# FIX Trading Community Response to CPMI-IOSCO Second Consultative report: Harmonisation of the Unique Product Identifier

Question 1: Do you believe that the data elements within each asset class described above are appropriate? Why or why not? If there are additional subcategories that you believe should be included for one or more asset classes, please describe them and discuss why you believe they should be included.

*We have two comments:*

1. *We believe the data elements are sufficient but may not all be necessary. Specifically, the inclusion of the data elements of the underliers in addition to the underlier identifier risks duplication of information which may lead to data quality issues. Additionally, the underlier data elements may have restrictive Intellectual Property Rights that may be difficult to address.*
2. *On terminology, the use of "instrument type" and "underlying asset/contract type" along with "underlying asset/contract subtype" initially was rather confusing. "Instrument type" given the definition may be clearer if labeled "instrument or contract type" as this is the top level contract (i.e. what is being bought or sold, or type of contract being entered into). In the label of "underlying asset/contract type" the use of the "/" was initially rather confusing, it would be clearer to simply label it "underlying asset or underlying contract type"; similarly, with "underlying asset/contract subtype"*

*We also confirm that the FIX product taxonomy already maps to almost all the data elements specified in the consultation paper. The full mapping is shown in the Appendix to our response (below).*

Question 2: Do you believe generally that the value “Other” is required in certain data elements? If so, which ones and why?

*We should avoid "Other" as much as possible. If "Other" is needed, an additional data element should be provided to allow for describing "what" is the "Other" - this would allow for collecting information on possible new values to be added to minimize the use of "Other".*

Question 3: For an OTC derivative product based on a custom basket of securities or assets, please provide your view of the optimal means of representing that OTC derivative product. Do you believe that it is practical to include all of the underlying securities or assets and their risk weights in the UPI reference data? If not, how do you believe that the elements of the custom basket and their risk weights should be reported to a TR?

*From the view of a messaging standard such as FIX we believe it is possible. However, whether it is practical or not depends on the number of the underlying securities/assets in the basket - the larger the number of underlying securities the more cumbersome. However, if one or more of the underlying asset/securities can be identified by a standard security identifier (e.g. ISIN or another UPI) it should be used. The practicality, for assets that can't be identified with a standard identifier, also depends on the granularity needed to describe the asset in the basket. For example, if the asset is an option would the underlying asset of that option also need to be described?*

*Additionally, consideration should be given to the potential to identify the counterparties to the trade if the UPI were to include all information that allowed the custom basket to be re-constituted. Such detailed granularity may allow counterparties to be identified if the universe of potential counterparties for a specific custom basket were to be sufficiently small.*

Question 4: How should underlying assets and reference entities be represented in the UPI data library? Would LEIs be suitable, at least for corporate reference entities? Why or why not? Are there suitable identifiers for indices? If not, is it feasible to use an existing identifier such as an ISIN code for them?

*Underlying assets that are identifiable with a standard identifier, e.g. ISIN or another UPI, should be identified using its standard identifier as there would be no ambiguity as to what the underlying asset is. Given the widespread acceptance of ISO standards, preference should be given to ISO identifiers where applicable. In the case of reference entities, an ISO 17442 (LEI) would be suitable for corporate reference entity.*

*The industry should be encouraged to work with CPMI-IOSCO and other regulators to create ISO 6166 (ISIN) codes for indices. With the advent of ISIN being created for OTC derivatives, the framework already exists to support non-country based issuance of ISINs for indices.*

Question 5: Do you envisage any obstacles to including the source of the identifier for the underlier as part of the reference data element for the underlier? Please explain and justify.

*For standard identifiers the source should be very clear and unambiguous. FIX provides a scheme for this already with our SecurityID and SecurityIDSource fields. In addition, we also provide a repeating group component to provide additional alternative/equivalent IDs and IDSources for the same security.*

*Applying the FIX concept implies that multiple identifiers may be associated with the same underlying data elements. Therefore any modelling of the data structures should assume a many (identifiers) to one (set of data elements) relationship.*

*FIX recommends that CPMI-IOSCO adopt a similar extensible structure for identifiers that provides flexibility. For practical reasons, the ability to provide a ticker symbol and an execution venue identified by the ISO 10383 Market Identifier Code, would serve the industry where issues of licensing of underlying identifiers are problematic within certain geographical locations.*

Question 6: Could there be issues related to including proprietary benchmarks and indices in publicly available reference data or publicly disseminated UPIs? Please elaborate on any issues, such as licensing, that may exist.

