in this Part C is a summary only of the Index Conditions, of which this Part C is a part. The Index Conditions as a whole govern the calculation of the Index and the Index Level (as defined in Part D (*Calculation of the Index Level*) below), and the determinations made in connection with the maintenance of the Index. In the case of any inconsistency between this Part C and the remainder of the Index Conditions, the remainder of the Index Conditions shall prevail.

The Index is a notional rules-based proprietary index developed by the Index Sponsor.

The Index comprises six Factors, each of which represents a market within the broad global financial system.

Each Factor represents the relevant market by containing one or more Constituents, each of which is a benchmark financial instrument, index, or rate that is traded, or which reflects financial instruments, indices or rates that are traded, in such relevant market.

The Index is equally weighted, in that each Factor makes an equal contribution of one sixth to the Index. The Index Level on a particular Index Business Day is determined with reference to the Factor Level of each Factor as at such day.

Factor 1 represents the equity market by tracking the price volatility of benchmark equity options.

Factor 2 represents the emerging markets by tracking the difference (or “spread”) between the yields of emerging market government debt and benchmark US government debt.

Factor 3 represents the cost of borrowing in the interbank market, by tracking the difference (or “spread”) between the interest rates paid in respect of interbank borrowing and the interest rates paid in respect of benchmark US government debt.

Factor 4 represents the corporate debt market, by tracking the cost of buying protection (in the form of credit default swaps) against the risk of corporate debt default.

Factor 5 represents the foreign exchange market, by tracking the implied volatility of specified 3-month foreign exchange option contracts referencing certain US Dollar based currency pairs.

Factor 6 represents the interest rate market, by tracking the implied volatility of USD based interest rate swaption contracts across a range of maturities.

The Factor Level of a Factor on a particular Index Business Day  $t$  is determined as, or with reference to, the “percent rank” of the Constituents of such Factor, in that such Factor Level is determined with reference to (1) the value on Index Business Day  $t$  of each Constituent in such Factor (which is determined in each case with reference to the Constituent Closing Level of each such Constituent); and (2) a comparison between the value of each such Constituent on Index Business Day  $t$  and its historical values on each Index Business Day during the year preceding the relevant Index Business Day  $t$  (a year is assumed to comprise 259 Index Business Days).

Further detail in respect of the Constituents referenced by the Factors is set out in Part E (*Data*) below.

### **“Percent rank”**

A “percent rank” is determined for each Constituent in respect of each Index Business Day *t* by ranking the Constituent Closing Level of the relevant Constituent on such Index Business Day *t* relative to the Constituent Closing Levels of such Constituent on each of the 259 Index Business Days immediately preceding Index Business Day *t*.

In this way, the “percent rank” reflects how the value of each Constituent on Index Business Day *t* compares with its own historical levels.

### **Factor Level**

The Factor Level of each Factor on each Index Business Day *t* is determined by reference to the percent rank of the Constituent or Constituents, as applicable, comprising the relevant Factor, as set out in detail in Part D (*Calculation of the Index Level*).

The Index is equally weighted, in that each Factor makes an equal contribution of one sixth to the Index.

## **2. INDEX SPONSOR AND INDEX CALCULATION AGENT**

The Index Sponsor is Citigroup Global Markets Limited. As at the date of this Index Methodology, the Citigroup Global Markets Limited also acts as Index Calculation Agent, calculating and publishing the Index in accordance with the Index Conditions. The Index Sponsor may, in its sole discretion and without notice, appoint an alternative Index Calculation Agent at any time which may be the Index Sponsor or one of its Affiliates.

The Index Sponsor’s determinations in respect of the Index shall be final. Please refer to Section E (*Miscellaneous*) of the Index General Conditions for further information.

## **3. INDEX LEVEL CALCULATION**

Subject to the occurrence or existence of a Disrupted Day (as defined in Section D (*Definitions*) of the Index General Conditions), the Index Level is calculated by the Index Calculation Agent as of the Index Valuation Time on each Index Business Day (each as defined in Part E (*Data*) below). The Index Level for each Index Business Day is published on the Index Electronic Page, generally on the following Index Business Day. This should be considered the official source for the Index Level and a level obtained from any other source (electronic or otherwise) must be considered unofficial. The Index Level is the closing level of the Index for the relevant Index Business Day. The Index Calculation Agent may also, but is not obliged to, calculate the level of the Index in respect of any other valuation time on any Index Business Day or any other day with the consent of the Index Sponsor.

The detailed procedures for the calculation of the Index Level in respect of each Index Business Day are set out in Part D (*Calculation of the Index Level*) below.

## Part D: Calculation of the Index Level

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# Calculation of the Index Level

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The Index Sponsor is Citigroup Global Markets Limited. As at the date of this Index Methodology, Citigroup Global Markets Limited also acts as Index Calculation Agent, calculating and publishing the Index in accordance with the Index Conditions. The Index Sponsor may, in its sole discretion and without notice, appoint an alternative Index Calculation Agent at any time which may be the Index Sponsor or one of its Affiliates.

The Index Calculation Agent's calculations of the Index Level shall be final in the absence of manifest error. Please refer to Section E (*Miscellaneous*) of the Index General Conditions for further information.

The Index Level is calculated by the Index Calculation Agent as of the Index Valuation Time on each Index Business Day (each as defined in Part E (*Data*) below). The Index Level for each Index Business Day is published on the Index Electronic Page, generally on the following Index Business Day (or, if later, the next business day in London). This should be considered the official source for the Index Level and a level obtained from any other source (electronic or otherwise) must be considered unofficial. The Index Level is the closing level of the Index for the relevant Index Business Day. The Index Calculation Agent may also, but is not obliged to, calculate the level of the Index in respect of any other valuation time on any Index Business Day or any other day with the consent of the Index Sponsor.

All of the calculations and determinations described in this Part D are the responsibility of the Index Calculation Agent. The calculations and determinations in this Part D are subject to the occurrence of, and adjustments made as a consequence of, Disrupted Days and Adjustment Events (as described in Section B (*Valuations and Adjustments*) and Section F (*Constituent Schedule*) of the Index General Conditions).

## 1. DAILY INDEX CALCULATION: INDEX LEVEL

The Index Level on each Index Business Day is the average of the Factor Level of each Factor on such Index Business Day. A weighting of one sixth is applied to the Factor Level of each Factor, in order that each Factor is weighted equally within the Index.

The “**Index Level**” on each Index Business Day  $t$  (from and including the Index Start Date) shall be an amount, rounded to three decimal places, determined by the Index Calculation Agent in accordance with the formula set out below.

$$\text{Index Level}_t = \frac{\text{nint} \left[ \left( \sum_{n=1}^6 \frac{1}{6} \times \text{Factor}_{n,t} \right) \times 1000 \right]}{1000}$$

where:

- Index Level $_t$  = Index Level on Index Business Day  $t$
- Factor $_{n,t}$  = Factor Level of Factor  $n$  on Index Business Day  $t$
- nint [ ] = The nearest integer function

## 2 FACTOR LEVEL

### 2.1 Factor 1 (which references Constituent 1)

The Factor Level of Factor 1 on an Index Business Day t shall be the percent rank on t of the Constituent Closing Level on t of Constituent 1.

