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CREDIT SUISSE

The Credit Suisse Index Framework - Listed Markets
Operating Manual

A. Core Index Methodology

Sep-18

Each index described under the Credit Suisse Index Framework - Listed Markets (the "Framework", and each such index, an "Index") is documented by two separate master sections, which together constitute the "Index Operating Manual" for such Index. This Framework supersedes the previous Credit Suisse Commodity Index Framework; and references in any other document to such previous Framework shall be deemed to be a reference to this Framework and to the relevant Sections herein. The Framework is updated from time to time, whereby such updated version shall supersede prior ones. The latest Framework document is published on the Credit Suisse Websites (further details in section Index Publication herein).

- The **Core Index Methodology** is a common document to all Indexes designed in the Framework. It provides an overall description of the Framework, describes the meaning of Key Index Terms, specifies the Calculation Engine referenced by the Index and provides definitions for these terms and notions used throughout the documentation. This section proposes an in-depth technical description of the calculations performed for all Indices under the Framework, regardless of the specific static data associated with each version of the Index.

  The **Index Parameters** section provides specific details regarding parameters used for a particular version of an Index and the selected Calculation Engine in use for such index, and where applicable supersedes generic definitions given herein.

Summary

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Executive Summary - General Framework Characteristics

Main Characteristics

- The Credit Suisse Index Framework - Listed Markets ("Framework") is composed of three Calculation Engines as defined in the following Sections:
  - 6.1. Long-Only Forward/Futures based calculation methodology (the "Long-Only Forward/Futures Calculation Engine"). The composition of an index is vertical (Index Components representing certain futures markets) and horizontal (Curve Segments). The Framework allows the inclusion of all Index Components defined in the Index Components Universe. The horizontal structure allows the decomposition of the forward curves per Curve Segments, where relevant,
  - 6.2. Index of Indices calculation methodology (the "Index of Indices Calculation Engine")
  - 6.3. Generic Basket of Assets calculation methodology (the "Generic Basket of Assets Calculation Engine")

The universe of Index Components

- The universe of Index Components (the "**Index Component Universe**") is defined as a result of the selection process run annually. To be eligible for inclusion, all potential Index Components must satisfy a series of criteria.
- The Index Components are selected based on a list of technical primary criteria, such as exchange facility location, currency, etc.
- The Index Components must also pass a number of liquidity thresholds, where liquidity is defined as a function of Average Open Interest (which represents the average of the open positions in a futures contract on the relevant exchange) and Average Daily Volume (which represents the daily average number of transactions relating to a futures contract on the relevant exchange).
- Changes to the composition of the Index Component Universe are proposed by the Index Advisory Committee and approved by the Index Approval Committee,
- From time to time, the Index Approval Committee can decide to exclude an Index Component from the Index Component Universe if it deems such action necessary. All such actions follow the recommendation of the Index Advisory Committee.

Index Approval and Advisory Committees

- Any amendments to the Core Index Methodology and/or Index Parameters documents are proposed by the Index Advisory Committee via its members. The proposed changes are approved or rejected by the Index Approval Committee and are documented in the relevant Index Operating Manual.

Index documentation: structure of the Index Operating Manual

- Each Index described under the Framework is documented by two separate master sections: a section A. called Core Index Methodology which is common to all Indices, and a Section B. called the "**Index Parameters**" which is specific to a given version of the Index calculation.
- The Core Index Methodology provides an in-depth technical description of the calculations performed by all Indices under the Framework, regardless of the specifics of the Index. In addition, it describes the function of the Index Approval Committee and the meaning of Key Index Terms and provides definitions for terms and notions used throughout the documentation.
- The section called Index Parameters provides parameters specific to an Index, and where applicable supersedes generic definitions given in the Core Index Methodology.

Universe of Underlying Commodity Index Components

The 2018 universe of futures/forward Underlying Commodity Index Components is defined as per Table I below. Please refer to Section A.4. Universe of Index Components, for further information about the selection process.

TABLE I. ELIGIBLE UNDERLYING COMMODITY INDEX COMPONENTS

Exchange Commodity Component	Exchange/ Sponsor	Framework Index Ticker	Reuters Ticker	Bloomberg Ticker	Master categories
Energy					
WTI Crude Oil	NYMEX	CL	CL	CL	Oil
WTI Crude Oil	ICE	WT	WTCL	EN	Oil
Oman Crude Oil	DME	OQ	1OQ	OQ	Oil
Brent Crude Oil	ICE	BR	LCO	CO	Oil
Coal API #2	ICE	C2	ATW,ATWQ,ATWY(1)	XA,XE,TM	Coal
NY Harbor ULSD	NYMEX	HO	HO	HO	Oil
Gasoil	ICE	GO	LGO	QS	Oil
RBOB Gasoline	NYMEX	RB	RB	XB	Oil
Natural Gas	NYMEX	NG	NG	NG	NatGas
Ind. Metals					
Copper high grade	COMEX	HG	HG	HG	Copper
Copper grade A.	LME	CU	MCU	LP	Copper
Zinc high grade	LME	ZN	MZN	LX	Zinc
Aluminium primary	LME	AL	MAL	LA	Aluminium
Nickel primary	LME	NI	MNI	LN	Nickel
Tin	LME	SN	MSN	LT	Tin
Lead standard	LME	PB	MPB	LL	Lead
Prec. Metals					
Gold	COMEX	GC	GC	GC	Gold
Silver	COMEX	SI	SI	SI	Silver
Platinum	NYMEX	PL	PL	PL	Platinum
Palladium	NYMEX	PA	PA	PA	Palladium
Agriculture					
SRW Wheat	CBOT	WH	W	W_	Wheat
HRW Wheat	KCBOT	KW	KW	KW	Wheat
Euro. Milling Wheat	EURONEXT NYSE	CA	BL2	CA	Wheat
Corn	CBOT	CN	C	C_	Corn
Soybeans	CBOT	SY	S	S_	Soybean
Soybean Meal	CBOT	SM	SM	SM	Soybean
Soybean Oil	CBOT	BO	BO	BO	Soybean
Sugar #11	ICE	SB	SB	SB	Sugar
Sugar #5	EURONEXT NYSE	WS	LSU	QW	Sugar
Cocoa	ICE	CC	CC	CC	Cocoa
Cocoa	EURONEXT NYSE	QC	LCC	QC	Cocoa
Coffee "C" Arabica	ICE	KC	KC	KC	Coffee
Coffee Robusta	EURONEXT NYSE	RC	LRC	DF	Coffee
Cotton	ICE	CT	CT	CT	Cotton

Source: Credit Suisse, "_" denotes a space

(1): "Q" are Quarterly Futures contracts, and "Y" are Calendar Futures contracts,

TABLE I. ELIGIBLE UNDERLYING COMMODITY INDEX COMPONENTS (CONT.)

Exchange Commodity Component	Exchange/ Sponsor	Framework Index Ticker	Reuters Ticker	Bloomberg Ticker	Master Category
Rubber	TOCOM	RU	JRU	JN	Rubber
Canola	ICE Canada	RS	RS	RS	Canola
Random L. Lumber	CME	LB	LB	LB	Lumber
Rough Rice	CBOT	RR	RR	RR	Rice
Spring Wheat	MGE	MW	1MWE	MW	Wheat
Oats	CBOT	OA	O	O_	Oats
Rapeseed	EURONEXT NYSE	IJ	COM	IJ	Rapeseed
F.C. Orange Juice (A)	ICE	OJ	OJ	JO	Orange Juice
Livestock					
Live Cattle	CME	LC	LC	LC	Cattle
Feeder Cattle	CME	FC	FC	FC	Cattle
Lean Hogs	CME	LH	LH	LH	Hogs
Other Prec. Metals					
Gold	TOCOM	TG	JAU	JG	Gold
Silver	TOCOM	TS	JSV	JI	Silver
Platinum	TOCOM	TP	JPL	JA	Platinum
Palladium	TOCOM	TA	JPA	JM	Palladium

Source: Credit Suisse

The inclusion of an Index Component in the Index Component Universe does not automatically constitute its inclusion in an Index supported by the Framework.

Universe of Financial Index Components

The 2018 universe of Financial Index Components is defined as per Table III below. Please refer to Section A.4.5. Universe of Index Components, for further information about the selection process for the Financial Index Component Universe.

TABLE III. ELIGIBLE INDEX COMPONENTS – FINANCIAL UNIVERSE

Exchange Commodity Component	Exchange/ Sponsor	Framework Index Ticker	Reuters Ticker	Bloomberg Ticker	Comment (Source, etc..)
Foreign Exchange		FX			
Australian Dollar	CME	AD	AD	AD	Chicago Merc. Exch.
British Pound	CME	BP	BP	BP	Chicago Merc. Exch.
Canadian Dollar	CME	CD	CD	CD	Chicago Merc. Exch.
Euro	CME	EC	UR	EC	Chicago Merc. Exch.
Japanese Yen	CME	JY	JY	JY	Chicago Merc. Exch.
Mexican Peso	CME	MP	MP	PE	Chicago Merc. Exch.
Swiss Franc	CME	SF	SF	SF	Chicago Merc. Exch.
New Zealand Dollar	CME	NV	NE	NV	Chicago Merc. Exch.
Interest Rates		IR			
Eurodollar (3 Month)	CME	ED	ED	ED	Chicago Merc. Exch.
Euribor 3 Month	LIFFE | ICE	EB	FEI	ER	London Inter. Fin. Fut Exch. | ICE from Jan 26, 2015
90 Day Sterling	ICE	L_	FSS	L_	ICE
Euroyen (3 Month)	TIFFE	YE	JEY	YE	Tokyo Inter. Fin. Fut. Exch.
90 Day Bank Accepted Bills	ASX	IR	YBA	IR	Australian Stock Exch.
Euro German Schatz	EUREX	DU	FGBS	DU	EUREX
Euro German Bobl	EUREX	OE	FGBM	OE	EUREX
Euro German Bund	EUREX	RX	FGBL	RX	EUREX
Euro German Buxl	EUREX	UB	FGBX	UB	EUREX
Euro French OAT	EUREX	OAT	FOAT	OAT	EUREX
Euro Italian BTP Long-Term	EUREX	IK	FBTP	IK	EUREX
Long Gilt	LIFFE | ICE	LG	FLG	G_	London Inter. Fin. Fut Exch. | ICE from Jan 26, 2015
10 Year JGB (Japan)	OSE	JB	JGB	JB	Osaka Stock Exchange
3 Year Commonwealth Bond Future (Australia)	ASX	YM	YTT	YM	Australia Stock Exch.
10 Year Commonwealth Bond Future (Australia)	ASX	XM	YTC	XM	Australian Stock Exch.
3 Year KTB Future Contract (South Korea)	KRX	KE	KTB	KE	South Korea Exchange
10 Year KTB Future Contract (South Korea)	KRX	KAA	KTB	KAA	South Korea Exchange
Treasury Note 2 Year	CME	TU	TU	TU	Chicago Merc. Exch.
Treasury Note 5 Year	CME	FV	FV	FV	Chicago Merc. Exch.
Treasury Note 10 Year	CME	TY	TY	TY	Chicago Merc. Exch.
Treasury Bond 30 Year	CME	US	US	US	Chicago Merc. Exch.

Source: Credit Suisse. The character '_' denotes a space.

TABLE III. ELIGIBLE INDEX COMPONENTS – FINANCIAL UNIVERSE (CONT.)

Exchange Commodity Component	Exchange/ Sponsor	Framework Index Ticker	Reuters Ticker	Bloomberg Ticker	Comment (Source, etc..)
Equity Markets		EQ			
DAX Index	EUREX	GX	FDX	GX	EUREX
FTSE 100 Index	LIFFE	FT	FFI	Z_	London Inter. Fin. Fut Exch. | ICE from Jan 26, 2015
Nikkei 225 Index	CME	NX	NK	NX	Chicago Merc. Exch.
Nikkei 225 Index	OSE	NK	JNI	NK	Osaka Stock Exchange
Nasdaq 100 E-Mini Futures	CME	NQ	NQ	NQ	Chicago Merc. Exch.
S&P 500 Mini Stock Index	CME	ES	ES	ES	Chicago Merc. Exch.
Russell 2000 Index	ICE	R2	TFS	RTA	Inter. Cont. Exch.
TOPIX	OSE	TP	1JTI	TP	Osaka Stock Exchange
Hang Seng	HKG	HI	1HSI	HI	Hong Kong Futures Exchange
STOXX 50	EUREX	VG	STXX	VG	EUREX
CAC 40	EOP	CF	FCE	CF	Euronext Derivatives Paris
AEX	TOM	EO	AEX	EO	TOM MTF
SMI	EUREX	SM	FSMI	SM	EUREX
OMX 30	SSE	QC	OMXS30	QC	OMX Nordic Exch. Stockholm
IBEX 35	MFM	IB	MFMI	IB	Meff Renta Variable (Madrid)
MIB	IDEM	ST	IFS	ST	Borsa Italiana

Source: Credit Suisse. The character '_' denotes a space.

Index Publication

The Index Calculation Agent publishes index levels created and maintained within the Framework. The Index Sponsor reserves the right to discontinue the publication of an Index created within the Framework.

Information relating to the Index is accessible via a wide range of sources, as described below.

Credit Suisse Websites

The Credit Suisse Indices website www.credit-suisse.com/indices contains historical prices for the indices since inception.

The Credit Suisse CSCB website www.cscbindex.com contains extensive information on the family of Credit Suisse Commodity Benchmark Indices including historical prices.

Credit Suisse Plus https://plus.credit-suisse.com/i/overview[1], Credit Suisse's research, analytics and online trading portal contains historical prices and analytics for the indices.

Market data vendors

Daily closing Index levels are made available via Reuters and Bloomberg. The precise Bloomberg tickers available for a particular version of the Index are defined in the relevant Index Parameters. Reuters RICs are available upon request.

[1] Access to Credit Suisse Plus requires a client registration

1. Key Index Terms and Definitions

1.1. Definitions

Term	Definition
CSi	Credit Suisse International, whose registered office is at One Cabot Square, London, E14 4QJ, United Kingdom
Index Approval Committee	A committee with membership comprising senior management within CSi and other appropriate representatives. The responsibilities of the Index Approval Committee are outlined in detail in the Section "The Index Operating Manual, the Index Approval and Index Advisory Committees"
Index Advisory Committee	In respect of an Index where CSi is the Index Sponsor, a committee with membership comprised of personnel within CSi and other appropriate representatives outside the organization relevant to such Index. The Index Advisory Committees are assigned with the task of advising on operational and technical aspects relating to a specific Index or Indices. The responsibilities of the Index Advisory Committees are outlined in detail in Section A.2.
Index Business Day	In respect of an Index, a day on which such Index is scheduled to be published as further defined in the relevant Index Parameter
Index Calculation Agent	Unless stated otherwise in the relevant Index Operating Manual, CSi, or any successor to CSi which continues to calculate the Index on behalf of the Index Sponsor. The Index Calculation Agent calculates and publishes the level of the Index in accordance with this Index Operating Manual
Index Closing Level	the official published closing level of an Index, calculated using the official exchange settlement prices and published by the Index Calculation Agent on an Index Business Day
Index Sponsor	Unless stated otherwise in the relevant Index Operating Manual, CSi, or any successor to CSi which continues to sponsor the Index. The Index Sponsor is responsible for approving certain actions under this Index Operating Manual, giving consideration if possible to any advice provided by the relevant Index Advisory Committee or the Index Approval Committee

1.2. Key Index Terms

Term	Definition
$Basis^{CCY}$	For a specified currency (CCY) the number of standard days used in interest calculations (please see Section A.6.1.4.1. Collateral Reference Rate)
Base Currency (BAS)	The base currency of an index as further defined in the relevant Index Parameters. If not defined in the Index Parameters, the BAS is US Dollar
$CACRR^{CCY}$	Credit Adjusted Collateral Reference Rate for the currency CCY
Calculation Date (t)	Any Index Business Day for which an official Index Closing Level is published
Calculation Engine	for an index supported by the Credit Suisse Index Framework, the combination of rules and formulaic calculations as defined in the following Sections: ▪ 6.1. Long-Only Forward/Futures based calculation methodology (the "Long-Only Forward/Futures Calculation Engine") ▪ 6.2. Index of Indices calculation methodology (the "Index of Indices Calculation Engine") ▪ 6.3. Generic Basket of Assets calculation methodology (the "Generic Basket of Assets Calculation Engine")
Calculation Period	In respect of a Static Data Calculation Date, the period from and including such Static Data Calculation Date, to but excluding the immediately following Static Data Calculation Date.
CCY	Currency code (US Dollars = USD, British Pound = GBP, Euro = EUR, etc.)
Disruption Event	Each event described as such in Section A.5.1 Index Disruption Events.
CreditAdjust	for a given currency CCY, a variable credit adjustment (or "spread") used to reflect any particular funding cost or rate differential applicable to a Government Signature. When a change in the level of *CreditAdjust* is deemed necessary to reflect the changes in the credit market, a proposal is made by the Index Advisory Committee and ratified by the Index Approval Committee (please see Section A.6.1.4.2. Daily Collateral Yield)
CRR or CRR^{CCY}	Collateral Reference Rate associated with the currency CCY (please see Section A.6.1.4.2. Daily Collateral Yield)
CLW	Component Liquidity Weight (CLW), calculated annually during the Weight Calculation Month (WCM). Component Liquidity Weights are defined as part of the general CSCB Curve Index weighting mechanism and are calculated for each Index Component included in the Index. They are the result of appreciation of relative component liquidity (please see Section A.3.7. Component Liquidity Weights (CLW))
Curve Segment (CS)	a particular section of the commodity forward curve Segment, as per Section A.6.1.1.3. Decomposition of the Commodity Forward Curve in Curve Segments (CS), and associated with the calculation of a Curve Segment Index via the Curve Segment Value (CSV)

Term	Definition
CSFEW	Curve Segment Forward Effective Weight, the specific forward (or "expected") weights associated with a given Curve Segment for a specified Calculation Date t for a subsequent Reference Period (usually m+1) and used in the determination of Nominal Weight Factors (Please see Section A.6.1.1.9.2. Calculation of Nominal Weight Factors for non forward Curve Rebalancing Months)
CSTW	Curve Segment Target Weight, the weights associated with a given Curve Segment for a specified Reference Period. CSTW are used in the determination of Nominal Weight Factors (Please see Section A.6.1.1.9.1. Calculation of Nominal Weight Factors for forward Curve Rebalancing Months)
CSV^m	Curve Segment Value, the dollar value associated with a given Curve Segment for a particular Calculation Date and Reference Period m
DCDI	Designated Commodity Derivative Instrument(s), for a given commodity and Curve Segment, the Futures contracts that can be referenced in a Curve Segment. These are defined for each commodity in the relevant Index Parameters, and are a function of the particular version of the Index
Disrupted Valuation Day	Any Index Business Day on which either (a) a Disruption Event has occurred and subsists or (b) any exchange on which any futures contract referenced (albeit notionally) as an underlying of an Index Component is quoted is not scheduled to be open, and is not open, for trading for its regular trading session.
Disruption Group	A group of Index Components in respect of which the occurrence of a Disrupted Valuation Day in respect of any one such Index Component will have an effect on the trading of the futures contracts underlying the other Index Components in such group, and all Index Components in such group will be 'Disrupted Index Components' in respect of such a Disrupted Valuation Day. Disruption Groups pertaining to a specific Index are specified in the relevant Index Parameters.
DCDI Evaluation Segment (also DCDIES)	a particular section of the commodity forward curve Segment for the unique purpose of the determination of Designated Commodity Derivatives Instruments (DCDI). A DCDI Evaluation Segment forms part of a Curve Segment, and there can be more than one DCDIES in each Curve Segment
ER	Excess Return, in respect of a version of the Index is a measure of uncollateralized returns of the Index (see calculation considerations in Section A.6.1.3. The Excess Return Index (Index-ER))
Financial Index Component	An underlying component of an Index which is a financial futures contract and which is contained in the Financial Index Component Universe.
First Roll Date	The first Index Business Day of the Roll Period (see Roll Period), as specified in the relevant Index Parameters
Forward Effective Weights (FEW)	for a given Curve Segment, a measure of expected weights used in the determination of Nominal Weights (NW) for the Reference Period on the Static Data Calculation Date (SDCD). Also see Section A.6.1.1.8. Rebalancing and re-weighting: calculation of Nominal Weights

Term	Definition
FX (also FXUSD-CCY,t)	The foreign exchange rate between the US Dollar and currency CCY on date t, expressed in units of target currency CCY per US dollars. Please refer to the relevant Index Parameters for the specific definition and price source of this parameter
FXHR	the "FX Hedged" Excess Return for a currency CCY on date t
Government Signature	In respect of a given currency CCY, any debt security that is issued by a government entity of the country of such currency (or in the case of Euros, any government entity of a Eurozone country).
Inclusion Factors, (I)	determines whether a commodity or curve segment is included. 1 indicates inclusion whereas 0 indicates exclusion
Index	a given calculated version of an Index which is calculated and maintained according to the rules of the Framework
(Index) Allocation Model (also Weighting Engine)	A model determining the selection and weighting of Index Components as described in the relevant Index Parameter
Index Component c	An underlying component of an Index, being either an Underlying Commodity Index Component, an Excess Return Index, or a Financial Index Component.
Index Continuity Factor (ICF) (also $ICF^{m}_{c,CS,t,Index}$) (also $ICF^{m}_{c,t,Index}$))	a factor calculated on the Static Data Calculation Date and applied to the Normalising Constant (N) in respect of the current Reference Period m for a given Index in for the purpose of calculating the Normalising Constant for the following Reference Period m+1
Index Pricing Instrument (IPI)	In respect of an Index Component, the actual instrument referenced in the calculation of the Index. IPIs are generally determined via two main methodologies: Standard IPI Designation Procedures & Alternative IPI Designation Procedure. Please refer to Section A.6.1.1.0. Technical summary.
Index Pricing Instrument Price (IPIP)	the Index Pricing Instrument (IPI) Settlement Price (or closing price as appropriate) made available by the exchange or trading facility for a given IPI and used in the determination of the Index for a given Calculation Date t
Index Pricing Instrument Nominal Weight (IPINW)	the Nominal Weight associated to a specific IPI in a given Curve Segment

Term	Definition
Index Pricing Instrument Target Weight (IPITW)	the Target Weight associated with a specific IPI in a given Curve Segment for a given Reference Period m
Investment Basket (IB) (also $IB^{m}_{CS,p,w}$)	a weighted basket of Index Pricing Instruments. It is defined as the sum of Curve Segment Values (CSV) for a given Curve Segment (CS)
Investment Basket Return (IBR) (also $IBR^{m}_{CS,p,w}$) (also $IBR^{m}_{p,w}$))	the return generated on a given Investment Basket for a given Calculation Date t and Reference Period m. Please refer to the generic form of IB used in the calculation of the Price Return Index and the Excess Return Index in formula (A.6.1.17) for Curve Segment Indices, and formula (A.6.1.19) for Forward Curve Indices
Investment Support Level	a test performed at each Weight Calculation Month in order to assure that significant flows are distributed in a manner which takes into account the underlying liquidity of the market for each Commodity Index Component (for the Credit Suisse Commodity Benchmark Index, please refer to Section B.1.2.1. STEP 4).
Investment Support Level Amount	the notional amount used in the calculation of the Investment Support Level for each Commodity Index (for the Credit Suisse Commodity Benchmark Index, please refer to Section B.1.2.1. STEP 4)
Last Roll Date	The last Index Business Day of the Roll Period (see Roll Period), as specified in the relevant Index Parameters
Licence Disruption Event	the termination or suspension of any licence held by the Index Sponsor or Index Calculation Agent as licensee and used for any Index Component, other than the termination or suspension of a licence that (i) the Index Sponsor did not at the time of termination or suspension use to a substantial degree in connection with its business as a dealer in securities other than in connection with inclusion of the related Index Component in the Index (or similar indices), and (ii) is terminated or suspended by reason of action taken by the Index Sponsor that has as a significant purpose removing the related Index Component from the Index (or similar indices) (each relevant Index Component, an "Affected Index Component")
Marginal Inflow Amount (MIA)	the notional amount used in the calculation of the Marginal Inflow test for each Underlying Commodity Index Component (for the Credit Suisse Commodity Benchmark Index, please refer to Section B.1.2.1. STEP 5)
Master Category	A list of Underlying Commodity Index Components which are grouped together (see "Universe of Underlying Commodity Index Components" Table I) based on criteria such as the following: 1) the relevant IPIs represent the same commodity trading in different regions, or 2) the relevant IPIs represent the same commodity trading in different markets, or 3) the relevant IPIs represent commodities derived via an industrial process from the same primary products

Term	Definition
Index Pricing Instrument Target Weight (IPITW)	the Target Weight associated with a specific IPI in a given Curve Segment for a given Reference Period m
Nominal Weight Factors (NWF) (also $NWF^{m}_{c,CS}$) (also $NWF^{m+1}_{c,CS}$)	a non-dimensional quantity associated with an Index Component c, a Curve Segment CS and Reference Period m, and calculated on the Static Data Calculation Date (SDCD) for the purpose of representing a particular Curve Segment Target Weight (CSTW). (Also see Section A.6.1.1.9. Calculation of Nominal Weight Factors (NWF), for further details)
Normalising Constant (N) (also N^{m}_{Index})	The value applicable to a Normalising Constant associated to a given Index for the Reference Period m
Open Interest Proportion (OIP) (also OIPCLW) (also OIPDPDPLW)	generally, the proportion assigned in percentage to the Open Interest Weight in a combined liquidity indicator such as Component Liquidity Weight (CLW) or Daily Physical Delivery Period Liquidity Weight (DPDPLW). In the case of CLW, the Open Interest Proportion is set to 75%. In the case of DPDPLW, the Open Interest Proportion is set to 50%, this to put more emphasis on daily transaction volume. (Also see Section A.3.7. Component Liquidity Weights (CLW), and Section A.3.8. Physical Delivery Period Liquidity Weights (PDPLW), for further details)
Physical Delivery Period (PDP)	a notional calendar (monthly) physical delivery leading to the definition of Physical Pricing Instrument
Physical Delivery Period Liquidity Weight (PDPLW)	the percentage weight attributable to a monthly section of the forward curve as a proportion to the entire curve liquidity and used in the determination of IPITW (for the CSCB, please see Section B.1.3.1. Calculation of Physical Delivery Period Liquidity Weights (PDPLW)
Physical Pricing Instrument (PPI)	for a given commodity, the Derivative Instrument typically used by physical market participants in the pricing of physical transactions for a given delivery period. The PPIs are common to all versions of the Index and constitute a reference point for the determination of Index Pricing Instrument from which Index levels derive (also see Section A.6.1.1.1.1. Physical Pricing Period (PPP) and Physical Pricing Instruments (PPI))
PR	Price Return Index (also commonly known as Spot indices), in respect of a version of the Index, is a measure of price levels associated with the Index. As opposed to Excess Return indices, Price Return Indices are traditionally "non tradable" as they feature discontinuity during the roll periods

Term	Definition
QIPINW	A constant assigned to the Pivot Index Pricing Instrument Nominal Weight in the process leading the IPINWs. The value of the constant is 1 (see Section A.6.1.1.7. Calculation of Index Pricing Instrument Nominal Weights (IPINW))
Q_{NW}	A constant assigned to the Pivot commodity in the process leading the NWs. The value of the constant is 10000 (see Section A.6.1.1.8. Rebalancing and re-weighting: calculation of Nominal Weights)
Rate Type	The type of interest rate (T-Bill or Money Market) applied in the calculation of the Daily Collateral Yield for a given currency CCY as defined in Section A.6.1.4.2. Daily Collateral Yield
Reference Index	for a given Index, the Price Index, the Excess Return Index, or the Total Return Index.
Reference Period (also m) (also m+1)	in respect of a Calculation Date t, the period (denoted as m, and as specified in the relevant Index Parameters) during which the Static Data calculated on the Static Data Calculation Date falling on or immediately prior to such Calculation Date t applies
RF	Re-weighting factor, used in the determination of Nominal Weights (see Section A.6.1.1.8. Rebalancing and re-weighting: calculation of Nominal Weights)
Roll Period	the period from and including the First Roll Date (FRD) to and including Last Roll Date (LRD) (see Section A.6.1.1.4. The Roll Period)
Roll Rate (RR)	the rate at which positions in CSV defined for Reference Period m, transfer over to the CSV defined for Reference Period m+1 (also see the modified Roll Rate (mRR) in Section A.6.1.1.4.3).
Roll Weight (RW) (also $RW^{m}_{c,CS,w}$) (also $RW^{m+1}_{c,CS,w}$) (also $RW^{m-1}_{c,CS,w}$)	the value taken by the roll factor associated with a given Index Component for a Reference Period m (respectively Reference Period m-1 or m+1)
Signal Roll Weight (SRW) (also $SRW^{m}_{c,CS,w}$) (also $SRW^{m+1}_{c,CS,w}$) (also $SRW^{m-1}_{c,CS,w}$)	the value taken by the signal roll factor associated with a given Underlying Index (UI) for a Reference Period m (respectively Reference Period m-1 or m+1)
$ShortBasis^{CCY}$	for a specified currency (CCY), the number of standard days related to the Interest reference and used in interest calculations (please see Section A.6.1.4.1.Collateral Reference Rate)

Term	Definition
Static Data Calculation Date (SDCD)	in respect of a Roll Period, an Index Business Day on or prior to the start of such Roll Period, specified in the relevant Index Parameters, on which the calculation of the Static Data applicable following the end of such Roll Period is performed.
Target Investment Weights (also Target Weights) (TIW) (also TIW $^{m}_{c,CS}$) (also TIW $^{m+1}_{c,CS}$)	for an Index Component c, the Dollar weight targeted for a given Curve Segment for the Reference Period m (respectively Reference Period m+1)
Target Units Proportions (TUP)	for a given Index component, the proportions assigned to the Index Pricing Instrument Nominal Weights I within a Curve Segment CS. TUP are defined when the Index Pricing Instrument weighting methodology is specified as Unit Weighting (as opposed to Dollar Weighting). The IPITW weighting methodology is made available in the relevant Index Parameter
TR	Total Return, in respect of a version of the Index a measure of collateralised returns of a commodity basket as defined by IB (see also Section A.6.1.4. The Total Return Index (Index-TR))
Underlying Commodity Index Component	An underlying component of an Index which is a commodity forward or futures contract and which is contained in the Underlying Commodity Index Component Universe.
USD-CCY	The foreign currency pair between the US dollar and the currency CCY. Where used, the exchange rate is expressed as units of foreign currency per US dollar (also noted CCY / USD where "/" means "per units of")
Weight Calculation Month (WCM)	As further defined in Section A.3.1.
Weight Calculation Period (WCP)	As further defined in Section A.3.2.

2. The Index Operating Manual, the Index Approval and Index Advisory Committees

2.1. The Index Operating Manual

Each Index described under the Framework is documented by two separate master sections:

- The **Core Index Methodology** is a common document to all Indices created under the Framework. It provides an overall description of the Framework, describes the meaning of Key Index Terms and provides definitions for terms and notions used throughout the documentation. The section proposes an in-depth technical description of the calculations performed for all indices under the Framework, regardless of the specific static data associated with each version of the Index,

- The **Index Parameters** section provides specific details regarding parameters used for a particular version of an Index, and where applicable supersedes generic definitions given in the Core Index Methodology.

2.2. The Index Approval Committee

CSi, as Index Sponsor has established an Index Approval Committee responsible for providing general governance over the issuance and maintenance of Credit Suisse's proprietary indices in all Fixed Income asset classes. In such capacity, the Index Approval Committee is responsible for overseeing the determination of the Framework and making decisions on any amendments to the Index Operating Manual. Any amendment to the Index Operating Manual should be recommended by the specific Index Advisory Committee pertaining to such Index.

The Index Approval Committee consists of members appointed by the Index Sponsor. The members are comprised of senior management within CSi and bring substantial experience and expertise in the financial and commodity markets. As the Index Approval Committee may from time to time be required to discuss matters that may be non-public and potentially material to the performance or value of an Index, or an investment in or referencing an Index, committee members must be of sufficient seniority and where necessary appropriately segregated from those carrying out activities in support of the relevant Index or that might be the cause of potential conflicts of interest as a result of holding such information.

The Index Sponsor is responsible for appointing the chairman and secretary of the Index Approval Committee. Members of the Credit Suisse Legal and Compliance Departments will be *ex-officio* members of the Index Approval Committee, acting as advisors without a vote.

The Index Approval Committee holds meetings regularly throughout the year, typically monthly, to discuss the monitoring of the relevant Indices including managing any errors or policy breaches arising, the approval of new Indices, the termination of existing Indices and potential changes to existing Indices, each as proposed by the relevant Index Advisory Committee.

Annually, the Index Approval Committee, in particular and where applicable, reviews the following parameters in conjunction with the proposals from the Index Advisory Committees:

- Designated Commodity Derivative Instruments. These instruments are obtained from the evaluation of the curve liquidity performed by the Index Advisory Committees. This process evaluates the tradability of the Designated Commodity Derivatives Instruments (e.g. futures contract) to ensure that all contracts included in the Index Component Universe feature adequate tradability to be part of a particular version of the Index,
- Physical Pricing Instruments in the case where the relevant exchange has announced that a new futures contract is to be introduced or an existing futures contract is to be removed,

- Credit Adjustment, relating to the Total Return Index, used to reflect any particular funding cost or rate differential applicable and associated to a given currency for a Government Signature as defined in Section A.5. Calculation Methodology,
- Master Categories for the Underlying Commodity Index Components in the case where a new contract has been introduced or an existing contract has been changed,
- The Underlying Commodity Index Component Universe and the Financial Index Component Universe.

The Index Approval Committee may potentially review all parameters and structure of the Framework.