*We believe the main issues would be any licensing issues surrounding the public dissemination of proprietary benchmarks and indices. It is also unclear whether including these proprietary benchmarks and indices when reporting to the TRs would breach any licensing terms of the provider.*

*For specialized, custom benchmarks, there is also the risk of market participants identifying the counterparties to a particular trade.*

Question 7: What are the arguments for and against the use of a dummy UPI code or an intelligent UPI code, or having both types of code coexisting?

*From the perspective of a messaging standard such as FIX, whether the UPI is an intelligent or un-intelligent code it not relevant to the standard. From an end user stand point, while identifiers such as SEDOL have intelligence, most users will not know how to break down the SEDOL to understand the intelligence as it requires knowing the assignment rules and what the numbers/characters mean. The question becomes what is the real value in having an intelligent UPI where the assignment rules may get complex as opposed to an un-intelligent UPI where the assignment rules could be kept simpler.*

*From a messaging standard point of view, FIX technically can handle either intelligent or un-intelligent identifiers, however we feel that un-intelligent identifiers would serve the industry better in that the assignment scheme would more likely be agnostic to asset class or types. This would allow the UPI to potentially cover other asset classes outside of OTC derivatives in the future should the need arises.*

*The practice widely adopted within listed derivatives is the creation of an unintelligent identifier and also a human readable identifier. A standard unintelligent identifier for processing combined with a standard human readable identification would provide considerable value for the*

*industry. Within the ISO standards, a recent standard was introduced, the Financial Instrument Short Name (FISN) (ISO 18774), which provides a human readable description. The FISN is combined with the ISIN (ISO 6166), which can be considered an unintelligent identifier, can serve as a strong basis for international standardization. This approach supports the requirement of typical systems where the unintelligent identifier is displayed (in a report or user interface) alongside human readable attributes via a reference data look up.*

Question 8: Do you agree that a well-articulated UPI reference data library could support interoperability between dummy UPI codes and intelligent UPI codes? Why or why not? What steps could be taken with the UPI reference data to facilitate supporting both types of UPI code?

*We agree that a well-articulated UPI reference data library is essential to support both interoperability across different forms of identifiers and also to guarantee uniqueness. The two forms of UPI codes should always point to the same set of reference data. The UPI codes should be viewed as alternative forms of each other.*

*We believe the importance of this reference data library cannot be overstated. Such a library will allow future identifiers to be created at different hierarchy / granularity levels within the product taxonomy, whilst remaining consistent with the CPMI-IOSCO UPI model. This consistency will result in large efficiency savings for industry by reducing the need for expensive maintenance of mapping tables that inevitably result in errors in the trade lifecycle.*

*The ISO 6166 (ISIN) for OTC Derivatives has adopted such an approach and we encourage the UPI to adopt a similar model.*

Question 9: What are the minimum and maximum lengths (in terms of number of characters) that you believe the industry could accommodate for a UPI code system? How does this vary between dummy and intelligent codes? What do you believe is the optimal number of characters, and why?

*There is still some uncertainty within the industry as to what the UPI is intended to be.*

*If the UPI is purely a financial instrument identifier then both the ISIN and the Bloomberg FIGI are unintelligent identifiers that have a length of 12 characters. Both the ISIN and the FIGI have been demonstrated to provide sufficient address space to represent trillions of financial instruments. One can conclude that 12 character alphanumeric code is sufficient.*

Question 10: For intelligent codes, how should the information be encoded? Are there existing models for this? How much adaptation would existing models require in order to meet the needs described in this consultation?

*An existing model of a highly intelligent code is the Options Clearing Corporation's Options Symbology*

Question 11: Do you believe that UPI codes should have an inherent means of validation? For example, should UPI codes include a check digit? Why or why not? Does this vary between dummy and intelligent codes and/or depend on the encoding method used in an intelligent code?

*The need for a check digit given modern information technology infrastructures is questionable. However, the financial services industry has widely adopted the use of check digits for unintelligent identifiers, for example in the ISO 6166 International Securities Identification Number. It is worth noting that the widely used information technology standards Global Unique Identifier(GUID) and Universal Unique Identifiers (UUID) are unintelligent identifiers that do not use a check digit.*

Question 12: Another means of having a simple, partial validation for a UPI code would be for all UPI codes to be of uniform length: thus, any code that was not of the required length could be recognised as prima facie invalid. Do you believe that all UPI codes should be of uniform length? Why or why not? Or are optimal UPI codes of one asset class likely to be longer or shorter than optimal UPI codes for other asset classes? If so, do you believe that extra dummy characters should be inserted into the shorter codes to make them of the uniform length? Why or why not?

