Derivatives Service Bureau

Commodities : Swap : Non_Standard

UPI Product Definition

Version 3

Date	Status	Version	Revision Details
24 Oct 2022	Draft	1	Initial Version
02 Feb 2023	Draft	2	• Update example values in the Request and Record templates layout • Insert Underlier Name attribute and Derivation rules
07 Sep 2023	Draft	3	• Update Associated Documentation to include Best Practice Guidelines and FAQs. • Update Best Practice Guidelines to include the link to Best Practice Guidelines and FAQs.

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1   INTRODUCTION

This document is designed to act as a manual for users to interpret the Product Definitions in the DSB UPI Service.

This document provides the user with the detailed description of the UPI Product Definition content such as attribute enumerations, validation, normalization, and derivation where applicable.

1.1   Associated Documentation

Each UPI Product Definition template links to reference documents where values will be maintained for the sake of consistency and ease of access e.g., Enumerations, Data Dictionary, Validation and Normalizations, etc.

These documents are made available for references as follows:

- UPI Enumerations Document can be found in the Enumerations section on the DSB website.
- UPI Product Definition Data Dictionary can be found in the Other Documents section on the DSB website.
- UPI Product Definition Validations and Normalizations Document can be found in the Other Documents section on the DSB website.
- UPI Underlier Input Method can be found in the Other Documents section on the DSB website.
- Best Practice Guidelines and FAQs can be found in the Other Documents section on the DSB website.
- Links to the relevant JSON templates can be found in the GitHub Environment Section on the DSB website.

2   PRODUCT TAXONOMY

2.1   CFI Taxonomy

Source: ISO 10962 (CFI Code) – Third edition 2015-07-15

Attr #	Title	Values	Name	Description
	Instrument (Category)	**S**	Swap	
	Asset Class (Group)	**T**	Commodities	
Attr #1	**Underlying Assets**	**J**	Energy	A swap that references an energy-related product, or a derivative of an energy-related product, including electricity, renewable energy, or any power/energy delivered through a utility network of provider; diesel fuel, fuel oil, gas oil, gasoline, heating oil, jet fuel, kerosene, natural gas, oil (Brent, Tapis, Dubai, WTI)
		K	Metals	A swap that references a precious or industrial metal, such as aluminium, copper, gold, lead, nickel, platinum, silver, tin, zinc
		A	Agriculture	Commodities which include forestry, fishing, livestock, grain, dairy, corn, cocoa, soybeans, sugar, coffee
		N	Environmental	Includes carbon-related, emission reduction, weather
		G	Freight	A swap in respect of which the specified commodity is a freight index route
		P	Polypropylene products	Polypropylene products
		S	Fertilizer	Ammonia, DAP (diammonium phosphate), potash, sulfur, urea, UAN (urea and ammonium nitrate)
		T	Paper	Containerboard, newsprint, pulp, recovered paper
		I	Index	A swap where the underlying reference entity is a commodity index
		Q	Multi-commodity	A swap that references multiple commodity underlying types
		M	Others	Others (miscellaneous)
Attr #2	**Return or payout trigger**	**C**	Contract for difference (CFD)	A cash settled total return swap or forward where the parties agree to exchange on the maturity of the contract the difference between the opening price and closing price of the underlying
		T	Total return	The total economic return of an underlying asset is transferred from one party (total return buyer) to another (total return seller); total return seller takes on the risk of negative changes in market value of the reference asset, and pays any positive cash flow to the buyer such as coupon, capital gains or dividends of the reference asset
Attr #3	**Not applicable/undefined**	**X**	Not applicable/ undefined	Not applicable/undefined
Attr #4	**Delivery Type**	**C**	Cash	The discharge of an obligation by payment or receipt of a net cash amount instead of payment or delivery by both parties
		P	Physical	The meeting of a settlement obligation under a derivative contract through the receipt or delivery of the actual underlying instrument(s) instead of through cash settlement
		E	Elect at settlement	Determined at the time of settlement

2.2 ISDA Taxonomy

The table below is based on the products identified as part of the ISDA Commodities Taxonomy v2.0.

