Derivatives Service Bureau

Rates : Option : Swaption

UPI Product Definition

Version 3

Date	Status	Version	Revision Details
18 Aug 2022	Draft	1	Initial Version
24 Jan 2023	Draft	2	• Update example values in the Request and Record templates layout • Insert Underlier Name attribute and Derivation rules
31 Aug 2023	Draft	3	• Remove "Classified as Confidential" in the Footer section. • Update Associated Documentation to include Best Practice Guidelines and FAQs. • Update Best Practice Guidelines to include the link to Best Practice Guidelines and FAQs.

TABLE OF CONTENTS

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)	H	Non-listed and Complex listed options	
	Asset Class (Group)	R	Rates	
Attr #1	**Underlying Assets**	A	Basis Swap (Float-Float)	An interest rate swap where the cash flows that are exchanged between each party are based on different floating rates or prices (i.e. one party pays an agreed floating rate multiplied by a notional amount, in exchange for receipt of periodic payments based on another agreed floating rate multiplied by the same notional amount, from the other party)
		C	Fixed-Floating	Aan interest rate swap in which one party (the fixed rate payer) agrees to make fixed payments (the fixed leg) on set dates for an agreed period to another party (the floating rate payer), based on a fixed interest rate multiplied by a notional amount, in exchange for receipt of periodic payments (the floating leg), from the floating rate payer, based on a floating rate index multiplied by the same notional amount (in most cases) upon which the fixed rate payments are based
		D	Fixed-Fixed	An interest rate swap in which both parties pay a fixed interest rate that they could not otherwise obtain outside of a swap arrangement; for example, if each counterparty uses a different native currency, but wants to borrow money in the other counterparty's native currrency; Fixed-Fixed swaps generally take the form of either a zero coupon swap or a cross-currency swap
		G	Inflation Rate Index	An interest rate swap in which one party (the fixed rate payer) makes periodic payments to another party (the floating rate payer) based on a fixed rate of interest multiplied by a notional amount in exchange for receipt of periodic payments based on an inflation rate index multiplied by the same notional amount upon which the fixed rate payments are based
		H	Overnight Index Swap (OIS)	An interest rate swap in which one party (the fixed rate payer) makes periodic payments to another party (the floating rate payer) based on a fixed rate of interest multiplied by a notional amount in exchange for receipt of periodic payments based on an overnight rate index multiplied by the same notional amount upon which the fixed rate payments are based
		M	Zero Coupon	Zero Coupon
		M	Others	Others (miscellaneous)
Attr #2	**Option style and type**	A	European-Call	An option on a contract which allows its holder (buyer) to exercise the right to buy specified assets (interest rates product) at a fixed price only on the expiration date of the call
		B	American-Call	An option on a contract which allows its holder (buyer) to exercise the right to buy specified assets (interest rates product) at a fixed price at any time during the term of the call option, up to and including the expiration date of the call
		C	Bermudan-Call	An option on a contract which allows its holder (buyer) to exercise the right to buy specified assets (interest rates product) at a fixed price on a number of specific dates within the exercise period of the call
		D	European-Put	An option on a contract which allows its holder (buyer) to exercise the right to sell specified assets (interest rates product) at a fixed price only on the expiration date of the put