The Factor Level of Factor 1 on each Index Business Day t (from and including the Index Start Date) shall be an amount, truncated to three decimal places, determined by the Index Calculation Agent in accordance with the formula set out below.

$$Factor\ 1_t = \left\lfloor \frac{\sum_{i=1}^{259} Constituent\ 1_{t-i}}{259} \times 1000 \right\rfloor$$

where:

Factor  $1_t$  = Factor Level of Factor 1 on Index Business Day t

Constituent  $1_{t-i}$  = Either:

- (1) if the Constituent Closing Level of Constituent 1 on  $IBD_{t-i}$  is less than the Constituent Closing Level of Constituent 1 on Index Business Day t, 1; or
- (2) otherwise, zero

$IBD_{t-i}$  = The Index Business Day which is i number of Index Business Days preceding Index Business Day t

$\lfloor \rfloor$  = The mathematical floor function

### 2.2 Factor 2 (which references Constituent 2)

The Factor Level of Factor 2 on an Index Business Day t shall be the percent rank on t of the Constituent Closing Level on t of Constituent 2.

The Factor Level of Factor 2 on each Index Business Day t (from and including the Index Start Date) shall be an amount, truncated to three decimal places, determined by the Index Calculation Agent in accordance with the formula set out below.

$$Factor\ 2_t = \left\lfloor \frac{\sum_{i=1}^{259} Constituent\ 2_{t-i}}{259} \times 1000 \right\rfloor$$

where:

Factor  $2_t$  = Factor Level of Factor 2 on Index Business Day t

- Constituent  $2_{t-i}$  = Either:
- (1) if the Constituent Closing Level of Constituent 2 on  $IBD_{t-i}$  is less than the Constituent Closing Level of Constituent 2 on Index Business Day  $t, 1$ ; or
  - (2) otherwise, zero
- $IBD_{t-i}$  = The Index Business Day which is  $i$  number of Index Business Days preceding Index Business Day  $t$
- $\lfloor \rfloor$  = The mathematical floor function

### 2.3 Factor 3 (which references Constituent 3)

The Factor Level of Factor 3 on an Index Business Day  $t$  shall be the percent rank on  $t$  of the Constituent Closing Level on  $t$  of Constituent 3.

The Factor Level of Factor 3 on each Index Business Day  $t$  (from and including the Index Start Date) shall be an amount, truncated to three decimal places, determined by the Index Calculation Agent in accordance with the formula set out below. For the avoidance of doubt, Factor 3 is calculated by the Constituent Sponsor by taking the BBA LIBOR USD 3 Month (*Bloomberg Page: <US0003M> Index*) minus the US Generic Government 3 Month Yield (*Bloomberg Page: <USGG3M> Index*):

$$Factor\ 3_t = \frac{\left\lfloor \frac{\sum_{i=1}^{259} Constituent\ 3_{t-i}}{259} \times 1000 \right\rfloor}{1000}$$

where:

- Factor  $3_t$  = Factor Level of Factor 3 on Index Business Day  $t$
- Constituent  $3_{t-i}$  = Either:
- (1) if the Constituent Closing Level of Constituent 3 on  $IBD_{t-i}$  is less than the Constituent Closing Level of Constituent 3 on Index Business Day  $t, 1$ ; or
  - (2) otherwise, zero
- $IBD_{t-i}$  = The Index Business Day which is  $i$  number of Index Business Days preceding Index Business Day  $t$
- $\lfloor \rfloor$  = The mathematical floor function

### 2.4 Factor 4 (which references Constituent 4 and Constituent 5)

The Factor Level of Factor 4 on an Index Business Day  $t$  shall be the average of the percent rank, truncated to three decimal places, on  $t$  of the Constituent Closing Level on  $t$  of each of Constituent 4 and Constituent 5.

The Factor Level of Factor 4 on each Index Business Day  $t$  (from and including the Index Start Date) shall be an amount determined by the Index Calculation Agent in accordance with the formula set out below.

$$\text{Factor } 4_t = \frac{1}{2} \times \left( \left\lfloor \frac{\sum_{i=1}^{259} \text{Constituent } 4_{t-i}}{259} \times 1000 \right\rfloor + \left\lfloor \frac{\sum_{i=1}^{259} \text{Constituent } 5_{t-i}}{259} \times 1000 \right\rfloor \right)$$

where:

Factor  $4_t$  = Factor Level of Factor 4 on Index Business Day  $t$

Constituent  $4_{t-i}$  = Either:

- (1) if the Constituent Closing Level of Constituent 4 on  $\text{IBD}_{t-i}$  is less than the Constituent Closing Level of Constituent 4 on Index Business Day  $t$ , 1; or
- (2) otherwise, zero

Constituent  $5_{t-i}$  = Either:

- (1) if the Constituent Closing Level of Constituent 5 on  $\text{IBD}_{t-i}$  is less than the Constituent Closing Level of Constituent 5 on Index Business Day  $t$ , 1; or
- (2) otherwise, zero

$\text{IBD}_{t-i}$  = The Index Business Day which is  $i$  number of Index Business Days preceding Index Business Day  $t$

$\lfloor \rfloor$  = The mathematical floor function

## 2.5 Factor 5 (which references Constituents 6 to 8 inclusive)

The Factor Level of Factor 5 on an Index Business Day  $t$  shall be the average of the percent rank, truncated to three decimal places, on  $t$  of the Constituent Closing Level on  $t$  of each of Constituents 6 to 8 inclusive.

The Factor Level of Factor 5 on each Index Business Day  $t$  (from and including the Index Start Date) shall be an amount determined by the Index Calculation Agent in accordance with the formula set out below.

$$\text{Factor } 5_t = \frac{1}{3} \times \sum_{c=6}^8 \left\lfloor \frac{\sum_{i=1}^{259} \text{Constituent } c_{t-i}}{259} \times 1000 \right\rfloor$$

where:

Factor 5<sub>t</sub> = Factor Level of Factor 5 on Index Business Day t

Constituent<sub>c,t-i</sub> = Either:

- (1) if the Constituent Closing Level of Constituent c on IBD<sub>t-i</sub> is less than the Constituent Closing Level of Constituent c on Index Business Day t, 1; or
- (2) otherwise, zero

IBD<sub>t-i</sub> = The Index Business Day which is i number of Index Business Days preceding Index Business Day t

[ ] = The mathematical floor function

## 2.6 Factor 6 (which references Constituents 9 to 14 inclusive)

The Factor Level of Factor 6 on an Index Business Day t shall be the average of the percent rank, truncated to three decimal places, on t of the Constituent Closing Level of each of Constituents 9 to 14 inclusive.