Node 1 Asset Class	Node 2 Transaction Type	Node 3 Settlement Type*	Node 4 and/or Node 7 Commodity	Node 5 and/or Node 8 Sub-Commodity
Commodity	Swap	Cash	Agricultural Products	Aluminum
		Physical	Composite Commodity Indices	Azuki Beans
			Energy	Baltic Exchange – Dry Bulk Routes
			Freight	Baltic Exchange – Wet Bulk Routes
			Metals	Barley
			Paper	Benzene
			Plastic	Butter
			Composite Commodity Indices	Canola
			Other	Coal
				Cobalt
				Cocoa
				Coffee
				Containerboard
				Copper
				Corn
				Cotton
				Diesel Fuel
				Electricity
				Emissions
				Ethanol and Biofuels
				Fertiliser
				Fluff
				Fuel Oil
				Gas Oil
				Gasoline
				Gold
				Heating Oil
				Iridium
				Iron Ore
				Jet Fuel/Kerosene
				Lead
				Livestock
				Lumber

				Methanol
				Milk
				Molybdenum
				Naphtha
				NaturalGas
				NaturalGasLiquids
				Newsprint
				Nickel
				Oats
				Oil
				Orange Juice
				Other
				Palladium
				Palm Oil
				Platinum
				Platts Clean Tankerwire
				Platts Dirty Tankerwire
				Pulp
				Rapeseed
				Recovered Paper
				Rhodium
				Rice
				Rubber
				Ruthenium
				Silver
				Sorghum
				Soybeans
				Steel
				Sugar
				Sunflower Seeds
				Tin
				Uranium
				Wheat
				Wool
				Zinc
				Plastics

There is no exact match in the ISDA Taxonomy 2.0 for this product template. The current taxonomy 2.0 only provides for Settlement values [Cash, Physical]. This product template is a catch all for products that fall outside of these specified transaction types.

3   REQUEST TEMPLATE

This section describes the input message received by UPI service.

Template name		Template details	Release
Request.Commodities.Swap.Non_Standard.UPI.json		Initial version	Initial

Section	Attribute				Format	Cat	Example Value	Validation
Header Section	Asset Class				Set	M	Commodities	
	Instrument Type				Set	M	Swap	
	Product				Set	M	Non_Standard	
	Level				Set	M	UPI	
Attribute Section	Notional Currency				Enum	M	USD	Enumerated List
		Underlying Structure (oneOf)			Object	(M)	Single Underlier	See Validation Rules
	A1		Underlier Type (oneOf)		Object	(M)	Commodity Ref Price	
				Underlier ID Source	String	(M)	COMM	[COMM]
				Underlier ID	Enum	(M)	SILVER-FIX	Enumerated List
			Underlier Type (oneOf)		Object	(M)	Commodity Index	
				Underlier ID Source	String	(M)	COIDX	[COIDX]
				Underlier ID	Enum	(M)	OTHER	Enumerated List
			Underlier Type (oneOf)		Object	(M)	Proprietary Index	
				Underlier ID Source	String	(M)	PROP	[PROP]
				Underlier ID	String	(M)	11339-BABXSG01	Enumerated List
	B1	Underlying Structure (oneOf)			Object	(M)	Basket	See Validation Rules
		Base Product						
			Base Product		Enum	M	METL	Enumerated List
			Sub Product		Enum	C	PRME	Enumerated List
			Additional Sub Product		Enum	C	SLVR	Enumerated List
		Other Notional Currency			Enum	C	EUR	Enumerated List
	A2	Other Underlying Structure (oneOf)			Object	(C)	Single Underlier	See Validation Rules
			Other Underlier ID Source		String	(C)	COMM	[COMM]
			Other Underlier ID		Enum	(C)	GOLD-A.M. FIX	Enumerated List
	B2	Other Underlying Structure (oneOf)			Object	(C)	Basket	See Validation Rules
		Other Base Product						
			Other Base Product		Enum	(C)	METL	Enumerated List
			Other Sub Product		Enum	(C)	PRME	Enumerated List
			Other Additional Sub Product		Enum	(C)	GOLD	Enumerated List
		Return or Payout Trigger			Enum	M	Contract for Difference (CFD)	[Contract for Difference (CFD), Total Return]
		Delivery Type			Enum	M	CASH	[CASH, PHYS, OPTL]

3.1   Underlier Input Method

For products that have an option for a Single or Multiple Underliers, users must select an underlying structure applicable [Single Underlier, Basket]. If a Basket is selected, underlier entry is not required.