		E	American-Put	An option on a contract which allows its holder (buyer) to exercise the right to sell specified assets (interest rates product) at a fixed price at any time during the term of the put option, up to and including the expiration date of the put
		F	Bermudan-Put	An option on a contract which allows its holder (buyer) to exercise the right to sell specified assets (interest rates product) at a fixed price on a number of specific dates within the exercise period of the put
		G	European-Chooser	An option on a contract which allows its holder (buyer) to exercise the right to buy (call) or sell (put) specified assets (interest rates product) at a fixed price, only on the contract's expiration date; the buyer does not have to decide whether the contract will be a put or a call until an agreed future date, prior to expiration
		H	American-Chooser	An option on a contract which allows its holder (buyer) to exercise the right to buy (call) or sell (put) specified assets (interest rates product) at a fixed price at any time during the term of the contract, up to and including the expiration date of the call or put; the buyer does not have to decide whether the contract will be a put or a call until an agreed future date, prior to expiration
		I	Bermudan-Chooser	An option on a contract which allows its holder (buyer) to exercise the right to buy (call) or sell (put) specified assets (interest rates product) at a fixed price on a number of specific dates within the exercise period of the contract; the buyer does not have to decide whether the contract will be a put or a call until an agreed future date, prior to expiration
Attr #3	Valuation Method or Trigger	V	Vanilla	An option for which all terms are standardized
		A	Asian	An option where either the strike price or the settle-ment price is the average level of an underlying instrument over a predetermined period; the averaging can be either a geometric or arithmetic average
		D	Digital (Binary)	An option that has a pre-determined pay-out if the option is in-the-money and the payoff condition is satisfied; also referred to as a "binary option" or an "all-or-nothing option"
		B	Barrier	An option whose final exercise depends upon the path taken by the price of an underlying instrument; for a "knock-out" barrier option, the option is cancelled if the underlying price crosses a predetermined barrier level; for a "knock-in" barrier option, the option becomes available-for-exercise if the underlying price crosses a predetermined barrier level
		G	Digital Barrier	A digital option embedded with a barrier option; there are different variations of this type of option; as an example, a down-and-out digital call option will pay a fixed payoff, or the underlying, at any time before maturity that the underlying price is equal to or greater than the bar-rier level; it will pay zero if the underlying price is less than the barrier level
		L	Lookback	An option that minimizes the uncertainties related to the timing of market entry; there are two types of look-back options: fixed and floating; the fixed option strike is determined at purchase, and the floating option strike is determined at maturity
		P	Other Path Dependent	An option on a contract whose payoff is directly related to the price pattern the underlying asset follows during the life of the contract
		M	Others	Others (miscellaneous)
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 exercise	The method of delivery of the underlying instrument when the option is exercised shall be determined at the time of exercise

2.2   ISDA Taxonomy

The table below is based on the products identified as part of the ISDA 2.0 taxonomy.

Asset Class	Base Product	Sub-Product	DSB Product Definition Name
Interest Rate	Option	Swaption	Swaption

3   REQUEST TEMPLATE

This section describes the input message received by UPI service.

Template name	Template details	Release
Request.Rates.Option.Swaption.UPI.json	Initial version	Initial

Section	Attribute	Format	Cat	Example Value	Validation / Derivation
Header Section	Asset Class	Set	M	Rates	
	Instrument Type	Set	M	Option	
	Product	Set	M	Swaption	
	Level	Set	M	UPI	
Attribute Section	Underlier ID	Enum	M	QZ9TV7CL8TQT	Rates/Swap UPI
	Underlier ID Source	String	M	UPI	[UPI]
	Notional Currency	Enum	M	EUR	Enumerated List
	Option Type	Enum	M	CALL	[CALL; PUTO; OPTL]
	Option Exercise Style	Enum	M	AMER	[AMER; BERM; EURO]
	Valuation Method or Trigger	Enum	M	Vanilla	[Vanilla; Asian; Barrier; Lookback etc.]
	Delivery Type	Enum	M	PHYS	[CASH; PHYS; OPTL]

3.1   Underlier Input Method

For products that have a Single Underlier, user has an option to select a Primary or Alternate Underlier, if available.

Title	Description	
Select Underlier ID Source	User is able to select a Primary or Alternate Underlier from the available options. • UPI	
Input Underlier ID	UPI	This is validated against the UPI RDL record.