In addition to the regular meetings, the Index Approval Committee may convene for additional meetings at the request of an Index Advisory Committee ("Extraordinary Meetings") to discuss potential Market Emergency events, Extraordinary Events or any other situation which the Index Advisory Committee may deem makes such a meeting necessary.

The members of the Index Approval Committee (which are subject to change) are senior officers of the groups listed in Table I. below.

TABLE I. INDEX APPROVAL COMMITTEE MEMBERS

Group | Desk	Committee Function
Credit Suisse Compliance Department	*ex-officio* members
Credit Suisse – Global Markets	Co-Chair
Credit Suisse – Global Markets Index Research	Official Index Calculation Agent
Credit Suisse Legal Department	*ex-officio* members
Credit Suisse – Global Markets Quantitative Investment Strategies and/or Commodity Investor Products – Trading	limited role[1]
Credit Suisse – Global Markets Market & Liquidity Risk Management	
Credit Suisse – Global Markets Quantitative Investment Strategies - Product Management	
Credit Suisse – Global Markets Quantitative Investment Strategies – Structuring	
Credit Suisse – Global Markets Quantitative Risk Management	limited role[1]
Credit Suisse – Global Markets Quantitative Strategies Solutions	

[1] excluded from voting on decisions which could involve a conflict of interest

2.3. The Index Advisory Committees

The Index Advisory Committees are responsible for assisting and supporting the Index Approval Committee to ensure the smooth operation of their respective Indexes. Such actions performed by the Index Advisory Committee include but are not limited to:

- Making recommendations relating to their Index to the Index Approval Committee at its ordinary and extraordinary Meetings,
- Providing sufficient evidence relating to the recommendations for the Index Approval Committee to make a decision,
- Playing an active role in all external communication relating to their Index,
- Assisting the Index Sponsor and any licensee of their Index in understanding any amendments to the Index.

The Index Advisory Committees are comprised of members with relevant market expertise and experience who play a significant role in the management of their respective Index.

2.4. Index Sponsor

The Index Sponsor shall be the final authority of the interpretation of this Index Operating Manual and retains the final authority as to the manner in which the Index is calculated and constructed.

The Index Sponsor shall apply the Index Parameter in a reasonable manner, and in doing so may rely upon various sources of information (including Index prices and settlement and/or closing futures prices).

2.5. Amendment of the Index Operating Manual

The Index Sponsor, upon consultation with the Index Approval Committee and the Index Advisory Committee, may supplement, amend (in whole or in part), revise or withdraw any sections of the Index Operating Manual or change any of the Index Components at any time, if (a) the Index is no longer calculable pursuant to this Index Operating Manual, (b) a change to the Index Operating Manual is required to address an error, ambiguity or omission and effect any change thereto and/or, (c) if the Index Sponsor determines that an Extraordinary Event has occurred; provided that any such supplement, amendment or revision or withdrawal from or to the Index Operating Manual or change to the Index Components will be consistent with the fundamental structure and objectives of the Index. All material changes shall be ratified by the Index Approval Committee.

In addition, upon the occurrence of a Licence Disruption Event, the Index Sponsor may remove or replace each Affected Index Component from the Index and make such amendments to the Index Operating Manual, as it determines in good faith to be appropriate to account for such event.

Such a supplement, amendment, revision or withdrawal may lead to a change in the way the Index is calculated or constructed. Such changes, for example, may include changes to eligibility requirements or construction as well as changes to the Core Index Methodology, and when necessary the termination of, or suspension or cessation of the publication of, the relevant Index.

"Extraordinary Event" means any of the following circumstances:

(i) a change in trading volume, terms or listing of any futures contract underlying any Index Component; or,
(ii) a change in supply or demand of any commodity underlying any Index Component; or,
(iii) a change in any applicable or other laws, regulations or decisions; or,
(iv) a change in foreign exchange regimes; or,
(v) any event that would materially prejudice the accuracy or transparency of the calculation of the Index; or,
(vi) an Underlying Commodity Index Component or Financial Index Component is delisted from the relevant exchange or in the case of an Index Component which is an Excess Return Index, the sponsor of such index terminates, or ceases publication of, such index or the method of calculating a component of such index, or the level thereof, is changed in a material respect; or,

(vii) the occurrence of a Correlation Determination (as defined in the Correlation Process in Section 7 and the relevant Index Parameters), being an increase in concentration risk beyond the prescribed levels due to increased correlation between Index Components.

which, in the case of Extraordinary Events (i) to (iv), results, in the opinion of the Index Sponsor, in either the pricing of an Index Component ceasing to be representative of the pricing of the underlying commodity or commodities to which it relates, or the Index Component otherwise ceasing to be a suitable benchmark for the commodity or commodities to which it relates.

3. Commodity Liquidity Calculations

3.0. Introduction to Liquidity calculations in the Framework

When liquidity data is required, the Framework offers a variety of methods and tools that can help enhance the tradability of the constructed indices. For example:

- In the Underlying Commodity Index Component Universe: we use a measure of Average Daily Open Interest and Average Daily Volume as a way to monitor and help select members part of the framework,
- An example of such methods is the following used in the CSCB weighting engine: we use liquidity data for the purpose of allocating weights to the Commodities sharing the same underlying commodity. Such as NY Harbor ULSD or Gasoil and the available Crude Oil contracts which are allocated petroleum/crude oil weights
- In the forward curve weighting engine: we use liquidity data to weight Index Pricing Instruments within their associated Curve Segment as well as Curve Segments in the overall Curve Segment Index,

This section outlines a detailed calculation methodology for the following variables/quantities:

- WCM: Weight Calculation Month,
- WCP: Weight Calculation Period,
- OILW: Open Interest Liquidity Weights,
- VLW: Volume Liquidity Weights,
- CLW: Component Liquidity Weights,
- PDPLW: Physical Delivery Period Liquidity Weights,
- IPITW: Index Pricing Instrument Target Weights,
- CSTW: Curve Segment Target Weights.

3.1. Weight Calculation Month (WCM)

If applicable, the Weight Calculation Month (WCM) is the month during which the Liquidity Component Weight and the Target investment Weights are calculated and is used as reference for the Weight Calculation Period. It is specified in the relevant Index Parameters.

3.2. Weight Calculation Period (WCP)

We define the Weight Calculation Period (WCP) as the twelve months period ending in June immediately preceding the Weight Calculation Month (WCM)[2]. To take into account the specificities of certain Index Components or cater for certain index particularities, the Index Advisory Committee may make a recommendation in respect of the WCP to the Index Approval Committee at any Ordinary or Extraordinary Meeting.

3.3. Daily Open Interest (DOI) and Daily Volume (DV)

For the purpose of the determination of Index Component absolute liquidity, we generally use the Framework steps (such as curve decomposition and Index Pricing Instrument (IPI) designation) as specified for calculation of the Credit Suisse Commodity Benchmark Index (CSCB).

STEP 1. For each Index Business Day during the reference WCP, and for a given commodity contract, we construct the Index Pricing Instrument sequence as shown in Table I. below for the month associated with the Calculation Date (note that if such date is past the end of the theoretical roll period for this Index Component, we construct the sequence for the following month. For example,

[2] : Prior to the WCM in 2010, the WCP ended in September.

this means that if we perform the following procedure on the eleventh Index Business Day of October, we construct the sequence associated with November).

TABLE I. CONSTRUCTION OF THE INDEX PRICING INSTRUMENTS SEQUENCE. EXAMPLE FOR NYMEX WTI CRUDE OIL (JUL 1ST, 2009)

Forward Curve Segment	PDPPos.	Mth	PPI	IPI	OI	Adjusted OI	VOL	Adjusted VOL
		JUL				**1043655**		**522441**
PROMPT	**1**	**Jul**	Q	Q9	246916	**246916**	304636	**304636**
	2	**Aug**	U	U9	161367	**161367**	80383	**80383**
	3	**Sep**	V	V9	61628	**61628**	26570	**26570**
4x6F	**4**	**Oct**	X	X9	29225	**29225**	15388	**15388**
	5	**Nov**	Z	Z9	155464	**155464**	46698	**46698**
	6	**Dec**	F	F0	29288	**29288**	7152	**7152**
7x12F	**7**	**Jan**	G	G0	21480	**21480**	3541	**3541**
	8	**Feb**	H	H0	18871	**18871**	3078	**3078**
	9	**Mar**	J	J0	10398	**10398**	1459	**1459**
	10	**Apr**	K	K0	9926	**9926**	1115	**1115**
	11	**May**	M	M0	46114	**46114**	4380	**4380**
	12	**Jun**	N	N0	37331	**37331**	1253	**1253**
13x24F	**13**	**Jul**	Q	U0	11945	**5973**	486	**243**
	14	**Aug**	U	U0	11945	**5973**	486	**243**
	15	**Sep**	V	Z0	85611	**28537**	13579	**4526**
	16	**Oct**	X	Z0	85611	**28537**	13579	**4526**
	17	**Nov**	Z	Z0	85611	**28537**	13579	**4526**
	18	**Dec**	F	H1	4091	**1364**	5	**2**
	19	**Jan**	G	H1	4091	**1364**	5	**2**
	20	**Feb**	H	H1	4091	**1364**	5	**2**
	21	**Mar**	J	M1	16932	**5644**	245	**82**
	22	**Apr**	K	M1	16932	**5644**	245	**82**
	23	**May**	M	M1	16932	**5644**	245	**82**
	24	**Jun**	N	U1	1713	**1713**	0	**0**
25x36F	**25**	**Jul**	Q	Z1	46171	**9234**	6469	**1294**
	26	**Aug**	U	Z1	46171	**9234**	6469	**1294**
	27	**Sep**	V	Z1	46171	**9234**	6469	**1294**
	28	**Oct**	X	Z1	46171	**9234**	6469	**1294**
	29	**Nov**	Z	Z1	46171	**9234**	6469	**1294**
	30	**Dec**	F	M2	3814	**636**	2409	**402**
	31	**Jan**	G	M2	3814	**636**	2409	**402**
	32	**Feb**	H	M2	3814	**636**	2409	**402**
	33	**Mar**	J	M2	3814	**636**	2409	**402**
	34	**Apr**	K	M2	3814	**636**	2409	**402**
	35	**May**	M	M2	3814	**636**	2409	**402**
	36	**Jun**	N	Z2	45370	**45370**	3595	**3595**

Source: Credit Suisse

STEP 2. We eliminate double counting by dividing the Open Interest and Volume data associated with each IPI on that day by the number of occurrences of each Index Pricing Instruments designated in the forward curve, and we derive the two adjusted variables $adjOI_{c,t}$ and $adjV_{c,t}$:

$$adjV_{c,i,t} = \frac{V_{c,i,t}}{\sum_{\substack{j=1,J \\ IPI_i = IPI_j}} 1} \qquad \text{(A.3.1.b)}$$

STEP 3. For each position (denoted as i) in the forward curve, we multiply the obtained adjusted Open Interest ($adjOI_{c,i,t}$) and Adjusted Volume ($adjV_{c,i,t}$) by the respective Index Pricing Instrument Price (i.e. the forward price associated to the IPI) for that day (the result is scaled by the respective contract size and price scalars) and we obtain Daily Open Interest and Daily Volume expressed in U.S. Dollars as per the following formulas:

$$DOI_{c,i,t}^{USD} = \left(IPIP_{c,i,t} \times CSize_c \times ScaleFact_c\right) \times adjOI_{c,i,t} \quad \text{(A.3.2)}$$

$$DV_{c,i,t}^{USD} = \left(IPIP_{c,i,t} \times CSize_c \times ScaleFact_c\right) \times adjV_{c,i,t} \quad \text{(A.3.3)}$$

where:

$IPIP_{c,I,t}$	the Index Pricing Instrument Price associated with the i^{th} position in the forward curve for an Index Component c at time t,
$CSize_c$	the Contract Size applicable to Index Component c,
$ScaleFact_c$	the Scale Factor applicable to Index Component c to convert the IPI price into U.S. Dollars,
t	the Calculation Date,
i	the i^{th} position in the forward curve (as denoted in the PDP below).

TABLE II. DAILY OPEN INTEREST AND DAILY VOLUME. EXAMPLE FOR NYMEX WTI CRUDE OIL (JUL 1ST, 2009).

Forward Curve Segment	PDP Pos.	Mth	PPI	IPI	IPI Price (IPIP)	Adjusted OI adjOI	Daily Open Interest (DOI) USDk	Adjusted VOL AdjV	Daily Volume (DV) USDk
		JUL					**$69,161,874**		**$28,403,507**
PROMPT	**1**	**Jul**	**Q**	**Q9**	69.31	**246916**	$14,803,952	**304636**	$14,927,998
	2	**Aug**	**U**	**U9**	70.27	**161367**	$8,555,763	**80383**	$4,144,546
	3	**Sep**	**V**	**V9**	71.08	**61628**	$3,467,419	**26570**	$1,574,978
4x6F	**4**	**Oct**	**X**	**X9**	71.78	**29225**	$5,758,412	**15388**	$2,014,357
	5	**Nov**	**Z**	**Z9**	72.36	**155464**	$7,602,960	**46698**	$2,235,821
	6	**Dec**	**F**	**F0**	72.84	**29288**	$1,909,195	**7152**	$416,294
7x12F	**7**	**Jan**	**G**	**G0**	73.23	**21480**	$1,499,200	**3541**	$246,176
	8	**Feb**	**H**	**H0**	73.58	**18871**	$1,140,607	**3078**	$179,033
	…							**…**	

Source: Credit Suisse

3.4. Daily Curve Segment Open Interest (DCSOI) and Daily Curve Segment Volume (DCSV)

To obtain Daily Curve Segment Open Interest (DCSOI) and Daily Curve Segment Volume (DCSV), we re-aggregated Daily Open Interest (DOI) and Daily Volume (DV) per Curve Segment defined in Section 3.3. above. We have:

$$DCSOI_{c,t,CS}^{USD} = \sum_{j=1,J} DOI_{c,j,t}^{USD} \mid j \in CS \quad \text{(A.3.4)}$$

$$DCSV_{c,t,CS}^{USD} = \sum_{j=1,J} DV_{c,j,t}^{USD} \mid j \in CS \quad \text{(A.3.5)}$$

where:

$DCSOI^{USD}_{c,t,CS}$ the Daily Curve Segment Open Interest for an Index Component c, calculated at time t, for a Curve Segment CS, expressed in U.S. Dollars,

$DCSV^{USD}_{c,t,CS}$ the Daily Curve Segment Volume for an Index Component c, calculated at time t, for a Curve Segment CS, expressed in U.S. Dollars.

TABLE III. DAILY OPEN INTEREST AND DAILY VOLUME. EXAMPLE FOR NYMEX WTI CRUDE OIL (JUL 1ST, 2009). (USD)

	Daily Curve Segment Open Interest (DCSOI) USD	Daily Curve Segment Volume (DCSV) USD
TOTAL	**$69,161,874,496**	**$28,403,507**
PROMPT	$26,827,134	$20,647,521
4x6F	$15,270,567	$4,666,472
7x12F	$10,251,528	$1,003,420
13x24F	$9,208,344	$1,093,548
25x36F	$7,604,299	$992,543

Source: Credit Suisse

3.5. Average Daily Open Interest (ADOI) and Average Daily Volume (ADV)

For all Index Components in an Index, we calculate the average of the quantities obtained in Section 3.4. over the Weight Calculation Period and obtain Average Daily Open Interest (ADOI) and the Average Daily Volume (ADV).

$$ADOI_{c,CS}^{USD} = \frac{1}{T} \sum_{t=1,T} DCSOI_{c,t,CS}^{USD} \quad \text{(A.3.6)}$$

$$ADV_{c,CS}^{USD} = \frac{1}{T} \sum_{t=1,T} DCSV_{c,t,CS}^{USD} \quad \text{(A.3.7)}$$

Where

$ADOI^{USD}_{c,CS}$ the Average Curve Open Interest for an Index Component c, calculated at time t, for the Curve Segment CS, expressed in U.S. Dollars,

$ADV^{USD}_{c,CS}$ the Average Daily Volume for an Index Component c, calculated at time t, for the Curve Segment CS, expressed in U.S. Dollars,

T	refers to the number of exchange business days in the WCP for an Index Component c.

TABLE IV. AVERAGE DAILY OPEN INTEREST AND AVERAGE DAILY VOLUME. EXAMPLE FOR NYMEX WTI CRUDE OIL (WCP JUL 1ST, 2009 – JUN 30TH, 2010). (USD)

Forward Curve Segments	Average Daily Open Interest (ADOI) USD	Average Daily Volume (ADV) USD
TOTAL	**$83,285,086,207**	**$34,840,318,707**
PROMPT	$37,879,172,986	$27,585,060,725
4x6F	$12,155,154,761	$3,367,582,151
7x12F	$16,840,450,062	$2,479,286,305
13x24F	$9,739,190,045	$1,075,997,280
25x36F	$6,671,118,352	$332,392,247

Source: Credit Suisse

Note the total aggregate for both Open Interest and Volume are also calculated (Total above).

3.6. Open Interest Liquidity Weights (OILW) and Volume Liquidity Weights (VLW)

For each defined Curve Segment (CS) and Index Component c, we calculate the Open Interest Liquidity Weights (OILW) and Volume Liquidity Weights (VLW) directly from ADOI and ADV.

$$OILW_{c,CS}^{\%} = ADOI_{c,CS}^{USD} \Big/ \sum_{c=1,C} ADOI_{c,CS}^{USD} \qquad \text{(A.3.8)}$$

$$VLW_{c,CS}^{\%} = ADV_{c,CS}^{USD} \Big/ \sum_{c=1,C} ADV_{c,CS}^{USD} \qquad \text{(A.3.9)}$$

Note that we can also perform the same calculation with the full curve aggregate for both Open Interest and Volume.

$$OILW_{c}^{\%} = ADOI_{c}^{USD} \Big/ \sum_{c=1,C} ADOI_{c}^{USD} \qquad \text{(A.3.10)}$$

$$VLW_{c}^{\%} = ADV_{c}^{USD} \Big/ \sum_{c=1,C} ADV_{c}^{USD} \qquad \text{(A.3.11)}$$

3.7. Component Liquidity Weights (CLW)

Component Liquidity Weights (CLW) are calculated annually during the Weight Calculation Month (WCM). They are defined as part of the general weighting mechanism and are calculated for each Underlying Commodity Index Component. They are the result of appreciation of relative Underlying Commodity Index Component liquidity. To calculate CLW, we blend OILW and VLW and for each Curve Segment.

The aggregate Liquidity is derived from Total Open Interest and Total Volume. To perform the blend, we use an Open Interest to Volume ratio of 75/25%.

$$CLW_{c,CS}^{USD} = OIP_{CLW} \times OILW_{c,CS}^{\%} + \left(1 - OIP_{CLW}\right) \times VLW_{c,CS}^{\%} \qquad \text{(A.3.12)}$$

OIP_{CLW} the Open Interest Proportion defined for the purpose of calculating the Component Liquidity Weight (CLW).

The Component Liquidity Weight is also calculated on an aggregate basis (i.e. whole forward curve, not just a Curve Segment) (in this case we reference the full curve OILW and VLW aggregates defined in Section 3.6.) and write in accordance with the following formula:

$$CLW_c^{USD} = OIP_{CLW} \times OILW_c^{\%} + \left(1 - OIP_{CLW}\right) \times VLW_c^{\%} \qquad \text{(A.3.13)}$$

3.8. Physical Delivery Period Liquidity Weights (PDPLW)

Physical Delivery Period Liquidity Weights are calculated annually during the Weight Calculation Month (WCM) defined above. The Weight Calculation Month is defined as the month during which the new Target Investment Weights are made available for the subsequent re-weighting period.

The PDPLW are defined as part of the general curve segment weighting mechanism. They are the weights assigned to each of the j Index Pricing Instruments (IPI) defining the tradable forward curve and are the result of the appreciation of relative liquidity along the Index Components forward curve. They are calculated via the following steps:

STEP 1. We perform STEP 1 and STEP 2 of the sequence featured in Section 3.3. above. The curve decomposition as well as intermediate results are shown in Table V. below.

STEP 2. For each position in the curve, we calculate the Daily Percentage liquidity data: Daily Percentage Open Interest (DPOI), and Daily Percentage Volume (DPV).

$$DPOI_{c,i,t} = \frac{adjOI_{c,i,t}}{\sum_{j=1,J} adjOI_{c,j,t}} \qquad \text{(A.3.14.a)}$$

$$DPV_{c,i,t} = \frac{adjV_{c,i,t}}{\sum_{j=1,J} adjV_{c,j,t}} \qquad \text{(A.3.14.b)}$$

STEP 3. We blend DPOI and DPV to obtain the Daily Physical Delivery Period Liquidity Weight (DPDPLW). To perform the blend, we use an Open Interest to Volume ratio of 50/50%.

$$DPDPLW_{c,i,t} = OIP_{DPDPLW} \times DPOI_{c,i,t} + \left(1 - OIP_{DPDPLW}\right) \times DPV_{c,i,t} \qquad \text{(A.3.15)}$$

OIP_{DPLDLW} the Open Interest Proportion defined for the purpose of calculating the Daily Physical Delivery Period Liquidity Weight (DPDPLW).

STEP 4. We average the Daily Physical Delivery Period Liquidity Weight (DPDPLW) over the Weight Calculation Period and obtain PDPLW.

$$PDPLW_{c,i}^{m+1} = \frac{1}{T} \sum_{t=1,T} DPDPLW_{c,i,t} \qquad \text{(A.3.16)}$$

Where T refers to the number of exchange business days in the WCP for an Index Component c.

TABLE V. CONSTRUCTION OF THE INDEX PRICING INSTRUMENTS SEQUENCE FOR CSCB. NYMEX WTI CRUDE OIL (JUL 1ST, 2009).

Forward Curve Segment	PDP Pos.	Mth	PPI	IPI	OI	Adjusted OI	Daily Percent OI (DPOI)	VOL	Adjusted VOL	Daily Percent VOL (DPV)	DPDPLW
		JUL				**1043655**	**100.00%**		**522441**	**100.0%**	**100.00%**
PROMPT	**1**	**Jul**	Q	Q9	246916	**246916**	23.66%	304636	**304636**	58.31%	35.98%
	2	**Aug**	U	U9	161367	**161367**	15.46%	80383	**80383**	15.39%	13.23%
	3	**Sep**	V	V9	61628	**61628**	5.91%	26570	**26570**	5.09%	5.44%
4x6F	**4**	**Oct**	X	X9	29225	**29225**	2.80%	15388	**15388**	2.95%	9.88%
	5	**Nov**	Z	Z9	155464	**155464**	14.90%	46698	**46698**	8.94%	8.54%
	6	**Dec**	F	F0	29288	**29288**	2.81%	7152	**7152**	1.37%	2.11%
7x12F	**7**	**Jan**	G	G0	21480	**21480**	2.06%	3541	**3541**	0.68%	1.57%
	8	**Feb**	H	H0	18871	**18871**	1.81%	3078	**3078**	0.59%	1.11%
	9	**Mar**	J	J0	10398	**10398**	1.00%	1459	**1459**	0.28%	0.73%
	10	**Apr**	K	K0	9926	**9926**	0.95%	1115	**1115**	0.21%	1.90%
	11	**May**	M	M0	46114	**46114**	4.42%	4380	**4380**	0.84%	2.62%
	12	**Jun**	N	N0	37331	**37331**	3.58%	1253	**1253**	0.24%	1.32%
13x24F	**13**	**Jul**	Q	U0	11945	**5973**	0.57%	486	**243**	0.05%	0.53%
	14	**Aug**	U	U0	11945	**5973**	0.57%	486	**243**	0.05%	1.31%
	15	**Sep**	V	Z0	85611	**28537**	2.73%	13579	**4526**	0.87%	2.21%
	16	**Oct**	X	Z0	85611	**28537**	2.73%	13579	**4526**	0.87%	2.21%
	17	**Nov**	Z	Z0	85611	**28537**	2.73%	13579	**4526**	0.87%	1.11%
	18	**Dec**	F	H1	4091	**1364**	0.13%	5	**2**	0.00%	0.07%
	19	**Jan**	G	H1	4091	**1364**	0.13%	5	**2**	0.00%	0.07%
	20	**Feb**	H	H1	4091	**1364**	0.13%	5	**2**	0.00%	0.19%
	21	**Mar**	J	M1	16932	**5644**	0.54%	245	**82**	0.02%	0.32%
	22	**Apr**	K	M1	16932	**5644**	0.54%	245	**82**	0.02%	0.32%
	23	**May**	M	M1	16932	**5644**	0.54%	245	**82**	0.02%	0.19%
	24	**Jun**	N	U1	1713	**1713**	0.16%	0	**0**	0.00%	0.07%
25x36F	**25**	**Jul**	Q	Z1	46171	**9234**	0.88%	6469	**1294**	0.25%	0.78%
	26	**Aug**	U	Z1	46171	**9234**	0.88%	6469	**1294**	0.25%	0.78%
	27	**Sep**	V	Z1	46171	**9234**	0.88%	6469	**1294**	0.25%	0.78%
	28	**Oct**	X	Z1	46171	**9234**	0.88%	6469	**1294**	0.25%	0.78%
	29	**Nov**	Z	Z1	46171	**9234**	0.88%	6469	**1294**	0.25%	0.39%
	30	**Dec**	F	M2	3814	**636**	0.06%	2409	**402**	0.08%	0.09%
	31	**Jan**	G	M2	3814	**636**	0.06%	2409	**402**	0.08%	0.09%
	32	**Feb**	H	M2	3814	**636**	0.06%	2409	**402**	0.08%	0.09%
	33	**Mar**	J	M2	3814	**636**	0.06%	2409	**402**	0.08%	0.09%
	34	**Apr**	K	M2	3814	**636**	0.06%	2409	**402**	0.08%	0.09%
	35	**May**	M	M2	3814	**636**	0.06%	2409	**402**	0.08%	0.77%
	36	**Jun**	N	Z2	45370	**45370**	4.35%	3595	**3595**	0.69%	2.24%

Source: Credit Suisse

3.9. Index Pricing Instrument Target Weights (IPITW)

From the PDPLW defined in Section 3.8. above, we calculate the Index Pricing Instrument Target Weights which are the target weights assigned to each IPI within each Curve Segment. For each Curve Segment, we aggregate and renormalize the PDPLW at the curve position level to obtain Index Pricing Instrument Target Weights,

$$IPITW_{c,CS,i}^{m+1} = \frac{PDPLW_{c,i}^{m+1}}{\sum_{j=1,J} PDPLW_{c,j}^{m+1}} \qquad \text{(A.3.17)}$$

i refers to the position of the IPI in its Curve Segment,
J is the number of positions in the segment CS.

Table VI. provides an example of an annual calculation of the Index Pricing Instrument Target Weights for NYMEX WTI Crude Oil. Note the correspondence with the Curve Segment Target Weights (CSTW).

TABLE VI. INDEX PRICING INSTRUMENTS TARGET WEIGHTS AND CURVE SEGMENT TARGET WEIGHT FOR NYMEX WTI CRUDE OIL (2011)

Forward Curve Segment	PDP Position	Physical Delivery Period Liquidity Weight (PDPLW)	Index Pricing Instrument Target Weight (IPITW)	Curve Segment Target Weights (CSTW)
		100.00%		**100.00%**
PROMPT	**1**	39.680%	63.197%	62.789%
	2	15.383%	24.500%	
	3	7.725%	12.303%	
4x6F	**4**	4.926%	40.337%	12.212%
	5	4.066%	33.298%	
	6	3.220%	26.365%	
7x12F	**7**	2.841%	21.092%	13.470%
	8	2.804%	20.817%	
	9	2.350%	17.448%	
	10	2.031%	15.081%	
	11	1.880%	13.954%	
	12	1.564%	11.608%	
13x24F	**13**	1.564%	21.618%	7.236%
	14	0.893%	12.342%	
	15	0.695%	9.599%	
	16	0.640%	8.847%	
	17	0.584%	8.063%	
	18	0.543%	7.505%	
	19	0.492%	6.796%	
	20	0.437%	6.033%	
	21	0.391%	5.402%	
	22	0.360%	4.973%	
	23	0.337%	4.657%	
	24	0.301%	4.164%	
25x36F	**25**	0.446%	10.385%	4.294%
	26	0.404%	9.414%	
	27	0.374%	8.701%	
	28	0.336%	7.830%	
	29	0.311%	7.236%	
	30	0.296%	6.887%	
	31	0.289%	6.726%	
	32	0.293%	6.812%	
	33	0.303%	7.064%	
	34	0.337%	7.858%	
	35	0.403%	9.393%	
	36	0.502%	0.000%	

Source: Credit Suisse

3.10. Curve Segment Target Weights (CSTW)

In order to calculate forward curve indices, we must assign individual target weights to each Curve Segment.

We derive the Curve Segment Target Weight for m+1 from the PDPLW as per the following expression:

$$CSTW_{c,CS}^{m+1} = \sum_{j=1,J} PDPLW_{c,CS,j}^{m+1} \qquad \text{(A.3.18)}$$

J is the number of positions in the segment CS.

3.11. Specific liquidity evaluation procedures for non-standard commodity contracts

3.11.1. London Metal Exchange

Before we can use the official open interest and daily volume data made available by the exchange on LME Physical Metals forward contracts, we must first reformat the data to fit the general contract framework common to most Futures contracts. Ignoring all the non 3rd Wednesday "prompt dates" would have the adverse consequence of incorrectly increasing long dated LME metals exposure.

To perform this task we "bucket" all available "non 3rd Wednesday" Open Interest or Volume data for a given month. We then aggregate the data with the "3rd Wednesday prompt" to form the aggregated monthly data (Open Interest or Volume).

The data produced is then used in the liquidity evaluation processes above.

3.11.2. ICE Coal: Monthly Equivalent Contract Allocation (MECA) procedure

The three Designated Commodity Derivatives Instruments for ICE Coal futures Contracts are Monthly, Quarterly and Calendar Futures contracts. The three contracts trade simultaneously on a given trading date.

Prior 2010, to perform the forward curve liquidity evaluation process for ICE Coal, CS remapped any obtained Quarterly and Calendar futures contracts data into adequate equivalent Monthly contract data[3]. The results are then added to the standard monthly figures to be used in the liquidity evaluation processes above.

[3] : The ICE Open Interest reporting methodology seemed to have changed on or around the 21th Nov 2008, from this date onwards all open interest data is automatically mapped on the equivalent Monthly Futures Contract.

TABLE VII. ICE COAL API#2 (JUN 30TH, 2010) – CONSTRUCTION OF EQUIVALENT MONTHLY OI AND VOL DATA

			Monthly			Quarterly			Calendar			Total Mthly Equiv	
Forward Curve Segment	PDP Pos.	Mth	Ctt	OI	OI Adj.	Ctt	OI	OI Adj.	Ctt	OI	OI Adj.	OI Adj. Total	Daily Percent OI (DPOI)
		JUL		7840	**7840**		80	**80**		50	**50**	**7956.50**	**100.0%**
PROMPT	**1**	Jul	V0	2600	**867**	V0	65	**21.67**		-	**0.00**	**888.67**	11.17%
	2	Aug	X0	2600	**867**	V0	65	**21.67**		-	**0.00**	**888.67**	11.17%
	3	Sep	Z0	2600	**867**	V0	65	**21.67**		-	**0.00**	**888.67**	11.17%
4x6F	**4**	Oct	F1	1990	**663**	F1	10	**3.33**	F1	50	**4.17**	**670.50**	8.43%
	5	Nov	G1	1990	**663**	F1	10	**3.33**	F1	50	**4.17**	**670.50**	8.43%
	6	Dec	H1	1990	**663**	F1	10	**3.33**	F1	50	**4.17**	**670.50**	8.43%
7x12F	**7**	Jan	J1	1665	**555**	J1	5	**1.67**	F1	50	**4.17**	**560.83**	7.05%
	8	Feb	K1	1665	**555**	J1	5	**1.67**	F1	50	**4.17**	**560.83**	7.05%
	9	Mar	M1	1665	**555**	J1	5	**1.67**	F1	50	**4.17**	**560.83**	7.05%
	10	Apr	N1	1585	**528**	N1	0	**0.00**	F1	50	**4.17**	**532.17**	6.69%
	11	May	Q1	1585	**528**	N1	0	**0.00**	F1	50	**4.17**	**532.17**	6.69%
	12	Jun	U1	1585	**528**	N1	0	**0.00**	F1	50	**4.17**	**532.17**	6.69%
13x24F	**13**	Jul	-	-	-	-	-	-	-	-	-	-	-
	14	Aug	-	-	-	-	-	-	-	-	-	-	-
	15	Sep	-	-	-	-	-	-	-	-	-	-	-
	16	Oct	-	-	-	-	-	-	-	-	-	-	-
	17	Nov	-	-	-	-	-	-	-	-	-	-	-
	…												…

Source: Credit Suisse

From 2010 onwards, the Monthly Equivalent Contract Allocation (MECA) procedure has been automatically performed by the exchange, and as a result, the data featured by the various data vendors (Bloomberg, Reuters, etc) for Quarterly and Calendar futures tends to be empty.

For the purpose of obtaining Volume data, we perform the MECA procedure in order to obtain a monthly contract equivalent Volume data.

The data produced in this process can later be re-aggregated for the purpose of evaluating the liquidity conditions of Quarterly and Calendar contracts.

4. Universe of Index Components

4.0. The Index Component selection process

The universe of eligible Index Components (the "**Index Component Universe**") comprises (i) the universe of eligible Underlying Commodity Index Components (the "**Underlying Commodity Index Component Universe**") (ii) the universe of eligible Financial Index Components (the "**Financial Index Component Universe"**), and (iii) Excess Return Indices eligible for inclusion in Indices supported by the 'Generic Basket of Assets' Calculation Engine. Each of the Underlying Commodity Index Component Universe and the Financial Index Component Universe is defined as a result of the selection process run annually, and at such other times as necessary due to changes in market conditions or in response to client interest. To be eligible for inclusion, the following considerations will be taken into account.