Title	Description
Select Underlying Structure	User is able to select whether the underlying is a single underlier or basket based on its product. • Single Underlier • Basket
Select Underlier Type	User is able to select a single required Underlier Type from the available options. • Commodity Ref Price • Commodity Index • Proprietary Index
Select Underlier ID Source	User is able to select a single required Underlier ID Source from the available options based on the selected Underlier Type. • Commodity Ref Price [COMM] • Commodity Index [COIDX] • Proprietary Index [PROP]
Input Underlier ID	User enters a valid Underlier ID based on the selected Underlier ID Source.

For basis-style product, user must be able to select the Underlying Structure, Underlier Type, Underlier ID Source and Underlier ID for both legs where it is applicable:

Title	Description
Select Underlying Structure	User is able to select whether the underlying is a single underlier or basket. • Single Underlier • Basket
Select Underlier Type	• If the Underlying Structure selected is a "Single Underlier", user can only select a single required Underlier Type i.e., Commodity Ref Price. • If the Underlying Structure selected is a "Basket", the Underlier Type is not required.
Select Underlier ID Source	• If the Underlying Structure selected is a "Single Underlier", user can only select a single required Underlier ID Source i.e., [COMM]. • If the Underlying Structure selected is a "Basket", the Underlier ID Source is not required.
Input Underlier ID	• If the Underlier ID Source selected is [COMM], user enters a valid Underlier ID from the enumerated list. • For Basket, there is no requirement to define the individual underlier.

3.2   Validation Rules

For non-specific product validation rules, please refer to UPI Product Definition Validations and Normalizations Document can be found in the Other Documents section on the DSB website.

4 RECORD TEMPLATE

This section describes the record returned by the UPI service.

Version	Template name	Template details	Release
V.1	**Commodities.Swap.Non_Standard.UPI.V1.json**	Initial version	Initial

Section	Attribute	Format	Cat	Example Value	Derivation
Header Section	Asset Class	Set	M	Commodities	
	Instrument Type	Set	M	Swap	
	Product	Set	M	Non_Standard	
	Level	Set	M	UPI	
	Template Version	Integer	D	1	
Attribute Section	Underlier Characteristic	String	M	Single	[Single, Basket]
	Underlying Instrument Index	Enum	C	OTHER	Enumerated List
	Underlying Instrument Index Prop	String	C	11339-BABXSG01	Enumerated List
	Reference Rate	Enum	C	GOLD-A.M. FIX	Enumerated List
	Notional Currency	Enum	M	EUR	Enumerated List
	Base Product	Enum	M	METL	Enumerated List
	Sub Product	Enum	C	PRME	Enumerated List
	Additional Sub Product	Enum	C	GOLD	Enumerated List
	Other Underlier Characteristic	Enum	C	Single	[Single, Basket]
	Other Notional Currency	Enum	C	USD	Enumerated List
	Other Reference Rate	Enum	C	SILVER-FIX	Enumerated List
	Other Base Product	Enum	C	METL	Enumerated List
	Other Sub Product	Enum	C	PRME	Enumerated List
	Other Additional Sub Product	Enum	C	SLVR	Enumerated List
	Return or Payout Trigger	Enum	M	Contract for Difference (CFD)	[Contract for Difference (CFD), Total Return]
	Delivery Type	Enum	M	CASH	[CASH, PHYS, OPTL]
Identifier Section	UPI	String	D	QZG272VW5JC6	
	Status	String	D	New	[New; Updated; Deleted; Deprecated]
	Status Reason	String	D	<null>	
	Last Update Date Time	DtTm	D	2021-02-23T00:00:13	YYYY-MM-DDThh:mm:ss
Derived Section	Classification Type	String	D	STQCXC	See Derivation Rules
	Short Name	String	D	NA/Swap METL METL EUR USD	See Derivation Rules
	Underlier Name	String	M	GOLD-A.M. FIX vs SILVER-FIX	See Derivation Rules
	Underlying Asset type	String	D	Multi Commodity	See Derivation Rules
	CFI Delivery Type	String	D	[Cash, Physical, Elect at Settlement]	See Derivation Rules