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	**Rates.Option.Swaption.UPI.V1.json**	Initial version	Initial

Section	Attribute	Format	Cat	Example Value	Derivation
Header Section	Asset Class	Set	M	Rates	
	Instrument Type	Set	M	Option	
	Product	Set	M	Swaption	
	Level	Set	M	UPI	
	Template Version	Integer	D	1	
Attribute Section	Underlying Instrument UPI	Enum	M	QZ9TV7CL8TQT	Rates/Swap UPI
	Notional Currency	Enum	M	EUR	Enumerated List
	Option Type	Enum	M	CALL	[CALL; PUTO; OPTL]
	Option Exercise Style	Enum	M	AMER	[AMER; BERM; EURO]
	Valuation Method or Trigger	Enum	M	Vanilla	[Vanilla; Asian; Barrier; Lookback etc.]
	Delivery Type	Enum	M	PHYS	[CASH; PHYS; OPTL]
Identifier Section	UPI	String	D	QZ2093849381	
	Status	String	D	New	[New; Updated; Deleted; Deprecated]
	Status Reason	String	D	<null>	
	Last Update Date Time	DtTm	D	2021-04-22T10:32:51	YYYY-MM-DDThh:mm:ss
Derived Section	Classification Type	String	D	HRABVP	See Derivation Rules
	Short Name	String	D	NA/O Call Amr Flt Flt EUR	See Derivation Rules
	Underlier Name	String	D	NA/Swap Flt Flt EUR	See Derivation Rules
	Underlying Asset Type	String	D	Basis Swap (Float - Float)	See Derivation Rules
	CFI Option Style and Type	String	D	American-Call	See Derivation Rules
	CFI Delivery Type	String	D	[Cash, Physical, Elect at Exercise]	See Derivation Rules

4.1   Normalization Rules

Normalization rules are not applicable for this product.

4.2   Derivation Rules

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

4.2.1   Classification Type

Attribute	Classification Type		
Structure	Instrument Type + Asset Class + Underlying Asset Type + Option Type/Style + Valuation Method or Trigger + Delivery Type		
Example	HRABVP		
Source	ISO 10962 (CFI) – Third edition 2015-07-15		
Source Attribute	**Source Value**	**Derivation Method**	**Result**
Instrument Type	Non-listed and complex listed options	Fixed Mapping	H
Asset Class	Rates	Fixed Mapping	R
Underlying Asset Type	Basis Swap (Float-Float)	Mapped to =>	A
	Fixed-Floating	Mapped to =>	C
	Fixed-Fixed	Mapped to =>	D
	Inflation Rate Index	Mapped to =>	G
	Overnight Index Swap	Mapped to =>	H
	Zero Coupon	Mapped to =>	M
	Others	Mapped to =>	M
Option Style and Type	PUTO/EURO	Mapped to =>	D
	CALL/EURO	Mapped to =>	A
	OPTL/EURO	Mapped to =>	G
	PUTO/AMER	Mapped to =>	E
	PUTO/BERM	Mapped to =>	F
	CALL/AMER	Mapped to =>	B
	CALL/BERM	Mapped to =>	C
	OPTL/AMER	Mapped to =>	H
	OPTL/BERM	Mapped to =>	I
Valuation Method or Trigger	Vanilla	Mapped to =>	V
	Asian	Mapped to =>	A
	Digital (Binary)	Mapped to =>	D
	Barrier	Mapped to =>	B
	Digital Barrier	Mapped to =>	G
	Lookback	Mapped to =>	L
	Other Path Dependent	Mapped to =>	P
	Other	Mapped to =>	M
Delivery Type	CASH	Mapped to =>	C
	PHYS	Mapped to =>	P
	OPTL	Mapped to =>	E

4.2.2   Short Name

Attribute	Short Name		
Structure	"NA" + "/" + Instrument Type + Option Type + Option Exercise Style + Underlying Asset Type + Notional Currency		
Example	NA/O Call Amr Flt Flt EUR		
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	Option	Fixed Abbreviation	O
Option Type	CALL	Mapped to =>	Call
	PUTO	Mapped to =>	P
	OPTL	Mapped to =>	Opt
Option Exercise Style	EURO	Mapped to =>	Epn
	AMER	Mapped to =>	Amr
	BERM	Mapped to =>	Brm
Underlying Asset Type	Basis (Float-Float)	Mapped to =>	Flt Flt
	Fixed-Floating	Mapped to =>	Fxd Flt
	Fixed-Fixed	Mapped to =>	Fxd Fxd
	Inflation Rate Index	Mapped to =>	Infl Idx
	Overnight Index Swap	Mapped to =>	OIS
	Zero Coupon	Mapped to =>	Oth
	Others	Mapped to =>	Oth
Notional Currency	Notional Currency	Mapped Enumeration	e.g., USD, EUR, GBP