The Factor Level of Factor 6 on each Index Business Day t (from and including the Index Start Date) shall be an amount determined by the Index Calculation Agent in accordance with the formula set out below.

$$Factor\ 6_t = \frac{1}{6} \times \sum_{c=9}^{14} \left[ \frac{\sum_{i=1}^{259} Constituent_{c,t-i}}{259} \times 1000 \right]$$

where:

Factor 6<sub>t</sub> = Factor Level of Factor 6 on Index Business Day t

Constituent<sub>c,t-i</sub> = Either:

- (1) if the Constituent Closing Level of Constituent c on IBD<sub>t-i</sub> is less than the Constituent Closing Level of Constituent c on Index Business Day t, 1; or
- (2) otherwise, zero

IBD<sub>t-i</sub> = The Index Business Day which is i number of Index Business Days preceding Index Business Day t

[ ] = The mathematical floor function



## Part E: Data

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# Data

## 1. Constituents and Electronic Pages

C	Constituent	Bloomberg Page
1	CBOE Volatility Index <sup>®</sup> (VIX <sup>®</sup> )	<VIX Index>
2	JP Morgan EMBI Sovereign Spread Index	<JPEIPLSP BGN Index>
3	TED Spread	<BASPTDSP Index>
4	Markit CDX 5Y High Yield USD spread index <sup>1</sup>	<CDX HY CDSI GEN 5Y SPRD CBGN Corp>
5	Markit Itraxx Cross Over 5Y EUR index <sup>1</sup>	<ITRX XOVER CDSI GENERIC 5Y CBGN Corp>
6	3-month ATM implied option volatility of USD against CHF <sup>2</sup>	<CHFV3M BGN Index>
7	3-month ATM implied option volatility of USD against EUR <sup>2</sup>	<EURV3M BGN Index>
8	3-month ATM implied option volatility of USD against JPY <sup>2</sup>	<JPYV3M BGN Index>
9	2-year forward 2Y USD implied volatility <sup>3</sup>	<USSV022 CMPN Curncy>
10	2-year forward 5Y USD implied volatility <sup>3</sup>	<USSV025 CMPN Curncy>
11	2-year forward 10Y USD implied volatility <sup>3</sup>	<USSV0210 CMPN Curncy>
12	5-year forward 2Y USD implied volatility <sup>3</sup>	<USSV052 CMPN Curncy>
13	5-year forward 5Y USD implied volatility <sup>3</sup>	<USSV055 CMPN Curncy>
14	5-year forward 10Y USD implied volatility <sup>3</sup>	<USSV0510 CMPN Curncy>

The Electronic Page in respect of a Constituent shall be the Bloomberg page accessed by means of the code specified in the column headed “Bloomberg Page” of the table set out above in respect of such Constituent, subject to successor and adjustment events in accordance with the definition of Electronic Page.

<sup>1</sup> See Paragraph 1 (*Factor 4*) of the Annex to this Part E for information on certain historic proxy constituents forming part of the Index prior to this Constituent in relation to Factor 4.

<sup>2</sup> See Paragraph 2 (*Factor 5*) of the Annex to this Part E for information on certain historic proxy constituents forming part of the Index prior to this Constituent in relation to Factor 5.

<sup>3</sup> See Paragraph 3 (*Factor 6*) of the Annex to this Part E for information on certain historic proxy constituents forming part of the Index prior to this Constituent in relation to Factor 6.

## 2. Adjustment Elections

	Scheduled Valuation Date
Adjustments (Scheduled Trading Days: "holidays"):	Look Back
Adjustments (Disrupted Days):	Look Back
Valuation Roll (Disrupted Days):	Not Applicable

## 3. Defined Terms

Index Business Day:	Means any calendar day which is not a Saturday or Sunday.
Index Valuation Time:	In respect of an Index Business Day, 11.00 p.m. (London time) on such Index Business Day.
Scheduled Valuation Date:	Each Index Business Day.





$$\text{Factor } 4_t = \frac{1}{2} \times \left( \left[ \frac{\sum_{i=1}^{259} \text{ProxyConstituent } 4.2_{t-i}}{259} \times 1000 \right] + \left[ \frac{\sum_{i=1}^{259} \text{ProxyConstituent } 5.2_{t-i}}{259} \times 1000 \right] \right)$$

**(E) Factor 4 referencing Proxy Constituent 4.2 and Constituent 5:**

From 14 June 2005 to 6 July 2005 inclusive, Factor 4 has been calculated using the average of the percent rank of (i) Proxy Constituent 4.2 as Constituent 4, being determined in accordance with the formula above, and (ii) the Constituent Closing Level of current Constituent 5 (being the 'Markit Itraxx Cross Over 5Y EUR index'),

and Factor 4 being calculated as follows:

$$\text{Factor } 4_t = \frac{1}{2} \times \left( \left[ \frac{\sum_{i=1}^{259} \text{ProxyConstituent } 4.2_{t-i}}{259} \times 1000 \right] + \left[ \frac{\sum_{i=1}^{259} \text{Constituent } 5_{t-i}}{259} \times 1000 \right] \right)$$

**(F) Factor 4 referencing Constituents 4 and 5:**

From 7 July 2005, Factor 4 has been calculated using the average of the percent rank of the Constituent Closing Levels of each of current Constituents 4 and 5 (being the 'Markit CDX 5Y High Yield USD spread index' and the 'Markit Itraxx Cross Over 5Y EUR index', respectively), as set out in paragraph 2.4 of Part C (*Calculation of the Index Level*). Prior to 26 March 2003, there was no Constituent 5.

**2. Factor 5**

**(A) Factor 5 referencing Proxy Constituent 7.1:**

From 1 January 1997 to 27 December 1998 inclusive, Factor 5 has been calculated using the average of the percent rank of (i) the Constituent Closing Levels of each of current Constituents 6 and 8 (being the '3-month ATM implied option volatility of USD against CHF' and the '3-month ATM implied option volatility of USD against JPY', respectively), as set out in paragraph 2.5 of Part C (*Calculation of the Index Level*) and, (ii) the '3-month ATM implied option volatility of USD against Deutschemark' (Bloomberg: DEMV3M CMPN <Curncy>) as Constituent 7 ("Proxy Constituent 7.1"),

and Factor 5 being calculated as follows:

$$\text{Factor } 5_t = \frac{1}{3} \times \left( \left[ \frac{\sum_{i=1}^{259} \text{Constituent } 6_{t-i}}{259} \times 1000 \right] + \left[ \frac{\sum_{i=1}^{259} \text{ProxyConstituent } 7.1_{t-i}}{259} \times 1000 \right] + \left[ \frac{\sum_{i=1}^{259} \text{Constituent } 8_{t-i}}{259} \times 1000 \right] \right)$$

**(B) Factor 5 referencing Proxy Constituent 7.2:**

From 28 December 1998 to 23 December 1999 inclusive, Factor 5 has been calculated using the average of the percent rank of (i) the Constituent Closing Levels of each of current Constituents 6 and 8 (being the ‘3-month ATM implied option volatility of USD against CHF’ and the ‘3-month ATM implied option volatility of USD against JPY’, respectively), as set out in paragraph 2.5 of Part C (*Calculation of the Index Level*) and, (ii) the concatenation of the ‘3-month ATM implied option volatility of USD against Deutschemark’ before and including 27 December 1998 with the ‘3-month ATM implied option volatility of USD against EUR’ after and including 28 December 1998, as Constituent 7 (“**Proxy Constituent 7.2**”), being determined in accordance with the following formula:

$$\text{ProxyConstituent } 7.2_t = \begin{cases} \text{ProxyConstituent } 7.1_t, & \text{if Index Business Day } t \text{ is before or on 27 December 1998} \\ \text{Constituent } 7_t, & \text{otherwise} \end{cases}$$

where:

ProxyConstituent 7.2 <sub>t</sub>	Concatenation of the ‘3-month ATM implied option volatility of USD against Deutschemark’ before and including 27 December 1998 with the ‘3-month ATM implied option volatility of USD against EUR’ after and including 28 December 1998, on Index Business Day t
ProxyConstituent 7.1	3-month ATM implied option volatility of USD against Deutschemark
Constituent 7	3-month ATM implied option volatility of USD against EUR

and Factor 5 being calculated as follows:

$$\text{Factor } 5_t = \frac{1}{3} \times \left( \left[ \frac{\sum_{i=1}^{259} \text{Constituent } 6_{t-i}}{259} \times 1000 \right] + \left[ \frac{\sum_{i=1}^{259} \text{ProxyConstituent } 7.2_{t-i}}{259} \times 1000 \right] + \left[ \frac{\sum_{i=1}^{259} \text{Constituent } 8_{t-i}}{259} \times 1000 \right] \right)$$

**(C) Factor 5 referencing Constituents 6, 7 and 8:**

From 24 December 1999, Factor 5 has been calculated using the average of the percent rank of the Constituent Closing Levels of each of current Constituents 6, 7 and 8 (being the ‘3-month ATM implied

option volatility of USD against CHF', '3-month ATM implied option volatility of USD against EUR' and '3-month ATM implied option volatility of USD against JPY', respectively), as set out in paragraph 2.5 of Part C (*Calculation of the Index Level*).