4.1   Normalization Rules

For non-specific product normalization rules, please refer to UPI Product Definition Validations and Normalizations Document can be found in the Other Documents section on the [DSB website](#).

4.2   Derivation Rules

This section describes the derivations of product attributes highlighted in the Record Template.

4.2.1   Underlying Asset Type

At present, the Underlying Asset Type is taken from ISO 20022 values of the Base Product and are being derived as the CFI values where it is used in the generation of the CFI code.

- If the Underlying Structure selected is a "Single Underlier" and Underlier ID Source is [COMM], the Underlying Asset Type will be derived based on the input Base Product.

Attribute	Underlying Asset Type		
Source Attribute	**Source Value**	**Derivation Method**	**Result**
Underlying Asset Type	AGRI	Mapped to =>	Agriculture
	NRGY	Mapped to =>	Energy
	ENVR	Mapped to =>	Environmental
	FRGT	Mapped to =>	Freight
	FRTL	Mapped to =>	Fertilizer
	INDP	Mapped to =>	Other
	INFL	Mapped to =>	Other
	OEST	Mapped to =>	Other
	METL	Mapped to =>	Metals
	MCEX	Mapped to =>	Multi Commodity
	PAPR	Mapped to =>	Paper
	POLY	Mapped to =>	Polypropylene Products
	OTHC	Mapped to =>	Other
	OTHR	Mapped to =>	Other

- If the Underlying Structure selected is a "Basket", the Underlying Asset Type will be derived based on the input Base Product.

Attribute	Underlying Asset Type		
Source Attribute	**Source Value**	**Derivation Method**	**Result**
Underlying Asset Type	AGRI	Mapped to =>	Agriculture
	NRGY	Mapped to =>	Energy
	ENVR	Mapped to =>	Environmental
	FRGT	Mapped to =>	Freight
	FRTL	Mapped to =>	Fertilizer
	INDP	Mapped to =>	Other
	INFL	Mapped to =>	Other
	OEST	Mapped to =>	Other
	METL	Mapped to =>	Metals
	MCEX	Mapped to =>	Multi Commodity
	PAPR	Mapped to =>	Paper
	POLY	Mapped to =>	Polypropylene Products
	OTHC	Mapped to =>	Other
	OTHR	Mapped to =>	Other

- If Underlying Structure selected is a "Single Underlier" and Underlier ID Source is [COIDX or PROP], the Underlying Asset Type will be derived based on the input Base Product as follows:
  a. If the input Base Product is MCEX, then set the Underlying Asset Type to "Multi Commodity".
  b. If the input Base Product is other than MCEX, then set the Underlying Asset Type to "Index".

Attribute	Underlying Asset Type		
Source Attribute	**Source Value**	**Derivation Method**	**Result**
Underlying Asset Type	AGRI	Mapped to =>	Index
	NRGY	Mapped to =>	Index
	ENVR	Mapped to =>	Index
	FRGT	Mapped to =>	Index
	FRTL	Mapped to =>	Index
	INDP	Mapped to =>	Index
	INFL	Mapped to =>	Index
	OEST	Mapped to =>	Index
	METL	Mapped to =>	Index
	MCEX	Mapped to =>	Multi Commodity
	PAPR	Mapped to =>	Index
	POLY	Mapped to =>	Index
	OTHC	Mapped to =>	Index
	OTHR	Mapped to =>	Index