*The length should be sufficiently long to accommodate the requirements. For un-intelligent codes there is no need for varying lengths based on asset class and a fixed length would serve well without complicating the assignment rules since it is agnostic to asset type/class.*

*In the case of an intelligent code, it may be reasonable to have varying lengths based on the asset class as each have varying levels of complexity and requirements. The optimal length for one asset is likely not the same as for the other asset class. Imposing a single length for an intelligent identifier may require padding if it is composed of distinct elements. Parsing would then require a fixed starting point for each element in that code string.*

Question 13: For an intelligent UPI code, how should underlying the asset(s) or reference entity (entities) be represented within the UPI code? Would it be preferable for the part of the UPI code that represents the underlying asset(s) or reference entity (entities) to be dummy while the rest of the code is intelligent? Why or why not?

*Perhaps a consideration is not to include underlying assets or reference entities in an intelligent UPI code. The concern with the inclusion of the underlying is the length of the UPI especially in cases where the underlier is a basket of assets, the question then becomes is the underlier the basket "name" or all the assets in the basket.*

*The Open Symbology Initiative put forth by The Options Clearing Corporation for listed options in the United States does carry a field for the underlier as something akin to a stock ticker symbol. The use of the option root or class symbol is important for a human readable identifier is widely accepted, but does cause issues in terms of identification, especially when different option roots are required based upon corporate actions or other options behaviors. The use of a standard identifier for the underlying security is preferable to such a symbol.*

Question 14: Should the UPI code system avoid using Roman letters? Why or why not? Are there particular jurisdictions whose computer systems cannot accommodate Roman letters?

*We do not think the code should avoid Roman characters. It would seem odd in these days that systems could not support Roman characters as it is simply ASCII codes and character sets that are understood by computer systems. Allowing Roman characters should not be a showstopper for any country, however it would be interesting to find out if there are such jurisdictions around the world where this may be a limitation.*

Question 15: Would it be preferable for the UPI code system to use only Roman letters, only Indo-Arabic numerals, or a combination of the two? Why? If Roman letters are included in the UPI code system, should they avoid being case-sensitive? If the UPI code system uses both Roman letters and Indo-Arabic numerals, should the system not disallow particular characters that could be mistaken for each other (the lower-case letter “l” and the number “1”, the digit “0” and the upper-case letter “O” etc.).

*The advantage in using numeric characters and alphabetic characters is the increase in the number of different codes that can be created per character of information. Limiting to only numeric characters 0 through 9 provides a possible number of characters raised to the tenth power. Whereas the use of numbers and alphabetic characters provides for the number of characters raised to the 36 power (assuming upper case only). In practice, to eliminate the possibility for profanity, identifiers in use in the industry will eliminate the use of vowels, thus lowering the number of possible values per character from 36 down to 31. Note that this restriction automatically eliminates a couple of ambiguities: the character for zero and the letter "O" and the character for one and the letter "I". Leading industry standards, such as the ISIN and FIGI use upper case, alphanumeric characters.*

# APPENDIX – FIX MAPPING TO CONSULTATION PAPER TAXONOMY

## Equities

| Equities | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| Asset class | | | |
| →Equities | | Instrument/<br>AssetClass(1938)=4 (Equity) | |
| Instrument type | — | | |
| →Swap | — | Instrument/<br>SecurityType(167)=<br>TRS (Total return swap)<br>CFD (Contract for difference)<br>CRLTNSWAP (Correlation swap)<br>DVDNDSWAP (Dividend swap)<br>RTRNSWAP (Return swap)<br>VARSWAP (Variance swap) | |
| →Option | — | Instrument/<br>SecurityType(167)=<br>OPT (Option)<br>CAP (Cap)<br>CLLR (Collar)<br>FLR (Floor)<br>SWAPTION (Swap Option)<br>UnderlyingInstrument/<br>UnderlyingSecurityType(310)=<br>CS (Common stock)<br>PS (Preferred stock)<br>EQBSKT (Equity basket)<br>TRS (Total return swap)<br>CFD (Contract for difference)<br>CRLTNSWAP (Correlation swap)<br>DVDNDSWAP (Dividend swap)<br>RTRNSWAP (Return swap)<br>VARSWAP (Variance swap) | |
| →Forward | — | Instrument/<br>SecurityType(167)=<br>EQFWD (Equity forward)<br>UnderlyingInstrument/<br>UnderlyingSecurityType(310)=<br>CS (Common stock)<br>PS (Preferred stock)<br>EQBSKT (Equity basket) | |
| Option style | — | — | |
| →Swap | N/A | — | |