### 3. Factor 6

#### (D) Factor 6 referencing Constituent 14.1:

From 1 January 1997 to 20 January 1998 inclusive, Factor 6 has been calculated using the percent rank of the Lehman Brothers Swaption Volatility Index (Bloomberg: LBOX <Index> historically) (the "**LBOX Swaption Index**") as Constituents 9 to 14 ("**Proxy Constituent 14.1**"),

and Factor 6 being calculated as follows:

$$\text{Factor } 6_t = \frac{\left[ \frac{\sum_{i=1}^{259} \text{ProxyConstituent } 14.1_{t-i}}{259} \times 1000 \right]}{1000}$$

whereas from 21 January 1998, Factor 6 has been calculated using the average of the percent rank of the Constituent Closing Levels of each of current Constituents 9 to 14 (inclusive), as set out in paragraph 2.6 of Part C (*Calculation of the Index Level*). Prior to 21 January 1998, there were no Constituents 9 to 13.



## Part F: Specific Risks

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# Specific Risks

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**THIS PART F DOES NOT DESCRIBE ALL OF THE RISKS ARISING IN RESPECT OF THE INDEX. PLEASE REFER TO SECTION C (GENERAL RISKS) OF THE INDEX GENERAL CONDITIONS FOR A DISCUSSION OF FURTHER RISKS ARISING IN RESPECT OF THE INDEX.**

## **LIMITATIONS AS TO HOW REPRESENTATIVE THE INDEX IS**

The Factors may not be as representative of the broad global financial system as other assets, and/or benchmarks, and/or combinations of assets, and/or combinations of benchmarks may be.

The Constituents may not be as representative of the relevant markets within the broad global financial system as other assets, and/or benchmarks, and/or combinations of assets, and/or combinations of benchmarks may be.

Different factors and constituents and combinations of them may produce different results to the results obtained by the Index.

Different factors and constituents and combinations of them may be more suitable than the Factors and Constituents of the Index to reflect, at any time for any purpose, the trading activity, or the behaviour or perception, of participants in either the broad global financial system or any market within the broad global financial system. Participants in the relevant markets may develop other factors and constituents, and combinations of other factors and constituents, which they consider more suitable than the Factors and Constituents of the Index to reflect trading activity in, or behaviors or perceptions in, the relevant markets. The Index will not be amended to reflect any such other factors and constituents.

There is no assurance that the Index Level of the Index on a particular Index Business Day is an accurate reflection, at any time for any purpose, of the trading activity, or the behaviour or perception, of participants in either the broad global financial system or any market within the broad global financial system. The Index should not be used to predict levels, prices, rates or values in any market within the broad global financial system.

## **LIMITATIONS AS TO THE USE OF THE INDEX**

The Index has not been developed to be “investable”, in that it does not reflect the investment performance of any of the Constituents.

Furthermore, the Index does not postpone calculations in response to events or circumstances which affect the ability of participants in the market for any Constituent, or in the related market for any related security, contract or other financial product (such as futures contracts or options contracts) linked to the performance of such Constituent, to buy, to sell or to hold such Constituent or any such related security, contract or other financial product.

The Index may therefore not be a suitable underlying for any Index Linked Product.

## **STATISTICAL LIMITATIONS**

The percent rank analysis used by the methodology set out in the Index Conditions is a statistical measurement of historical data. The Index therefore looks back and not forward.

The Factor Level on a particular Index Business Day of a Factor reflects the use of the percent rank statistical analysis. Use of a different analysis may produce different results to the results obtained by the Index.

## INDEX METHODOLOGY LIMITATIONS

The performance of the Index is dependent on the pre-defined rules-based methodology set out in the Index Conditions. There is no assurance that other methodologies would accord with the methodology set out in the Index Conditions or give the same results.

## FIXED ALGORITHMIC MODEL PARAMETERS

In common with all algorithmic strategies, the Index uses a rules-based methodology which contains fixed parameters. Alternative parameters could have a positive effect on the performance of the Index.

## MODEL PRECISION

The Index Methodology is a complex calculation model which is sensitive to the precision of both the original inputs and the interim calculations. Each of these are in turn dependent on the rounding conventions used in the financial market for the primary data and the rounding conventions determined appropriate by the Index Calculation Agent at each stage of the calculation process.

## LIMITED OPERATING HISTORY

The Index was launched by the Index Sponsor on the specified Index Launch Date. Accordingly, the Index has a limited performance history, and this limited history may not reflect the way in which the Index would perform in a variety of market conditions, including market conditions that may arise during the term of any Index Linked Products.

Any back-testing or similar performance analysis performed by any person in respect of the Index must be considered illustrative only and may be based on estimates or assumptions not used by the Index Calculation Agent when determining the Index Level. In particular, it should be noted that the back-tested performance of the Index for the period from the Index Start Date to the Index Launch Date has been calculated by the Index Calculation Agent based on the assumption that there were no Disrupted Days and no Adjustment Events during the back-tested period. If Disrupted Days and Adjustment Events had been taken into account for such purpose, the back-tested performance of the Index may have been adversely affected.

Back-tested performance should not be regarded as an indication of future performance. Any back-tested performance prior to the Index Launch Date is hypothetical. Accordingly, the actual performance of the Index may differ significantly from the back-testing simulation.

Past performance should not be considered indicative of future performance.

**This list of risk factors is not intended to be exhaustive. All persons should seek such advice as they consider necessary from their professional advisors, investment, legal, tax or otherwise, without reliance on the Index Sponsor, the Index Calculation Agent, any of their respective Affiliates or any of their respective directors, officers, employees, representatives, delegates and agents.**

# Index General Conditions

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16 October 2015

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## **Section A: Introduction**

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# Introduction

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This document constitutes the Index General Conditions applicable to each index (each, an “**Index**”) for which the applicable Index Methodology states that these Index General Conditions are to be applicable to it.

These Index General Conditions are made available by Citigroup Global Markets Limited in its capacity as the Index Sponsor.

These Index General Conditions may be amended in the circumstances described in Section E (*Miscellaneous*), and will be available from the Index Sponsor. See Section E (*Miscellaneous*) for a description of the circumstances in which a change to these Index General Conditions may be required.

## **RISKS**

Any investment exposure to an Index created by an Index Linked Product gives rise to a number of risks. Please refer to Section C (*General Risks*) and to the applicable Index Methodology for a discussion of some of the risks to which such an investment exposure to the Index gives rise. The Index Conditions in respect of such Index do not describe all of the risks to which an investment in such Index Linked Product gives rise; please refer to the associated prospectus or offering document (however described) in respect of such Index Linked Product for a discussion of these risks.