4.1. Selection criteria for the Underlying Commodity Index Component Universe

4.1.0. General considerations regarding physical properties of the commodity

An Underlying Commodity Index Component is made eligible for inclusion in the Framework if the underlying instrument is a single, storable physical commodity, i.e. such instrument is not a mean of transport, a certificate or a tradable right. Exceptions can be made to allow the inclusion of other significant futures contracts as such markets develop.

4.1.1. Exchange facility geographical location

In general, Underlying Commodity Index Components must be traded on primary exchanges located and subject to regulation in the United States of America, member countries of the European Union or the United Kingdom. However commodities traded on other exchanges are also considered on a case by case basis.

4.1.2. Contract currency

All Underlying Commodity Index Components must be traded in US Dollars (USD), British Pounds (GBP) or Euros (EUR). However commodities traded in other currencies are also considered on a case by case basis.

4.1.3. Pricing transparency

All Underlying Commodity Index Components must feature an official daily "Settlement Price", or official "Mark to Market" mechanism by a financially independent, and non-trading entity such as:

- an exchange,
- a board of trade,
- an independent financial data publisher,
- a recognised rating agency (e.g. Standard & Poor's, Moody's, Fitch Ratings, etc.),
- a government agency, or
- any other source deemed acceptable by the Index Approval Committee.

4.1.4. Type of delivery mechanism

An Underlying Commodity Index Component must be supported by a physical delivery process such as traditional physically delivered futures contracts or physical forwards. When an instrument features a cash settlement procedure, it must demonstrate transparency acceptable to the Index Approval Committee. For example, when the futures contract is settled against a physical or cash index, the final settlement mechanism should adequately represent the physical market on the last day of trading.

4.1.5. Length of trading history

Commodities selected for inclusion ideally will have a reasonable period of trading history, preferably in excess of one year, prior to inclusion in the Framework. Exceptions will be made as deemed necessary by the Index Approval Committee. For example, this may be necessary when a new contract is launched by an exchange in substitution of another preexisting contract, where delivery specification changes require a new contract to be launched to replace a preexisting contract after a period of overlapping trading.

4.1.6. Data availability and transparency

Commodities selected for inclusion ideally will have readily available data, both on a real time and historical basis.

4.1.7. Inclusion in selected commodity Index benchmarks

An Underlying Commodity Index Component included in the following major index benchmarks shall be available for inclusion in the Framework,

- S&P GSCI©,
- Bloomberg Commodity index

Note that the inclusion of an Underlying Commodity Index Component in the Underlying Commodity Index Component Universe does not automatically constitute its inclusion in an Index supported by the Framework.

4.1.8. Market recognition

The commodities included in the Framework are determined annually based on several criteria. The objective is to incorporate as many physical commodity futures as possible while maintaining the liquidity and robustness that an institutional portfolio would require for replication of an Index supported by the Framework. A further important criteria for inclusion is the market recognition a particular contract has achieved amongst major market participants such as institutional investors, banks and corporations. The Index Approval Committee shall consider adding any additional commodities if required or requested, where appropriate, on a case by case basis.

4.1.9. Liquidity

To ensure that any commodities to be included in the Framework are sufficiently liquid, the Index Approval Committee will consider the average volume and open interest of a commodity prior to accepting it as a member of the Framework. A commodity should meet the following minimum liquidity requirements in order to be included in the Framework:

As measured over the prior twelve months, the commodity should have

- A minimum of **$200 million Average Daily Open Interest** (as measured by the methodology set forth in Section A.3.5. Average Daily Open Interest (ADOI) and Average Daily Volume (ADV)). The maintenance threshold, which applies in subsequent years following inclusion, is fixed at $150 million, and,
- A minimum of **$40 million Average Daily Volume** (as measured by the methodology set forth in Section A.3.5. Average Daily Open Interest (ADOI) and Average Daily Volume (ADV)). The maintenance threshold, which applies in subsequent years following inclusion, is fixed at $25 million.

The Index Approval Committee will consider exceptions to this rule on a case by case basis. The current exceptions are Coal API #2, Random Lumber, Rough Rice, Oats, Orange Juice, TOCOM Rubber, TOCOM Silver and TOCOM Palladium.

The inclusion thresholds applied in the Framework may be different than the inclusion thresholds defined for a specific Index, including for example the CSCB, which features higher levels of liquidity thresholds.

4.2. The Underlying Commodity Index Component Universe

The eligible universe of Underlying Commodity Index Components is shown in Table I.

TABLE I. ELIGIBLE UNIVERSE OF INDEX COMPONENTS

Exchange Commodity Component	Exchange/ Sponsor	Framework Index Ticker	Reuters Ticker	Bloomberg Ticker
Energy				
WTI Crude Oil	NYMEX	CL	CL	CL
WTI Crude Oil	ICE	WT	WTCL	EN
Brent Crude Oil	ICE	BR	LCO	CO
Oman Crude Oil	DME (Dubai Merc Exch.)	OQ	1OQ	OQ
Coal API #2	ICE	C2	ATW,ATWQ,ATWY(1)	XA,XE,TM
NY Harbor ULSD	NYMEX	HO	HO	HO
Gasoil	ICE	GO	LGO	LGO
RBOB Gasoline	NYMEX	RB	RB	RB
Natural Gas	NYMEX	NG	NG	NG
Ind. Metals				
Copper high grade	COMEX	HG	HG	HG
Copper grade A.	LME	CU	MCU	LP
Zinc high grade	LME	ZN	MZN	LX
Aluminium primary	LME	AL	MAL	LA
Nickel primary	LME	NI	MNI	LN
Tin	LME	SN	MSN	LT
Lead standard	LME	PB	MPB	LL
Prec. Metals				
Gold	COMEX	GC	GC	GC
Silver	COMEX	SI	SI	SI
Platinum	NYMEX	PL	PL	PL
Palladium	NYMEX	PA	PA	PA
Agriculture				
SRW Wheat	CBOT	WH	W	W_
HRW Wheat	KCBOT	KW	KW	KW
Corn	CBOT	CN	C	C_
Soybeans	CBOT	SY	S	S_
Soybean Meal	CBOT	SM	SM	SM
Soybean Oil	CBOT	BO	BO	BO
Sugar #11	ICE	SB	SB	SB
Sugar #5	EURONEXT NYSE	WS	LSU	QW
Cocoa	ICE	CC	CC	CC
Cocoa	EURONEXT NYSE	QC	LCC	QC
Coffee "C" Arabica	ICE	KC	KC	KC
Coffee Robusta	EURONEXT NYSE	RC	LRC	DF
Cotton	ICE	CT	CT	CT
F.C. Orange Juice (A)	ICE	OJ	OJ	JO

Source: Credit Suisse. The character '_' denotes a space.

(1): "Q" are Quarterly Futures contracts, and "Y" are Calendar Futures contracts,

TABLE I. ELIGIBLE UNIVERSE OF INDEX COMPONENTS (CONT.)

Exchange Commodity Component	Exchange/ Sponsor	Framework Index Ticker	Reuters Ticker	Bloomberg Ticker
Agriculture (cont.)				
Rubber	TOCOM	RU	JRU	JN
Canola	ICE Canada	RS	RS	RS
Random L. Lumber	CME	LB	LB	LB
Rough Rice	CBOT	RR	RR	RR
Spring Wheat	MGE	MW	1MWE	MW
Oats	CBOT	OA	O	O_
Milling Wheat	EURONEXT NYSE	CA	BL2	CA
Livestock				
Live Cattle	CME	LC	LC	LC
Feeder Cattle	CME	FC	FC	FC
Lean Hogs	CME	LH	LH	LH
Rubber	TOCOM	RU	JRU	JN
Other Prec. Metals				
Gold	TOCOM	TG	JAU	JG
Silver	TOCOM	TS	JSV	JI
Platinum	TOCOM	TP	JPL	JA
Palladium	TOCOM	TA	JPA	JM

Source: Credit Suisse. The character '_' denotes a space.

4.3. Selection criteria for the Financial Index Component Universe

4.3.1. Contract currency

Financial Index Components are expected to be traded in the currency of a G10 nation. However contracts traded in other currencies are also considered on a case by case basis.

4.3.2. Pricing transparency

All Financial Index Components must feature an official daily "Settlement Price", or official "Mark to Market" mechanism by a financially independent, and non-trading entity such as:

- an exchange,
- a board of trade,
- an independent financial data publisher,
- a recognised rating agency (e.g. Standard & Poor's, Moody's, Fitch Ratings, etc.),
- a government agency, or
- any other source deemed acceptable by the Index Approval Committee.

4.3.3. Length of trading history

Contracts selected for inclusion ideally will have a reasonable period of trading history, preferably in excess of one year, prior to inclusion in the Framework. Exceptions will be made as deemed necessary by the Index Approval Committee.

4.3.4. Data availability and transparency

Contracts selected for inclusion ideally will have readily available data, both on a real time and historical basis.

4.3.5. Market recognition

The Financial Index Components included in the Framework are determined annually based on several criteria. The objective is to incorporate as many financial instruments as possible while maintaining the liquidity and robustness that an institutional portfolio would require for replication of an Index supported by the Framework. A further important criteria for inclusion is the market recognition a particular contract has achieved amongst major market participants such as institutional investors, banks and corporations. The Index Approval Committee shall consider adding any additional components if required or requested, where appropriate, on a case by case basis.

4.3.6. Liquidity

To ensure that any Financial Index Components to be included in the Framework are sufficiently liquid, the Index Approval Committee will consider the average volume and open interest of the instrument prior to accepting it as a member of the Framework. A Financial Index Component should meet the following minimum liquidity requirements in order to be included in the Framework:

As measured over the prior twelve months, the component should have

- A minimum of **$5 billion Average Daily Open Interest**. The maintenance threshold, which applies in subsequent years following inclusion, is fixed at $4 billion, and,
- A minimum of **$1 billion Average Daily Volume**. The maintenance threshold, which applies in subsequent years following inclusion, is fixed at $750 million.

The Index Approval Committee will consider exceptions to this rule on a case by case basis. The current exception is the CME New Zealand Dollar future.

The inclusion thresholds applied in the Framework may be different than the inclusion thresholds defined for a specific Index, which may for example feature higher levels of liquidity thresholds.

4.4. The Financial Index Component Universe

The Financial Index Component Universe consists of financial futures contracts with the following set of criteria (Table III below):

- Primary short-, medium- and long-term Interest Rates Futures contracts from the United States of America, member countries of the European Union or the United Kingdom, and Asia,
- Primary Equity Index Futures contracts from the same regions,
- Primary Foreign Exchange Futures contracts for a selected number of currencies traded against the US Dollar.

TABLE III. ELIGIBLE INDEX COMPONENTS – FINANCIAL UNIVERSE

Exchange Commodity Component	Exchange/ Sponsor	Framework Index Ticker	Reuters Ticker	Bloomberg Ticker
Foreign Exchange		FX		
Australian Dollar	CME	AD	AD	AD
British Pound	CME	BP	BP	BP
Canadian Dollar	CME	CD	CD	CD
Euro	CME	EC	UR	EC
Japanese Yen	CME	JY	JY	JY
Mexican Peso	CME	MP	MP	PE
Swiss Franc	CME	SF	SF	SF
New Zealand Dollar	CME	NV	NE	NV
Interest Rates		IR		
Eurodollar (3 Month)	CME	ED	ED	ED
Euribor 3 Month	LIFFE | ICE	EB	FEI	ER
90 Day Sterling	ICE	L_	FSS	L_
Euroyen (3 Month)	TIFFE	YE	JEY	YE
90 Day Bank Accepted Bills	ASX	IR	YBA	IR
Euro German Schatz	EUREX	DU	FGBS	DU
Euro German Bobl	EUREX	OE	FGBM	OE
Euro German Bund	EUREX	RX	FGBL	RX
Euro German Buxl	EUREX	UB	FGBX	UB
Euro French OAT	EUREX	OAT	FOAT	OAT
Euro Italian BTP Long-Term	EUREX	IK	FBTM	IK
Long Gilt	LIFFE | ICE	LG	FLG	G_
10 Year JGB (Japan)	OSE	JB	JGB	JB
3 Year Commonwealth Bond Future (Australia)	ASX	YM	YTT	YM
10 Year Commonwealth Bond Future (Australia)	ASX	XM	YTC	XM
3 Year KTB Future Contract (South Korea)	KRX	KE	KTB	KE
10 Year KTB Future Contract (South Korea)	KRX	KAA	KTB	KAA
Treasury Note 2 Year	CME	TU	TU	TU
Treasury Note 5 Year	CME	FV	FV	FV
Treasury Note 10 Year	CME	TY	TY	TY
Treasury Bond 30 Year	CME	US	US	US

Source: Credit Suisse. The character '_' denotes a space.

TABLE III. ELIGIBLE INDEX COMPONENTS – FINANCIAL UNIVERSE (CONT.)

Exchange Commodity Component	Exchange/ Sponsor	Framework Index Ticker	Reuters Ticker	Bloomberg Ticker
Equity Markets		EQ		
DAX Index	EUREX	GX	FDX	GX
FTSE 100 Index	LIFFE	FT	FFI	Z_
Nikkei 225 Index	CME	NX	NK	NX
Nikkei 225 Index	OSE	NK	JNI	NK
Nasdaq 100 E-Mini Futures	CME	NQ	NQ	NQ
S&P 500 Mini Stock Index	CME	ES	ES	ES
Russell 2000 Index	ICE	R2	TFS	RTA
TOPIX	OSE	TP	1JTI	TP
Hang Seng	HKG	HI	1HSI	HI
STOXX 50	EUREX	VG	STXX	VG
CAC 40	EOP	CF	FCE	CF
AEX	TOM	EO	AEX	EO
SMI	EUREX	SM	FSMI	SM
OMX 30	SSE	QC	OMXS30	QC
IBEX 35	MFM	IB	MFMI	IB
MIB	IDEM	ST	IFS	ST

Source: Credit Suisse. The character '_' denotes a space.

4.5. The Generic Basket of Assets Index Component Universe

The universe of Index Components eligible for inclusion in an Index supported by the 'Generic Basket of Assets' Calculation Engine (the "Generic Basket of Assets Index Component Universe") consists of

- in respect of Index Components which are either Futures or Forwards, the Underlying Commodity Index Component Universe together with the Financial Index Component Universe, and
- in respect of Index Components which are Excess Return Indices, the universe of indices which can be documented under either the Framework, Credit Suisse Index Framework for OTC FX Markets, Credit Suisse Index Framework for OTC Interest Rate Markets, or under the Credit Suisse Commodity Volatility & Risk Control Series.

5. Disruption Events and Market Emergency

5.1. Index Disruption Events

In the determination of the Index Sponsor, the following events are each referred to as "Index Disruption Events":

- Any suspension of or limitation imposed on trading by any stock exchange, futures exchange or other exchange (each an "**Exchange**") on which any futures contract referenced (albeit notionally) as an underlying of an Index Component is quoted whether by reason of movements in price exceeding limits permitted by any relevant Exchange or otherwise, which, taking into account all relevant Exchanges, represents a material percentage amount in aggregate weight of the relevant Index Component, as determined by the Index Sponsor;
- Any event that disrupts or impairs (as determined by the Index Sponsor) the ability of market participants in general to effect transactions in, or obtain market values for any futures contract referenced (albeit notionally) as an underlying of an Index Component, which represents a material percentage amount in aggregate weight of the relevant Index Component, as determined by the Index Sponsor;
- An event resulting in a breakdown in any means of communication or a procedure normally used to enable the determination of the Index Level, or any other event, in the determination of the Index Sponsor, that prevents the prompt or accurate determination of the Index Level, or the Index Sponsor concludes that as a consequence of any event, the last reported Index Level should not be relied upon;
- The Index Sponsor reasonably believes that the Core Index Methodology has determined an Index Level, or produced any other determination, that cannot be relied upon;
- The failure, suspension or postponement of any calculation within the Core Index Methodology in respect of any Index Business Day;
- The Index Sponsor determines that the Index Allocation Model has provided a signal that the Index Sponsor reasonably believes cannot be relied upon;
- The failure, suspension or postponement of the Index Allocation Model to provide a signal to the Index Calculation Agent on the relevant day;
- The Index Sponsor reasonably believes that the Index Operating Manual includes an error, omission or ambiguity;
- The ability of the Index Calculation Agent to determine the market value of an underlying index or related futures contract for the purposes of calculating the Index is adversely effected;
- the Index Sponsor determines there has been a Change in Law where "Change in Law" means (A) the adoption of or any change in applicable law or regulation (including, without limitation, any tax law) or (B) 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 action taken by a taxing authority) which, in the determination of the Index Calculation Agent (in its sole discretion) would (i) make it illegal for the Index Calculation Agent to perform its duties under these Index Rules or in respect of its hedging arrangements or (ii) will cause the Index Calculation Agent to incur a materially increased cost in performing its obligations under this Index Operating Manual or in respect of its hedging arrangements (including, without limitation, due to any increase in tax liability, decrease in tax benefit or other adverse effect on its tax position); or
- A failure, suspension or postponement in the reporting or publishing of the value of any underlying index or related futures contract as regularly scheduled, or any event that prevents the value of an underlying index or related future so published from being received by the people to whom it is published, whereby such event is, in the determination of the Index Calculation Agent, material; or
- Any circumstances where, although the value of an underlying index or related futures contract is published, the Index Calculation Agent determines that such value is not accurate or that any transaction in respect of the underlying index or related futures contract could not be transacted at such value or with a cash consideration in full, and to be received as regularly scheduled.

5.1.1. Disrupted Valuation Days inheritance: Disruption Groups

In certain circumstances, the occurrence of a Disrupted Valuation Day in respect of one Index Component will have an effect on the trading of the futures contracts underlying other Index Components.

For the purposes of determining the effect of a Disrupted Valuation Day on the Roll Period, such Index Components are grouped together in a "Disruption Group". All Index Components that belong to a Disruption Group containing an Index Component in respect of which a Disrupted Valuation Date has occurred are deemed to be Disrupted Index Components for the purposes of section 5.1, such that the Roll Weights for each Index Component of the Disruption Group will remain identical to the values they had on the Index Business Day immediately preceding the Disrupted Valuation Day.

Disruption Groups pertaining to a specific Index are specified in the relevant Index Parameters.

5.2. Fall-Back Provisions

5.2.1. Commodity Indices

Where, in the determination of the Index Sponsor, either (a) an Index Disruption Event (as defined in section A.5.1.) has occurred and subsists in respect of any Index Business Day or (b) on any Index Business Day any exchange on which any commodity futures contract referenced (albeit notionally) as an underlying of an Index Component is quoted is not scheduled to be open, and is not open, for trading for its regular trading session (each such Index Business Day, a "Disrupted Valuation Day"), the Index Sponsor may in respect of such Disrupted Valuation Day (i) determine the Index Level on the basis of estimated or adjusted data and publish an estimated level of the Index, (ii) delay, suspend or terminate the publication of the index, and/or (iii) following such Disrupted Valuation Day(s), adjust the price or level of any Index Component within the Index or, any other factor or variable involved in the calculation of the Index it deems necessary, in its reasonable opinion, to account for the relevant event described above.

If any Index Business Day during the Roll Period is a Disrupted Valuation Day, each Index Component which was affected by such Index Disruption Event or such scheduled closure (a "Disrupted Index Component") is not rebalanced on that day. In addition, the Roll Weights referred to as $RW^{m}_{c,w}$ for each Disrupted Index Component will remain identical to the values they had on the Index Business Day immediately preceding the Disrupted Valuation Day (such that, if such Index Business Day is the first day of the Roll Period as well as the SDCD, $RW^{m}_{c,w}$ in respect of such Index Business Day shall have the value it would have if such Index Business Day was not a roll day). Each Disrupted Index Component is rebalanced on the next Index Business Day on which there is not a Disruption Event in relation to the relevant Index Component. If the three (3) following Index Business Days are Disrupted Valuation Days (referred to as an "Extended Disruption Period"), the Index Approval Committee, in conjunction with the Index Advisory Committee, may determine, in good faith and in a reasonable commercial manner, on the earlier of (a) three Index Business Days following the initial Disrupted Valuation Day or (b) the Last Trading Day of the relevant Index Component, the relevant $IPIP^{m}_{c,CS,j}$ allocated to the Index Component c, Curve Segment CS and Index Pricing Instrument j for each such Disrupted Index Component in respect of the Index Business Day following the Extended Disruption Period.

5.2.2. Interest Rate Indices

Where, in the determination of the Index Sponsor, an Index Disruption Event has occurred or is existing and subsisting in respect of any Index Business Day (a "**Disrupted Valuation Day**"), the Index Sponsor may in respect of such Disrupted Valuation Day (i) delay, suspend or terminate the calculation and publication of the Index Value and/or (ii) determine the Index Value on the basis of estimated or adjusted data and publish an estimated level of the Index Value and/or, (iii) take any action, including but not limited to, using the most recent signals received from the Index Allocation

Model, designating alternative price sources, and/or alternative exchange rate calculations, adjusting swap term conventions (if applicable), reconstituting the Index (e.g., a change in weights and/or FX fixings).

If the Index Rebalancing Date is a Disrupted Valuation Day, each Index Component which was affected by such Disruption Event or such scheduled closure (a "Disrupted Index Component") is not rebalanced on that day.

5.2.3. Foreign Exchange Indices

Where, in the determination of the Index Sponsor, an Index Disruption Event (as defined below) has occurred or exists and subsists in respect of any Index Business Day (each such Index Business Day, a "Disrupted Valuation Day"), the Index Sponsor may in respect of such Disrupted Valuation Day

(i) determine the Index Value on the basis of estimated or adjusted data and publish an estimated level of the Index and/or
(ii) following such Disrupted Valuation Day(s), adjust the price or level of any Index Component within the Index or, any other factor or variable involved in the calculation of the Index it deems necessary, in its reasonable opinion, to account for the relevant event described above and/or
(iii) use a designated alternative price source for a currency and/or
(iv) use a designated alternative price calculation method to compute rates and/or
(v) delay, suspend or terminate the publication of the index.

If the Index Rebalancing Date is a Disrupted Valuation Day, each Index Component which was affected by such Disruption Event or such scheduled closure (a "Disrupted Index Component") is not rebalanced on that day.

5.3. Market Emergency

The Index Approval Committee, in consultation with the Index Advisory Committee, will declare a Market Emergency when circumstances are deemed to have a material effect on the tradability of an Index.

In such circumstances, the Index Approval Committee may need to take immediate actions it deems appropriate to ensure that the integrity of the Index is preserved, including when necessary the suspension or cessation of the publication of the relevant Index.

5.4. Consultation with External Stakeholders

Unless explicitly stated in the relevant Index Operating Manual, no consultation with external stakeholders is envisaged.

6. Index Calculation methodologies

6.1. Long-Only Forward/Futures based calculation methodology

6.1.1. Basic definitions

The definitions and descriptions included in this section are applied in the relevant Index calculation as necessary. Any terms or definitions may be specified further in the relevant Index Parameter, which may supersede such definitions herein, or might not be required for the purposes of the specific Index calculation (for example, the concepts of Curve Segment, IPI Designation and Physical Delivery Periods may not be applicable to Indices using Index Components from the Financial Index Universe).

6.1.1.0. Technical summary

In this section we introduce the Long-Only Forward/Futures Calculation Engine.

We also define the following concepts:

- Physical Delivery Period: For a given commodity, we define a Physical Delivery Period as each calendar month in the following 3 years period,
- Physical Pricing Instruments: For each such monthly Physical Delivery Period, we assign a Physical Pricing Instrument (PPI) as the futures contract which may be used in Physical commodity transactions for pricing purposes,
- Curve Segments: We decompose of the forward price curve into successive segments ("**Curve Segment**"). For a given version of the Index, the specific decomposition of the forward curve is defined in relevant Index Parameters,
- Designated Commodity Derivatives Instruments: For a given commodity (Index Component) and Curve Segment, we define Designated Commodity Derivatives Instruments as the Futures contracts that can be referenced in a Curve Segment. These are defined for each Index Component in relevant Index Parameters,
- Index Pricing Instrument: We assign an Index Pricing Instrument to each Physical Pricing Instrument, to take into account liquidity and tradability/availability of futures contracts and derivatives instruments. All Index Pricing Instruments are required to be Designated Commodity Derivative Instruments (DCDI) for the relevant commodity and Curve Segment.
- Indices: For each Index component, we calculated one Index per Curve Segment (each a "**Curve Segment Index**") and one Index for the entire tradable curve (each a "**Forward Curve Index**").

6.1.1.1. Physical Pricing Period (PPP), Physical Pricing Instruments (PPI) and Designated Commodity Derivative Instruments

6.1.1.1.1. Physical Pricing Period (PPP) and Physical Pricing Instruments (PPI)

For each Underlying Commodity Index Component and each Physical Delivery Period, the Physical Pricing Instruments (PPI) are defined as the Futures contract typically used in reference to the pricing of physical transactions. These primarily consist of monthly Futures contracts, but for some Index Components, quarterly Futures contracts may also be used (see Table I.b. Physical Pricing Instruments (Quarterly Contracts) below). In general, the PPIs are the nearby month contract associated with the relevant month.

The exception to this is for commodities where a nearby month contract doesn't exist for each consecutive month in which case the closest available nearby month contract is used. For each Index Component, the PPIs are defined, at inception, using the commodities code stated below.

Any subsequent changes to the PPIs as a result of the introduction of a new futures contract or the removal of an existing futures contract will be determined by the Index Approval Committee as outlined in the Section A.2. The Index Operating Manual, the Index Approval and Advisory Committees.

The following table features the Monthly Physical Pricing Instruments for primary Underlying Commodity Index Component in the Underlying Commodity Index Component Universe.

Table Ia. Underlying Commodity Index Universe - Physical Pricing Instruments (Monthly contracts)

Physical Delivery Period (PPD)/ Physical Pricing Instrument (PPI)	Exchange	Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Energy														
WTI Crude Oil	NYMEX	Monthly	G	H	J	K	M	N	Q	U	V	X	Z	F
WTI Crude Oil	ICE	Monthly	G	H	J	K	M	N	Q	U	V	X	Z	F
Brent Crude Oil	ICE	Monthly	G	H	J	K	M	N	Q	U	V	X	Z	F
Oman Crude Oil	DME	Monthly	G	H	J	K	M	N	Q	U	V	X	Z	F
Coal API #2	ICE	Monthly	G	H	J	K	M	N	Q	U	V	X	Z	F
NY Harbor ULSD	NYMEX	Monthly	G	H	J	K	M	N	Q	U	V	X	Z	F
Gasoil	ICE	Monthly	G	H	J	K	M	N	Q	U	V	X	Z	F
RBOB Gasoline	NYMEX	Monthly	G	H	J	K	M	N	Q	U	V	X	Z	F
Natural Gas	NYMEX	Monthly	G	H	J	K	M	N	Q	U	V	X	Z	F
Industrial Metals														
Copper high grade	COMEX	Monthly	G	H	J	K	M	N	Q	U	V	X	Z	F
Copper grade A.	LME	Monthly	G	H	J	K	M	N	Q	U	V	X	Z	F
Zinc high grade	LME	Monthly	G	H	J	K	M	N	Q	U	V	X	Z	F
Aluminium primary	LME	Monthly	G	H	J	K	M	N	Q	U	V	X	Z	F
Nickel primary	LME	Monthly	G	H	J	K	M	N	Q	U	V	X	Z	F
Tin	LME	Monthly	G	H	J	K	M	N	Q	U	V	X	Z	F
Lead standard	LME	Monthly	G	H	J	K	M	N	Q	U	V	X	Z	F
Precious Metals														
Gold	COMEX	Monthly	G	J	J	M	M	Q	Q	V	V	Z	Z	G
Silver	COMEX	Monthly	H	H	K	K	N	N	U	U	Z	Z	Z	F
Platinum	NYMEX	Monthly	J	J	J	N	N	N	Q	U	V	F	F	F
Palladium	NYMEX	Monthly	H	H	M	M	M	U	U	U	Z	Z	Z	H
Agriculture														
SRW Wheat	CBOT	Monthly	H	H	K	K	N	N	U	U	Z	Z	Z	H
HRW Wheat	KCBOT	Monthly	H	H	K	K	N	N	U	U	Z	Z	Z	H
Corn	CBOT	Monthly	H	H	K	K	N	N	U	U	Z	Z	Z	H
Soybeans	CBOT	Monthly	H	H	K	K	N	N	Q	U	X	X	F	F
Soybean Meal	CBOT	Monthly	H	H	K	K	N	N	Q	U	V	Z	Z	F
Soybean Oil	CBOT	Monthly	H	H	K	K	N	N	Q	U	V	Z	F	F
Sugar #11	ICE	Monthly	H	H	K	K	N	N	V	V	V	H	H	H
Sugar #5	EN	Monthly	H	H	K	K	Q	Q	Q	V	V	Z	Z	H
Cocoa	ICE	Monthly	H	H	K	K	N	N	U	U	Z	Z	Z	H
Cocoa	EN	Monthly	H	H	K	K	N	N	U	U	Z	Z	Z	H
Coffee “C” Arabica	ICE	Monthly	H	H	K	K	N	N	U	U	Z	Z	Z	H
Coffee Robusta	EN	Monthly	H	H	K	K	N	N	U	U	X	X	F	F
Cotton	ICE	Monthly	H	H	K	K	N	N	V	V	V	Z	Z	H
F.C. Orange J. (A)	ICE	Monthly	H	K	K	N	N	U	U	X	X	F	F	H
Livestock														
Live Cattle	CME	Monthly	G	J	J	M	M	Q	Q	V	V	Z	Z	G
Feeder Cattle	CME	Monthly	H	H	J	K	Q	Q	Q	U	V	X	F	F
Lean Hogs	CME	Monthly	G	J	J	K	M	N	Q	V	V	Z	Z	G

Source: Credit Suisse

Commodity codes: F: Jan, G: Feb, H: Mar, J: Apr, K: May, M: Jun, N: Jul, Q: Aug, U: Sep, V: Oct, X: Nov, Z: Dec

The following table features the Quarterly Physical Pricing Instruments for primary Index Component in the Underlying Commodity Index Component Universe.

Table Ib. Underlying Commodity Index Component Universe - Physical Pricing Instruments (quarterly contracts)

Physical Delivery Period (PPD)/ Physical Pricing Instrument (PPI)	Exchange	Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Energy														
Coal API #2	ICE	Quarterly	F	F	F	J	J	J	N	N	N	V	V	V

Source: Credit Suisse

Commodity codes: F: Jan = Q1, J: Apr=Q2, N: Jul=Q3, V: Oct=Q4

The following table features the Physical Pricing Instruments for additional Index Components in the Underlying Commodity Index Component Universe.

Table Ic. Underlying Commodity Index Universe - Physical Pricing Instruments

Physical Delivery Period (PPD)/ Physical Pricing Instrument (PPI)	Exchange	Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Other Agriculture														
Rubber	TOCOM	Monthly	G	H	J	K	M	N	Q	U	V	X	Z	F
Canola	ICE	Monthly	H	H	K	K	N	N	X	X	X	X	F	F
Random L. Lumber	CME	Monthly	H	H	K	K	N	N	U	U	X	X	F	F
Rough Rice	CBOT	Monthly	H	H	K	K	N	N	U	U	X	X	F	F
Spring Wheat	CBOT	Monthly	H	H	K	K	N	N	U	U	Z	Z	Z	H
Oats	CBOT	Monthly	H	H	K	K	N	N	U	U	Z	Z	Z	H
Milling Wheat	EN	Monthly	H	K	K	U	U	U	U	Z	Z	Z	H	H
Rapeseed	EN	Monthly	G	K	K	K	Q	Q	Q	X	X	X	G	G

Source: Credit Suisse

Commodity codes: F: Jan, G: Feb, H: Mar, J: Apr, K: May, M: Jun, N: Jul, Q: Aug, U: Sep, V: Oct, X: Nov, Z: Dec

6.1.1.1.2. Designated Commodity Derivative Instruments (DCDI)

For each Underlying Commodity Index Component and each Curve Segment, a list of valid contract codes is defined in relevant Index Parameters.

The Designated Commodity Derivative Instruments are reviewed by the Index Approval Committee annually, in conjunction with the Index Advisory Committee, as outlined in Section A.2. The Index Operating manual, The Index Approval and Advisory Committees.

6.1.1.2. Index Pricing Instruments (IPI)

The Index Pricing Instruments are determined via the two methodologies using the Designated Commodity Derivative Instruments (DCDI) and the Physical Pricing Instruments (PPI) defined in the relevant Index Parameters.

6.1.1.2.1. Standard IPI Designation Procedure

Using the Designated Commodity Derivative Instruments (DCDI), we associate an IPI (in the form of contract codes) for each Physical Delivery Period (PDP) and each Index Component.

For each Underlying Commodity Index Component, the Index Pricing Instruments are set equal to the PPI's except when:

- The PPI is not a Designated Commodity Derivative Instrument,
- The difference between the PPI's First Notice Day and the theoretical end of the Roll Period is less than the First Notice Day Clearance Period defined in the relevant Index Parameters.
- The difference between the PPI's Last Trading Day and the theoretical end of the Roll Period is less than the Last Trading Day Clearance Period defined in the relevant Index Parameters.

In these cases, the Index Pricing Instrument is set to the Designated Commodity Derivative Instrument associated with the following Physical Delivery Period.

Note that in the standard IPI designation procedure, the IPI is always equal to the non-adjusted IPI.