- For Commodities basis-style product, regardless of the input Base Product, the Underlying Asset Type will be derived to "Multi Commodity" with expected Underlying Instrument combinations as follows:
  a. Reference Rate and Other Reference Rate
  b. Reference Rate and Basket
  c. Basket and Basket

4.2.2 Classification Type

Attribute	Classification Type		
Structure	Instrument Type + Asset Class + Underlying Asset Type + Return or Payout Trigger + NA + Delivery Type		
Example	STQCXC		
Source	ISO 10962 (CFI) – Third edition 2015-07-15		

Source Attribute	Source Value	Derivation Method	Result
Instrument Type	Swap	Fixed Mapping	S
Asset Class	Commodities	Fixed Mapping	T
Underlying Asset Type	Agriculture	Mapped to =>	A
	Energy	Mapped to =>	J
	Environmental	Mapped to =>	N
	Freight	Mapped to =>	G
	Fertilizer	Mapped to =>	S
	Index	Mapped to =>	I
	Metals	Mapped to =>	K
	Multi Commodity	Mapped to =>	Q
	Paper	Mapped to =>	T
	Polypropylene products	Mapped to =>	P
	Other	Mapped to =>	M
Return or Payout Trigger	Contract for Difference (CFD)	Mapped to =>	C
	Total Return	Mapped to =>	T
Not applicable/undefined	Not applicable/undefined	Fixed Mapping	X
Delivery Type	CASH	Mapped to =>	C
	PHYS	Mapped to =>	P
	OPTL	Mapped to =>	E

4.2.3   Short Name

Attribute	Short Name		
Structure	"NA" + "/" + Instrument Type + Base Product + Other Base Product + Notional Currency + Other Notional Currency		
Example	NA/Swap METL METL EUR USD		
Source	ISO 18774 (Financial Instrument Short Name) - First edition 2015-11		
Source Attribute	**Source Value**	**Derivation Method**	**Result**
Issuer Name	None	Fixed Value	NA/
Instrument Type	Swap	Fixed Abbreviation	Swap
Base Product	AGRI	Mapped to =>	AGRI
	NRGY	Mapped to =>	NRGY
	ENVR	Mapped to =>	ENVR
	FRGT	Mapped to =>	FRGT
	FRTL	Mapped to =>	FRTL
	INDP	Mapped to =>	INDP
	INFL	Mapped to =>	INFL
	OEST	Mapped to =>	OEST
	METL	Mapped to =>	METL
	MCEX	Mapped to =>	MCEX
	PAPR	Mapped to =>	PAPR
	POLY	Mapped to =>	POLY
	OTHC	Mapped to =>	OTHC
	OTHR	Mapped to =>	OTHR
Other Base Product	AGRI	Mapped to =>	AGRI
	NRGY	Mapped to =>	NRGY
	ENVR	Mapped to =>	ENVR
	FRGT	Mapped to =>	FRGT
	FRTL	Mapped to =>	FRTL
	INDP	Mapped to =>	INDP
	INFL	Mapped to =>	INFL
	OEST	Mapped to =>	OEST
	METL	Mapped to =>	METL
	MCEX	Mapped to =>	MCEX
	PAPR	Mapped to =>	PAPR
	POLY	Mapped to =>	POLY
	OTHC	Mapped to =>	OTHC
	OTHR	Mapped to =>	OTHR
Notional Currency	Notional Currency	Mapped Enumeration	e.g., USD, EUR, GBP
Other Notional Currency	Other Notional Currency	Mapped Enumeration	e.g., USD, EUR, GBP