## **PUBLICATION**

The Index and the Index Level shall be announced and published as specified in the Index Methodology.

## **BASIC SCHEME OF THE INDEX CONDITIONS OF AN INDEX**

The Index Conditions of an Index comprise these Index General Conditions and the applicable Index Methodology, which must be read together. Full information in respect of an Index is only available on the basis of the combination of these Index General Conditions and the applicable Index Methodology (each as amended from time to time).

In the case of any inconsistency between the applicable Index Methodology and these Index General Conditions, such applicable Index Methodology shall prevail.

The following paragraphs of this Section A are provided for information only, and in the case of any discrepancy between any such paragraph and any other provision of the Index Conditions, such other provision shall prevail.

The Index is a notional rules-based proprietary index which is made up of Constituents. These Constituents are specified in the applicable Index Methodology, together with other data necessary to calculate the Index Level of the Index from time to time.

The Index Level of the Index from time to time is calculated by the Index Calculation Agent with reference to the formulae and rules set out in the applicable Index Methodology. The applicable Index Methodology also contains a description of the analysis that the Index is intended to reflect. The Index Level of the Index is calculated with reference to the closing levels, prices, rates or values (as applicable) of each Constituent (i.e. Constituent Closing Levels).

Standard detailed rules govern “valuation”, that is, how the Constituent Closing Level of a Constituent is determined. These standard rules are set out in the Constituent Schedule which is included in these Index General Conditions.

Although the Index Level of the Index on a particular day for which a valuation is required (i.e. a Scheduled Valuation Date) should reflect the Constituent Closing Level on that day of each Constituent contained in the Index, difficulties may arise affecting the publication of the levels of these Constituents. The Constituent Schedule defines the circumstances when these difficulties may arise.

Therefore it may not be possible to determine the Index Level of the Index on a Scheduled Valuation Date using Constituent Closing Levels for that day. Section B (*Valuations and Adjustments*) contains detailed rules which govern which particular Constituent Closing Levels are instead used, whether those for a preceding day or a succeeding day. Different rules require either looking back to the Constituent Closing Level of a previous day, or postponing valuation to a day when publication is made. The applicable Index Methodology specifies which particular rules apply to the Index.

Certain events and circumstances may affect a Constituent, resulting in a change in that Constituent or the disappearance of that Constituent (i.e. Adjustment Events). The Constituent Schedule defines these events and circumstances. Section B (*Valuations and Adjustments*) contains detailed rules which govern the adjustment of the Index to account for the effect on the Index of the occurrence of an Adjustment Event, or (if such an adjustment would not produce a commercially reasonable result) the replacement of the affected Constituent in the Index. Although any such adjustment or replacement is intended to account for the effect on the Index of the occurrence of the relevant Adjustment Event, any such adjustment or replacement may have an unforeseen effect on the Index and may have an adverse effect on the value of an Index Linked Product. Please see Section C (*General Risks*) for a discussion of the effect of these rules.

The terms and conditions of any Index Linked Product may contain provisions as to the consequences of certain events and circumstances. These events and circumstances may include any adjustment made to the Index or any replacement effected of any Constituent. These consequences may include the early termination of such Index Linked Product and the payment of an amount to reflect the valuation of such Index Linked Product at the time of such early termination. Depending on the terms and conditions of such Index Linked Product, an investor may receive back on such early termination less than the amount of the original investment. The Index Conditions do not include any such terms and conditions of such Index Linked Product. Please refer to the terms and conditions of such Index Linked Product.



## **Section B: Valuations and Adjustments**

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# Valuations and Adjustments

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## 1. CONSTITUENT CLOSING LEVEL

The Constituent Closing Level of a Constituent on a Valuation Date shall be determined as specified in the Constituent Schedule.

## 2. ADJUSTMENTS TO VALUATION DATES (SCHEDULED TRADING DAYS: “HOLIDAYS”)

*“Look Back”*

If “Look Back” is specified in the applicable Index Methodology and a Scheduled Valuation Date is not a Scheduled Trading Day for any Constituent, then:

- (i) the Valuation Date for each Constituent for which such Scheduled Valuation Date is a Scheduled Trading Day shall be such Scheduled Valuation Date; and
- (ii) the Valuation Date for each Constituent for which such Scheduled Valuation Date is not a Scheduled Trading Day shall be the first day immediately preceding such Scheduled Valuation Date which is a Scheduled Trading Day and not a Disrupted Day for such Constituent.

## 3. ADJUSTMENTS TO VALUATION DATES (DISRUPTED DAYS)

*“Look Back”*

If “Look Back” is specified in the applicable Index Methodology and a Scheduled Valuation Date is a Disrupted Day for any Constituent, then:

- (i) the Valuation Date for each Constituent for which such Scheduled Valuation Date is not a Disrupted Day shall be such Scheduled Valuation Date; and
- (ii) the Valuation Date for each Constituent for which such Scheduled Valuation Date is a Disrupted Day shall be the first day immediately preceding such Scheduled Valuation Date which is a Scheduled Trading Day and not a Disrupted Day for such Constituent.

## 4. ADJUSTMENT EVENTS

If an Adjustment Event occurs in respect of any Constituent, then the consequences of such Adjustment Event shall be as follows:

- (a) the Index Calculation Agent may select a replacement Constituent that has substantially similar characteristics to the Constituent that is being replaced, having regard to the primary objective of the Index and the manner in which such Constituent is used in the calculation of the Index, in which case the Index Calculation Agent will (i) determine the effective date of such replacement; and (ii) make such adjustment(s) to the Index Conditions as it determines appropriate to account for the effect on the Index of such replacement; and/or
- (b) the Index Calculation Agent may suspend the calculation, publication and dissemination of the Index and the Index Level until the first succeeding Index Business Day on which such event does not occur or continue to occur; and/or
- (c) the Index Sponsor may discontinue and cancel the Index.

**5. SUSPENSION AND CANCELLATION**

The Index Sponsor may discontinue and cancel the Index at any time and is under no obligation to continue, or procure the continuation of, the calculation, publication and dissemination of the Index Level.

**6. CORRECTIONS OF PUBLISHED OR ANNOUNCED LEVELS, PRICES, RATES OR VALUES**

If the level, price, rate or value (as applicable) of such Constituent for any time on any day which is announced by or on behalf of the person or entity responsible for such publication or announcement and which is used for any calculation or determination in respect of the Index is subsequently corrected, and such correction (the "**Corrected Level**") is published by or on behalf of such person or entity within 2 Index Business Days (the "**Correction Period**") after the original publication, then such Corrected Level shall be deemed to be the level, price, rate or value (as applicable) for such Constituent for the relevant time on the relevant day. If the Correction Period does not include a Rebalancing Date, the Index Calculation Agent shall revise the Index Level for such relevant day. If the Correction Period includes a Rebalancing Date, the Index Calculation Agent may, but shall not be obliged to, revise the Index Level for such relevant day and, in exercising such discretion, the Index Calculation Agent will act in good faith and in a commercially reasonable manner that is consistent with the primary objective of the Index.

Corrections published after the Correction Period after the original publication shall be disregarded.