Table II. Standard IPI designation procedure for a {3, 3, 6, 12, 12} forward curve structure

	Ref Prd.	PROMPT			4x6F			7x12F						13x24F			
PDP	**DEC**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**…**
PPI		F	G	H	J	K	M	N	Q	U	V	X	Z	F	G	H	…
na-IPI		**G**	G	H	J	K	M	N	Q	U	V	X	Z	**H**	**H**	H	…
IPI		G	G	H	J	K	M	N	Q	U	V	X	Z	H	H	H	…
PDP	**JAN**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**…**
PPI		G	H	J	K	M	N	Q	U	V	X	Z	F	G	H	J	…
na-IPI		**H**	H	J	K	M	N	Q	U	V	X	Z	F	**H**	H	**M**	…
IPI		H	H	J	K	M	N	Q	U	V	X	Z	F	H	H	M	…
PDP	**FEB**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**…**
PPI		H	J	K	M	N	Q	U	V	X	Z	F	G	H	J	K	…
na-IPI		**J**	J	K	M	N	Q	U	V	X	Z	F	G	H	**M**	**M**	…
IPI		J	J	K	M	N	Q	U	V	X	Z	F	G	H	M	M	…

Source: Credit Suisse

6.1.1.2.2. Alternative IPI designation procedure

When the Alternative IPI designation procedure is in use, the IPI is set to the non-adjusted IPI associated with the following Physical Pricing Instrument (PPI) if the non-adjusted IPI is different to the PPI for the first Physical Delivery Period only. In the example Table III below, for the Reference Period of December, the February non-adjusted IPI (in red) is G. The February IPI (in green) set equal to H because the non-adjusted IPI of January (the first PDP) is not equal to the January PPI.

Table III. Alternative IPI designation procedure for a {3, 3, 6, 12, 12} forward curve structure

	Ref Prd.	PROMPT			4x6F			7x12F						13x24F			
PDP	DEC	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	…
PPI		F	G	H	J	K	M	N	Q	U	V	X	Z	F	G	H	…
na-IPI		G	G	H	J	K	M	N	Q	U	V	X	Z	H	H	H	…
IPI		G	H	J	K	M	N	Q	U	V	X	Z	H	H	H	M	…
PDP	JAN	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	…
PPI		G	H	J	K	M	N	Q	U	V	X	Z	F	G	H	J	…
na-IPI		H	H	J	K	M	N	Q	U	V	X	Z	F	H	H	M	…
IPI		H	J	K	M	N	Q	U	V	X	Z	F	H	H	M	M	…
PDP	FEB	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	…
PPI		H	J	K	M	N	Q	U	V	X	Z	F	G	H	J	K	…
na-IPI		J	J	K	M	N	Q	U	V	X	Z	F	G	H	M	M	…
IPI		J	K	M	N	Q	U	V	X	Z	F	G	H	M	M	M	…

Source: Credit Suisse

6.1.1.3. Decomposition of the Commodity Forward Curve in Curve Segments (CS)

We decompose the commodity forward price curve into Curve Segments (CS) using the pre-defined Physical Delivery Segments defined in the relevant Index Parameters.

For a given Underlying Commodity Index Component, a Curve Segment Index will only exist if the Curve Segment has been assigned Designated Commodity Derivative Instruments.

The structure of the forward price curve is described as the number of monthly Physical Delivery Period comprising each segment.

For example, the notation {1, 2, 3, 6, 12, 12} means that the forward curves of all commodities in the Index are decomposed in the following way:

- The first segment (called 1F or more generically the PROMPT segment) is made of a single Physical Delivery Period,
- The second segment, also called 2x3F, covers two Physical Delivery Periods,
- The third segment, called 4x6F, has three Physical Delivery Periods,
- The fourth segment, called 7x12F, has six Physical Delivery Periods,
- The subsequent two segments called 13x24F and 25x36F cover respectively twelve Physical Delivery Periods.

Table IVa. And IVb. below shows the result of two possible re-compositions of the forward curve in specific Curve Segments for NYMEX WTI Crude Oil, for the Reference Periods of December and January. The first decomposition is {1, 2, 3, 6, 12, 12} = {PROMPT, 2x3F, 4x6F, 7x12F, 13x24F, 25x36F}. The IPI's are calculated using the Standard IPI Designation Procedure.

Table IVa. Example of re-composition of the curve segment indices : {PROMPT = 1F, 2x3F, 4x6F, 7x12F, 13x24F, 25x36F} (Roll period 5-14 bd)

Forward Curve Segment	Physical Delivery Period	Physical Pricing Instrument (PPI)	Index Pricing Instrument (IPI)	Comment	Physical Delivery Period	Physical Pricing Instrument (PPI)	Index Pricing Instrument (IPI)	Comment
Ref. Month	DEC				JAN			
PROMPT	Jan	F	G(1)	F is replaced by G	Feb	G	H(1)	G is replaced by H
2x3F	Feb	G	G		Mar	H	H	
	Mar	H	H		Apr	J	J	
4x6F	Apr	J	J		May	K	K	
	May	K	K		Jun	M	M	
	Jun	M	M		Jul	N	N	
7x12F	Jul	N	N		Aug	Q	Q	
	Aug	Q	Q		Sep	U	U	
	Sep	U	U		Oct	V	V	
	Oct	V	V		Nov	X	X	
	Nov	X	X		Dec	Z	Z	
	Dec	Z	Z		Jan	F	F	
13x24F	Jan	F	H(2)	F is replaced by H	Feb	G	H(2)	G is replaced by H
	Feb	G	H(2)	G is replaced by H	Mar	H	H	
	Mar	H	H		Apr	J	M(2)	J is replaced by M
	Apr	J	M(2)	J is replaced by M	May	K	M(2)	K is replaced by M
	May	K	M(2)	K is replaced by M	Jun	M	M	
	Jun	M	M		Jul	N	U(2)	N is replaced by U
	Jul	N	U(2)	N is replaced by U	Aug	Q	U(2)	Q is replaced by U
	Aug	Q	U(2)	Q is replaced by U	Sep	U	U	
	Sep	U	U		Oct	V	Z(2)	V is replaced by Z
	Oct	V	Z(2)	V is replaced by Z	Nov	X	Z(2)	X is replaced by Z
	Nov	X	Z(2)	X is replaced by Z	Dec	Z	Z	
	Dec	Z	Z		Jan	F	H(2)	F is replaced by H
25x36F	Jan	F	M(2)	F is replaced by M	Feb	G	M(2)	G is replaced by M
	Feb	G	M(2)	G is replaced by M	Mar	H	M(2)	H is replaced by M
	Mar	H	M(2)	H is replaced by M	Apr	J	M(2)	J is replaced by M
	Apr	J	M(2)	J is replaced by M	May	K	M(2)	K is replaced by M
	May	K	M(2)	K is replaced by M	Jun	M	M	
	Jun	M	M		Jul	N	Z(2)	N is replaced by Z
	Jul	N	Z(2)	N is replaced by Z	Aug	Q	Z(2)	Q is replaced by Z
	Aug	Q	Z(2)	Q is replaced by Z	Sep	U	Z(2)	U is replaced by Z
	Sep	U	Z(2)	U is replaced by Z	Oct	V	Z(2)	V is replaced by Z
	Oct	V	Z(2)	V is replaced by Z	Nov	X	Z(2)	X is replaced by Z
	Nov	X	Z(2)	X is replaced by Z	Dec	Z	Z	
	Dec	Z	Z		Jan	F	M(2)	F is replaced by M

Source: Credit Suisse

(1): the Physical Pricing Instrument is not eligible for this Curve Segment as the futures contract expires in the course of the Reference Period

(2): the Physical Pricing Instrument is not eligible for this Curve Segment as the futures contract is not part of the Designated Commodity Derivative Instruments

The second decomposition is {3, 3, 6, 12, 12}={PROMPT, 4x6F, 7x12F, 13x24F, 25x36F}. For illustration purposes, it uses the alternative IPI Designation Procedure.

Table IVb. Example of re-composition of the curve segment indices : {PROMPT = 1x3F, 4x6F, 7x12F, 13x24F, 25x36F}

Forward Curve Segment	Physical Delivery Period	Physical Pricing Instrument (PPI)	Index Pricing Instrument (IPI)	Comment	Physical Delivery Period	Physical Pricing Instrument (PPI)	Index Pricing Instrument (IPI)	Comment
Ref. Month	DEC				JAN			
PROMPT	Jan	F	G(*)	F is replaced by G	Feb	G	H(*)	G is replaced by H
	Feb	G	H(*)	G is replaced by H	Mar	H	J(*)	H is replaced by J
	Mar	H	J(*)	H is replaced by J	Apr	J	K(*)	J is replaced by K
4x6F	Apr	J	K(*)	J is replaced by K	May	K	M(*)	K is replaced by M
	May	K	M(*)	K is replaced by M	Jun	M	N(*)	M is replaced by N
	Jun	M	N(*)	M is replaced by N	Jul	N	Q(*)	N is replaced by Q
7x12F	Jul	N	Q(*)	N is replaced by Q	Aug	Q	U(*)	Q is replaced by U
	Aug	Q	U(*)	Q is replaced by U	Sep	U	V(*)	U is replaced by V
	Sep	U	V(*)	U is replaced by V	Oct	V	X(*)	V is replaced by X
	Oct	V	X(*)	V is replaced by X	Nov	X	Z(*)	X is replaced by Z
	Nov	X	Z(*)	X is replaced by Z	Dec	Z	F(*)	Z is replaced by F
	Dec	Z	H(*)	Z is replaced by H	Jan	F	H(*)	F is replaced by H
13x24F	Jan	F	H(*)	F is replaced by H	Feb	G	H(*)	G is replaced by H
	Feb	G	H(*)	G is replaced by H	Mar	H	M(*)	H is replaced by M
	Mar	H	M(*)	H is replaced by M	Apr	J	M(*)	J is replaced by M
	Apr	J	M(*)	J is replaced by M	May	K	M(*)	K is replaced by M
	May	K	M(*)	K is replaced by M	Jun	M	U(*)	M is replaced by U
	Jun	M	U(*)	M is replaced by U	Jul	N	U(*)	N is replaced by U
	Jul	N	U(*)	N is replaced by U	Aug	Q	U(*)	Q is replaced by U
	Aug	Q	U(*)	Q is replaced by U	Sep	U	Z(*)	U is replaced by Z
	Sep	U	Z(*)	U is replaced by Z	Oct	V	Z(*)	V is replaced by Z
	Oct	V	Z(*)	V is replaced by Z	Nov	X	Z(*)	X is replaced by Z
	Nov	X	Z(*)	X is replaced by Z	Dec	Z	H(*)	Z is replaced by H
	Dec	Z	M(*)	Z is replaced by M	Jan	F	M(*)	F is replaced by M
25x36F	Jan	F	M(*)	F is replaced by M	Feb	G	M(*)	G is replaced by M
	Feb	G	M(*)	G is replaced by M	Mar	H	M(*)	H is replaced by M
	Mar	H	M(*)	H is replaced by M	Apr	J	M(*)	J is replaced by M
	Apr	J	M(*)	J is replaced by M	May	K	M(*)	K is replaced by M
	May	K	M(*)	K is replaced by M	Jun	M	Z(*)	M is replaced by Z
	Jun	M	Z(*)	M is replaced by Z	Jul	N	Z(*)	N is replaced by Z
	Jul	N	Z(*)	N is replaced by Z	Aug	Q	Z(*)	Q is replaced by Z
	Aug	Q	Z(*)	Q is replaced by Z	Sep	U	Z(*)	U is replaced by Z
	Sep	U	Z(*)	U is replaced by Z	Oct	V	Z(*)	V is replaced by Z
	Oct	V	Z(*)	V is replaced by Z	Nov	X	Z(*)	X is replaced by Z
	Nov	X	Z(*)	X is replaced by Z	Dec	Z	M(*)	Z is replaced by M
	Dec	Z	M(*)	Z is replaced by M	Jan	F	M(*)	F is replaced by M

Source: Credit Suisse

(*): the IPI is equal to the following month na-IPI (which itself is equal to its PPI) following the alternative IPI designation procedure

6.1.1.4. The Roll Period

The Roll Period represents the period from and including the First Roll Date (FRD) to and including Last Roll Date (LRD).

During the Roll Period, the Index transfers positions from the Curve Segment Value (CSV) defined for month m, to the CSV defined for the following month (denoted as m+1) (as described in further detail in Section 6.1.1.5. The Calculation Date, the Calculation Period, the Reference Period and the Static Data Calculation Date).

Both the Start and End of the Roll Period are defined in term of the number of Index Business Days from the last Index Business Day of the month prior to the Reference Period m.

For example, [+1(m)/+9(m)] means that the roll starts on the 1st Index Business Day and ends on the 9th Index Business Day of the Reference Period.

6.1.1.4.1 The Static Data Calculation Date (SDCD)

We define the Static Data Calculation Date (SDCD) as the date, specified in the relevant Index Parameters, on which the Static Data are calculated for the Reference Period m. For indices calculated under the Long-Only Forward/Futures Calculation Engine, on the Static Data Calculation Date we calculate the Nominal Weights and Nominal Weights Factors according to the particular specifications as detailed in the relevant Index Parameters.

6.1.1.4.2 The definition of Roll Weights (RW) for the Price Return Index

We have defined the Roll Period as a range of Index Business Days over which a transfer of position may take place. For example, if the Roll Period was defined as the 1st to the 9th Index Business Day of the Calculation Period, the Price Return Index starts to reference the CSV defined for Reference Period m+1 on the 1st Index Business Day of the month, and hence when/if the transfer of positions takes place over consecutive Index Business Days, the rate of positions transfer takes place at the roll rate RR defined by:

$$RR = \frac{1}{(LRD - FRD + 1)} \qquad (A.6.1.1.a)$$

FRD the First Roll Date in the Roll Period,
LRD the Last Roll Date in the Roll Period.

Note that roll dates are not necessarily consecutive Index Business Days and can follow a customised schedule. The Roll Period for a particular version of the Index is defined in the relevant Index Parameters. During the Roll Period, in the absence of a Disrupted Valuation Day, the values taken by the Roll Weights can be as shown in Table V. below.

Table V. Example of values taken by RW^m during the Roll Period for the Price Return Index A. Historical benchmarks: roll period from the 5th to 9th Index business day [+5(m)/+9(m)] – 5 consecutive business days

					<- Roll Period ->											
Bus day	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**15+**	**…**
RW	1.0	1.0	1.0	1.0	0.8	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
RR	0	0	0	0	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Source: Credit Suisse

B. CSCB: roll period from the 5th to last business day of the previous month to the 9th Index business day of the month [-5(m)/+9(m)], 15 consecutive business days

		<- Roll Period ->											
Bus day	**-6**	**-5**	**-4**	**-3**	**-2**	**-1**	**0**	**1**	**2**	**…**	**9**	**10**	**10+**	**…**
RW	1.0	14/15	13/15	12/15	11/15	10/15	9/15	8/15	7/15	…	0.0	0.0	0.0	
RR	0	1/15	1/15	1/15	1/15	1/15	1/15	1/15	1/15	…	1/15	0.0	0.0	

Source: Credit Suisse, Framework Steering Committee

6.1.1.4.3. The definition of Roll Weights (RW) for the Excess Return Index

In order to mitigate the effect of Disrupted Valuation Days occurring during the Roll Period and prevent any discontinuity from affecting the Excess Return Index, the Roll Period of the Excess Return Index is delayed by one Index Business Day compared to the Roll Period of the Price Return Index, i.e. the values taken by $RW^{m}_{c,t}$ on a Calculation Date are equal to the Roll Weight used by the Price Return Index on the immediately preceding Calculation Date, hence the notation $RW^{m}_{c,t-1}$ for each Index Component c on Reference Period m (See Table VI below).

Table VI. Example of values taken by RW^{m} during the roll period for the Price Return Index roll period from the 5th to last business day of the previous month to the 9th Index business day of the month

		<- Roll Period ->											
Bus day	**-6**	**-5**	**-4**	**-3**	**-2**	**-1**	**0**	**1**	**2**	**…**	**9**	**10**	**11+**	**…**
PR	1.0	14/15	13/15	12/15	11/15	10/15	9/15	8/15	7/15	…	0.0	0.0	0.0	0.0
RR	0	1/15	1/15	1/15	1/15	1/15	1/15	1/15	1/15	…	1/15	0.0	0.0	0.0
ER	1.0	1.0	14/15	13/15	12/15	11/15	10/15	9/15	8/15	…	1/15	0.0	0.0	0.0
RR	0	0	1/15	1/15	1/15	1/15	1/15	1/15	1/15	…	1/15	1/15	0.0	0.0

Source: Credit Suisse

6.1.1.4.4. The values of Roll Weights (RW) during Disrupted Valuation Days

In the following two sections, we define the procedures governing the calculation of the Index when a Disrupted Valuation Day takes place during a Roll Period. We define both the "Standard Roll" and the "Extended Roll" methodology.

Disrupted Valuation Days that occur outside the Roll Period do not affect the proportion or futures contract positions maintained to hedge the dollar exposure in the Index and so no adjustment to the RW schedule is necessary.

6.1.1.4.4.1. Standard Roll methodology

If a Disrupted Valuation Day occurs during the Roll Period, the RW associated with the Price Return Index on that day remains unchanged when compared to its value on the previous Index Business Day which was not a Disrupted Valuation Day in relation to the relevant Index Component. The RW on the next Index Business Day which is not a Disrupted Valuation Day is updated so that it reflects the RW which would have existed on such Index Business Day had the relevant Disrupted Valuation Days not occurred.

Unless a Disrupted Valuation Day occurs on the last day of the Roll Period, the length of the Roll Period is unaffected (See Table VII below).

Table VII. Example of values taken by RW^m during the roll period for the Price Return and Excess Return Index
Roll period from the 5th to 9th Index business day – MDE taking place on the 2nd roll day

				SDCD	<- Roll Period ->												
Bus Day	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**15+**	**…**
PR	0.0	0.0	0.0	1.0	0.8	0.8	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RR	0	0	0	0	0.2	0.0	0.4	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ER	0.0	0.0	0.0	1.0	1.0	0.8	0.8	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RR	0	0	0	0	0	0.2	0.0	0.4	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Credit Suisse

If a Disrupted Valuation Day occurs on the last day of the Roll Period, the length of the Roll Period is extended until the transfer of positions is completed, subject to the occurrence of further Disrupted Valuation Days, provided that if the Roll Period continues until the Last Possible Roll Date (as defined in paragraph 6.1.1.4.4.2. (Extended Roll methodology) below), and the Last Possible Roll Date is also a Disrupted Valuation Day, the Index Sponsor may determine, in good faith and in a reasonable commercial manner, the Index Pricing Instrument Price (IPIP) for the relevant Index Component (See Table VIIIa below).

Table VIIIa. Example of values taken by RW^m during the roll period for the Price Return and Excess Return Index roll period from the 5th to 9th Index business day – mde taking place on the last roll day

				SDCD	<- Roll Period ->												
Bus day	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**15+**	**…**
PR	0.0	0.0	0.0	1.0	0.8	0.6	0.4	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RR	0	0	0	0	0.2	0.2	0.2	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ER	0.0	0.0	0.0	1.0	1.0	0.8	0.6	0.4	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RR	0	0	0	0	0	0.2	0.2	0.2	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0

Source: Credit Suisse

And:

0.2	Day on which the Disrupted Valuation Day (DVD) takes place, and value attributed to variable
0.4	Value attributed to variable as a result of a DVD taking place prior to that date.
0.4	Expected value attributed to variable prior to the start of the Roll Period in absence of a DVD

6.1.1.4.4.2. Extended Roll methodology

When the Extended Roll methodology applies and a Disrupted Valuation Day occurs during the Roll Period, the Roll Period is extended. Subject to the following provisions of this paragraph 6.1.1.4.4.2, the RW take their projected and initial values until the Roll is completed (Table VIIIb below).

Table VIIIb. Example of values taken by RW^m during the re-weighting (roll) period for the Price Return and Excess Return Index Roll period from the 5th to 9th Index business day – mde taking place on the 3rd roll day and roll period extended

				SDCD	<- Roll Period (Original) ->												
					<- Roll Period (Extended)->												
Bus day	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**15+**	**…**
PR	0.0	0.0	0.0	1.0	0.8	0.6	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RR	0	0	0	0	0.2	0.2	0.0	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ER	0.0	0.0	0.0	1.0	1.0	0.8	0.6	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RR	0	0	0	0	0	0.2	0.2	0.0	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0

Source: Credit Suisse

We define the Disrupted Roll Rate (DRR) as follows:

$$DRR = \frac{1}{(LastPRD - t + 1)} \qquad (A.6.1.1.b)$$

LastPRD — the Last Possible Roll Date defined as the earlier of (i) the Index Business Day prior to the expiry of the Index Component (such expiry being the last trading day of the relevant Index Pricing Instrument) and (ii) the last Index Business Day of the Calculation Period,

t — is the Calculation Date, and the reference price date,

On the following Index Business Day which is not a Disrupted Valuation Day in relation to the relevant underlying instrument, the relevant Index Component continues to roll at the same Roll Rate unless the Disrupted Roll Rate is greater than the Roll Rate in which case the Roll Rate is set to the modified Roll Rate defined below, for the relevant Index Business Day.

$$mRR = 1 - \frac{\mathrm{RR}}{DRR} + \mathrm{RR} \qquad (A.6.1.1.c)$$

mRR — the modified Roll Rate.

In the absence of a Disrupted Valuation Day on the following Index Business Day for the relevant Index Component, the Roll Rate reverts to that defined in A.6.1.1.a. If the Roll Period continues until the Last Possible Roll Date, and a Disrupted Valuation Day occurs on the Last Possible Roll Date, the Index Sponsor may determine, in good faith and in a reasonable commercial manner, the Index Pricing Instrument Price (IPIP) for the relevant Index Component.

Table VIIIc. Example of values taken by RW^m during the re-weighting (roll) period for the Price Return and Excess Return Index Roll period from the 5th to 9th Index business day – mde taking place on the 3rd roll day, roll period extended and application of Last Possible Roll Date (LastPRD)

				SDCD	<- Roll Period (Original) ->												
					<- Roll Period (Extended)->												
Bus day	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**..**	**20**	**…**
PR	0.0	0.0	0.0	1.0	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.2	0.0	..	0.0	1.0
RR	0	0	0	0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.0	..	0.0	0
ER	0.0	0.0	0.0	1.0	1.0	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.2	..	0.0	1.0
RR	0	0	0	0	0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	..	0.0	0

Source: Credit Suisse

And:

0.2	Day on which the Disrupted Valuation Day (DVD) takes place, and value attributed to variable
0.4	Value attributed to variable as a result of a DVD taking place prior to that date.
0.4	Expected value attributed to variable prior to the start of the Roll Period in absence of a DVD
14	Last Possible Roll Date (LastPRD)
20	End of Calculation Period

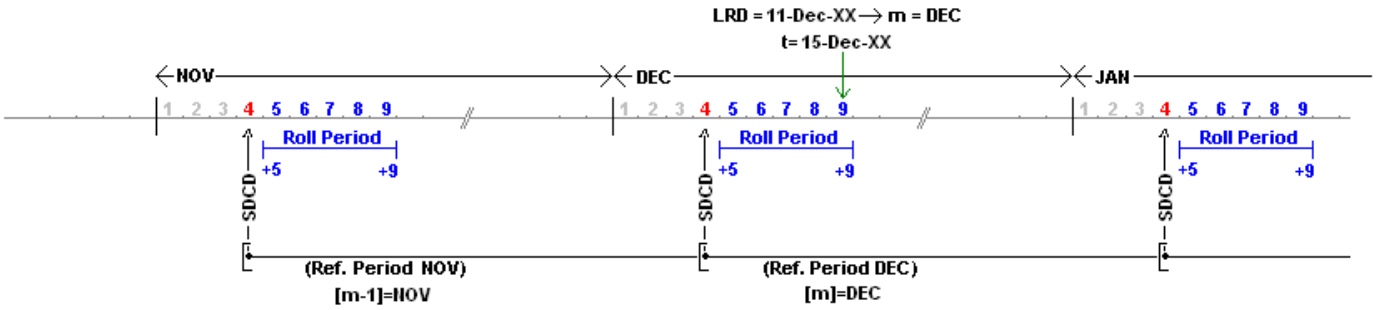
6.1.1.5. The Calculation Date, the Calculation Period, the Reference Period and the Static Data Calculation Date

To facilitate the notations and calculations, we further define the following concepts:

- The **Calculation Date**: any Index Business Day for which an Index Closing Level is published,
- The **Static Data Calculation Date** (SDCD): an Index Business Day on or prior to the start of the Roll Period, specified in the relevant Index Parameters, on which the calculation of the Static Data is performed,
- The **Calculation Period**: in respect of a Static Data Calculation Date the monthly period from and including such Static Data Calculation Date, to but excluding the immediately following Static Data Calculation Date,
- The **Reference Period**: in respect of a Calculation Date t, the month (denoted as m) determining the relevant Index Pricing Instruments (or structure of the forward curve) and defined as the calendar month in which falls the Last Roll Date in respect of the Calculation Period in which the Calculation Date t occurs (see Section 6.1.1.4. The Roll Period).

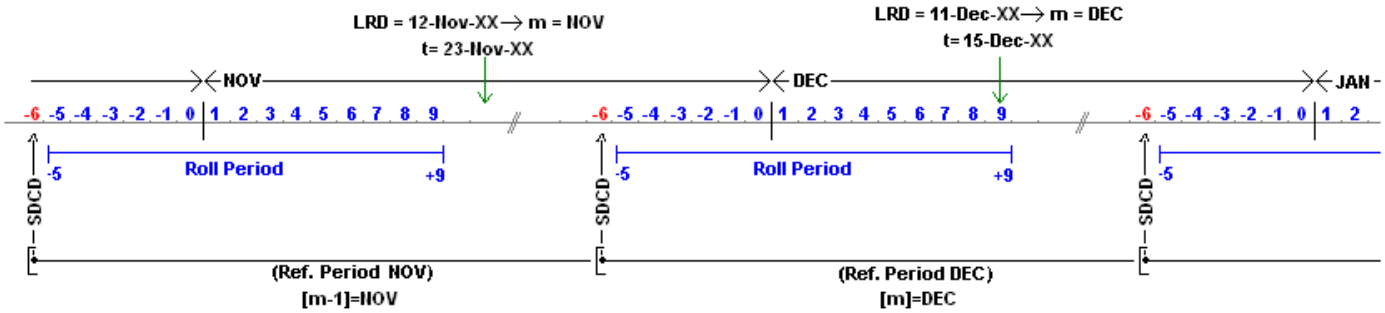
Exhibit Ia. The Calculation Date, the Calculation Period, the Reference Period and the Static Data Calculation Date

A1. Roll period [+5(m)/+9(m)]



Source: Credit Suisse

A2. Roll period [-5(m)/+9(m)]



Source: Credit Suisse

Table IX. below, provides a possible structure of Curve Segments for the Index for the Reference Period of December and January. In this example, the composition of the PROMPT segment would evolve from a weighted basket of F, G and H in December, to a weighted basket of G, H and J in January.

This change of Curve Segment composition takes place during the December Roll Period.

Table IX. Example of Reference Period (m) and (m+1) for NYMEX WTI Crude Oil

Ref Prd.		PROMPT			4x6F			7x12F						13x24F			
DEC	m	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	…
IPI		F	G	H	J	K	M	N	Q	U	V	X	Z	H	H	H	…
JAN	m+1	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	…
IPI		G	H	J	K	M	N	Q	U	V	X	Z	F	H	H	M	…

Source: Credit Suisse

6.1.1.6. The Curve Segment Value

The aggregated value of a Curve Segment is defined as the sum product of the Prices of the Index Pricing Instruments (IPI) included in a given segment, and their associated Index Pricing Instrument Nominal Weights (IPINW) which is represented by the following formula.

$$CSV^{m}_{c,CS,t} = \sum_{j=1,J} IPIP^{m}_{c,CS,j,t} \times IPINW^{m}_{c,CS,j} \qquad (A.6.1.2)$$

t	is the Calculation Date,
$CSV^{m}_{c,CS,t}$	is the Curve Segment Value, for a given Curve Segment CS and Reference Period m, for an Index Component c,
$IPIP^{m}_{c,CS,j,t}$	is the Index Pricing Instrument Price j, for an Index Component c and a given Curve Segment CS, at time t (please refer to 6.1.1.6.1. Index Pricing Instrument designation methodologies),
$IPINW^{m}_{c,CS,j}$	is the Index Pricing Instrument Nominal Weight associated with an Index Pricing Instrument j, for an Index Component c and a given Curve Segment CS,
j	the number of Physical Delivery Periods (PDP) in the Curve Segment (CS) as defined above,
m	The Reference Period (as defined in Section 6.1.1.4. The Reference Period (m), the Static Data Calculation Date (SDCD), and the Calculation Date (t)).

The calculation of CSV for Index Components which are not quoted in USD incorporates the necessary FX conversion to ensure the resulting CSVs and Index are Currency-consistent across all underlyings. As such, formula A.6.1.2. above is altered as further detailed in Appendix A herein.

6.1.1.6.1. Index Pricing Instrument designation methodologies

The Framework supports two distinct IPI designation methodologies for Underlying Commodity Index Components to reflect the differing calculation methodologies around exchange holidays and non Index Business Days:

- the “Index Schedule” method: the method ignores Index Components’ open exchange days for non Index Business Days: this is the default methodology for the Long-Only Forward/Futures Calculation Engine, and it is used, for example, in the calculation of the CSCB and the BCOM[SM] Index,
- the “Index Component Exchange Schedule” method: the method takes into account open exchange days on non Index Business Days: this methodology is used in the calculation of the S&P GSCI™.

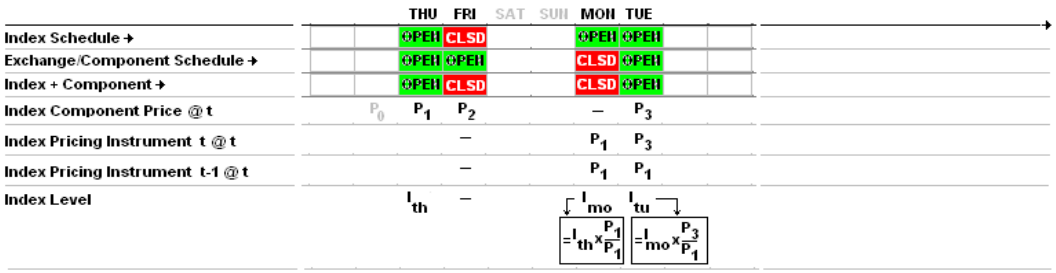
For a given Index, the Index Pricing Instrument designation methodology is a parameter defined in the relevant Index Parameters.

For Financial Index Components, the IPI designation is described in the relevant Index Parameter of a given Index.

6.1.1.6.1.1. Methodology #1: Index Schedule

When the Index Schedule methodology is selected, $IPIP^{m}_{c,CS,j,t}$ is defined as the most recent Settlement Price made available by exchange or trading facility at time t, for an Index Component c, where t is read on Index Business Days only, as illustrated by Exhibit II. below.

EXHIBIT II. METHODOLOGY #1: INDEX SCHEDULE

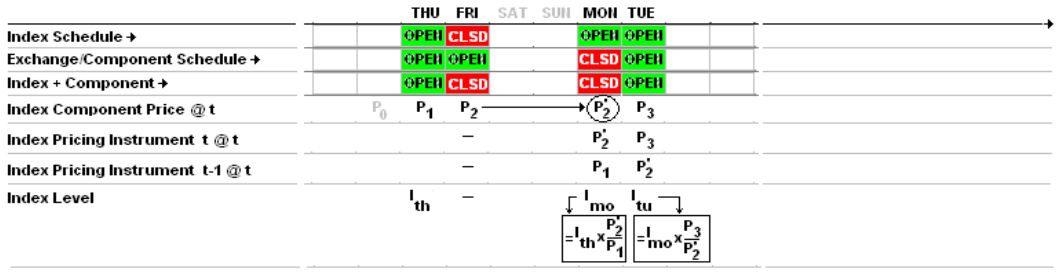


Source: Credit Suisse

6.1.1.6.1.2. Methodology #2: Index Component Exchange Schedule

When the Index Component Exchange Schedule methodology is selected, $IPIP^{m}_{c,CS,j,t}$ is defined as the most recent Settlement Price made available by exchange or trading facility at time t, for an Index Component c, regardless of the Index Schedule, as illustrated by Exhibit III. below.

EXHIBIT III. METHODOLOGY #2: INDEX COMPONENT EXCHANGE SCHEDULE



Source: Credit Suisse

6.1.1.7. Calculation of Index Pricing Instrument Nominal Weights (IPINW)

On the Static Data Calculation Date, for a given Index Component c and for each Index Pricing Instrument j defined in the Curve Segment CS for month m+1, we calculate the Index Pricing Instrument Nominal Weights for month m+1, referred to as $IPINW^{m+1}_{c,CS,j}$, as per the following procedure:

STEP 1. We obtain the Index Pricing Instrument Target Weight ($IPITW^{m+1}_{c,CS,j}$) for a given Index Component c and for each Index Pricing Instrument j in a Curve Segment CS. The values of $IPITW^{m+1}_{c,CS,j}$ are defined in the relevant Index Parameters. They are derived from the Physical Delivery Period Liquidity Weights ($PDPLW^{m+1}_{c,CS,j}$) the values of which are defined in the same section and

represent the weights assigned to each Index Pricing Instruments j defining a Curve Segment based on relative liquidity along the Index Components forward curve.