4.2.3   Underlier Name

Attribute	Underlier Name		
Underlying Asset	**Underlier Name Source**	**Underlier Name Source Attribute**	**Underlier Name**
Underlying ID with Underlying ID Source [UPI]	Underlying UPI record	FISN of Underlying Instrument UPI	NA/Swap Flt Flt EUR

4.2.4   CFI Option Style and Type

Attribute	CFI Option Style and Type		
Source Attribute	Source Value	Derivation Method	Result
Option Style and Type	PUTO/AMER	Mapped to =>	American-Put
	PUTO/BERM	Mapped to =>	Bermudan-Put
	PUTO/EURO	Mapped to =>	European-Put
	CALL/AMER	Mapped to =>	American-Call
	CALL/BERM	Mapped to =>	Bermudan-Call
	CALL/EURO	Mapped to =>	European-Call
	OPTL/AMER	Mapped to =>	American-Chooser
	OPTL/BERM	Mapped to =>	Bermudan-Chooser
	OPTL/EURO	Mapped to =>	European-Chooser

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 Exercise

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 option type – Put is "P" for rates option while in equity option, short name abbreviation for the option type – Put is "Put".

- Current OTC ISIN has Underlying Asset Type values such as [Basis Swap (Float-Float); Fixed-Floating; Fixed-Fixed; Inflation Rate Index; Overnight Index Swap (OIS) & Other]. In order to maintain UPI/ISIN hierarchy, Underlying Instrument UPI with derived underlying asset type "Zero Coupon" will be treated as "Other".

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
Currency associated with an underlying reference rate	M	Notional Currency	Notional Currency
Delivery Type	M	Delivery Type	Delivery Type
			CFI Delivery Type
Option Style	M	Not Required	Option Exercise Style
Option Type	M	Option Type	Option Type
Return, pricing method or payout trigger	M	Valuation Method or Trigger	Valuation Method or Trigger
Underlier ID	C	Underlier ID	Underlying Instrument UPI
Underlier ID source	C	Underlier ID Source	Not Required
Underlier Type	M	Not Required	Underlying Asset Type
Underlying rate index tenor period*	C	Not Applicable	
Underlying rate index tenor period multiplier*	C	Not Applicable	

Underlying Rate Index Tenor Period / Multiplier applies to OTC derivatives with an Underlying Reference Rate (Index).

7   APPENDIX 2 - OTC ISIN-UPI MAPPING

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

ISIN Input Attributes	Mapping Logic	UPI Input Attributes	Example UPI Values	Comments
Asset Class	Direct Map	Asset Class	Rates	
Instrument Type	Direct Map	Instrument Type	Option	
Use Case	Direct Map	Product	Swaption	
Level	Set to "UPI"	Level	UPI	
Notional Currency	Direct Map	Notional Currency	EUR	
Expiry Date	No Mapping			
Underlying Asset Type	No Mapping			Underlying Asset Type attribute for the UPI is in the Derived section of the Record template.
Underlying Instrument ISIN	From Underlying Instrument ISIN/Parent/UPI	Underlier ID	QZ9TV7CL8TQT	
	Set to "UPI"	Underlier ID Source	UPI	
Option Type	Direct Map	Option Type	CALL	
Option Exercise Style	Direct Map	Option Exercise Style	AMER	
Valuation Method or Trigger	Direct Map	Valuation Method or Trigger	Vanilla	
Delivery Type	Direct Map	Delivery Type	PHYS	
Price Multiplier	No Mapping			