## **Section C: General Risks**

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# General Risks

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## 1. INTRODUCTION

The Index Level may go down as well as up, depending on the performance of the Constituents and the effect of the statistical analysis that the Index has been developed to reflect. There can be no assurance as to the future performance of the Index, and the Index Level on any day may not reflect its future performance. The analysis that the Index has been developed to reflect may not be suitable for any particular purpose, and other analyses using the Constituents or the Eligible Universe (as relevant) may be more suitable than the Index for a particular purpose.

The Index represents a particular statistical analysis of its Constituents. The Index has not been developed to be “investable”. The methodology set out in the Index Conditions is quantitative, which means that the Index Level is determined according to the rules and the processes set out in the Index Conditions on a purely notional basis, without reference to any actual investment in the Index or any of its Constituents. The result of any such actual investment may be different to the performance of the Index.

Notwithstanding that this Index is not intended to be “investable”, prospective investors in any Index Linked Product should be familiar with investments in the global financial and commodity markets, financial instruments and indices generally.

## 2. RISKS IN RESPECT OF THE CONSTITUENTS

The performance of the Index is dependent on the performance of all of the Constituents contained in the Index.

Fluctuations in the level, price, rate or value (as applicable) of the Constituents contained in the Index from time to time will directly affect the Index Level. Please refer to the applicable Index Methodology for a discussion of the analysis that the Index has been developed to reflect.

Certain events and circumstances may affect a Constituent, resulting in a change in that Constituent or the disappearance of that Constituent (i.e. Adjustment Events). The Constituent Schedule sets out the Adjustment Events which apply to such Constituent.

Following the occurrence of an Adjustment Event in respect of a Constituent, the Index Calculation Agent may attempt to replace the affected Constituent with a suitable replacement, having regard to the manner in which such Constituent is used in the calculation of the Index.

At any time, any such replacement may have an unforeseen effect on the Index. Assumptions as to the inclusion in the Index of a particular Constituent will no longer be valid if that Constituent is removed from the Index, whether temporarily or permanently.

Notwithstanding that this Index is not intended to be “investable”, the terms and conditions of any Index Linked Product may contain provisions as to the consequences of any such replacement of a Constituent or discontinuation of the Index.

Any such replacement or discontinuation of the Index may have an adverse effect on the value of such Index Linked Product.

Any such replacement or discontinuation of the Index may (depending on the terms and conditions of such Index Linked Product) result in the early termination of such Index Linked Product and the payment of an amount to reflect the valuation of such Index Linked Product at the time of such

early termination. Depending on the terms and conditions of such Index Linked Product, an investor may receive back on such early termination less than the amount of the original investment.

Please refer to the terms and conditions of such Index Linked Product. In the case of a prospectus or offering document which contains provisions under the heading “Risk Factors”, “Investment Considerations” or the equivalent, please refer to these provisions for a discussion of these consequences.

### **3. NOTIONAL EXPOSURE**

The Index reflects a particular method by which the performance of the Constituents is analyzed, and any exposure to the Constituents will be purely notional and will only exist in the books and records of the Index Sponsor and the Index Calculation Agent.

*(a) No rights*

Investors in either any Index Linked Product (notwithstanding that the Index is not intended to be “investable”) or any security, contract or other financial product the return of which is linked to an index containing the Index (a) have no legal or beneficial ownership interest in any Constituent and therefore have no recourse to any Constituent; (b) have no right to take delivery of any Constituent; (c) have no voting rights with respect to any Constituent; (d) have no right to receive dividends, distributions or other payments with respect to any Constituent.

*(b) No offer*

Nothing in these Index General Conditions constitutes an offer to buy or to sell any Constituent or any other asset, commodity, contract or security (including without limitation any asset, contract, commodity or security included in any Constituent).

*(c) Reinvestment*

Whether or not the Index is a “total return index” and includes the notional reinvestment of amounts calculated by reference to any dividend, distribution or payment that would be received by a holder of a Constituent is specified in the applicable Index Methodology. If the Index is not a “total return index”, it will not include any such notional reinvestment.

### **4. NO INVOLVEMENT OF PERSONS CONNECTED WITH ANY CONSTITUENT**

The Index does not create any obligation of any person connected with any Constituent (each such person, for the purposes of this paragraph, a “Relevant Person”), including without limitation the issuer of any Constituent which is a security, the sponsor or calculation agent of any Constituent which is itself an index, and the provider of any service (such as an investment adviser or an investment manager) to any Constituent which is a fund.

No Relevant Person has participated in the preparation of the Index Conditions or in the arrangement and offer of any Index Linked Product.

### **5. NO INVESTIGATION**

Neither the Index Sponsor nor the Index Calculation Agent has made or will make any investigation or enquiry with respect to any Constituent, including with respect to any publicly-available information that is disclosed in the applicable Index Methodology with respect to any Constituent. Consequently there can be no assurance that all events have been disclosed which would affect the performance of the Index or the value of any Index Linked Product.

## **6. EFFECT OF FEES**

The Index Level may include a deduction of notional fees, as described in the applicable Index Methodology. Any such deduction of notional fees will result in the Index underperforming a hypothetical investment portfolio from which no such deduction is made.

## **7. EFFECT OF NOTIONAL COSTS**

The Index Level may include a deduction of notional costs (which may be referred to as a notional cost, charge, spread or similar term), as described in the applicable Index Methodology. Any such deduction of notional costs will result in the Index underperforming a hypothetical investment portfolio from which no such deduction is made.

## **8. DISRUPTION TO THE INDEX**

Certain events may affect the calculation of the Index and the Index Level. These events, which are described elsewhere in the Index Conditions, may have consequences including:

- (a) the Index Calculation Agent following the relevant process described in Section B (*Valuations and Adjustments*);
- (b) the Index Calculation Agent exercising certain discretions conferred by the Index Conditions;
- (c) the Index Calculation Agent suspending the calculation, publication and dissemination of the Index and the Index Level;
- (d) the Index Sponsor making a modification or change to the Index Conditions; and
- (e) the Index Sponsor discontinuing and cancelling the Index.

Unless otherwise stated, the Index Sponsor has no obligation to inform any person of the result of any action taken on the occurrence of such events.

The occurrence or existence of Disrupted Days may also result in the calculation, publication and dissemination of the Index being postponed to a later time than as provided in the Index Conditions or as is customary of the Index.

## **9. INDEX SPONSOR AND INDEX CALCULATION AGENT**

These Index General Conditions confer on the Index Sponsor and the Index Calculation Agent a degree of discretion in making certain determinations and calculations, for example in connection with the occurrence of disruptions and adjustments. Although each of the Index Sponsor and the Index Calculation Agent will act in good faith and in a commercially reasonable manner, the exercise of any such discretion may have an adverse effect on the Index Level and therefore may have an adverse effect on the value of any Index Linked Product.

## **Section D: Definitions**

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# Definitions

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References to the “**applicable Index Methodology**” are references to the Index Methodology relating to the relevant Index which together with these Index General Conditions completes the Index Conditions for such Index.

References to a “Section” shall be references to a section of these Index General Conditions.

References to a “Part” shall be references to a part of the applicable Index Methodology.

“**Adjustment Event**” shall, in respect of a Constituent, have the meaning given to it in the Constituent Schedule.

“**Affiliate**” shall mean, in respect of a person, any entity controlled (directly or indirectly) by such person, any entity which controls (directly or indirectly) such person or any entity (directly or indirectly) under common control with such person. For this purpose, “control” of any person or entity shall mean the ownership or a majority of the voting power of such person or entity.