STEP 2. We calculate the $IPINW^{m+1}_{c,CS,j}$ for Index Component c and a given Index Pricing Instrument j in a Curve Segment CS in accordance with the following formula:

$$IPINW^{m+1}_{c,CS,j} = \begin{cases} \frac{IPIP^{m+1}_{c,CS,P} \times IPITW^{m+1}_{c,CS,j}}{IPIP^{m+1}_{c,CS,j} \times IPITW^{m+1}_{c,CS,P}} \times Q_{IPINW}, \text{ if } \forall j / \exists\, IPITW^{m+1}_{c,CS,j} > 0 \\ 0, \text{otherwise} \end{cases} \qquad (A.6.1.3)$$

$$Q_{IPINW} = 1 \qquad (A.6.1.4)$$

where P is a given pivot Index Pricing Instrument taken as a reference point in the calculation (usually, the first Index Pricing Instrument available in a given Curve segment). Values of IPINW are rounded as per the technical specifications detailed in the relevant Index Parameters.

6.1.1.8. Rebalancing and re-weighting: calculation of Nominal Weights

To retain the effective dollar exposure, the Index re-aligns the Forward Effective Weights (FEW) with desired Target Investment Weights (TIW) at the roll frequency outlined in the relevant Index Parameters.

The new Nominal Weights are calculated on the Static Data Calculation Date. For all Index Components in the Index, we then solve $NW^{m+1}_{c,CS,t}$ such that:

$$I^{m+1}_{c,CS} \times TIW^{m+1}_{c,CS} - FEW^{m+1}_{c,CS,t} = 0 \qquad (A.6.1.5)$$

where

$$FEW^{m+1}_{c,CS,t} = \frac{I^{m+1}_{c,CS} \times NW^{m+1}_{c,CS} \times CSV^{m+1}_{c,CS,t}}{\sum_{c=1,C} I^{m+1}_{c,CS} \times NW^{m+1}_{c,CS} \times CSV^{m+1}_{c,CS,t}} \qquad (A.6.1.6)$$

$I^{m}_{c,CS}$ the Inclusion Factors for Index Component c and Curve Segment CS. The inclusion Factors allow for the inclusion (or exclusion) of a given Index Component in a Curve Segment (see the relevant Index Parameters.),

$TIW^{m}_{c,CS}$ the Target Investment Weights for Index Component c and Curve Segment CS. TIWs are defined in the relevant Index Parameters.

$NW^{m+1}_{c,CS}$ the quantity calculated.

For each Index Component with a non-null Target Investment Weight and Inclusion Factor, we define an arbitrary quantity Q and derive the first Nominal Weight (Note, the pivot Index Component P is defined as the Index Component with the highest Target Investment Weight. If such Index Component P is not unique, then alphabetical order applies):

$$NW^{m+1}_{P,CS} = Q_{NW} = 10000 \qquad (A.6.1.7)$$

For an Index Component c and Curve Segment CS, we define the Re-weighting Factors (RF) as;

$$RF_{c,CS}^{m+1} = \frac{I_{c,CS}^{m+1} \times TIW_{c,CS}^{m+1} \times CSV_{P,CS,t}^{m+1}}{I_{P,CS}^{m+1} \times TIW_{P,CS}^{m+1} \times CSV_{c,CS,t}^{m+1}} \qquad (A.6.1.8)$$

We then derive the Nominal Weights for the subsequent commodities:

$$NW_{c,CS}^{m+1} = RF_{c,CS}^{m+1} \times Q_{NW} \qquad (A.6.1.9)$$

Values of NW are rounded as per the technical specifications detailed in the relevant Index Parameters.

6.1.1.9. Calculation of Nominal Weight Factors (NWF)

The expression of Nominal Weight Factors is a function of whether the month m+1 is a forward curve rebalancing month as defined in the relevant Index Parameters.

If m is a Curve Rebalancing Month (as defined in the relevant Index Parameters), the Nominal Weight Factors (NWF) will be calculated to reflect the Nominal Weights for the period m+1 and also potentially the new Curve Segment Target Weights (CSTW) for that period.

If m is not a Curve Rebalancing Month, the Nominal Weight Factors (NWF) will be calculated to reflect the Nominal Weights for the period m+1 and the current Curve Segment Target Weights (CSTW) for that period.

The Forward Curve rebalancing process (affecting the weight distribution of Curve Segment dollar weight) is therefore independent from the rebalancing affecting Index Component dollar weights as potential changes on Target Investment Weights (reflecting changes in Nominal Weights) for the period m+1 are factored in, but the dollar weight allocation for Curve Segment can remain unaffected.

6.1.1.9.1. Calculation of Nominal Weight Factors for Curve Rebalancing Months

$$NWF_{c,CS}^{m+1} = \begin{cases} CSTW_{c,CS}^{m+1}\left(\frac{CSV_{c,P,t}^{m+1} \times NW_{c,P}^{m+1}}{CSV_{c,CS,t}^{m+1} \times NW_{c,CS}^{m+1}}\right), \text{if} \quad NW_{c,CS}^{m+1} > 0 \\ 0, \text{otherwise} \end{cases} \qquad (A.6.1.10)$$

P is the Pivot Curve Segment chosen as reference and defined as the Curve Segment associated with the PROMPT Segment for which the CSTW is always positive.

6.1.1.9.2. Calculation of Nominal Weight Factors for non-Curve Rebalancing Months

First, we specify a measure of the Curve Segment Forward Effective Weights. The definition uses forward prices for the following roll month (m+1).

$$CSFEW_{c,CS}^{m+1} = \frac{\left(NW_{c,CS}^{m} \times NWF_{c,CS}^{m}\right) \times CSV_{c,CS,t}^{m}}{\sum_{s=1,S}\left(NW_{c,s}^{m} \times NWF_{c,s}^{m}\right) \times CSV_{c,s,t}^{m}} \qquad (A.6.1.11)$$

We replace the expression of CSTW in formula A.5.10 with CSFEW and we have the expression of Nominal Weight Factors when the month is not a forward Curve Rebalancing Month:

$$NWF_{c,CS}^{m+1} = \begin{cases} CSFEW_{c,CS}^{m+1}\left(\frac{CSV_{c,P,t}^{m+1} \times NW_{c,P}^{m+1}}{CSV_{c,CS,t}^{m+1} \times NW_{c,CS}^{m+1}}\right), \text{if} \quad NW_{c,CS}^{m+1} > 0 \\ 0, \text{otherwise} \end{cases} \qquad (A.6.1.12)$$

Values of NWF are rounded as per the technical specifications detailed in the relevant Index Parameters.

6.1.1.10. Index adjustment procedures during the Roll Period and/or Rebalancing Period

6.1.1.10.1. Adjustment procedures affecting Curve Segment indices: Continuity Methodologies

Normalising Constants are calculated at close of business on the Static Data Calculation Date, according to one of the following three Continuity Methodologies:

- Roll-to-Roll,
- Front-to-Front,
- Front-to-Roll.

Table IX. Continuity Methodologies- Curve Segment Indices

Methodology	
Roll-to-Roll	$ICF_{CS,t,Index}^{m} = \frac{\sum_{c=1,C} I_{c,CS,Index}^{m+1} \times NW_{c,CS}^{m+1} \times \sum_{j=1,J} IPIP_{c,CS,j,t}^{m+1} \times IPINW_{c,CS,j}^{m+1}}{\sum_{c=1,C} I_{c,CS,Index}^{m} \times NW_{c,CS}^{m} \times \sum_{j=1,J} IPIP_{c,CS,j,t}^{m+1} \times IPINW_{c,CS,j}^{m}}$, (A.6.1.13.A)
Front-to-Front	$ICF_{CS,t,Index}^{m} = \frac{\sum_{c=1,C} I_{c,CS,Index}^{m+1} \times NW_{c,CS}^{m+1} \times \sum_{j=1,J} IPIP_{c,CS,j,t}^{m} \times IPINW_{c,CS,j}^{m+1}}{\sum_{c=1,C} I_{c,CS,Index}^{m} \times NW_{c,CS}^{m} \times \sum_{j=1,J} IPIP_{c,CS,j,t}^{m} \times IPINW_{c,CS,j}^{m}}$, (A.6.1.13.B)
Front-to-Roll	$ICF_{CS,t,Index}^{m} = \frac{\sum_{c=1,C} I_{c,CS,Index}^{m+1} \times NW_{c,CS}^{m+1} \times \sum_{j=1,J} IPIP_{c,CS,j,t}^{m+1} \times IPINW_{c,CS,j}^{m+1}}{\sum_{c=1,C} I_{c,CS,Index}^{m} \times NW_{c,CS}^{m} \times \sum_{j=1,J} IPIP_{c,CS,j,t}^{m} \times IPINW_{c,CS,j}^{m}}$, (A.6.1.13.C)

Source: Credit Suisse

From $ICF^{m}_{CS,t}$, we derive the new Normalising constant N^{m+1}:

$$N_{Index}^{m+1} = N_{Index}^{m} \times ICF_{CS,t,Index}^{m} \qquad (A.6.1.14)$$

Note that the inclusion of the Inclusion Factor $I^{m}_{c,s,Index}$ and $I^{m+1}_{c,s,Index}$ allows for a change in the Basket composition of the given Index or Sub-Index independent of a change in Target Investment Weighting.

6.1.1.10.2. Adjustment procedures affecting Forward Curve Indices: Continuity Methodologies

For Forward Curve Indices, the Index Continuity Factor (ICF) is calculated according to the three aforementioned Continuity Methodologies:

Table IX. Continuity Methodologies- Forward Curve Indices

Methodology	
Roll-to-Roll	$$ICF^{m}_{t,Index} = \frac{\sum_{c=1,C}\sum_{s=1,S} I^{m+1}_{c,s,Index} \times NW^{m+1}_{c,s} \times NWF^{m+1}_{c,s} \times \sum_{j=1,J} IPIP^{m+1}_{c,CS,j,t} \times IPINW^{m+1}_{c,CS,j}}{\sum_{c=1,C}\sum_{s=1,S} I^{m}_{c,s,Index} \times NW^{m}_{c,s} \times NWF^{m}_{c,s} \times \sum_{j=1,J} IPIP^{m+1}_{c,CS,j,t} \times IPINW^{m}_{c,CS,j}}, \quad (A.6.1.15.A)$$
Front-to-Front	$$ICF^{m}_{t,Index} = \frac{\sum_{c=1,C}\sum_{s=1,S} I^{m+1}_{c,s,Index} \times NW^{m+1}_{c,s} \times NWF^{m+1}_{c,s} \times \sum_{j=1,J} IPIP^{m}_{c,CS,j,t} \times IPINW^{m+1}_{c,CS,j}}{\sum_{c=1,C}\sum_{s=1,S} I^{m}_{c,s,Index} \times NW^{m}_{c,s} \times NWF^{m}_{c,s} \times \sum_{j=1,J} IPIP^{m}_{c,CS,j,t} \times IPINW^{m}_{c,CS,j}}, \quad (A.6.1.15.B)$$
Front-to-Roll	$$ICF^{m}_{t,Index} = \frac{\sum_{c=1,C}\sum_{s=1,S} I^{m+1}_{c,s,Index} \times NW^{m+1}_{c,s} \times NWF^{m+1}_{c,s} \times \sum_{j=1,J} IPIP^{m+1}_{c,CS,j,t} \times IPINW^{m+1}_{c,CS,j}}{\sum_{c=1,C}\sum_{s=1,S} I^{m}_{c,s,Index} \times NW^{m}_{c,s} \times NWF^{m}_{c,s} \times \sum_{j=1,J} IPIP^{m}_{c,CS,j,t} \times IPINW^{m}_{c,CS,j}}, \quad (A.6.1.15.C)$$

Source: Credit Suisse

The expression of the new Normalising constant N^{m+1} is identical to that defined above. Normalising constants Ns are rounded as per the technical specifications detailed in the relevant Index Parameters.

6.1.1.10.3. Curve Segment construction procedures and zero IPINWs

The Framework specifies two main methodologies for the purpose of the calculation of Index adjustment variables, such as the Index Continuity Factor (ICF):

- The **standard procedure**: the IPIs associated with zero IPINW are kept in the Curve Segment,
- The **projection procedure**: only the IPIs with non zero IPINW are kept in the Curve Segment to which they belong, keeping only those assets in which the Index had been investing in either m or m+1.

Please refer to Appendix D. for details on the Calculation of Indexes using the 6.1. Long-Only Forward/Futures based calculation methodology for variable Tenor and Dynamic positioning Indices.

6.1.1.10.4. Adjustment procedures & Inclusion of new Index Components

For the "Front to Front" and "Front-to-Roll" methodologies, the level of the $IPIP^{m}$ for any new Index Component is chosen as if the Index Component had been in the Index the prior month.

6.1.2. The Price Return Index (Index-PR)

6.1.2.1. Curve Segment indices

The value of a Curve Segment Price Return Index on Calculation Date t is calculated in accordance with the following formula:

$$PR_{CS,t} = \frac{IB^{m}_{CS,t,t}}{N^{m+1}_{Index}} \qquad (A.6.1.16)$$

$$IB^{m}_{CS,p,w} = \frac{N^{m+1}_{Index}}{N^{m}_{Index}} \times \left[\sum_{c=1,C} I^{m}_{c,CS,Index} \times NW^{m}_{c,CS} \times RW^{m}_{c,CS,w} \times CSV^{m}_{c,CS,p} \right] + \sum_{c=1,C} I^{m+1}_{c,CS,Index} \times NW^{m+1}_{c,CS} \times RW^{m+1}_{c,CS,w} \times CSV^{m+1}_{c,CS,p} \qquad (A.6.1.17)$$

where:

$CSV^{m}_{c,CS,p}$	is the Curve Segment Value, for a given Curve Segment CS and Reference Period m, for an Index Component c, with prices taken at time p, defined in formula A.6.1.2 above.
$RW^{m}_{c,w}$ & $RW^{m+1}_{c,w}$	the Roll Weights for Index Component c on date w are defined such that $RW^{m+1}_{c,w} = 1-RW^{m}_{c,w}$ (see Section 6.1.1.4. The Roll Period).
$IB^{m}_{CS,p,w}$	is the Investment Basket defined as the sum of Curve Segment Values (CSV) for a given Curve Segment (CS), with prices taken at time p and weights at time w (for this calculation, p=t and w=t),
N^{m}_{Index}	is the Normalising constant for a Reference Period m and an Index *Index*,
$NW^{m}_{c,CS}$	is the Nominal Weight for a component c and Curve Segment CS,
$IPIP^{m}_{c,CS,j,p}$	is the Index Pricing Instrument Price j, for an Index Component c and a given Curve Segment CS, at time p,
$IPINW^{m}_{c,CS,j}$	is the Index Pricing Instrument Nominal Weight associated with an Index Pricing Instrument j, for an Index Component c and Curve Segment CS,
$I^{m}_{c,CS,Index}$	Index refers to a specific Index composition such as a sub-Index or an Index the composition of which is bespoke. $I_{c,CS}$ are defined in the relevant Index Parameters,
C	is the number of Index Components in the Index.

Price Return Index Levels are rounded as per the technical specifications detailed in the relevant Index Parameters.

6.1.2.2. Forward Curve indices

The value of a Forward Curve Price Return Index on Calculation Date t is calculated in accordance with the following formula:

$$PR_t^m = \frac{IB_{t,t}^m}{N_{Index}^{m+1}} \qquad (A.6.1.18)$$

$$IB_{p,w}^m = \frac{N_{Index}^{m+1}}{N_{Index}^m}\left[\sum_{c=1,C}\sum_{s=1,S} I_{c,s,Index}^m \times RW_{c,s,w}^m \times \left(NW_{c,s}^m \times NWF_{c,s}^m\right) \times CSV_{c,s,p}^m\right] + \left[\sum_{c=1,C}\sum_{s=1,S} I_{c,s,Index}^{m+1} \times RW_{c,s,w}^{m+1} \times \left(NW_{c,s}^{m+1} \times NWF_{c,s}^{m+1}\right) \times CSV_{c,s,p}^{m+1}\right] \qquad (A.6.1.19)$$

where:

$IB^m_{p,w}$ is the Investment Basket at time t, with prices taken at time p and weights at time w (for this calculation, p=t and w=t).

$NWF^m_{c,s}$ is the Nominal Weight Factor for an Index Component c and a Curve Segment s, as defined below,

S is the number of Curve Segments available for the Index Component c.

Price Return Index Levels are rounded as per the technical specifications detailed in the relevant Index Parameters.

6.1.3. The Excess Return Index (Index-ER)

6.1.3.1. Curve Segment indices

The Excess Return Index represents the uncollateralized return of the Investment Basket over time. The value of a Curve Segment Excess Return Index on Calculation Date t is calculated in accordance with the following formula:

$$\mathrm{ER}_{CS,t} = \mathrm{ER}_{CS,t-1} \times \left(1 + IBR_{CS,t}^{\mathrm{m}}\right) \qquad (A.6.1.20)$$

$$IBR_{CS,t}^{\mathrm{m}} = \frac{IB_{CS,t,t-1}^m}{IB_{CS,t-1,t-1}^m} - 1 \qquad (A.6.1.21)$$

where:

$IB^m_{CS,t,t-1}$ & $IB^m_{CS,t-1,t-1}$ see formula (A.6.1.17) above (for this calculation, w=t-1),

$IBR^m_{CS,t}$ is the Investment Basket Return for a specified Curve Segment at time t and for the Reference Period m.

Excess Return Index Levels are rounded as per the technical specifications detailed in the relevant Index Parameters.

6.1.3.2. Forward Curve indices

The Forward Curve Excess Return Index represents the uncollateralized return of the Investment Basket over time. For the purpose of the calculation of a Forward Curve Index, the Investment Basket represents the entire forward curve and not just a segment of it. The value of a Forward Curve Excess Return Index on Calculation Date t is calculated in accordance with the following formula:

$$\mathrm{ER}_t = \mathrm{ER}_{t-1} \times \left(1 + IBR_t^{\mathrm{m}}\right) \qquad \text{(A.6.1.22)}$$

$$IBR_t^{\mathrm{m}} = \frac{IB_{t,t-1}^{m}}{IB_{t-1,t-1}^{m}} - 1 \qquad \text{(A.6.1.23)}$$

where:

$IB^{m}_{t,t-1}$ & $IB^{m}_{t-1,t-1}$	see formula (A.6.1.19) above (for this calculation, w=t-1),
IBR^{m}_{t}	is the Investment Basket Return for the forward curve at time t and for the Reference Period m.

Excess Return Index Levels are rounded as per the technical specifications detailed in the relevant Index Parameters.

6.1.4. The Total Return Index (Index-TR)

The Total Return Index is the sum of (i) the uncollateralized return provided by the Investment Basket (the Excess Return) and (ii) the Daily Collateral Yield (DCY). The DCY is derived from the value of the Credit Adjusted Collateral Reference Rate (CACRR).

6.1.4.1. Collateral Reference Rate

Collateral Reference Rates in respect of various currencies for the calculation of the respective Total Return Indices are defined in the Interest Rate Definitions in the relevant Index Parameters.

6.1.4.2. Daily Collateral Yield

The Daily Collateral Yield is defined as a function of the Rate Type, as shown in Table X. below.

Table X. Daily Collateral Yield formula per Rate Type

Rate Type$_{CCY}$	
T-Bill	$$DCY_{days,t}^{CCY} = \left[\frac{1}{1 - \frac{ShortBasis^{CCY}}{Basis^{CCY}} \times CACRR_{t-1}^{CCY}}\right]^{\frac{days}{ShortBasis^{CCY}}} - 1, \qquad \text{(A.6.1.24.a)}$$
Money Market	$$DCY_{days,t}^{CCY} = \left[\left[1 + CACRR_{t-1}^{CCY} \times \frac{ShortBasis^{CCY}}{Basis^{CCY}}\right]^{\frac{1}{ShortBasis^{CCY}}} - 1\right] \times days \qquad \text{(A.6.1.24.b)}$$

Source: Credit Suisse

Where:

DCY^{CCY}_t	The Daily Collateral Yield for a given currency CCY and Rate Type as per Table X. above, for the Calculation date t,
CRR^{CCY}_t	the most recently published Collateral Reference Rate (as defined in Section 6.1.4.1. Collateral Reference Rate) on the Calculation date t,
$CACRR^{CCY}_t$	Credit Adjusted Collateral Reference Rate for the currency CCY, on the Calculation date t, defined as per the flowing formula: $$CACRR_t^{CCY} = CRR_t^{CCY} + CreditAdjust_t^{CCY} \quad \text{(A.6.1.25)}$$
$Basis^{CCY}$	For a specified currency (CCY) the number of standard days used in interest calculations,
$ShortBasis^{CCY}$	For a specified currency (CCY) the number of standard days related to the reference interest rate and used in interest calculations,
$CreditAdjust^{CCY}_t$	for a given currency CCY at a given Calculation date t, a variable credit adjustment (or "spread") used to reflect any particular funding cost or rate differential applicable to a Government Signature. When a change in the level of *CreditAdjust* is deemed necessary to reflect the changes in the credit market, a proposition is made by the Index Advisory Committee and ratified by the Index Approval Committee,
"$days_t$"	is the number of calendar days from the Calculation Date immediately preceding the Calculation Date t, to the Calculation Date t.

6.1.4.3. Calculation of the Total Return Index

The framework supports two distinct calculation methodologies for the Total Return Index, to reflect the differing treatment of collateral yield for non-Index Business Days:

- the "Daily Equivalent Rate method": for two consecutive Index Business Days, the method calculates an equivalent rate, the Daily Collateral Yield ($DCY^{CCY}_{days,t}$) for the calendar period (days is ≠ 1). This rate is then added to the Excess Return obtained for the Calculation Date t and compounded with the Total Return Index level obtained on t-1,
- the "Compounding method": for two consecutive Index Business Days, the method compounds the Daily Collateral Yield calculated for one day ($DCY^{CCY}_{1,t}$) for each such non-Index Business Day with the Total Return obtained on Calculation Date t for one calendar day.

For a given Index, the Total Return Index calculation method is defined in the relevant Index Parameters.

6.1.4.3.1. Daily Equivalent Rate method

When the Daily Equivalent method is selected, the value of a Curve Segment Total Return Index on Calculation Date t is calculated in accordance with the following formula:

$$\mathrm{TR}_{CS,t} = \mathrm{TR}_{CS,t-1} \times \left(1 + IBR^{m}_{CS,t} + DCY^{USD}_{days,t}\right) \quad \text{(A.6.1.28)}$$

For a Forward Curve Total Return Index we have:

$$\mathrm{TR}_{t} = \mathrm{TR}_{t-1} \times \left(1 + IBR^{m}_{t} + DCY^{USD}_{days,t}\right) \quad \text{(A.6.1.29)}$$

6.1.4.3.2. Compounding method

When the Compounding method is selected, the value of a Curve Segment Total Return Index on Calculation Date t is calculated in accordance with the following formula:

$$\mathrm{TR}_{CS,t} = \mathrm{TR}_{CS,t-1} \times \left(1 + IBR^{m}_{CS,t} + DCY^{USD}_{1,t}\right)\left(1 + DCY^{USD}_{1,t}\right)^{(\mathrm{days}-1)} \qquad \text{(A.6.1.30)}$$

For a Forward Curve Total Return Index we have:

$$\mathrm{TR}_{t} = \mathrm{TR}_{t-1} \times \left(1 + IBR^{m}_{t} + DCY^{USD}_{1,t}\right)\left(1 + DCY^{USD}_{1,t}\right)^{(\mathrm{days}-1)} \qquad \text{(A.6.1.31)}$$

Total Return Index Levels are rounded as per the technical specifications detailed in the relevant Index Parameters.

6.1.5. Calculation of Non US Dollar "FX Hedged" Indexes

The Index "FX hedged" indices are calculated for selected currencies and are delivered in two forms: Excess Return and Total Return.

6.1.5.1. Excess Return "FX Hedged" Index

The value of an Excess Return "FX hedged" Index on a Calculation Date t is calculated in accordance with the following formula.

$$\mathrm{ER}^{\mathrm{CCY}}_{\mathrm{t}} = \mathrm{ER}^{\mathrm{CCY}}_{\mathrm{t\text{-}1}} \times \left(1 + FXHR^{\mathrm{CCY}}_{t,ER}\right) \qquad \text{(A.6.1.32)}$$

$$FXHR^{\mathrm{CCY}}_{t,ER} = \left(\frac{Index_{t}}{Index_{t-1}} - 1\right) \times \left(\frac{FX_{USD-CCY,t}}{FX_{USD-CCY,t-1}}\right) \qquad \text{(A.6.1.33)}$$

where:

$\mathrm{FXHR}^{\mathrm{CCY}}_{\mathrm{t,ER}}$	is the "FX Hedged" Excess Return for a currency CCY on Calculation Date t,
$\mathrm{FX}_{\mathrm{USD\text{-}CCY,t}}$	is the foreign currency rate between the US Dollar and currency CCY on Calculation Date t, expressed in units of target currency CCY per US dollars. Please refer to the relevant Index Parameters for the specific definition and price source of this parameter,
$\mathrm{Index}_{\mathrm{t}}$	is the underlying Excess Return Index for which a FX hedged protection is sought. Note that the Index can be either a Curve Segment Index or a Forward Curve Index.

Excess Return FX Hedged Index Levels are rounded as per the technical specifications detailed in the relevant Index Parameters.

6.1.5.2. Total Return "FX Hedged" Index

6.1.5.2.1. The Daily Equivalent Rate method

The value of a Total Return "FX hedged" Index on a Calculation Date t is calculated in accordance with the following formula.

$$\mathrm{TR}_{t}^{CCY} = \mathrm{TR}_{t-1}^{CCY} \times \left(1 + FXHR_{t,TR}^{CCY}\right) \qquad \text{(A.6.1.30)}$$

$$FXHR_{t,TR}^{CCY} = \left(\frac{Index_{t}}{Index_{t-1}} - 1\right) \times \left(\frac{FX_{USD-CCY,t}}{FX_{USD-CCY,t-1}}\right) + \mathrm{DCY}_{days,t}^{CCY} \qquad \text{(A.6.1.31)}$$

where:

$FXHR^{CCY}_{t,TR}$	is the "FX Hedged" Total Return for a currency CCY on Calculation Date t,
$DCY^{CCY}_{days,t}$	is the Daily Collateral Yield defined above,
$Index_t$	is the underlying Excess Return Index for which a FX hedged protection is sought. Note that the Index can be either a Curve Segment Index or a Forward Curve Index.

6.1.5.2.2. The Compounding method

For the compounding method, FXHR is replaced by:

$$FXHR_{t,TR}^{CCY} = \left(\left(\frac{\mathrm{ER}_{t}}{\mathrm{ER}_{t-1}} - 1\right) \times \left(\frac{FX_{USD-CCY,t}}{FX_{USD-CCY,t-1}}\right) + \mathrm{DCY}_{1,t}^{CCY}\right) \times \left(1 + DCY_{1,t}^{CCY}\right)^{(days-1)} \qquad \text{(A.6.1.32)}$$

Total Return FX Hedged Index Levels are rounded as per the technical specifications detailed in the relevant Index Parameters.

6.2. Index of Indices calculation methodology

In this section we introduce the Index of Indices Calculation Engine. This engine, which can utilise long and short positions in underlying indices as Index Components, is compatible with all Excess Return indices supported by the Long-Only Forward/Futures Calculation Engine described in Section A.6.1. Long-Only Forward/Futures based calculation methodology.

6.2.1. Basic definitions

6.2.1.1. The Roll Period

The Roll Period represents the period from and including the **First Roll Date** (FRD) to and including **Last Roll Date** (LRD).

During the Roll Period, the Index transfers positions relating to the Static Data (as defined in paragraph 6.2.1.1.1 The Static Data Calculation Date (SDCD) below) for the previous Reference Period (denoted as m-1), to the positions relating to the Static Data relating to the current Reference Period (denoted as m) (as described in further detail in Section 6.2.1.2. The Calculation Date, the Calculation Period, the Reference Period and the Static Data Calculation Date).

Both the Start and End of the Roll Period are defined in term of the number of Index Business Days from the Static Data Calculation Date of the relevant Calculation Period.

For example, [+1(m)/+9(m)] means that the roll starts on the 1st Index Business Day and ends on the 9th Index Business Day of the Calculation Period.

6.2.1.1.1 The Static Data Calculation Date (SDCD)

We define the Static Data Calculation Date (SDCD) as the date, specified in the relevant Index Parameters, on which the Static Data are calculated for the Reference Period m. For indices calculated under the Index of Indices Calculation Engine, on the Static Data Calculation Date we calculate the Signal (S) and the Nominal Weights (NW) according to the particular specifications as detailed in the relevant Index Parameters.

6.2.1.1.2 The definition of Roll Weights (RW) and Signal Roll Weight (SRW) for the Price Return Index

We define the Roll Period as a range of Index Business Days over which the transfer of positions defined for the Reference Period m-1 to the Reference Period m takes place. The Roll Rate (RR) is the frequency at which positions are transferred over the Roll Period.

For example, if the Roll Period was defined as the 3rd to the 5th Index Business Day of the Calculation Period, the Price Return Index starts to reference the Static Data defined for the relevant Reference Period on the 3rd Index Business Day of the Calculation Period.

The Roll Period for a given Index is defined in the relevant Index Parameters.

TABLE I. EXAMPLE OF VALUES TAKEN BY RW^M AND SRW^M DURING THE ROLL PERIOD - PRICE RETURN INDEX
ROLL PERIOD FROM THE 3RD TO 5TH INDEX BUSINESS DAY [+3(M)/+5(M)], 3 CONSECUTIVE BUSINESS DAYS

				SDCD		< Roll Period >						
	Bus day	N-1 m-1	N m-1	1	2	3	4	5	6	7	8+	…
Price Return Index	SRW	1.0	1.0	0.0	0.0	1/3	2/3	1.0	1.0	1.0	1.0	
	RW	1.0	1.0	0.0	0.0	1/3	2/3	1.0	1.0	1.0	1.0	
	RR	0	0	0	0	1/3	1/3	1/3	0	0	0	

Source: Credit Suisse

6.2.1.1.3. The definition of Roll Weights (RW) and Signal Roll Weight (SRW) for the Excess Return Index

The Roll Period of the Excess Return Index is delayed by one Index Business Day compared to the Roll Period of the Price Return Index, i.e. the values taken by $RW^m_{c,t}$ (resp. $SRW^m_{c,t}$) on a Calculation Date are equal to the Roll Weight (resp. Signal Roll Weight) used by the Price Return Index on the immediately preceding Calculation Date, hence the notation $RW^m_{c,t-1}$ (resp. $SRW^m_{c,t-1}$) for each Index Component c on Reference Period m (See Table II. below).

TABLE II. EXAMPLE OF VALUES TAKEN BY RW^M AND SRW^M DURING THE ROLL PERIOD - EXCESS RETURN INDEX
ROLL PERIOD FROM THE 3RD TO 5TH INDEX BUSINESS DAY [+3(M)/+5(M)], 3 CONSECUTIVE BUSINESS DAYS

				SDCD		< Roll Period >						
	Bus day	N-1 m-1	N m-1	1	2	3	4	5	6	7	8+	…
Price Return Index	SRW	1.0	1.0	0.0	0.0	1/3	2/3	1.0	1.0	1.0	1.0	
	RW	1.0	1.0	0.0	0.0	1/3	2/3	1.0	1.0	1.0	1.0	
	RR	0	0	0	0	1/3	1/3	1/3	0	0	0	
Excess Return Index	SRW	1.0	1.0	0.0	0.0	0.0	1/3	2/3	1.0	1.0	1.0	
	RW	1.0	1.0	0.0	0.0	0.0	1/3	2/3	1.0	1.0	1.0	
	RR	0	0	0	0	0	1/3	1/3	1/3	0	0	

Source: Credit Suisse

6.2.1.1.4. The values of Roll Weights (RW) and Signal Roll Weight (SRW) during Disrupted Valuation Days

In the following two sections, we define the procedures governing the calculation of the Index when a Disrupted Valuation Day takes place during a Roll Period. We define both the "Standard Roll" and the "Extended Roll" methodology.

Disrupted Valuation Days that occur outside the Roll Period do not affect the proportion of futures contract positions maintained to hedge the dollar exposure in the Index and so no adjustment to the RW and SRW schedules is necessary.

6.2.1.1.4.1. Standard Roll methodology

If a Disrupted Valuation Day occurs during the Roll Period, the RW associated with the Price Return Index on that day remains unchanged when compared to its value on the previous Index Business Day which was not a Disrupted Valuation Day in relation to the relevant Index Component. The RW on the next Index Business Day which is not a Disrupted Valuation Day is updated so that it reflects the RW which would have existed on such Index Business Day had the relevant Disrupted Valuation Days not occurred.

Unless a Disrupted Valuation Day occurs on the last day of the Roll Period, the length of the Roll Period is unaffected (See Table III. below).

TABLE III. EXAMPLE OF VALUES TAKEN BY RW^M AND SRW^M DURING THE ROLL PERIOD - EXCESS RETURN INDEX ROLL PERIOD FROM THE 3RD TO 5TH INDEX BUSINESS DAY [+3(M)/+5(M)], MDE TAKING PLACE ON THE 2ND ROLL DAY

				SDCD		< Roll Period >						
	Bus day	**N-1 m-1**	**N m-1**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8+**	**…**
Price Return Index	SRW	1.0	1.0	0.0	0.0	1/3	1/3	1.0	1.0	1.0	1.0	
	RW	1.0	1.0	0.0	0.0	1/3	1/3	1.0	1.0	1.0	1.0	
	RR	0	0	0	0	1/3	0	2/3	0	0	0	
Excess Return Index	SRW	1.0	1.0	0.0	0.0	0.0	1/3	1/3	1.0	1.0	1.0	
	RW	1.0	1.0	0.0	0.0	0.0	1/3	1/3	1.0	1.0	1.0	
	RR	0	0	0	0	0	1/3	0	2/3	0	0	

Source: Credit Suisse

And:

2/3	Day on which the Disrupted Valuation Day (DVD) takes place, and value attributed to variable
0.0	Value attributed to variable as a result of a DVD taking place prior to that date.
1/3	Expected value attributed to variable prior to the start of the Roll Period in absence of a DVD

If a Disrupted Valuation Day occurs on the last day of the Roll Period, the Roll Period is extended until the transfer of positions is completed, subject to the occurrence of further Disrupted Valuation Days, provided that if the Roll Period continues until the Last Possible Roll Date (as defined in paragraph 6.2.1.2), and the Last Possible Roll Date is also a Disrupted Valuation Day, the Index Sponsor may determine, in good faith and in a reasonable commercial manner, the Index Component Level (IC Level) for the relevant Index Component (See Table IV. below).