4.2.4 Underlier Name

Attribute	Underlier Name				
Underlying Structure	**Other Underlying Structure**	**Underlying Asset**	**Underlier Name Source**	**Underlier Name Source Attribute**	**Underlier Name**
Single Underlier	-	Reference Rate	UPI record	Reference Rate	GOLD-A.M. FIX
Single Underlier	-	Underlying Index	UPI Record	Underlying Instrument Index	OTHER
Single Underlier	-	Underlying Index Prop	UPI Record	Underlying Instrument Index Prop	11339-BABXSG01
Single Underlier	Single Underlier	Pair of Reference Rates	UPI record	Reference Rate vs Other Reference Rate	GOLD-A.M. FIX vs SILVER-FIX
Single Underlier	Basket	Reference Rate	UPI record vs Constant	Reference Rate	GOLD-A.M. FIX vs Basket
Basket	-	N/A	Constant	N/A	Basket
Basket	Single Underlier	Other Reference Rate	Constant vs UPI record	Other Reference Rate	Basket vs GBP-LIBOR-BBA
Basket	Basket	N/A	Constant	N/A	Basket vs Basket

4.2.5 CFI Delivery Type

Attribute	CFI Delivery Type		
Source Attribute	**Source Value**	**Derivation Method**	**Result**
Delivery Type	CASH	Mapped to =>	Cash
	PHYS	Mapped to =>	Physical
	OPTL	Mapped to =>	Elect at Settlement

5   SUPPLEMENTARY INFORMATION

5.1   Best Practice Guidelines

Please refer to Best Practice Guidelines and FAQs that can be found in the Other Documents section on the DSB website.

5.2   Additional Comments

- The short name abbreviation for Instrument Type within the Equity Asset Class is "Swaps" whereas Rates and Commodities Asset Classes use "Swap".

- The attribute "Notional Currency" and "Other Notional Currency" are not required fields as per ISO 4914 (UPI) specification. However, these attributes are added to align with the Multi-Assets Product Definition and is used as the basis of commodity components normalization.

6   APPENDIX 1 – ISO 4914 EQUIVALENCE

This section describes the attributes as per the ISO 4914 Unique Product Identifier (UPI).

ISO 4914 Reference Data Elements		Request Attribute	Record Attribute
Asset Class	M	Asset Class	Asset Class
Instrument Type	M	Instrument Type	Instrument Type
Delivery Type	M	Delivery Type	Delivery Type
			CFI Delivery Type
Return, pricing method or payout trigger	M	Return or Payout Trigger	Return or Payout Trigger
Underlier ID	C	Underlier ID	Reference Rate / Other Reference Rate
			Underlying Instrument Index
			Underlying Instrument Index Prop
Underlier ID source	C	Underlier ID Source	Not Required
Underlier type	M	Base Product	Base Product
Underlier sub-type (first level)*	M	Not Required	Underlying Asset Type
Underlier sub-type (second level)	C	Not Required	

Underlier Asset Type will be used as the Underlier sub-type (first level) for this product.

7 APPENDIX 2 - OTC ISIN-UPI MAPPING

This section describes the mapping between the ISIN and UPI input attributes.

One Of	ISIN Input Attributes	Condition	Mapping Logic	UPI Input Attributes	Sample UPI Value	Comments
	Asset Class		Direct Map	Asset Class	Commodities	
	Instrument Type		Direct Map	Instrument Type	Swap	
	Use Case		Direct Map	Product	Non_Standard	
	Level		Set to "UPI"	Level	UPI	
	Notional Currency		Direct Map	Notional Currency	USD	
	Expiry Date		No Mapping			
	Price Multiplier		No Mapping			
A	Reference Rate	If Reference Rate = 1	Set to "Commodity Ref Price"	Underlier Type	Commodity Ref Price	"One Of" Underlier Type
			Map to	Underlier ID	SILVER-FIX	
			Set to "COMM"	Underlier ID Source	COMM	
		If Reference Rate > 1	Map to	Underlying Structure	Basket	
		If Other Reference Rate = 1	Set to "Commodity Ref Price"	Other Underlier Type	Commodity Ref Price	
			Map to	Other Underlier ID	GOLD-A.M. FIX	
			Set to "COMM"	Other Underlier ID Source	COMM	
		If Other Reference Rate > 1	Map to	Other Underlying Structure	Basket	
B	Underlying Instrument Index	If Underlying Instrument Index = 1	Set to "Commodity Index"	Underlier Type	Commodity Index	"One Of" Underlier Type
			Map to	Underlier ID	OTHER	
			Set to "COIDX"	Underlier ID Source	COIDX	
		If Underlying Instrument > 1	Map to	Underlying Structure	Basket	
		If Other Underlying Instrument Index > 1	Map to	Other Underlying Structure	Basket	
C	Underlying Instrument Index Prop	If Underlying Instrument Index Prop = 1	Set to "Proprietary Index"	Underlier Type	Proprietary Index	"One Of" Underlier Type
			Map to	Underlier ID	11339-BABXSG01	
			Set to "PROP"	Underlier ID Source	PROP	
		If Underlying Instrument Index Prop > 1	Map to	Underlying Structure	Basket	
		If Other Underlying Instrument Index Prop > 1	Map to	Other Underlying Structure	Basket	
	Base Product		Direct Map	Base Product	METL	
	Sub Product		Direct Map	Sub Product	PRME	
	Additional Sub Product		Direct Map	Additional Sub Product	SLVR	