“**Amount**” shall have the meaning given to it in Section E (*Miscellaneous*).

“**Calculations**” shall have the meaning given to it in Section E (*Miscellaneous*).

“**Citi**” shall mean Citigroup Inc. and its Affiliates.

“**Constituent**” shall mean each Constituent of the Index specified as such in, or determined in accordance with, the applicable Index Methodology and the Index General Conditions.

“**Constituent Closing Level**” shall, in respect of a Constituent, have the meaning given to it in the Constituent Schedule.

“**Disrupted Day**” shall, in respect of a Constituent, have the meaning given to it in the Constituent Schedule.

“**Electronic Page**” shall mean, in respect of a Constituent, (1) the electronic page or source specified for such Constituent in the applicable Index Methodology, or (2) if no such electronic page or source is so specified for such Constituent, such Bloomberg or Reuters page or other widely recognised source of financial data as the Index Calculation Agent may determine appropriate, or (3) in any such case, any successor electronic page or source that has been designated by either (a) the sponsor of the original electronic page or source; or (b) the relevant information vendor or provider of the original electronic page or source; or (4) any alternative electronic page or source of financial data that may be designated by the Index Calculation Agent, provided that such page or source is widely recognised by participants in the relevant market.

“**Factor**” shall mean each factor comprising one or more Constituents, as described in Part D (*Calculation of the Index Level*) of the applicable Index Methodology.

“**Factor Level**” shall mean, in respect of a Factor, the level of such Factor, as determined in accordance with Part D (*Calculation of the Index Level*) of the applicable Index Methodology.

“**Index Business Day**” shall have the meaning given to it in the applicable Index Methodology.

“**Index Calculation Agent**” shall mean the person specified as such in the applicable Index Methodology and appointed by the Index Sponsor, any successor to such person, or any alternative calculation agent appointed by the Index Sponsor.

**“Index Conditions”** shall mean, in respect of the Index, these Index General Conditions together with the applicable Index Methodology.

**“Index Electronic Page”** shall mean (1) the electronic page or source specified as such in Part B (*Key Information*) of the applicable Index Methodology, or (2) any successor electronic page or source that has been designated by either (a) the sponsor of the original electronic page or source; or (b) the relevant information vendor or provider of the original electronic page or source; or (3) any alternative electronic page or source designated by the Index Sponsor.

**“Index Launch Date”** shall mean the date specified as such in the applicable Index Methodology.

**“Index Level”** shall mean, in respect of an Index Business Day, the closing level of the Index as of the Index Valuation Time on such Index Business Day.

**“Index Linked Product”** shall mean any security, contract or other financial product the return on which is linked to the performance of the Index.

**“Index Sponsor”** shall mean the person specified as such in the applicable Index Methodology or any successor to or assignee of such person.

**“Index Start Date”** shall mean the date specified as such in the applicable Index Methodology.

**“Index Start Level”** shall mean the Index Level on the Index Start Date, as specified in the applicable Index Methodology.

**“Index Valuation Time”** shall have the meaning given to it in the applicable Index Methodology.

**“Information”** shall have the meaning given to it in Section E (*Miscellaneous*).

**“Scheduled Valuation Date”** shall mean each date specified as such in the applicable Index Methodology.

**“Valuation Date”** shall mean each Scheduled Valuation Date as adjusted in accordance with Section B (*Valuations and Adjustments*).

**“Valuation Roll”** shall mean the number specified as such in the applicable Index Methodology.

## **Section E: Miscellaneous**

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# Miscellaneous

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## 1. CALCULATIONS AND DETERMINATIONS

### (a) *General*

The Index Calculation Agent will perform all calculations, determinations, rebalancings and adjustments (together, “**Calculations**”) in respect of the Index. Neither the Index Calculation Agent nor the Index Sponsor will have any responsibility for errors made in good faith or omissions in Calculations or other actions as provided in the Index Conditions.

The Calculations of the Index Calculation Agent shall be performed by it in accordance with the Index Conditions, acting in its sole, absolute and unfettered discretion, but in good faith and in a commercially reasonable manner (having regard in each case to the criteria stipulated in the Index Conditions and, where relevant, on the basis of information provided to or obtained by employees or officers of the Index Calculation Agent responsible for making relevant Calculations). All Calculations shall, in the absence of manifest error, be final, conclusive and binding on any user of the Index, including any holder of, or counterparty to, an Index Linked Product.

Although the Index Conditions are intended to be comprehensive, it is possible that ambiguities, errors and omissions may arise in certain circumstances. The Index Sponsor will resolve, acting in good faith and in a commercially reasonable manner, any such ambiguity, error or omission, and may amend the Index Conditions to reflect the resolution of such ambiguity, error or omission in a manner which is consistent with the commercial objective of the Index.

### (b) *Rounding*

Subject as provided in the applicable Index Methodology, any amount, currency amount, level, percentage, price, rate or value (“**Amount**”) calculated by the Index Calculation Agent shall be rounded to such number of decimal places and in such manner as the Index Calculation Agent determines is appropriate, acting in a commercially reasonable manner.

### (c) *Use of estimates*

The Index Calculation Agent will perform the Calculations described in the Index Conditions using the information, data sources or factors specified in these Index Conditions and any Amount (together, “**Information**”) and may perform any Calculation and any action required in respect of the Index Conditions in any sequence. However, in the event that the Index Calculation Agent is not able to obtain or use any necessary Information, then (after using reasonable endeavors and after applying any fallback provision specified in the Index Conditions in respect of the relevant Calculation) the Index Calculation Agent may, but shall not be obliged to, use its estimate (made in good faith and in a commercially reasonable manner) of the relevant Information in performing such Calculation, should the Index Calculation Agent determine that such estimate is reasonably necessary in order to give effect to any provision or to perform any Calculation necessary under the Index Conditions.

### (d) *No verification of Information*

Although the Index Calculation Agent will obtain Information for inclusion in the Index or for use in performing any Calculation under the Index Conditions from sources that the Index Calculation Agent considers reliable (including databases maintained by the Index

Calculation Agent or its Affiliates, and public sources such as Bloomberg and Reuters), the Index Calculation Agent will not publish or independently verify such Information.

(e) *Corrections*

Subject as provided in the applicable Index Methodology and any Correction Period specified, if the Index Calculation Agent becomes aware that any Information used by it in connection with any Calculation under the Index Conditions has subsequently been corrected or adjusted, then the Index Calculation Agent shall, if the Correction Period does not include a Rebalancing Date, use such corrected or adjusted Information and as a consequence make any further Calculation that it determines necessary or desirable in order to give effect to or to reflect such corrected or adjusted Information, including without limitation any redenomination, exchange or conversion of any currency into a successor currency. If the Correction Period includes a Rebalancing Date, the Index Calculation Agent may, but shall not be obliged to, use such corrected or adjusted Information and in exercising such discretion, the Index Calculation Agent will act in good faith and in a commercially reasonable manner that is consistent with the primary objective of the Index.

(f) *Reliance*

In performing any Calculation under the Index Conditions, the Index Calculation Agent may rely upon the opinion of any person who appears to it as being competent to value any asset or instrument of any class, or to perform any other calculation or determination, by reason of any appropriate relevant professional qualification or experience.