TABLE IV. EXAMPLE OF VALUES TAKEN BY RW^M AND SRW^M DURING THE ROLL PERIOD - EXCESS RETURN INDEX ROLL PERIOD FROM THE 3RD TO 5TH INDEX BUSINESS DAY [+3(M)/+5(M)], MDE TAKING PLACE ON THE LAST ROLL DAY

				SDCD		< Roll Period >						
	Bus day	**N-1 m-1**	**N m-1**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8+**	**…**
Price Return Index	SRW	1.0	1.0	0.0	0.0	1/3	2/3	2/3	1.0	1.0	1.0	
	RW	1.0	1.0	0.0	0.0	1/3	2/3	2/3	1.0	1.0	1.0	
	RR	0	0	0	0	1/3	1/3	0	1/3	0	0	
Excess Return Index	SRW	1.0	1.0	0.0	0.0	0.0	1/3	2/3	2/3	1.0	1.0	
	RW	1.0	1.0	0.0	0.0	0.0	1/3	2/3	2/3	1.0	1.0	
	RR	0	0	0	0	0	1/3	1/3	0	1/3	0	

Source: Credit Suisse

6.2.1.1.4.2. Extended Roll methodology

When a Disrupted Valuation Day occurs during the Roll Period whilst the Extended Roll methodology applies, the Roll Period is extended. The SRW and RW take their projected and initial values until the Roll is completed (Table V. below).

TABLE V. EXAMPLE OF VALUES TAKEN BY RW^M AND SRW^M DURING THE ROLL PERIOD - EXCESS RETURN INDEX ROLL PERIOD FROM THE 3RD TO 5TH INDEX BUSINESS DAY [+3(M)/+5(M)] - MDE TAKING PLACE ON THE 2ND ROLL DAY

				SDCD		< Roll Period >						
						<- Roll Period (Extended)->						
	Bus day	$N\text{-}1^{m\text{-}1}$	$N^{m\text{-}1}$	1	2	3	4	5	6	7	8+	…
Price Return Index	SRW	1.0	1.0	0.0	0.0	1/3	1/3	2/3	1.0	1.0	1.0	
	RW	1.0	1.0	0.0	0.0	1/3	1/3	2/3	1.0	1.0	1.0	
	RR	0	0	0	0	1/3	0	1/3	1/3	0	0	
Excess Return Index	SRW	1.0	1.0	0.0	0.0	0.0	1/3	1/3	2/3	1.0	1.0	
	RW	1.0	1.0	0.0	0.0	0.0	1/3	1/3	2/3	1.0	1.0	
	RR	0	0	0	0	0	1/3	0	1/3	1/3	0	

Source: Credit Suisse

And:

2/3	Day on which the Disrupted Valuation Day (DVD) takes place, and value attributed to variable
0.0	Value attributed to variable as a result of a DVD taking place prior to that date.
1/3	Expected value attributed to variable prior to the start of the Roll Period in absence of a DVD
6	Extended Roll day as part of the Roll Extension procedure

In the absence of a Disrupted Valuation Days on the following Index Business Day for the relevant Index Component, the Roll continues as originally specified. If the Roll Period continues until the Last Possible Roll Date, and a Disrupted Valuation Day occurs on the Last Possible Roll Date, the Index Sponsor may determine, in good faith and in a reasonable commercial manner, the Index Component Level (IC Level) for the relevant Index Component.

6.2.1.2. The Calculation Date, the Calculation Period, the Reference Period and the Static Data Calculation Date

To facilitate the notations and calculations, we further define the following notions:

- The **Calculation Date**: any Index Business Day for which an Index Closing Level is published,
- The **Static Data Calculation Date** (SDCD): an Index Business Day on or prior to the start of the Roll Period, specified in the relevant Index Parameters, on which the calculation of the Static Data is performed,
- The **Calculation Period**, in respect of a Static Data Calculation Date, the period from and including such Static Data Calculation Date, to but excluding the immediately following Static Data Calculation Date,
- The **Reference Period**: in respect of a Calculation Date t, the period (denoted as m, and as specified in the relevant Index Parameters) during which the Static Data calculated on the Static Data Calculation Date falling on or immediately prior to such Calculation Date t applies,
- The **Last Possible Roll Date**, in respect of a Calculation Period, the last Index Business Day of such Calculation Period.

6.2.1.3. The Index Component (IC) and Index Component Level (ICL)

An Index Component is defined as a member of the Investment Universe which is either a designated Futures or Forward Contract defined by Section A.4. Universe of Index Components, and/or an Excess Return Index as supported by the Section 6.1. Long-Only Forward/Futures based calculation methodology, and/or 6.2. Index of Indices calculation methodology.

The Index Component Level (ICL^m) is the official closing price of such instrument for a relevant Calculation Date t for a Reference Period m. The Price or Level is expressed in the Reference Currency of the Index such that all Index Components Levels are expressed in the same common Currency.

The Investment Universe for a given version of the Index are detailed in the relevant Index Parameters.

6.2.1.4. The Underlying Index (UI)

The value of an Underlying Index (UI) on Calculation Date t is calculated in accordance with the following formula:

$$UI_{c,t} = UI_{c,\Phi(c,t)} \times \left[1 + \left(\frac{ICL_{c,t}^{m-1}}{ICL_{c,\Phi(c,t)}^{m-1}} - 1 \right) \times \left(S_c^{m-1} \times SRW_{c,\Phi(c,t)}^{m-1} \right) + \left(\frac{ICL_{c,t}^{m}}{ICL_{c,\Phi(c,t)}^{m}} - 1 \right) \times \left(S_c^{m} \times SRW_{c,\Phi(c,t)}^{m} \right) \right] \qquad (A.6.2.1a)$$

where:

t	is the Calculation Date,
$ICL^m_{c,t}$	is the Index Component Level, for an Index Component c, for a Reference Period m, on Calculation Date t,
$ICL^m_{c,\Phi(c,t)}$	is the Index Component Level, for an Index Component c, for a Reference Period m, on Calculation Date Φ(c,t),
Φ(c,t)	the function used in the determination of the first eligible (i.e. non disrupted) date immediately preceding the Calculation Date t, and defined as follows:

$$\Phi(c,t) = \begin{cases} \Phi(c,t-1) & \text{, if either } ICL_{c,t}^{m} \text{ or } ICL_{c,t}^{m-1} \text{ is disrupted at (t - 1)} \\ t-1 & \text{, otherwise} \end{cases} \qquad (A.6.2.1b)$$

S^m_c	is the Signal, for an Index Component c for a Reference Period m,
$SRW^m_{c,t}$	is the Signal Roll Weight associated with Reference Period m for an Index Component c,
m	is the Reference Period.

6.2.1.5. Calculation of Nominal Weights (NW)

To retain the desired dollar exposure, the Index re-aligns the Index Effective Weights (IEW) with desired Target Investment Weights (TIW) with the frequency outlined in the relevant Index Parameters. For all Index Components in the Index, we solve $NW^m_{c,t}$ such that:

$$I_c^m \times TIW_c^m - IEW_{c,t}^m = 0 \qquad (A.6.2.2)$$

where

$$IEW_{c,t}^m = \frac{I_c^m \times NW_c^m \times UI_{c,t}}{\sum_{c=1,C} I_c^m \times NW_c^m \times UI_{c,t}} \qquad (A.6.2.3)$$

I^m_c	the Inclusion Factors for an Index Component c. The Inclusion Factors allow for the inclusion (or exclusion) of a given Index Component (see the relevant Index Parameters.),
TIW^m_c	the Target Investment Weights for Index Component c and Reference Period m. TIWs are defined in the relevant Index Parameters.
NW^m_c	the Nominal Weight for an Index Component c and for Reference Period m.

For each Index Component with a non-null Target Investment Weight and Inclusion Factor, we define an arbitrary quantity Q and derive the first Nominal Weight (Note, the pivot Index Component P is defined as the Index Component with the highest Target Investment Weight. If such Index Component P is not unique, then alphabetical order prevails):

$$NW_P^m = Q_{INW} = 10000 \qquad (A.6.2.4)$$

For an Index Component c, we define the Nominal Weight Roll Factors (NWRF) as;

$$NWRF_c^m = \frac{I_c^m \times TIW_{c,CS}^m \times UI_{P,t}}{I_P^m \times TIW_P^m \times UI_{c,t}} \qquad (A.6.2.5)$$

We then derive the Nominal Weights for the subsequent commodities:

$$NW_c^m = NWRF_c^m \times Q_{INW} \qquad (A.6.2.6)$$

Values of NWs are rounded as per the technical specifications detailed in the relevant Index Parameters.

6.2.1.6. Index adjustment procedures during the Roll Period and/or Rebalancing Period

All new Static Data such as Nominal Weights, the Index Normalising constant and the Index Continuity Factor, are calculated at close of business on the Static Data Calculation Date.

First, we calculate the Index Continuity Factor (ICF):

$$ICF_{t,Index}^m = \frac{\sum_{c=1,C} I_{c,Index}^m \times NW_c^m \times UI_{c,t}}{\sum_{c=1,C} I_{c,Index}^{m-1} \times NW_c^{m-1} \times UI_{c,t}}, \qquad (A.6.2.7)$$

From ICF^m_t, we derive the new Index Normalising constant IN^m:

$$IN_{Index}^m = IN_{Index}^{m-1} \times ICF_{t,Index}^m \qquad (A.6.2.8)$$

Note that the inclusion of the Inclusion Factor $I^{m-1}_{c,Index}$ and $I^m_{c,Index}$ allows for a change in the Basket composition of the relevant sub-Index independent of a change in Target Investment Weighting (TIW).

6.2.2. The Price Return Index (Index-PR)

The value of the Price Return Index on any Calculation Date t is calculated in accordance with the following formula:

$$PR_t = \frac{IIB_{t,t}^m}{IN_{Index}^m} \qquad (A.6.2.9)$$

$$IIB_{p,w}^m = \frac{IN_{Index}^m}{IN_{Index}^{m-1}} \times \left[\sum_{c=1,C} I_{c,Index}^{m-1} \times NW_c^{m-1} \times RW_{c,w}^{m-1} \times UI_{c,p} \right] + \sum_{c=1,C} I_{c,Index}^m \times NW_c^m \times RW_{c,w}^m \times UI_{c,p} \qquad (A.6.2.10)$$

where:

$UI_{c,p}$	is the Underlying Index level, for an Index Component c, with prices taken on Calculation Date p, defined in formula A.6.2.1 above (for this calculation p=t),
$RW^{m-1}_{c,w}$ & $RW^{m}_{c,w}$	the Roll Weights for Index Component c on date w are defined such that $RW^{m-1}_{c,w} = 1-RW^{m}_{c,w}$ (see Section 6.2.1.1. The Roll Period),
$IIB^{m}_{p,w}$	for a Reference Period m, the Index Investment Basket defined as the sum of Index Investment values (CSV), with prices taken at time p and weights at time w (for this calculation, p=t and w=t),
IN^{m}_{Index}	is the Index Normalising constant for a Reference Period m and an Index *Index*,
NW^{m}_{c}	is the Nominal Weight for an Index Component c and Reference Period m,
$I^{m}_{c,Index}$	the Inclusion Factor I for an given Index composition, refers to a specific Index composition such as a sub-Index or an Index the composition of which is bespoke. $I_{c,CS}$ are defined in the Index Parameters,
c	is the number of Index Components in the Index.

Price Return Index Levels are rounded as per the technical specifications detailed in the relevant Index Parameters.

6.2.3. The Excess Return Index (Index-ER)

The Excess Return Index represents the uncollateralized return of the Index Investment Basket over time. The value of the Excess Return Index on Calculation Date t is calculated in accordance with the following formula:

$$\mathrm{ER}_t = \mathrm{ER}_{t-1} \times \left(1 + BUIR_t^m\right) \qquad \text{(A.6.2.11)}$$

$$BUIR_t^{\mathrm{m}} = \frac{IIB_{t,t-1}^{\mathrm{m}}}{IIB_{t-1,t-1}^{\mathrm{m}}} - 1 \qquad \text{(A.6.2.12)}$$

where:

$IIB^{m}_{t,t-1}$ & $IIB^{m}_{t-1,t-1}$	see formula (A.6.2.9) above,
$BUIR^{m}_{t}$	for a Reference Period m, the Basket Underlying Index Return at time t.

Excess Return Index Levels are rounded as per the technical specifications detailed in the relevant Index Parameters.

6.2.4. The Total Return Index (Index-TR)

The Total Return Index is the sum of (i) the uncollateralized return provided by the Index Investment Basket (the Excess Return) and (ii) the Daily Collateral Yield (DCY). The DCY is derived from the value of the Credit Adjusted Collateral Reference Rate (CACRR).

6.2.4.1. Collateral Reference Rate

Collateral Reference Rates in respect of various currencies for the calculation of the respective Total Return Indices are defined in the Interest Rate Definitions in the relevant Index Parameters.

6.2.4.2. Daily Collateral Yield

The Daily Collateral Yield is defined in Section A.6.1.4.2.

6.2.4.3. Calculation of the Total Return Index

The Index of Indices Calculation Engine supports two distinct calculation methodologies for the Total Return Index, to reflect the differing treatment of collateral yield for non-Index Business Days: the "Daily Equivalent Rate method", and the "Compounding method" (See Section A.6.1.4.3. Calculation of the Total Return Index).

For a given Index, the Total Return Index calculation method is defined in the relevant Index Parameters.

6.2.4.3.1. Daily Equivalent Rate method

When the Daily Equivalent method is selected, the value of the Total Return Index on any Calculation Date t is calculated in accordance with the following formula:

$$\mathrm{TR}_t = \mathrm{TR}_{t-1} \times \left(1 + BUIR_t + DCY_{days,t}^{CCY}\right) \qquad \text{(A.6.2.13)}$$

6.2.4.3.2. Compounding method

When the Compounding method is selected, the value of the Total Return Index on any Calculation Date t is calculated in accordance with the following formula:

$$\mathrm{TR}_t = \mathrm{TR}_{t-1} \times \left(1 + BUIR_t + DCY_{1,t}^{USD}\right)\left(1 + DCY_{1,t}^{USD}\right)^{(\mathrm{days}-1)} \qquad \text{(A.6.2.14)}$$

Total Return Index Levels are rounded as per the technical specifications detailed in the relevant Index Parameters.

6.2.5. Calculation of Non US Dollar "FX Hedged" Index of Indices

The Index "FX hedged" indices are calculated using the methodology outlined in Section A.6.1.5. Calculation of Non US Dollar "FX Hedged" Indexes.

6.3. Generic Basket of Assets calculation methodology

In this section we introduce the Generic Basket of Assets Calculation Engine. This engine is generic in that it allows, in the same Index, the combination of long and/or short positions on either Futures or Forwards and/or Excess Return Indices supported by the methodology described in Section 6.1. Long-Only Forward/Futures based calculation methodology, Section A.6.2. Index of Indices calculation methodology and/or this Section A.6.3 Generic Basket of Assets calculation methodology.

6.3.1. Basic definitions

6.3.1.1. The Roll Period

The Roll Period represents the period from and including the **First Roll Date** (FRD) to and including **Last Roll Date** (LRD).

During the Roll Period, the Index transfers positions from the Index Component (IC) defined for the previous Reference Period (denoted as m-1), to the IC defined for the current Reference Period (denoted as m) (as described in further detail in Section 6.3.1.2. The Calculation Date, the Calculation Period, the Reference Period and the Static Data Calculation Date).

Both the Start and End of the Roll Period are defined in term of the number of Index Business Days from the Static Data Calculation Date of the relevant Calculation Period.

For example, [+0(m)/+2(m)] means that the roll starts on the 1st Index Business Day and ends on the 3rd Index Business Day of the Calculation Period. The Price Index will therefore roll from the 1st to the 3rd Index Business Day, and the Excess Return Index will roll with a lag of one Index Business Day, from the 2nd to the 4th Index Business Day.

6.3.1.1.1. The Static Data Calculation Date (SDCD)

We define the Static Data Calculation Date (SDCD) as the date, specified in the relevant Index Parameters, on which the Static Data are calculated for the Reference Period m. For indices calculated under the Generic Basket of Assets Calculation Engine, on the Static Data Calculation Date we calculate the Unit Weights (UW) according to the particular specifications as detailed in the relevant Index Parameters.

6.3.1.1.2. The definition of Roll Weights (RW) for the Price Return Index

We define the Roll Period as a range of Index Business Days over which the transfer of positions defined for the Reference Period m-1 to the Reference Period m takes place. The Roll Rate (RR) is the frequency at which positions are transferred over the Roll Period.

For example, if the Roll Period was defined as the 1st to the 3rd Index Business Day of the Calculation Period, the Price Return Index starts to reference the Static Data defined for the relevant Reference Period on the 1st Index Business Day of the Calculation Period.

The Roll Period for a given Index is defined in the relevant Index Parameters relating to the Index.

TABLE I. EXAMPLE OF VALUES TAKEN BY RW^M DURING THE ROLL PERIOD - PRICE RETURN INDEX
ROLL PERIOD OVER 3 INDEX BUSINESS DAYS

					SDCD	< Roll Period >						
	Bus day	$N\text{-}2^{m\text{-}1}$	$N\text{-}1^{m\text{-}1}$	$N^{m\text{-}1}$	0	1	2	3	4	5	6+	…
Price Return Index	RW	1.0	1.0	1.0	0.0	1/3	2/3	1.0	1.0	1.0	1.0	
	RR	0	0	0	0	1/3	1/3	1/3	0	0	0	

Source: Credit Suisse

6.3.1.1.3. The definition of Index Roll Weights (RW) for the Excess Return Index

In order to mitigate the effect of Disrupted Valuation Days occurring during the Roll Period and prevent a discontinuity from affecting the Excess Return Index, the Roll Period of the Excess Return Index is delayed by one Index Business Day compared to the Roll Period of the Price Return Index, i.e. the values taken by $RW^m_{c,t}$ on a Calculation Date are equal to the Roll Weight used by the Price Return Index on the immediately preceding Calculation Date, hence the notation $RW^m_{c,t-1}$ for each Index Component c on Reference Period m (See Table II. below).

TABLE II. EXAMPLE OF VALUES TAKEN BY RW^M DURING THE ROLL PERIOD - EXCESS RETURN INDEX
ROLL PERIOD OVER 3 INDEX BUSINESS DAYS

					SDCD	< Roll Period >						
	Bus day	$N\text{-}2^{m\text{-}1}$	$N\text{-}1^{m\text{-}1}$	$N^{m\text{-}1}$	0	1	2	3	4	5	6+	…
Price Return Index	RW	1.0	1.0	1.0	0.0	1/3	2/3	1.0	1.0	1.0	1.0	
	RR	0	0	0	0	1/3	1/3	1/3	0	0	0	
Excess Return Index	RW	1.0	1.0	1.0	0.0	0.0	1/3	2/3	1.0	1.0	1.0	
	RR	0	0	0	0	0	1/3	1/3	1/3	0	0	

Source: Credit Suisse

6.3.1.1.4. The values of Roll Weights (RW) during Disrupted Valuation Days.

In the following two sections, we define the procedures governing the calculation of the Index when a Disrupted Valuation Day takes place during a Roll Period. We define both the "Standard Roll" and the "Extended Roll" methodology.

Disrupted Valuation Days that occur outside the Roll Period do not affect the proportion or futures contract positions maintained to hedge the dollar exposure in the Index and so no adjustment to the IRW and SRW schedules is necessary.

6.3.1.1.4.1. Standard Roll methodology

If a Disrupted Valuation Day occurs during the Roll Period, the IRW associated with the Price Return Index on that day remains unchanged when compared to its value on the previous Index Business Day which was not a Disrupted Valuation Day in relation to the relevant Index Component. The IRW on the next Index Business Day which is not a Disrupted Valuation Day is updated so that it reflects the IRW which would have existed on such Index Business Day had the relevant Disrupted Valuation Days not occurred.

Unless a Disrupted Valuation Day occurs on the last day of the Roll Period (the Last Roll Date), the length of the Roll Period is unaffected. (See Table III. below).

TABLE III. EXAMPLE OF VALUES TAKEN BY RW^M DURING THE ROLL PERIOD - EXCESS RETURN INDEX ROLL PERIOD OVER 3 INDEX BUSINESS DAYS, MDE TAKING PLACE ON THE 2ND ROLL DAY

					SDCD	< Roll Period >						
	Bus day	$N\text{-}2^{m\text{-}1}$	$N\text{-}1^{m\text{-}1}$	$N^{m\text{-}1}$	0	1	2	3	4	5	6+	…
Price Return Index	RW	1.0	1.0	1.0	0.0	1/3	1/3	1.0	1.0	1.0	1.0	
	RR	0	0	0	0	1/3	0	2/3	0	0	0	
Excess Return Index	RW	1.0	1.0	1.0	0.0	0.0	1/3	1/3	1.0	1.0	1.0	
	RR	0	0	0	0	0	1/3	0	2/3	0	0	

Source: Credit Suisse

And:

2/3	Day on which the Disrupted Valuation Day (DVD) takes place, and value attributed to variable
0.0	Value attributed to variable as a result of a DVD taking place prior to that date.
1/3	Expected value attributed to variable prior to the start of the Roll Period in absence of a DVD

If a Disrupted Valuation Day occurs on the last day of the Roll Period, its length is extended until the transfer of positions is completed subject to the occurrence of further Disrupted Valuation Days, provided that if the Roll Period continues until the Last Possible Roll Date (as defined in paragraph 6.3.1.2), and a the Last Possible Roll Date is also a Disrupted Valuation Day, the Index Sponsor may determine, in good faith and in a reasonable commercial manner, the Index Component Level (IC Level) for the relevant Index Component (See Table IV. below).

TABLE IV. EXAMPLE OF VALUES TAKEN BY RW^M DURING THE ROLL PERIOD - EXCESS RETURN INDEX ROLL PERIOD OVER 3 INDEX BUSINESS DAYS, MDE TAKING PLACE ON THE LAST ROLL DAY

					SDCD	< Roll Period >						
	Bus day	$N\text{-}2^{m\text{-}1}$	$N\text{-}1^{m\text{-}1}$	$N^{m\text{-}1}$	0	1	2	3	4	5	6+	…
Price Return Index	RW	1.0	1.0	1.0	0.0	1/3	2/3	2/3	1.0	1.0	1.0	
	RR	0	0	0	0	1/3	1/3	0	1/3	0	0	
Excess Return Index	RW	1.0	1.0	1.0	0.0	0.0	1/3	2/3	2/3	1.0	1.0	
	RR	0	0	0	0	0	1/3	1/3	0	1/3	0	

Source: Credit Suisse

6.3.1.1.4.2. Extended Roll methodology

When a Disrupted Valuation Day occurs during the Roll Period for which the Extended Roll methodology applies, the Roll Period is extended until the transfer of positions is completed. The RW take their projected and initial values until the Roll is completed (see Table V. below).

TABLE V. EXAMPLE OF VALUES TAKEN BY RW^M DURING THE ROLL PERIOD - EXCESS RETURN INDEX ROLL PERIOD OVER 3 INDEX BUSINESS DAYS, MDE TAKING PLACE ON THE 3RD ROLL DAY

					SDCD	< Roll Period >						
						<- Roll Period (Extended)->						
	Bus day	$N\text{-}2^{m\text{-}1}$	$N\text{-}1^{m\text{-}1}$	$N^{m\text{-}1}$	0	1	2	3	4	5	6+	…
Price Return Index	RW	1.0	1.0	1.0	1.0	1/3	1/3	2/3	1.0	1.0	1.0	
	RR	0	0	1.0	1.0	1/3	0	1/3	1/3	0	0	
Excess Return Index	RW	1.0	1.0	1.0	0.0	0.0	1/3	1/3	2/3	1.0	1.0	
	RR	0	0	0	0	0	1/3	0	1/3	1/3	0	

Source: Credit Suisse

And:

2/3	Day on which the Disrupted Valuation Day (DVD) takes place, and value attributed to variable
0.0	Value attributed to variable as a result of a DVD taking place prior to that date.
1/3	Expected value attributed to variable prior to the start of the Roll Period in absence of a DVD
6	Extended Roll day as part of the Roll Extension procedure

In the absence of a Disrupted Valuation Days on the following Index Business Day for the relevant Index Component, the Roll continues as originally specified. If the Roll Period continues until the Last Possible Roll Date, and a Disrupted Valuation Day occurs on the Last Possible Roll Date, the Index Sponsor may determine, in good faith and in a reasonable commercial manner, the Index Component Level (IC Level) for the relevant Index Component.

6.3.1.1.5. Impact of Disruptions Events and Market Emergency on Basket of Composite Indices

Accurately capturing the economic effects of Disruptions Events and Market Emergency on a Basket of Composite Indices requires amendments to the Disruptions methodology. To be able to isolate the effect of a Disruption Event and Market Emergency, the Composite Indices are decomposed into their underlying futures components, effectively converting the Basket of Composite Indices into a Basket of futures contracts. The basket composition of disrupted futures contracts remain at their previous index business day's value (to reflect the economic restriction of the Disruption Event or Market Emergency, as the case may be), while the basket composition of undisrupted futures contracts are evaluated in accordance with the rules outlined in sections 6.3.1.1.4.1. and 6.3.1.1.4.2 under the assumption that no Disruption Event or Market Emegergency took place. Disruption of any contract of a Commodity futures curve leads to the disruption of all contracts of such a futures curve.

6.3.1.2. The Calculation Date, the Calculation Period, the Reference Period and the Static Data Calculation Date

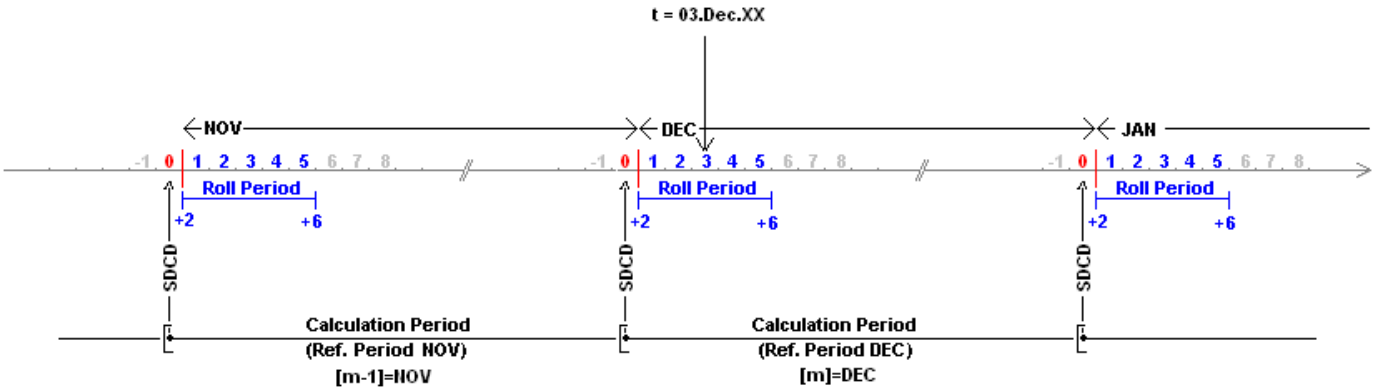
To facilitate the notations and calculations, we further define the following notions:

- The **Calculation Date**: any Index Business Day for which the Index Closing Level is published,
- The **Static Data Calculation Date** (SDCD): an Index Business Day on or prior to the start of the Roll Period, specified in the relevant Index Parameters, on which the calculation of the Static Data is performed,
- The **Roll Frequency**, the frequency of Roll Periods expressed in number of months, or weeks. Usually occurring at monthly frequency (frequency then equal to one (1) month), the frequency can also be weekly (then for example, occurring on the same Index Business Day of the week

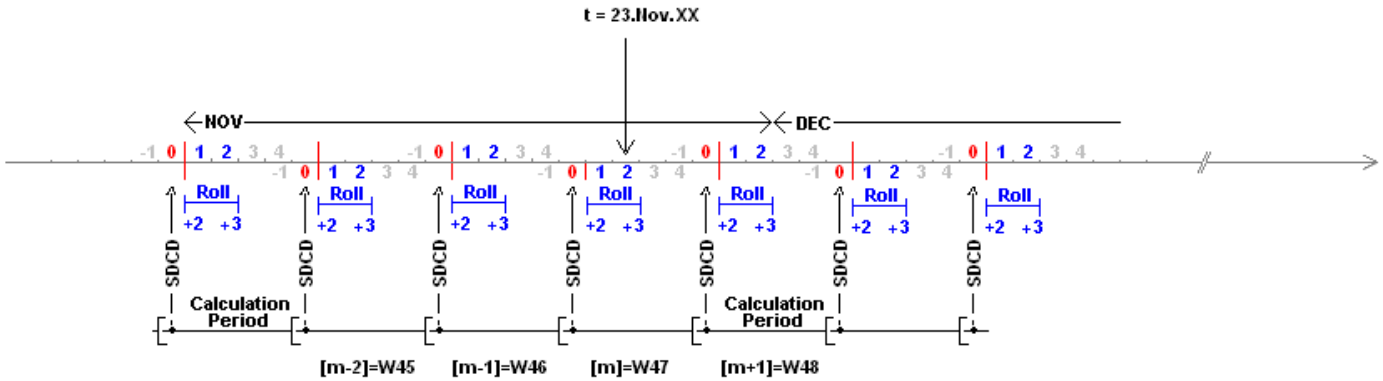
every consecutive week) or be expressed in multiples of weeks. The Roll frequency can also be a customized schedule of date,

- The **Calculation Period**, in respect of a Static Data Calculation Date, the period from and including such Static Data Calculation Date, to but excluding the immediately following Static Data Calculation Date,
- The **Reference Period**, in respect of a Calculation Date t, the period (denoted as m, and as specified in the relevant Index Parameters) during which the Static Data calculated on the Static Data Calculation Date falling on or immediately prior to such Calculation Date t applies,
- The **Last Possible Roll Date**, in respect of a Calculation Period, either (a) in respect of an Index Component which is an index, the Index Business Day immediately preceding the Static Data Calculation Date falling at the end of such Calculation Period, or (b) in respect of an Index Component which is a Futures contract, the earlier of (i) the Index Business Day prior to the expiry of the Index Component (such expiry being the last trading day of the relevant Index Pricing Instrument) and (ii) the last Index Business Day of such Calculation Period.

EXHIBIT IA. THE CALCULATION DATE, THE CALCULATION PERIOD, THE REFERENCE PERIOD AND THE STATIC DATA CALCULATION DATE
A1. ROLL PERIOD, MONTHLY FREQUENCY [+2(M)/+6(M)], EXAMPLE NOV XX- DEC XX



A2. ROLL PERIOD, WEEKLY FREQUENCY [+2(M)/+3(M)], EXAMPLE NOV XX, WEEK #47



Source: Credit Suisse

6.3.1.3. The Index Component Pricing Instrument (ICPI) and Index Component Level (ICL)

An Index Component Pricing Instrument is the derivative instrument associated with an Index Component member of the Investment Universe. It is either:

- a designated Futures or Forward Contract defined by Section A.4. Universe of Index Components,

- an Excess Return Index supported by the Section 6.1. Long-Only Forward/Futures based calculation methodology,
- an Excess Return Index supported by the Section 6.2. Index of Indices calculation methodology,
- an Excess Return Index supported by the Section 6.3. Generic Basket of Assets calculation methodology.

The Index Component Level (ICL) is the Official Price of such instrument for a relevant Calculation Date t. For an Index Component Pricing Instrument which is a Futures/Forward, the Official Price is the Settlement Price as defined by the relevant Exchange or Trading Facility. For an Index Component Pricing Instrument which is an Index, the Official Price is the Closing Price as Published by the relevant Index Sponsor. The Settlement Price or Closing Price is expressed in the Reference Currency of the Index such that all Index Components Levels are expressed in the same currency.

The Investment Universe for a given version of the Index is detailed in the relevant Index Parameters.

6.3.1.4. The Net Index Value Increment

The Net Index Value Increment (NIVI) on any Calculation Date t is calculated in accordance with the following formula:

$$NIVI_{c,t}^{m} = UW_{c}^{m} \times \left(ICL_{c,t}^{m} - ICL_{c,t-1}^{m} \right) \qquad (A.6.3.1.1)$$

where:

t	the Calculation Date,
UW^{m}_{c}	is the Units Weight calculated for an Index Component c for the Reference Period m, defined as the number of units held as a proportion of one unit of the overall basket,
$ICL^{m}_{c,t}$	is the Index Component level of an Index Component Pricing Instrument for an Index Component c, for a Reference Period m, with prices taken at t,
c	is an Index Component.

The calculation of NIVI for Index Components which are not quoted in USD incorporates the necessary FX conversion to ensure the resulting NIVIs and Index are Currency-consistent across all underlyings. As such, formula A.6.3.1.1. above is altered as further detailed in Appendix A herein.