One Of	ISIN Input Attributes	Condition	Mapping Logic	UPI Input Attributes	Sample UPI Value	Comments
	Other Notional Currency		Direct Map	Other Notional Currency	EUR	
	Other Base Product		Direct Map	Other Base Product	METL	
	Other Sub Product		Direct Map	Other Sub Product	PRME	
	Oher Additional Sub Product		Direct Map	Oher Additional Sub Product	GOLD	
	Return or Payout Trigger		Direct Map	Return or Payout Trigger	Contract for Difference (CFD)	
	Delivery Type		Direct Map	Delivery Type	CASH	
	Transaction Type		No Mapping			
	Final Price Type		No Mapping			

8 APPENDIX 3 – UNDERLYING ASSET TYPE DERIVATION

The table below illustrates the expected input Underlying Structure based on the given underlier types and Underlier ID Sources, i.e., [COMM, COIDX, PROP] where the Underlying Asset Type [CFI:2015 Char#3] is derived based on the input Base Product with exceptions if Underlier ID Source selected is COIDX or PROP *(refer to Derivation section above).*

UPI			CFI: 2015 Char#3 – Underlying Asset Type (ST****)		
Underlier Characteristic	Underlier Type	Underlier ID Source	AGRI* [Known]	INDP** [Unknown]	MCEX***
Single	Commodity Ref Price	COMM	A	M	Q
Single	Commodity Index	COIDX	I	I	Q
Single	Proprietary Index	PROP	I	I	Q
Basket	N/A	N/A	A	M	Q

*AGRI is the given example of a known Base Product where derived Underlying Asset Type is set to "Agriculture" [CFI:2015 Char#3 (STA***)] if the selected Underlier ID Source is [COMM] or a Basket.*

INDP is the given example of an unknown Base Product where derived Underlying Asset Type is set to "Other" [CFI:2015 Char#3 (STM*)] if the selected Underlier ID Source is [COMM] or a Basket.*

MCEX is the given example where derived Underlying Asset Type is set to "Multi Commodity" [CFI:2015 Char#3 (STQ)] if the selected Underlier ID Source is [COMM, COIDX, PROP] or a Basket.*

For basis-style product, the table below illustrates the derivation of Underlying Asset Type (CFI: 205 Char#3). Regardless of the input Base Product, the Underlying Asset Type will be derived to "Multi Commodity" in the RECORD message.

UPI						CFI: 2015 Char#3 – Underlying Asset Type (ST****)		
Underlier Characteristic	Underlier Type	Underlier ID Source	Other Underlier Characteristic	Other Underlier Type	Other Underlier ID Source	AGRI [Known]	INDP [Unknown]	MCEX
Single	Commodity Ref Price	COMM	Single	Commodity Ref Price	COMM	Q	Q	Q
Single	Commodity Ref Price	COMM	Basket	N/A	N/A	Q	Q	Q
Basket	N/A	N/A	Basket	N/A	N/A	Q	Q	Q