(g) *Not acting as fiduciary or agent*

In performing any Calculation or other action in connection with the Index Conditions, each of the Index Calculation Agent and the Index Sponsor will act as principal and not as agent of any other person. Neither the Index Calculation Agent nor the Index Sponsor owes any duty of care or any fiduciary duty to any investor in any Index Linked Product or to any other person. Each Calculation and other action performed in connection with the Index Conditions by the Index Calculation Agent or the Index Sponsor is performed in reliance on this provision and is subject to this provision.

If through performing any such Calculation or other action the Index Calculation Agent or the Index Sponsor is rendered an agent or fiduciary of another person under applicable law, then (at the option of the Index Calculation Agent or the Index Sponsor, as relevant) the rights and obligations of the Index Calculation Agent or the Index Sponsor to perform such Calculation or other action may be suspended (or, if already performed, the application of such Calculation or other action may be suspended) until such time when such Calculation or other action can be performed either by the Index Calculation Agent or the Index Sponsor as principal and not as an agent or fiduciary or by an appropriate third party who is both willing and able to perform such Calculation or other action.

(h) *Dates and times of calculations*

Notwithstanding that certain Calculations under the Index Conditions may be expressed to be “on” or “as at” a certain date or time, the Index Calculation Agent may in its discretion perform such Calculation in respect of such date or time after such date or time.

## 2. **CONFLICTS OF INTEREST**

Citi entities perform various roles in connection with the Index and Index Linked Products, and conflicts of interest may arise for any such entity as a consequence of any role it performs in connection with the Index or any Index Linked Product or as a consequence of its activities more generally.

During the normal course of their business, the Index Sponsor, the Index Calculation Agent, any of their respective Affiliates, directors, officers, employees, representatives, delegates and agents (each, for the purposes of this Section E, a “**Relevant Person**”) may enter into, promote, offer or sell securities or contracts (whether or not structured) linked to the Index and/or any Constituent. Any Relevant Person may at any time (a) have long or short principal positions or actively trade (whether or not through making markets to its clients) positions in or relating to the Index or any Constituent; (b) invest in or engage in transactions with or on behalf of other persons relating to the Index and/or any Constituent; (c) undertake hedging transactions (for the purposes of any security or contract) which may adversely affect the level, price or rate or other factor underlying the Index and/or any Constituent; (d) have an investment banking or commercial relationship with the issuer of any Constituent and have access to information from any such issuer; or (e) publish research in respect of any Constituent or the issuer of any Constituent. Such activity may or may not affect the Index Level, but potential investors and counterparties should be aware that a conflict of interest may arise when a person acts in more than one capacity, and such conflict of interest may affect (whether in a positive manner or a negative manner) the Index Level.

### **3. DISCLAIMER**

No Relevant Person makes any express or implied representation or warranty as to (a) the advisability of purchasing or entering into any Index Linked Product; (b) the levels of the Index at any particular date or time; (c) the results to be obtained from the use of the Index or any datum included in the Index Conditions for any purpose; or (d) any other matter. Each Relevant Person hereby expressly disclaims, to the fullest extent permitted by applicable law, all warranties of accuracy, completeness, merchantability or fitness for a particular purpose with respect to the Index and any information contained in the Index Conditions. No Relevant Person will have any liability (direct or indirect, special, punitive, consequential or otherwise) to any person even if notified of the possibility of damages.

The Index Conditions have been prepared solely for the purposes of information and nothing in the Index Conditions constitutes (a) an offer to buy or to sell any security or contract, to participate in any transaction or to adopt any investment strategy; or (b) legal, tax, regulatory, financial or accounting advice. Any decision to purchase any Index Linked Product should be based on the information contained in the associated prospectus or offering document (however described). In the case of a prospectus or offering document which contains provisions under the heading “Risk Factors”, “Investment Considerations” or the equivalent, please refer to these provisions for a discussion of the factors that must be considered in connection with an investment in the security or contract described therein.

Neither the Index Calculation Agent nor the Index Sponsor is under any obligation to continue to calculate, publish or disseminate the Index or the Index Level.

### **4. INTELLECTUAL PROPERTY**

The Index and the Index Conditions (including for the avoidance of doubt these Index General Conditions) are the Index Sponsor’s proprietary and confidential material. No person may reproduce or disseminate the information contained in the Index Conditions, the Index or the Index Level without the prior written consent of the Index Sponsor. These Index General Conditions and each Index Methodology are not intended for distribution to or use by any person in a jurisdiction where such distribution is prohibited by applicable law or regulation.

The Index is not in any way sponsored or promoted by any sponsor or issuer, as relevant, of any Constituent.

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## **Section F: Constituent Schedule**

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# Constituent Schedule

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## ALL CONSTITUENTS

This Constituent Schedule shall apply to each Constituent.

References to a “Paragraph” shall be references to a paragraph of this Constituent Schedule and references to a “Sub-paragraph” shall be references to a sub-paragraph of this Constituent Schedule.

### 1. VALUATIONS

#### *Closing valuations*

“**Constituent Closing Level**” shall mean, in respect of a Constituent and a Valuation Date for such Constituent, and unless otherwise specified in the applicable Index Methodology, the official closing level or the mid price, as applicable, of such Constituent on such Valuation Date (or, where the level or price of such Constituent is only published once a day, the level or the mid price, as applicable, of such Constituent for such Valuation Date), as displayed on the applicable Electronic Page.

### 2. DISRUPTION TO VALUATION

“**Disrupted Day**” shall mean, in respect of a Constituent, any Scheduled Trading Day for such Constituent on which the level or price (as applicable) of such Constituent is not published or ceases to be calculated by either the relevant Constituent Sponsor or any agent appointed by it for such purpose.

### 3. ADJUSTMENTS AND MODIFICATIONS AFFECTING CONSTITUENTS

#### (a) *Successor Constituent and Successor Constituent Sponsor*

If a Constituent is (i) not calculated and announced by the relevant Constituent Sponsor but is calculated and announced by a successor sponsor acceptable to the Index Calculation Agent; or (ii) replaced by a successor constituent using, in the determination of the Index Calculation Agent, the same or a substantially similar formula for and method of calculation as used in the calculation of the relevant Constituent, then in each case that constituent (the “**Successor Constituent**”) will be deemed to be the relevant Constituent with effect from the date determined by the Index Calculation Agent who may, in a manner consistent with the primary objective of the Index, make such adjustment(s) to the Index Conditions as it determines appropriate to account for such change.

#### (b) *Adjustment Event*

“**Adjustment Event**” shall mean, in respect of a Constituent, (i) the occurrence of a material change in the formula for or method of calculating that Constituent (a “**Constituent Modification**”), (ii) the occurrence of five consecutive Disrupted Days in respect of such Constituent (a “**Constituent Extended Disruption**”), or (iii) a permanent cancellation of such Constituent and no Successor Constituent exists (a “**Constituent Cancellation**”) and, together with a Constituent Modification and a Constituent Extended Disruption, each a “**Constituent Adjustment Event**”).

#### 4. DEFINITIONS

**“Constituent Sponsor”** shall mean, in respect of a Constituent, the corporation or other entity which (a) is responsible for setting and reviewing the rules and procedures and methods of calculations and adjustments, if any, related to such Constituent; and (b) announces (directly or through an agent) the level or price (as applicable) of such Constituent on a regular basis.

**“Scheduled Trading Day”** shall mean, in respect of a Constituent, any day on which the Constituent Sponsor in respect of such Constituent is scheduled to publish the level or price (as applicable) of such Constituent.