6.3.1.5. Calculation of Unit Weights (UW)

On the Static Data Calculation Date (denoted below as p), for a given Index Component c and for the Reference Period m, we calculate the Units Weights referred to as UW^{m}_{c} as follows:

STEP 1. We obtain the Index Target Investment Weight (TIW^{m}_{c}) for a given Index Component c. The values of TW^{m}_{c} are defined in the relevant Index Parameters for the relevant Index.
STEP 2. We calculate the UW^{m}_{c} for Index Component c in accordance with the following formula:

$$UW_{c}^{m} = ER_{p} \times TIW_{c}^{m} \times \left(\frac{1}{ICL_{c,p}^{m}} \right) \qquad (A.6.3.2)$$

where:

p	the Static Data Calculation Date associated with the Reference Period m,
TIW^{m}_{c}	is the Target Investment Weight provided for an Index Component c for the Reference Period m,
ER_{p}	is the Excess Return Index taken on date p,
$ICL^{m}_{c,p}$	is the Index Component level of an Index Component Pricing Instrument for an Index Component c, for a Reference Period m, with prices taken on date p as defined above.

In case of non-USD Index Components, the UW calculation follows the approach of the NIVI, with the required alteration to A.6.3.2. being detailed in Appendix A herein.
The value of UW for each Index Component is rounded as outlined in the relevant Index Parameters for the respective Index.

6.3.2. The Price Return Index (Index-PR)

The value of the Price Return Index on any Calculation Date t is calculated in accordance with the following formula:

$$PR_t = PR_{t-1} + BNIVI^{m}_{t,t} \qquad (A.6.3.3)$$

$$BNIVI^{m}_{p,w} = \sum_{c=1,C} NIVI^{m-1}_{c,p} \times RW^{m-1}_{c,w} + \sum_{c=1,C} NIVI^{m}_{c,p} \times RW^{m}_{c,w} \qquad (A.6.3.4)$$

where:

t	is the Calculation Date,
$BNIVI^{m}_{p,w}$	is the Basket of Net Index Value Increments (BNIVI) for the Reference Period m, defined as the sum of (Roll Weight Adjusted) Index Value Increments (NIVI) with prices taken on date p and weights on date w (for this calculation, p=t and w=t).
$ICL^{m}_{c,t}$	is the Index Component Level for an Index Component c, for a Reference Period m, with the Official Price taken at time t, defined in Section A.6.3.1.3 above,
$RW^{m-1}_{c,t}$ & $RW^{m}_{c,t}$	are the Roll Weights for an Index Component c on date t are defined such that $RW^{m-1}_{c,t} = 1-RW^{m}_{c,t}$ (see Section 6.3.1.1. The Roll Period),
C	is the number of Index Components in the Investment Universe, defined as the Union of Index Components defined for both Reference Periods m and m+1.

Price Return Index Levels are rounded as per the technical specifications detailed in the relevant Index Parameters.

6.3.3. The Excess Return Index (Index-ER)

The value of the Excess Return Index on any Calculation Date t is calculated in accordance with the following formula:

$$ER_t = ER_{t-1} + BNIVI^{m}_{t,t-1} \qquad (A.6.3.5)$$

where:

$$BNIVI^{m}_{t,t-1} = \sum_{c=1,C} NIVI^{m-1}_{c,t} \times RW^{m-1}_{c,t-1} + \sum_{c=1,C} NIVI^{m}_{c,t} \times RW^{m}_{c,t-1} \qquad (A.6.3.6)$$

Excess Return Index Levels are rounded as per the technical specifications detailed in the relevant Index Parameters.

6.3.4. The Total Return Index (Index-TR)

The Total Return Index is the sum of (i) the uncollateralized return provided by the Index Investment Basket (the Excess Return) and (ii) the Daily Collateral Yield (DCY). The DCY is derived from the value of the Credit Adjusted Collateral Reference Rate (CACRR).

6.3.4.1. Collateral Reference Rate

Collateral Reference Rates in respect of various currencies for the calculation of the respective Total Return Indices are defined in the Interest Rate Definitions in the relevant Index Parameters.

6.3.4.2. Daily Collateral Yield

The Daily Collateral Yield is defined in Section A.6.1.4.2.

6.3.4.3. Calculation of the Total Return Index

The Generic Basket of Assets Calculation Engine supports two distinct calculation methodologies for the Total Return Index, to reflect the differing treatment of collateral yield for non-Index Business Days: the "Daily Equivalent Rate method", and the "Compounding method" (See Section A.6.1.4.3. Calculation of the Total Return Index).

For a given Index, the Total Return Index calculation method is defined in the relevant Index Parameters.

6.3.4.3.1. Daily Equivalent Rate method

When the Daily Equivalent method is selected, the value of the Total Return Index on any Calculation Date t is calculated in accordance with the following formula:

$$\mathrm{TR}_t = \mathrm{TR}_{t-1} \times \left(\frac{ER_t}{ER_{t-1}} + DCY_{days,t}^{CCY} \right) \qquad \text{(A.6.3.7)}$$

6.3.4.3.2. Compounding method

When the Compounding method is selected, the value of the Total Return Index on any Calculation Date t is calculated in accordance with the following formula:

$$\mathrm{TR}_t = \mathrm{TR}_{t-1} \times \left(\frac{ER_t}{ER_{t-1}} + DCY_{1,t}^{USD} \right) \left(1 + DCY_{1,t}^{USD}\right)^{(\mathrm{days}-1)} \qquad \text{(A.6.3.8)}$$

6.3.4.3.3. Daily Accrual & Monthly Compounding method

When the Daily Accrual & Monthly Compounding method is selected, the value of the Total Return Index on any Calculation Date t is calculated in accordance with the following formula:

$$\mathrm{TR}_t = \mathrm{TR}_r \times \left(\frac{ER_t}{ER_r} + TDA_{d,t}^{USD} \right) \qquad \text{(A.6.3.9)}$$

$$TDA_{d,t}^{USD} = \sum_{i=r+1}^{t} CACRR_{i-1}^{USD} \times \frac{days_i}{Basis^{USD}} \qquad \text{(A.6.3.10)}$$

$Basis^{CCY}$	For a specified currency (CCY) the number of standard days used in interest calculations, as per the technical specifications detailed in the relevant Index Parameters,
$CACRR^{CCY}{}_t$	Credit Adjusted Collateral Reference Rate for the currency CCY as per the technical specifications detailed in the relevant Index Parameters (please refer to Section A. 6.1.4.2. Daily Collateral Yield)
"$days_i$"	is the number of calendar days from the Calculation Date immediately preceding the Calculation Date i, to the Calculation Date i,
r	for a given calculation date t, the Reference Calculation Date immediately preceding such Calculation Date, as per the technical specifications detailed in the relevant Index Parameters.

The Daily Accrual & Monthly Compounding methodology is used primarily for the calculation of the AFT-CTI Total Return calculation.

Total Return Index Levels are rounded as per the technical specifications detailed in the relevant Index Parameters.

6.3.5. Calculation of Non US Dollar "FX Hedged" Generic Basket of Assets Indexes

The Index "FX hedged" indices are calculated using the methodology outlined in Section A.6.1.5. Calculation of Non US Dollar "FX Hedged" Indexes.

6.3. Generic Basket of Assets calculation methodology

In this section we introduce the Simplified Generic Basket of Assets Calculation Engine. This engine is generic in that it allows, in the same Index, the combination of long and/or short positions on either Futures or Forwards and/or Excess Return Indices supported by the methodology described in Section 6.1. Long-Only Forward/Futures based calculation methodology, Section A.6.2. Index of Indices calculation methodology, Section A.6.3 Generic Basket of Assets calculation methodology, and/or this Section A.6.4 Generic Basket of Assets calculation methodology.

6.3.1. Basic definitions

6.3.1.1. The Roll Period

The Roll Period represents the period from and including the **First Roll Date** (FRD) to and including **Last Roll Date** (LRD).

During the Roll Period, the Index transfers positions from the Index Component (IC) defined for the previous Reference Period (denoted as m-1), to the IC defined for the current Reference Period (denoted as m) (as described in further detail in Section 6.3.1.2. The Calculation Date, the Calculation Period, the Reference Period and the Static Data Calculation Date).

Both the Start and End of the Roll Period are defined in term of the number of Index Business Days from the Static Data Calculation Date of the relevant Calculation Period.

6.3.1.1.4. The values of Roll Weights (RW) during Disrupted Valuation Days.

In the following two sections, we define the procedures governing the calculation of the Index when a Disrupted Valuation Day takes place during a Roll Period. We define both the “Standard Roll” and the “Extended Roll” methodology.

Disrupted Valuation Days that occur outside the Roll Period do not affect the proportion or futures contract positions maintained to hedge the dollar exposure in the Index and so no adjustment to the IRW and SRW schedules is necessary.

6.3.1.1.4.1. Standard Roll methodology

If a Disrupted Valuation Day occurs during the Roll Period, the IRW associated with the Price Return Index on that day remains unchanged when compared to its value on the previous Index Business Day which was not a Disrupted Valuation Day in relation to the relevant Index Component. The IRW on the next Index Business Day which is not a Disrupted Valuation Day is updated so that it reflects the IRW which would have existed on such Index Business Day had the relevant Disrupted Valuation Days not occurred.

Unless a Disrupted Valuation Day occurs on the last day of the Roll Period (the Last Roll Date), the length of the Roll Period is unaffected. (See Table III. below).

TABLE III. EXAMPLE OF VALUES TAKEN BY RW^M DURING THE ROLL PERIOD - EXCESS RETURN INDEX ROLL PERIOD OVER 3 INDEX BUSINESS DAYS, MDE TAKING PLACE ON THE 2ND ROLL DAY

					SDCD	< Roll Period >						
	Bus day	$N\text{-}2^{m\text{-}1}$	$N\text{-}1^{m\text{-}1}$	$N^{m\text{-}1}$	0	1	2	3	4	5	6+	…
Price Return Index	RW	1.0	1.0	1.0	0.0	1/3	1/3	1.0	1.0	1.0	1.0	
	RR	0	0	0	0	1/3	0	2/3	0	0	0	
Excess Return Index	RW	1.0	1.0	1.0	0.0	0.0	1/3	1/3	1.0	1.0	1.0	
	RR	0	0	0	0	0	1/3	0	2/3	0	0	

Source: Credit Suisse

And:

2/3	Day on which the Disrupted Valuation Day (DVD) takes place, and value attributed to variable
0.0	Value attributed to variable as a result of a DVD taking place prior to that date.
1/3	Expected value attributed to variable prior to the start of the Roll Period in absence of a DVD

If a Disrupted Valuation Day occurs on the last day of the Roll Period, its length is extended until the transfer of positions is completed subject to the occurrence of further Disrupted Valuation Days, provided that if the Roll Period continues until the Last Possible Roll Date (as defined in paragraph 6.3.1.2), and a the Last Possible Roll Date is also a Disrupted Valuation Day, the Index Sponsor may determine, in good faith and in a reasonable commercial manner, the Index Component Level (IC Level) for the relevant Index Component (See Table IV. below).

TABLE IV. EXAMPLE OF VALUES TAKEN BY RW^M DURING THE ROLL PERIOD - EXCESS RETURN INDEX ROLL PERIOD OVER 3 INDEX BUSINESS DAYS, MDE TAKING PLACE ON THE LAST ROLL DAY

					SDCD	< Roll Period >						
	Bus day	$N\text{-}2^{m\text{-}1}$	$N\text{-}1^{m\text{-}1}$	$N^{m\text{-}1}$	0	1	2	3	4	5	6+	…
Price Return Index	RW	1.0	1.0	1.0	0.0	1/3	2/3	2/3	1.0	1.0	1.0	
	RR	0	0	0	0	1/3	1/3	0	1/3	0	0	
Excess Return Index	RW	1.0	1.0	1.0	0.0	0.0	1/3	2/3	2/3	1.0	1.0	
	RR	0	0	0	0	0	1/3	1/3	0	1/3	0	

Source: Credit Suisse

6.3.1.1.4.2. Extended Roll methodology

When a Disrupted Valuation Day occurs during the Roll Period for which the Extended Roll methodology applies, the Roll Period is extended until the transfer of positions is completed. The RW take their projected and initial values until the Roll is completed (see Table V. below).

TABLE V. EXAMPLE OF VALUES TAKEN BY RW^M DURING THE ROLL PERIOD - EXCESS RETURN INDEX ROLL PERIOD OVER 3 INDEX BUSINESS DAYS, MDE TAKING PLACE ON THE 3RD ROLL DAY

					SDCD	< Roll Period >						
						<- Roll Period (Extended)->						
	Bus day	$N\text{-}2^{m\text{-}1}$	$N\text{-}1^{m\text{-}1}$	$N^{m\text{-}1}$	0	1	2	3	4	5	6+	…
Price Return Index	RW	1.0	1.0	1.0	1.0	1/3	1/3	2/3	1.0	1.0	1.0	
	RR	0	0	1.0	1.0	1/3	0	1/3	1/3	0	0	
Excess Return Index	RW	1.0	1.0	1.0	0.0	0.0	1/3	1/3	2/3	1.0	1.0	
	RR	0	0	0	0	0	1/3	0	1/3	1/3	0	

Source: Credit Suisse

And:

2/3	Day on which the Disrupted Valuation Day (DVD) takes place, and value attributed to variable
0.0	Value attributed to variable as a result of a DVD taking place prior to that date.
1/3	Expected value attributed to variable prior to the start of the Roll Period in absence of a DVD
6	Extended Roll day as part of the Roll Extension procedure

In the absence of a Disrupted Valuation Days on the following Index Business Day for the relevant Index Component, the Roll continues as originally specified. If the Roll Period continues until the Last Possible Roll Date, and a Disrupted Valuation Day occurs on the Last Possible Roll Date, the Index Sponsor may determine, in good faith and in a reasonable commercial manner, the Index Component Level (IC Level) for the relevant Index Component.

6.3.1.1.5. Impact of Disruptions Events and Market Emergency on Basket of Composite Indices

Accurately capturing the economic effects of Disruptions Events and Market Emergency on a Basket of Composite Indices requires amendments to the Disruptions methodology. To be able to isolate the effect of a Disruption Event and Market Emergency, the Composite Indices are decomposed into their underlying futures components, effectively converting the Basket of Composite Indices into a Basket of futures contracts. The basket composition of disrupted futures contracts remain at their previous index business day's value (to reflect the economic restriction of the Disruption Event or Market Emergency, as the case may be), while the basket composition of undisrupted futures contracts are evaluated in accordance with the rules outlined in sections 6.3.1.1.4.1. and 6.3.1.1.4.2 under the assumption that no Disruption Event or Market Emegergency took place. Disruption of any contract of a Commodity futures curve leads to the disruption of all contracts of such a futures curve.

6.3.1.2. The Calculation Date, the Calculation Period, the Reference Period and the Static Data Calculation Date

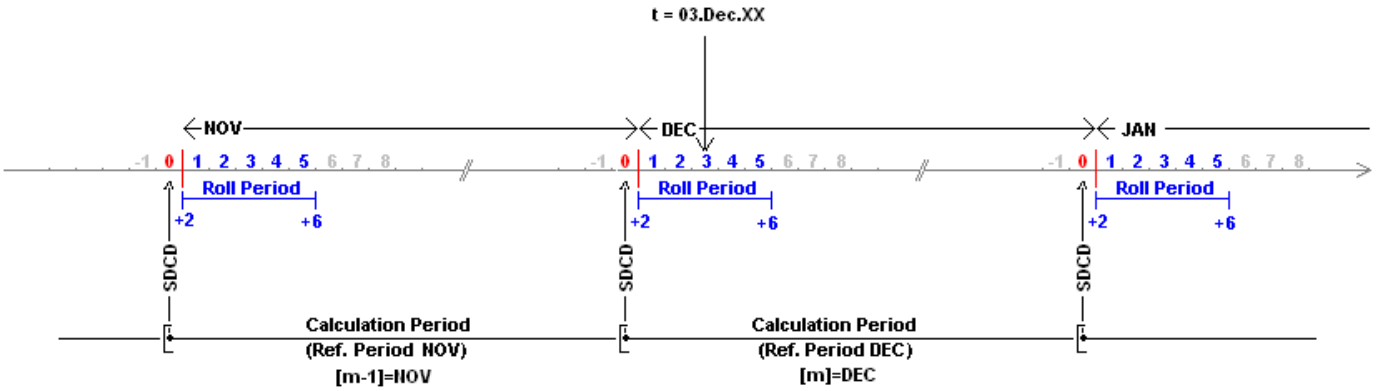
To facilitate the notations and calculations, we further define the following notions:

- The **Calculation Date**: any Index Business Day for which the Index Closing Level is published,
- The **Static Data Calculation Date** (SDCD): an Index Business Day on or prior to the start of the Roll Period, specified in the relevant Index Parameters, on which the calculation of the Static Data is performed,
- The **Roll Frequency**, the frequency of Roll Periods expressed in number of months, or weeks. Usually occurring at monthly frequency (frequency then equal to one (1) month), the frequency can also be weekly (then for example, occurring on the same Index Business Day of the week

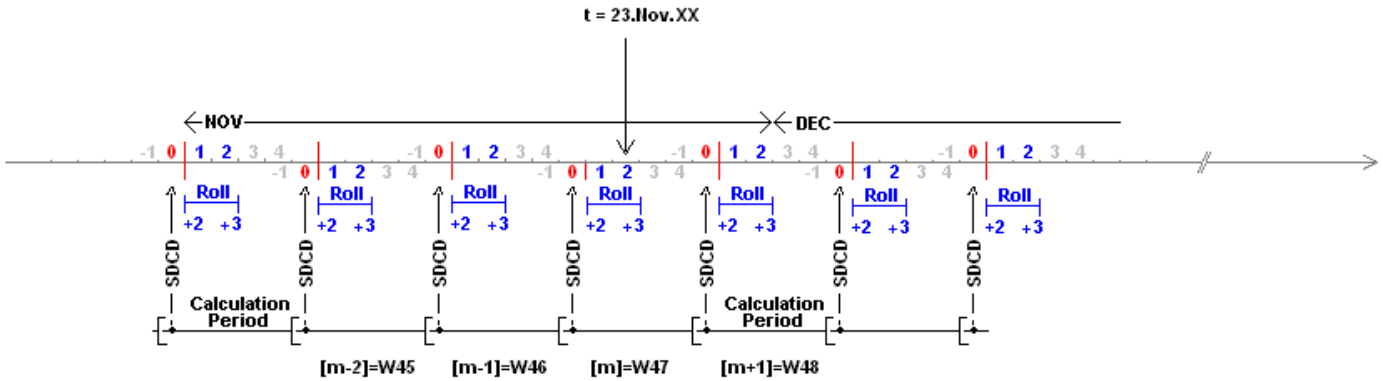
every consecutive week) or be expressed in multiples of weeks. The Roll frequency can also be a customized schedule of date,

- The **Calculation Period**, in respect of a Static Data Calculation Date, the period from and including such Static Data Calculation Date, to but excluding the immediately following Static Data Calculation Date,
- The **Reference Period**, in respect of a Calculation Date t, the period (denoted as m, and as specified in the relevant Index Parameters) during which the Static Data calculated on the Static Data Calculation Date falling on or immediately prior to such Calculation Date t applies,
- The **Last Possible Roll Date**, in respect of a Calculation Period, either (a) in respect of an Index Component which is an index, the Index Business Day immediately preceding the Static Data Calculation Date falling at the end of such Calculation Period, or (b) in respect of an Index Component which is a Futures contract, the earlier of (i) the Index Business Day prior to the expiry of the Index Component (such expiry being the last trading day of the relevant Index Pricing Instrument) and (ii) the last Index Business Day of such Calculation Period.

EXHIBIT IA. THE CALCULATION DATE, THE CALCULATION PERIOD, THE REFERENCE PERIOD AND THE STATIC DATA CALCULATION DATE
A1. ROLL PERIOD, MONTHLY FREQUENCY [+2(M)/+6(M)], EXAMPLE NOV XX- DEC XX



A2. ROLL PERIOD, WEEKLY FREQUENCY [+2(M)/+3(M)], EXAMPLE NOV XX, WEEK #47



Source: Credit Suisse

6.3.1.3. The Index Component Pricing Instrument (ICPI) and Index Component Level (ICL)

An Index Component Pricing Instrument is the derivative instrument associated with an Index Component member of the Investment Universe. It is either:

- a designated Futures or Forward Contract defined by Section A.4. Universe of Index Components,

- an Excess Return Index supported by the Section 6.1. Long-Only Forward/Futures based calculation methodology,
- an Excess Return Index supported by the Section 6.2. Index of Indices calculation methodology,
- an Excess Return Index supported by the Section 6.3. Generic Basket of Assets calculation methodology.

The Index Component Level (ICL) is the Official Price of such instrument for a relevant Calculation Date t. For an Index Component Pricing Instrument which is a Futures/Forward, the Official Price is the Settlement Price as defined by the relevant Exchange or Trading Facility. For an Index Component Pricing Instrument which is an Index, the Official Price is the Closing Price as Published by the relevant Index Sponsor. The Settlement Price or Closing Price is expressed in the Reference Currency of the Index such that all Index Components Levels are expressed in the same currency.

The Investment Universe for a given version of the Index is detailed in the relevant Index Parameters.

6.3.1.4. The Net Index Value Increment

The Net Index Value Increment (NIVI) on any Calculation Date t is calculated in accordance with the following formula:

$$NIVI_{c,t}^{m} = UW_{c}^{m} \times \left(ICL_{c,t}^{m} - ICL_{c,t-1}^{m} \right) \qquad (A.6.3.1.1)$$

where:

t	the Calculation Date,
UW^{m}_{c}	is the Units Weight calculated for an Index Component c for the Reference Period m, defined as the number of units held as a proportion of one unit of the overall basket,
$ICL^{m}_{c,t}$	is the Index Component level of an Index Component Pricing Instrument for an Index Component c, for a Reference Period m, with prices taken at t,
c	is an Index Component.

The calculation of NIVI for Index Components which are not quoted in USD incorporates the necessary FX conversion to ensure the resulting NIVIs and Index are Currency-consistent across all underlyings. As such, formula A.6.3.1.1. above is altered as further detailed in Appendix A herein.

6.3.1.5. Calculation of Unit Weights (UW)

On the Static Data Calculation Date (denoted below as p), for a given Index Component c and for the Reference Period m, we calculate the Units Weights referred to as UW^{m}_{c} as follows:

STEP 1. We obtain the Index Target Investment Weight (TIW^{m}_{c}) for a given Index Component c. The values of TW^{m}_{c} are defined in the relevant Index Parameters for the relevant Index.
STEP 2. We calculate the UW^{m}_{c} for Index Component c in accordance with the following formula:

$$UW_{c}^{m} = ER_{p} \times TIW_{c}^{m} \times \left(\frac{1}{ICL_{c,p}^{m}} \right) \qquad (A.6.3.2)$$

where:

p	the Static Data Calculation Date associated with the Reference Period m,
TIW^{m}_{c}	is the Target Investment Weight provided for an Index Component c for the Reference Period m,
ER_{p}	is the Excess Return Index taken on date p,
$ICL^{m}_{c,p}$	is the Index Component level of an Index Component Pricing Instrument for an Index Component c, for a Reference Period m, with prices taken on date p as defined above.

In case of non-USD Index Components, the UW calculation follows the approach of the NIVI, with the required alteration to A.6.3.2. being detailed in Appendix A herein.
The value of UW for each Index Component is rounded as outlined in the relevant Index Parameters for the respective Index.

6.3.2. The Price Return Index (Index-PR)

The value of the Price Return Index on any Calculation Date t is calculated in accordance with the following formula:

$$PR_t = PR_{t-1} + BNIVI^{m}_{t,t} \qquad (A.6.3.3)$$

$$BNIVI^{m}_{p,w} = \sum_{c=1,C} NIVI^{m-1}_{c,p} \times RW^{m-1}_{c,w} + \sum_{c=1,C} NIVI^{m}_{c,p} \times RW^{m}_{c,w} \qquad (A.6.3.4)$$

where:

t	is the Calculation Date,
$BNIVI^{m}_{p,w}$	is the Basket of Net Index Value Increments (BNIVI) for the Reference Period m, defined as the sum of (Roll Weight Adjusted) Index Value Increments (NIVI) with prices taken on date p and weights on date w (for this calculation, p=t and w=t).
$ICL^{m}_{c,t}$	is the Index Component Level for an Index Component c, for a Reference Period m, with the Official Price taken at time t, defined in Section A.6.3.1.3 above,
$RW^{m-1}_{c,t}$ & $RW^{m}_{c,t}$	are the Roll Weights for an Index Component c on date t are defined such that $RW^{m-1}_{c,t} = 1-RW^{m}_{c,t}$ (see Section 6.3.1.1. The Roll Period),
C	is the number of Index Components in the Investment Universe, defined as the Union of Index Components defined for both Reference Periods m and m+1.

Price Return Index Levels are rounded as per the technical specifications detailed in the relevant Index Parameters.

6.3.3. The Excess Return Index (Index-ER)

The value of the Excess Return Index on any Calculation Date t is calculated in accordance with the following formula:

$$ER_t = ER_{t-1} + BNIVI^{m}_{t,t-1} \qquad (A.6.3.5)$$

where:

$$BNIVI^{m}_{t,t-1} = \sum_{c=1,C} NIVI^{m-1}_{c,t} \times RW^{m-1}_{c,t-1} + \sum_{c=1,C} NIVI^{m}_{c,t} \times RW^{m}_{c,t-1} \qquad (A.6.3.6)$$

Excess Return Index Levels are rounded as per the technical specifications detailed in the relevant Index Parameters.

6.3.4. The Total Return Index (Index-TR)

The Total Return Index is the sum of (i) the uncollateralized return provided by the Index Investment Basket (the Excess Return) and (ii) the Daily Collateral Yield (DCY). The DCY is derived from the value of the Credit Adjusted Collateral Reference Rate (CACRR).

6.3.4.1. Collateral Reference Rate

Collateral Reference Rates in respect of various currencies for the calculation of the respective Total Return Indices are defined in the Interest Rate Definitions in the relevant Index Parameters.

6.3.4.2. Daily Collateral Yield

The Daily Collateral Yield is defined in Section A.6.1.4.2.

6.3.4.3. Calculation of the Total Return Index

The Generic Basket of Assets Calculation Engine supports two distinct calculation methodologies for the Total Return Index, to reflect the differing treatment of collateral yield for non-Index Business Days: the "Daily Equivalent Rate method", and the "Compounding method" (See Section A.6.1.4.3. Calculation of the Total Return Index).

For a given Index, the Total Return Index calculation method is defined in the relevant Index Parameters.

6.3.4.3.1. Daily Equivalent Rate method

When the Daily Equivalent method is selected, the value of the Total Return Index on any Calculation Date t is calculated in accordance with the following formula:

$$\mathrm{TR}_t = \mathrm{TR}_{t-1} \times \left(\frac{ER_t}{ER_{t-1}} + DCY_{days,t}^{CCY} \right) \qquad \text{(A.6.3.7)}$$

6.3.4.3.2. Compounding method

When the Compounding method is selected, the value of the Total Return Index on any Calculation Date t is calculated in accordance with the following formula:

$$\mathrm{TR}_t = \mathrm{TR}_{t-1} \times \left(\frac{ER_t}{ER_{t-1}} + DCY_{1,t}^{USD} \right) \left(1 + DCY_{1,t}^{USD}\right)^{(\mathrm{days}-1)} \qquad \text{(A.6.3.8)}$$

6.3.4.3.3. Daily Accrual & Monthly Compounding method

When the Daily Accrual & Monthly Compounding method is selected, the value of the Total Return Index on any Calculation Date t is calculated in accordance with the following formula:

$$\mathrm{TR}_t = \mathrm{TR}_r \times \left(\frac{ER_t}{ER_r} + TDA_{d,t}^{USD} \right) \qquad \text{(A.6.3.9)}$$

$$TDA_{d,t}^{USD} = \sum_{i=r+1}^{t} CACRR_{i-1}^{USD} \times \frac{days_i}{Basis^{USD}} \qquad \text{(A.6.3.10)}$$

$Basis^{CCY}$	For a specified currency (CCY) the number of standard days used in interest calculations, as per the technical specifications detailed in the relevant Index Parameters,
$CACRR^{CCY}_{t}$	Credit Adjusted Collateral Reference Rate for the currency CCY as per the technical specifications detailed in the relevant Index Parameters (please refer to Section A. 6.1.4.2. Daily Collateral Yield)
"$days_i$"	is the number of calendar days from the Calculation Date immediately preceding the Calculation Date i, to the Calculation Date i,
r	for a given calculation date t, the Reference Calculation Date immediately preceding such Calculation Date, as per the technical specifications detailed in the relevant Index Parameters.

The Daily Accrual & Monthly Compounding methodology is used primarily for the calculation of the AFT-CTI Total Return calculation.

Total Return Index Levels are rounded as per the technical specifications detailed in the relevant Index Parameters.

6.3.5. Calculation of Non US Dollar "FX Hedged" Generic Basket of Assets Indexes

The Index "FX hedged" indices are calculated using the methodology outlined in Section A.6.1.5. Calculation of Non US Dollar "FX Hedged" Indexes.

7. Correlation Process

In this section, we describe the correlation process that is performed if the Correlation Process Flag, as defined in the relevant Index Parameters for an Index, is set to 'Yes'.

On each Index Business Day, the correlation (over the previous 250 Index Business Days) of each Index Component in the Index Category Monitor List (as defined in the relevant Index Parameters) with the other Index Components belonging to the same Index Category (in respect of such Index Business Day, the "**250 Day Correlation**"), is calculated in accordance with the following formulae:

$$\rho_{x,y}^{t} = \frac{cov_{x,y}^{t}}{\sigma_x^t \times \sigma_y^t}$$

$$cov_{x,y}^{t} = \frac{1}{n-1} \sum_{i=t-n+1}^{t} (x_i - \bar{x})\,(y_i - \bar{y})$$

where

n : equals 250;

σ_x^t : the standard variation of the log normal returns of the Front Month Contract relating to commodity x over 250 Index Business Days;

σ_y^t : the standard variation of the log normal returns of the Front Month Contract relating to commodity y over 250 Index Business Days;

$\bar{x}$: the average of the log normal returns of the Front Month Contract relating to commodity x over 250 Index Business Days;

$\bar{y}$: the average of the log normal returns of the Front Month Contract relating to commodity y over 250 Index Business Days;

x_i: the log normal return of the Front Month Contract relating to commodity x on Index Business Day i;

y_i: the log normal return of the Front Month Contract relating to commodity y on Index Business Day i; and

Front Month Contract: in respect of a commodity and any date, the first futures contract on that commodity to expire as of such date, provided that if such date falls within the period from (and excluding) the last trading day of the first contract to expire, to (and including) the date of expiration of the first contract to expire, then the second futures contract to expire, as of such date, shall be considered to be the "Front Month Contract".

On each Index Business Day, the percentage of 250 Day Correlations over the period of all Index Business Days in the 5 years preceding such Index Business Day that are below the 80% level is calculated. If less than 75% of the 250 Day Correlations are below the 80% level, then a "**Correlation Determination**" is deemed to have occurred.

Appendixes

A. Index Calculation Adjustments for Index Components not quoted in the Index Base Currency

A.1. For Indices designed from the Long-Only Forward / Futures based calculation methodology (see Section A.6.1.)

The section is applied to Commodity Indices only, with the Base Currency for all such Indices being defined as US-Dollar. When non-US-Dollar components are introduced in the composition of an Index designed from the Long-Only Forward/Futures based calculation methodology (see Section A. 6.1.), the aggregated value of a Curve Segment is defined as the sum product of the Prices of the Index Pricing Instruments (IPI) included in a given segment converted in US dollars at the prevailing FX rate, and their associated Index Pricing Instrument Nominal Weights (IPINW). This is represented by the following formula.

$$CSV^{m}_{c,CS,t} = \sum_{j=1,J} IPIP^{m}_{c,CS,j,t} \times FX^{USD}_{CCY(c),t} \times IPINW^{m}_{c,CS,j} \qquad (App - A.1)$$

where:

t	is the Calculation Date, and the reference price date,
$FX^{USD}_{CCY(c),t}$	is the spot FX Rate to convert one unit of the foreign currency CCY, associated with the Index Component c, into US Dollar, for a given calculation date t. The source used in the calculation is specified in the Index definitions provided in the relevant Index parameters.
$CSV^{m}_{c,CS,t}$	is the Curve Segment Value, for a given Curve Segment CS and Reference Period m, for an Index Component c,
$IPIP^{m}_{c,CS,j,t}$	is the Index Pricing Instrument Price j, for an Index Component c and a given Curve Segment CS, at time t,
$IPINW^{m}_{c,CS,j}$	is the Index Pricing Instrument Nominal Weight associated with an Index Pricing Instrument j, for an Index Component c and a given Curve Segment CS,
J	the number of Physical Delivery Periods (PDP) in the Curve Segment (CS) as defined above,
m	the Reference Period.

A.2. For Indices designed from the Generic Basket of Assets calculation methodology (see Section A.6.3.)

When non-BAS Index Components are introduced in the composition of a Basket Index designed from the Generic Basket of Assets based calculation methodology (see Section A. 6.3.), the Net Index Value Increment included in a given index is converted in BAS at the prevailing FX rate. This is represented by the following formula. For non-BAS denominated Index Components referencing Transaction Costs (also referred to as Transaction Spreads), please refer to Section C.3. instead.

$$NIVI^{m}_{c,t} = UW^{m}_{c} \times \left(ICL^{m}_{c,t} - ICL^{m}_{c,t-1}\right) \times FX^{BAS}_{CCY(c),t} \qquad (A.6.3.1)$$

where:

t	the Calculation Date,
UW^{m}_{c}	is the Units Weight calculated for an Index Component c for the Reference Period m, defined as the number of units held as a proportion of one unit of the overall basket,
$ICL^{m}_{c,t}$	is the Index Component Level of an Index Component Pricing Instrument for an Index Component c, for a Reference Period m, with prices taken at t,

$FX^{BAS}_{CCY(c),t}$	is the spot FX Rate to convert one unit of the foreign currency CCY, associated with the Index Component c, into BAS, for a given calculation date t. The source used in the calculation is specified in the Index definitions provided in relevant Index parameters.
c	is an Index Component.

Equally, the calculation of Unit Weights will reflect the FX component:

$$UW_c^m = ER_p \times TIW_c^m \times \left(\frac{1}{ICL_{c,p}^m \times FX_{CCY(c),p}^{BAS}} \right) \qquad (A.6.3.2)$$

where:

p	the Static Data Calculation Date associated with the Reference Period m,
TIW^m_c	is the Target Investment Weight provided for an Index Component c for the Reference Period m,
ER_p	is the Excess Return Index taken on date p,
$ICL^m_{c,p}$	is the Index Component level of an Index Component Pricing Instrument for an Index Component c, for a Reference Period m, with prices taken on date p as defined above,
$FX^{BAS}_{CCY(c),p}$	is the spot FX Rate to convert one unit of the foreign currency CCY, associated with the Index Component c, into BAS, for the relevant Static Data Calculation Date p. The source used in the calculation is specified in the Index definitions provided in the relevant Index Parameters.

B. Calculation of Daily Unit Weights in the Credit Suisse Commodity Benchmark Index (CSCB)

B.1. The Credit Suisse Commodity Benchmark Index (CSCB)

The Credit Suisse Commodity Benchmark Index offers a generalisation of the S&P GSCI Index and the Bloomberg Commodity Index. We first introduce the notion of Curve Segment Value and provide the notation for the calculation of the Price Index and Excess return Index before we provide a generic notation for Daily Unit Weights for the CSCB.

B.1.1. Introducing the Curve Segment Value

The aggregated value of a Curve Segment is defined as the sum product of the Prices of the Index Pricing Instruments (IPI) included in a given segment, and their associated Index Pricing Instrument Nominal Weights (IPINW) which is represented by the following formula.

$$CSV^{m}_{c,CS,t} = \sum_{j=1,J} IPIP^{m}_{c,CS,j,t} \times IPINW^{m}_{c,CS,j} \qquad (App-A.8^{+})$$

where:

t	is the Calculation Date, and the reference price date,
$CSV^{m}_{c,CS,t}$	is the Curve Segment Value, for a given Curve Segment CS and reference month m, for an Index Component c,
$IPIP^{m}_{c,CS,j,t}$	is the Index Pricing Instrument Price j, for an Index Component c and a given Curve Segment CS, at time t,
$IPINW^{m}_{c,CS,j}$	is the Index Pricing Instrument Nominal Weight associated with an Index Pricing Instrument j, for an Index Component c and a given Curve Segment CS,
J	the number of Physical Delivery Periods (PDP) in the Curve Segment (CS) as defined above,
m	The reference month (as defined in Section 5.1.4. The Reference Month (m), the Static Data Calculation Date (SDCD), and the Calculation Date (t))
+	Formula references *App-A.2 – A.7* left un-assigned.

B.1.2. Price Index (PR)

The value of a Curve Segment Price Return Index on Index Business Day t is calculated in accordance with the following formula:

$$PR_{CS,t} = \frac{IB^{m}_{CS,t,t}}{N^{m+1}_{Index}} \qquad (App-A.9)$$

$$IB^{m}_{CS,p,w} = \frac{N^{m+1}_{Index}}{N^{m}_{Index}} \times \left[\sum_{c=1,C} I^{m}_{c,CS,Index} \times NW^{m}_{c,CS} \times RW^{m}_{c,CS,w} \times CSV^{m}_{c,CS,p} \right] + \sum_{c=1,C} I^{m+1}_{c,CS,Index} \times NW^{m+1}_{c,CS} \times RW^{m+1}_{c,CS,w} \times CSV^{m+1}_{c,CS,p} \qquad (App-A.10)$$

where:

$CSV^{m}_{c,CS,p}$	is the Curve Segment Value, for a given Curve Segment CS and reference month m, for an Index Component c, with prices taken at time p, defined in Section 2.1 above.
$RW^{m}_{c,w}$ & $RW^{m+1}_{c,w}$	the Roll Weights for Index Component c on date w are defined such that $RW^{m+1}_{c,w} = 1\text{-}RW^{m}_{c,w}$ (see CSCB Section A. 5.1.4. The Roll Period).
$IB^{m}_{CS,p,w}$	is the Investment Basket defined as the sum of Curve Segment Values (CSV) for a given Curve Segment (CS), with prices taken at time p and weights at time w (for this calculation, p=t and w=t), .
N^{m}_{Index}	is the Normalising constant for a reference month m and an *Index*,
$NW^{m}_{c,CS}$	is the Nominal Weight for a component c and Curve Segment CS,
$IPIP^{m}_{c,CS,j,p}$	is the Index Pricing Instrument Price j, for an Index Component c and a given Curve Segment CS, at time p,
$IPINW^{m}_{c,CS,j}$	is the Index Pricing Instrument Nominal Weight associated with an Index Pricing Instrument j, for an Index Component c and Curve Segment CS,
$I^{m}_{c,CS,Index}$	Index refers to a specific Index composition such as a sub-Index or an Index the composition of which is bespoke. $I_{c,CS}$ are defined in the relevant Index Parameters,
C	is the number of Index Components in the Index.

Price Return Index Levels are rounded as per the technical specifications detailed in the relevant Index Parameters.

B.1.3. The Excess Return Index (Index-ER)

The Index Excess Return Index represents the uncollateralized return of the Investment basket over time. The value of a Curve Segment Excess Return Index on Index Business Day t is calculated in accordance with the following formula:

$$\mathrm{ER}_{CS,t} = \mathrm{ER}_{CS,t-1} \times \left(1 + IBR^{\mathrm{m}}_{CS,t}\right) \qquad (App - \mathrm{A}.11)$$

$$IBR^{\mathrm{m}}_{CS,t} = \frac{IB^{m}_{CS,t,t-1}}{IB^{m}_{CS,t-1,t-1}} - 1 \qquad (App - \mathrm{A}.12)$$

where:

$ER_{CS,t,}$	is the Excess Return Index Level for a Curve Segment CS at time t,
$IB^{m}_{CS,t,t-1}$ & $IB^{m}_{CS,t-1,t-1}$	see formula (A.5.17) above (for this calculation, w=t-1),
$IBR^{m}_{CS,t}$	is the Investment Basket Return for a specified Curve Segment CS at time t and for the reference month m.

Excess Return Index Levels are rounded as per the technical specifications detailed in the relevant Index Parameters.

B.1.4. Calculating the Daily Unit Weight (DUW) for the Credit Suisse Commodity Benchmark (CSCB) Excess Return Index

Our objective is to reduce the notation of the Excess Return Index to form A.5:

$$ER_t = \sum_{i=1,I} w_{i,t} \times P_{i,t} \quad (App - \text{A.5})$$

Introducing CSCB notations we are looking for a form similar to;

$$ER_t = \sum_{c=1,C}\sum_{j=1,J} DUW^{m}_{c,j,t} \times IPIP^{\text{m}}_{c,j,t} + \sum_{c=1,C}\sum_{j=1,J} DUW^{m+1}_{c,j,t} \times IPIP^{\text{m+1}}_{c,j,t} \qquad (App - \text{A.14})$$

From above we have:

$$\text{ER}_{CS,t} = \text{ER}_{CS,t-1} \times \left(1 + IBR^{\text{m}}_{CS,t}\right) \qquad (App - \text{A.11})$$

$$IBR^{\text{m}}_{CS,t} = \frac{IB^{m}_{CS,t,t-1}}{IB^{m}_{CS,t-1,t-1}} - 1 \qquad (App - \text{A.12})$$

$$IB^{m}_{CS,p,w} = \frac{N^{m+1}_{Index}}{N^{m}_{Index}} \times \left[\sum_{c=1,C} I^{m}_{c,CS,Index} \times NW^{m}_{c,CS} \times RW^{m}_{c,CS,w} \times CSV^{\text{m}}_{c,CS,p}\right] + \sum_{c=1,C} I^{m+1}_{c,CS,Index} \times NW^{m+1}_{c,CS} \times RW^{m+1}_{c,CS,w} \times CSV^{\text{m+1}}_{c,CS,p} \qquad (App - \text{A.10})$$

$$CSV^{m}_{c,CS,t} = \sum_{j=1,J} IPIP^{m}_{c,CS,j,t} \times IPINW^{m}_{c,CS,j} \qquad (App - A.8)$$

By injecting A.8, A.10 and A.12 into A.11, we have:

$$(\text{A.11}) \Leftrightarrow \text{ER}_{CS,t} = \text{ER}_{CS,t-1} \times \left(\frac{IB^{m}_{CS,t,t-1}}{IB^{m}_{CS,t-1,t-1}}\right)$$

$$(\text{A.11}) \Leftrightarrow \text{ER}_{CS,t} = \text{ER}_{CS,t-1} \times \left(\frac{\frac{N^{m+1}_{Index}}{N^{m}_{Index}} \times \left[\sum_{c=1,C} I^{m}_{c,CS,Index} \times NW^{m}_{c,CS} \times RW^{m}_{c,CS,t-1} \times CSV^{\text{m}}_{c,CS,t}\right] + \sum_{c=1,C} I^{m+1}_{c,CS,Index} \times NW^{m+1}_{c,CS} \times RW^{m+1}_{c,CS,t-1} \times CSV^{\text{m+1}}_{c,CS,t}}{IB^{m}_{CS,t-1,t-1}}\right)$$

We inject the CSV into A.11 above and obtain the Daily Unit Weights for a given date t, separating the weights carried by each contract comprised by the "front" segment from the weights carried in each contract in the "roll" segment.

We have:

$$\begin{cases} DUW^{\mathrm{m}}_{c,j,t} = \mathrm{ER}_{CS,t-1} \times \dfrac{N^{m+1}_{Index}}{N^{m}_{Index}} \times \dfrac{I^{m}_{c,CS,Index} \times NW^{m}_{c,CS} \times RW^{m}_{c,CS,t-1} \times IPINW^{m}_{c,CS,j}}{IB^{m}_{CS,t-1,t-1}} \\ DUW^{\mathrm{m+1}}_{c,j,t} = \mathrm{ER}_{CS,t-1} \times \dfrac{I^{m+1}_{c,CS,Index} \times NW^{m+1}_{c,CS} \times RW^{m+1}_{c,CS,t-1} \times IPINW^{m+1}_{c,CS,j}}{IB^{m}_{CS,t-1,t-1}} \end{cases} \quad (App - \mathrm{A}.15)$$

$DUW^{m}_{c,j,t}$ & $DUW^{m+1}_{c,j,t}$ the Daily Unit Weights for an Index Component c, for the contract j in the Curve Segment CS, on date t and defined such that

$$\mathrm{ER}_{CS,t} = \mathrm{ER}_{CS,t-1} \times \left(1 + IBR^{\mathrm{m}}_{CS,t}\right) = \sum_{c=1,C}\sum_{j=1,J} DUW^{m}_{c,j,t} \times IPIP^{\mathrm{m}}_{c,j,t} + \sum_{c=1,C}\sum_{j=1,J} DUW^{m+1}_{c,j,t} \times IPIP^{\mathrm{m+1}}_{c,j,t}$$

C. The calculation of Indices with embedded Fees

The Credit Suisse Index Framework - Listed Markets specifies various methodologies for the calculation of Indexes with embedded fees:

- The Compounding method,
- The Linear method, and
- The Transaction Cost (also referred to as the Transaction Spread) method.

The methodologies are applicable to the universe of indices which can be documented under either (i) the Credit Suisse Index Framework for Listed Markets, (ii) the Credit Suisse Index Framework for OTC FX Markets, (iii) the Credit Suisse Index Framework for OTC Interest Rate Markets, or (iv) the Credit Suisse Commodity Volatility & Risk Control Series.

C.1. The Compounding method

In this methodology, the Fee is a function of time and the level of the Index, and as such, the impact of the level of the Index I_t is said to be "path-dependent". We have:

$$I_t = I_{t-1} \times \left(\frac{Index_t}{Index_{t-1}} - Fee_t \times \frac{\Delta_{t-1,t}}{Basis_t} \right) \qquad (App-C.1)$$

I_t	the Fee-adjusted Index Level at time t,
$Index_{t,}$	the Reference Index Level at time t,
$Index_{t-1}$	the Reference Index Level at time t-1,
Fee_t	the Fee (also the "Spread"), quoted as a positive figure, in Percentage applicable from and including the Index Business Day t, to and excluding the previous Index Business Day t-1,
$Basis_t$	The basis expressed in days, on reference on which the Fee is expressed, applicable from and excluding the Index Business Day immediately prior to the Calculation Date t, to and including the Calculation Date t. We have:

Basis	Comment
Actual (or Exact)	Actual number of Days in the calendar year containing the Index Business Day prior to the calculation date t (i.e. t-1).
360	360 days (as a constant)
365	365 days (as a constant)

$\Delta_{t-1,t}$	the number of calendar days from and excluding the Index Business Day immediately prior to the Calculation Date t, to and including the Calculation Date t,

provided that, if Transaction Cost / Transaction Spread is also specified with respect to the same Index in the Index Parameter, such Index shall be calculated in accordance with the formula (C.1a) set out in C.3 below.

C.2. The Linear method

For this methodology, the Fee is purely a function of time elapsed since inception. We have:

$$I_t = I_{t-1} \frac{Index_t}{Index_{t-1}} - I_{LastReset} \times Fee_t \times \frac{\Delta_{t-1,t}}{Basis_t} \qquad (App-C.2)$$

$I_{LastReset}$	is the Index Level as taken at the Reset Date immediately prior to or equal to the Calculation Date t.

All other definitions are as per C.1. above.

C.3. The Transaction Cost / Transaction Spread method (only for Indices designed from the Generic Basket of Assets calculation methodology (see Section A.6.3.))

The Transaction Cost / Transaction Spread method captures indices which include a fixed cost element in the Index Calculation on particular days only. In general, such days are characterised by a change of exposure within an Index, be it due to a change of Target Investment Weights triggered by its Index Allocation Model, or through the necessity of rolling an Underlying Commodity Index Component or Index Component of the Financial Index Universe.

The following method describes both cases of an Index Component being denominated in BAS, or in a foreign CCY to BAS.

When Transaction Costs / Transaction Spreads are introduced in the calculation of a Basket Index designed from the Generic Basket of Assets based calculation methodology (see Section A. 6.3.), the Net Index Value Increment included in a given index is adjusted respectively. This is represented by the following formula.

$$NIVI_{c,k}^{m} = \left[UW_{c}^{m} \times \left(ICL_{c,k}^{m} - ICL_{c,k-1}^{m}\right) - Fee_{c,k}\right] \times \frac{FX_{CCY(c),k}^{BAS}}{FX_{CCY(c),p}^{BAS}} \qquad (A.6.3.1)$$

where:

k	is the Index Business Day immediately succeeding the Index Business Day on which either 1) the referenced IPI of an Index Component changes (in the cause of the scheduled Roll Period), or 2) the TIW of the Index changes (in the course of or as a consequence of the Rebalancing, Reweighting, (Index) Allocation Model or Weighting Engine, as further described in the relevant Index Parameter),
UW^{m}_{c}	is the Units Weight calculated for an Index Component c for the Reference Period m, defined as the number of units held as a proportion of one unit of the overall basket,
$ICL^{m}_{c,k}$	is the Index Component level of an Index Component Pricing Instrument for an Index Component c, for a Reference Period m, with prices taken at k,
c	is an Index Component,
$Fee_{c,k}$	the Fee (also the "Spread") applicable for Index Component c on the Index Business Day k, as further defined below,
$FX^{BAS}_{CCY(c),k}$	is the spot FX Rate to convert one unit of the foreign currency CCY, associated with the Index Component c, into BAS, for a given calculation date k. The source used in the calculation is specified in the Index definitions provided in the relevant Index Parameters. For Index Components which CCY = BAS, the value is 1,
$FX^{BAS}_{CCY(c),p}$	is the spot FX Rate to convert one unit of the foreign currency CCY, associated with the Index Component c, into BAS, for the relevant Static Data Calculation Date p. The source used in the calculation is specified in the Index definitions provided in the relevant Index Parameters,
p	the Static Data Calculation Date associated with the Reference Period m.

To account for the TIW of an Index Component, Transaction Costs / Transaction Spreads (Fee) is defined such that:

If k = Roll Period of an Index Component c:

$$Fee_{c,k} = ER_{k-1} \times \max(abs[TIW_c^m], abs[TIW_c^m - TIW_c^{m-1}]) \times TC_c$$

Otherwise:

$$Fee_{c,k} = ER_{k-1} \times abs[TIW_c^m - TIW_c^{m-1}] \times TC_c$$

where:

TIW^m_c	is the Target Investment Weight provided for an Index Component c for the Reference Period m,
ER_{k-1}	is the Excess Return Index taken on date k-1,
TC_c	is the Transaction Cost / Transaction Spread for an Index Component c as specified in the relevant Index Parameter of a given Index,

Provided that, if Compounding is also specified with respect to the same Index in the Index Parameter, such Index shall be calculated in accordance with the formula (C.1a) below. Unless otherwise defined below, the capitalised terms used in the formula have the same meaning as those in formula C.1 above:

$$I_k = I_{k-1} \times \left(\frac{Index_k}{Index_{k-1}} - Fee_k \times \frac{\Delta_{k-1,k}}{Basis_k} - \sum_c TCost_{c,k} \right) \qquad (App-C.1a)$$

Where:

TCost is either:

If k = Roll Period of an Index Component c:

$$TCost_{c,k} = \max(abs[TIW_c^m], abs[TIW_c^m - TIW_c^{m-1}]) \times TC_c$$

Otherwise:

$$TCost_{c,k} = abs[TIW_c^m - TIW_c^{m-1}] \times TC_c$$

where:

TIW^m_c	is the Target Investment Weight provided for an Index Component c for the Reference Period m unless otherwise defined in the Index Parameter,
TC_c	is the Transaction Cost / Transaction Spread for an Index Component c as specified in the relevant Index Parameter of a given Index.

D. Guidance on the Calculation of Indexes using the 6.1. Long-Only Forward/Futures based calculation methodology for variable Tenor and Dynamic positioning Indices

The Framework specifies two main methodologies for the purpose of the calculation of Index adjustment variables, such as the Index Continuity Factor (ICF). Below, we propose the two methodologies, which combined with the formulas proposed in Section A.6.1.1.10, allow the calculation of virtually all market Index variations:

- The standard procedure: the IPIs associated with zero IPINW are kept in the Curve Segment,

- The projection procedure: only the IPIs with non zero IPINW are kept in the Curve Segment to which they belong, keeping only those assets in which the Index had been investing in either m or m+1.

D.1. IPI Curve Segment construction: standard procedure

Table I.A. and I.B. provide examples of calculation of ICF on a single Segment and single Component (denoted CS and C) Commodity Index, when no adjustment is made to the construction of the Curve Segment prior to the calculation of the CSV and the standard procedure is applied.

TABLE I.A. EXAMPLE OF PROJECTION OF CURVE SEGMENT - NON PROJECTED (STANDARD) CURVE SEGMENT

		Reference Period (m)			Reference Period (m+1)		
Forward Curve Segment	# Crv Pos	Physical Delivery Period	Index Pricing Instrument (IPI)	Index Pricing Instrument Nominal Weight (IPINW)	Physical Delivery Period	Index Pricing Instrument (IPI)	Index Pricing Instrument Nominal Weight (IPINW)
Ref. Month		DEC			JAN		
1x6F	1	Jan	F	1.0	Feb	G	0.0
	2	Feb	G	0.0	Mar	H	0.0
	3	Mar	H	0.0	Apr	J	0.0
	4	Apr	J	0.0	May	K	0.0
	5	May	K	0.0	Jun	M	1.0
	6	Jun	M	0.0	Jul	N	0.0
	...						

Table I.b. Continuity Methodologies- Curve Segment Indices –Standard Procedure

Methodology	
#1 Roll-to-Roll[4]	$ICF^{m}_{CS,t,Index} = \frac{\sum_{c=1,C} NW^{m+1}_{c,CS} \times \sum_{j=1,J} IPIP^{m+1}_{c,CS,j,t} \times IPINW^{m+1}_{c,CS,j}}{\sum_{c=1,C} NW^{m}_{c,CS} \times \sum_{j=1,J} IPIP^{m+1}_{c,CS,j,t} \times IPINW^{m}_{c,CS,j}} = \frac{NW^{m+1}_{C,CS} \times [P_G \times 0 + P_M \times 1]}{NW^{m}_{C,CS} \times [P_G \times 1 + P_M \times 0]}$
#2 Front-to-Front	$ICF^{m}_{CS,t,Index} = \frac{\sum_{c=1,C} NW^{m+1}_{c,CS} \times \sum_{j=1,J} IPIP^{m}_{c,CS,j,t} \times IPINW^{m+1}_{c,CS,j}}{\sum_{c=1,C} NW^{m}_{c,CS} \times \sum_{j=1,J} IPIP^{m}_{c,CS,j,t} \times IPINW^{m}_{c,CS,j}} = \frac{NW^{m+1}_{C,CS} \times [P_F \times 0 + P_K \times 1]}{NW^{m}_{C,CS} \times [P_F \times 1 + P_K \times 0]}$
#3 Front-to-Roll	$ICF^{m}_{CS,t,Index} = \frac{\sum_{c=1,C} NW^{m+1}_{c,CS} \times \sum_{j=1,J} IPIP^{m+1}_{c,CS,j,t} \times IPINW^{m+1}_{c,CS,j}}{\sum_{c=1,C} NW^{m}_{c,CS} \times \sum_{j=1,J} IPIP^{m}_{c,CS,j,t} \times IPINW^{m}_{c,CS,j}} = \frac{NW^{m+1}_{C,CS} \times [P_G \times 0 + P_M \times 1]}{NW^{m}_{C,CS} \times [P_F \times 1 + P_K \times 0]}$

Source: Credit Suisse

[4] Roll-to-Roll: note the "incorrect" implication of the G contract, a contract that was never involved in the Investment process.

D.2. IPI Curve Segment construction: projection procedure

Table II.A. and II.B. provide an example of calculation of ICF and N on a single Component Commodity Index, when adjustments are performed on the construction of the Curve Segment prior to the calculation of the CSV and the projection procedure is applied: the IPIs which have a zero IPINW are excluded from the segment prior to the calculation.

Table II.A. Example of Projection of curve segment - Projected Curve Segment

1. BEFORE PROJECTION

		Reference Period (m)			Reference Period (m+1)		
Forward Curve Segment	# Crv Pos	Physical Delivery Period	Index Pricing Instrument (IPI)	Index Pricing Instrument Nominal Weight (IPINW)	Physical Delivery Period	Index Pricing Instrument (IPI)	Index Pricing Instrument Nominal Weight (IPINW)
Ref. Month		DEC			JAN		
1x6F	1	Jan	F	1.0	Feb	G	0.0
	2	Feb	G	0.0	Mar	H	0.0
	3	Mar	H	0.0	Apr	J	0.0
	4	Apr	J	0.0	May	K	0.0
	5	May	K	0.0	Jun	M	1.0
	6	Jun	M	0.0	Jul	N	0.0
	...						

2. AFTER PROJECTION

		Reference Period (m)			Reference Period (m+1)		
Forward Curve Segment	# Crv Pos	Physical Delivery Period	Index Pricing Instrument (IPI)	Index Pricing Instrument Nominal Weight (IPINW)	Physical Delivery Period	Index Pricing Instrument (IPI)	Index Pricing Instrument Nominal Weight (IPINW)
Ref. Month		DEC			JAN		
1x6F	1	Jan	F	1.0	Jun	M	1.0
	...						

Table II.b. Continuity Methodologies- Curve Segment Indices – Projected Procedure

Methodology	
#1 Roll-to-Roll	$ICF^{m}_{CS,t,Index} = \frac{\sum_{c=1,C} NW^{m+1}_{c,CS} \times \sum_{j=1,J} IPIP^{m+1}_{c,CS,j,t} \times IPINW^{m+1}_{c,CS,j}}{\sum_{c=1,C} NW^{m}_{c,CS} \times \sum_{j=1,J} IPIP^{m+1}_{c,CS,j,t} \times IPINW^{m}_{c,CS,j}} = \frac{NW^{m+1}_{C,CS} \times [P_M \times 1]}{NW^{m}_{C,CS} \times [P_M \times 1]}$
#2 Front-to-Front	$ICF^{m}_{CS,t,Index} = \frac{\sum_{c=1,C} NW^{m+1}_{c,CS} \times \sum_{j=1,J} IPIP^{m}_{c,CS,j,t} \times IPINW^{m+1}_{c,CS,j}}{\sum_{c=1,C} NW^{m}_{c,CS} \times \sum_{j=1,J} IPIP^{m}_{c,CS,j,t} \times IPINW^{m}_{c,CS,j}} = \frac{NW^{m+1}_{C,CS} \times [P_F \times 1]}{NW^{m}_{C,CS} \times [P_F \times 1]}$
#3 Front-to-Roll	$ICF^{m}_{CS,t,Index} = \frac{\sum_{c=1,C} NW^{m+1}_{c,CS} \times \sum_{j=1,J} IPIP^{m+1}_{c,CS,j,t} \times IPINW^{m+1}_{c,CS,j}}{\sum_{c=1,C} NW^{m}_{c,CS} \times \sum_{j=1,J} IPIP^{m}_{c,CS,j,t} \times IPINW^{m}_{c,CS,j}} = \frac{NW^{m+1}_{C,CS} \times [P_M \times 1]}{NW^{m}_{C,CS} \times [P_F \times 1]}$

Source: Credit Suisse

D.3. IPI Curve Segment construction: projection procedure with multi contract IPINW allocation

Table III.A. and III.B. provide an example of calculation of ICF and N on a single Component Commodity Index, when adjustments are performed on the construction of the Curve Segment in the case where we have multi allocations to the curve.

Table III.A. Example of Projection of curve segment - Projected Curve Segment

1. BEFORE PROJECTION

			Reference Period (m)		Reference Period (m+1)		
Forward Curve Segment	# Crv Pos	Physical Delivery Period	Index Pricing Instrument (IPI)	Index Pricing Instrument Nominal Weight (IPINW)	Physical Delivery Period	Index Pricing Instrument (IPI)	Index Pricing Instrument Nominal Weight (IPINW)
Ref. Month		DEC			JAN		
1x6F	1	Jan	F	1.0	Feb	G	0.0
	2	Feb	G	0.0	Mar	H	0.0
	3	Mar	H	0.0	Apr	J	0.0
	4	Apr	J	2.0	May	K	0.0
	5	May	K	0.0	Jun	M	3.0
	6	Jun	M	0.0	Jul	N	4.0
	...						

2. AFTER PROJECTION

			Reference Period (m)		Reference Period (m+1)		
Forward Curve Segment	# Crv Pos	Physical Delivery Period	Index Pricing Instrument (IPI)	Index Pricing Instrument Nominal Weight (IPINW)	Physical Delivery Period	Index Pricing Instrument (IPI)	Index Pricing Instrument Nominal Weight (IPINW)
Ref. Month		DEC			JAN		
1x6F	1	Jan	F	1.0	Jun	M	3.0
	2	Apr	J	2.0	Jul	N	4.0
	...						

Table III.b. Continuity Methodologies- Curve Segment Indices – Projected Procedure

Methodology	
#1 Roll-to-Roll	$ICF^{m}_{CS,t,Index} = \frac{\sum_{c=1,C} NW^{m+1}_{c,CS} \times \sum_{j=1,J} IPIP^{m+1}_{c,CS,j,t} \times IPINW^{m+1}_{c,CS,j}}{\sum_{c=1,C} NW^{m}_{c,CS} \times \sum_{j=1,J} IPIP^{m+1}_{c,CS,j,t} \times IPINW^{m}_{c,CS,j}} = \frac{NW^{m+1}_{C,CS} \times \left[P_M \times 3 + P_N \times 4\right]}{NW^{m}_{C,CS} \times \left[P_M \times 1 + P_N \times 2\right]}$
#2 Front-to-Front	$ICF^{m}_{CS,t,Index} = \frac{\sum_{c=1,C} NW^{m+1}_{c,CS} \times \sum_{j=1,J} IPIP^{m}_{c,CS,j,t} \times IPINW^{m+1}_{c,CS,j}}{\sum_{c=1,C} NW^{m}_{c,CS} \times \sum_{j=1,J} IPIP^{m}_{c,CS,j,t} \times IPINW^{m}_{c,CS,j}} = \frac{NW^{m+1}_{C,CS} \times \left[P_F \times 3 + P_J \times 4\right]}{NW^{m}_{C,CS} \times \left[P_F \times 1 + P_J \times 2\right]}$
#3 Front-to-Roll	$ICF^{m}_{CS,t,Index} = \frac{\sum_{c=1,C} NW^{m+1}_{c,CS} \times \sum_{j=1,J} IPIP^{m+1}_{c,CS,j,t} \times IPINW^{m+1}_{c,CS,j}}{\sum_{c=1,C} NW^{m}_{c,CS} \times \sum_{j=1,J} IPIP^{m}_{c,CS,j,t} \times IPINW^{m}_{c,CS,j}} = \frac{NW^{m+1}_{C,CS} \times \left[P_M \times 3 + P_N \times 4\right]}{NW^{m}_{C,CS} \times \left[P_F \times 1 + P_J \times 2\right]}$

Source: Credit Suisse

E. Interest Rate and FX Definitions

E.1. Interest Rate sources

Collateral Reference Rates (CRR), $CreditAdjust_{CCY}$ and standard Total Return Index calculation parameters required for the calculation of non U.S. Dollars Indices are as per Table E.1. below.

Table E.1. Interest Rate Definitions

Ccy	Definition or CRR	Data Source	Rate $Type_{CCY}$	Credit-$Adjust_{CCY}$	$Basis_{CCY}$	Short-$Basis_{CCY}$
USD	3 months U.S. Treasury Bill (91 days) "High Rate" auction rate published by the Bureau of public Debt as the "treasury security auction Results"	Reuters: USAUCTION9 Bloomberg USB3MTA Index <GO> Internet: http://www.treasurydirect.gov/RI/OFGateway	T-Bill	0.0%	360	91
EUR	The EUR-EONIA-OIS-COMPOUND rate as defined in the 2006 ISDA Definitions applicable on the relevant value date as published daily by the European Central Bank	Reuters: EONIA Bloomberg EONIA Index <GO>	Money Market	0.0%	360	1
GBP	The GBP-WMBA-SONIA-COMPOUND rate as defined in the 2000 ISDA Definitions applicable on the relevant value date as published daily by the Wholesale Markets Brokers Association, and appearing under the Heading "Sterling Overnight Index" in respect of that day	Reuters: SONIA1 Bloomberg: WMBA2 <GO>	Money Market	0.0%	365	1
CHF	The CHF Swiss Average Rate Overnight ("SARON"), as published daily by the Swiss National Bank in cooperation with the SIX Swiss Exchange[5]	Reuters SARON.S Bloomberg: SSARON	Money Market	0.0%	360	1
AUD	The AUD-AONIA-OIS-COMPOUND rate as defined in the 2006 ISDA Definitions applicable on the relevant value date as published daily by the Reserve Bank of Australia	Reuters: RBA30 (Bloomberg RBA30 <GO> or RBATCTR <GO>, provided as a reference only, the Reuters ticker prevailing)	Money Market	0.0%	365	1

Source: Credit Suisse, Index Advisory Committee

[5] Prior to 3rd January 2018: The CHF "Tom/Next" Indexed Swap, as published daily by Cosmorex AG (as approved by ACI Suisse to act as an intermediary), as published under Reuters CHFTOIS= and Bloomberg TOISTOIS. Rate Type: Money Market, Credit Adjust = 0.0%, Basis = 360 and Short Basis = 1.

These references are applicable to all indexes supported by the Framework unless otherwise specified in the relevant Index Parameters, associated with a specific Index.

E.2. FX rate sources

Foreign exchange rates references required for the calculation of FX hedged Indices and the translation of non U.S. Dollars Index Components into U.S. Dollars are as per Table E.2. below.

TABLE E.2. FOREIGN EXCHANGE RATE DEFINITIONS AND SOURCES

Ccy	Definition	Data Source	Time
EUR	The mid EUR-USD exchange rate, expressed as the amount of USD per one EUR, as determined by WM Company, the calculation agent and published on the relevant observation date	Bloomberg: WMCO <GO> & Menu Ticker: EUR WMIS Curncy	7PM London
GBP	The mid GBP-USD exchange rate, expressed as the amount of USD per one GBP, as determined by WM Company, the calculation agent and published or the relevant observation date	Bloomberg: WMCO <GO> & Menu Ticker: GBP WMIS Curncy	7PM London
CHF	The mid CHF-USD exchange rate, expressed as the amount of USD per one CHF, as determined by WM Company, the calculation agent and published on the relevant observation date	Bloomberg: WMCO <GO> & Menu Ticker: CHF WMIS Curncy	7PM London
AUD	The mid AUD-USD exchange rate, expressed as the amount of USD per one AUD, as determined by WM Company, the calculation agent and published on the relevant observation date	Bloomberg: WMCO <GO> & Menu Ticker: AUD WMIS Curncy	7PM London
JPY	The mid USD-JPY exchange rate, expressed as the amount of JPY per one USD, as determined by WM Company, the calculation agent and published on the relevant observation date	Bloomberg: WMCO <GO> & Menu Ticker: JPY WMIS Curncy	7PM London

Source: Credit Suisse, Index Advisory Committee

These references are applicable to all indexes supported by the Framework unless otherwise specified in the relevant Index Parameters, associated with a specific Index.