| Equities | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| →Option | European, American, Bermudan etc | Instrument/<br>ExerciseStyle(1194)=<br>0 (European)<br>1 (American)<br>2 (Bermuda)<br>99 (Other) | |
| →Forward | N/A | — | |
| Option type | — | — | |
| →Swap | N/A | — | |
| →Option | Put, Call, Chooser etc | Instrument/<br>PutOrCall(201)=<br>0 (Put)<br>1 (Call) | "Chooser" is a gap. |
| →Forward | N/A | — | |
| Return, pricing method or payout trigger | | | |
| →Swap | Price, Dividend, Total Return, Variance, Volatility, Contract for Difference (CFD) etc | Instrument/<br>SecurityType(167)=<br>TRS (Total return swap)<br>CFD (Contract for difference)<br>CRLTNSWAP (Correlation swap)<br>DVDNDSWAP (Dividend swap)<br>RTRNSWAP (Return swap)<br>VARSWAP (Variance swap)<br>Instrument/StreamGrp/<br>PaymentStream/PaymentStreamFloatingRate/<br>ReturnRateGrp/<br>ReturnRatePriceGrp/<br>ReturnRateInformationSourceGrp/<br>ReturnRateDateGrp/ | The SecurityType(167) value identifies the high-level return, pricing method or payout trigger.<br>The elements within the listed components of the Instrument streams detail how and when the swap stream's underlying return price is calculated, spread calculations, variance attributes, strikes, multipliers, vega notional, etc. |

| Equities | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| →Option | Vanilla, Asian, Digital (Binary), Barrier, Digital Barrier, Lookback, Other Path Dependent, Other etc | Instrument/<br>OptPayoutType(1482)=<br>1 (Vanilla)<br>2 (Capped)<br>3 (Binary)<br>ComplexEvents/<br>ComplexEventType(1484)=<br>1 (Capped)<br>2 (Trigger)<br>3 (Knock-in up)<br>4 (Knock-in down)<br>5 (Knock-out up)<br>6 (Knock-out down)<br>7 (Underlying)<br>8 (Reset Barrier)<br>9 (Rolling Barrier)<br>10 (One-touch)<br>11 (No-touch)<br>12 (Double one-touch)<br>13 (Double no-touch)<br>17 (Strike spread)<br>18 (Calendar spread)<br>19 (Price observation (Asian or Lookback)<br>20 (Pass-through)<br>21 (Strike schedule) | |
| →Forward | Spreadbet, Forward Price of underlying instrument etc | Instrument/<br>ComplexEvents/<br>ComplexEventType(1484)=<br>7 (Underlying)<br>18 (Calendar spread)<br>19 (Price observation (Asian or Lookback)<br>20 (Pass-through) | |
| Delivery type | Cash, Physical, Elect at Settlement etc | | |
| →Swap | — | Instrument/<br>SettlMethod(1193)=<br>C (Cash settlement required)<br>P (Physical settlement required)<br>E (Election at exercise) | |
| →Option | — | Instrument/<br>SettlMethod(1193)=<br>C (Cash settlement required)<br>P (Physical settlement required)<br>E (Election at exercise) | |
| →Forward | — | Instrument/<br>SettlMethod(1193)=<br>C (Cash settlement required)<br>P (Physical settlement required)<br>E (Election at exercise) | |

| Equities | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| Underlying asset/contract type | — | UnderlyingInstrument/<br>UnderlyingSecurityType(310)=<br>EQBSK (Equity Basket)<br>INDEX (Index)<br>CS (Common stock)<br>PS (Preferred stock<br>UnderlyingAssetClass(2013)=4 (Equity)<br>UnderlyingAssetSubClass(2014)=<br>9 (Common)<br>10 (Preferred)<br>11 (Equity index)<br>12 (Equity basket) | UnderlyingAssetSubClass(2014) can be extended to identify more complex contract types. |
| Underlier ID source | The origin, or publisher, of the associated underlier ID. | UnderlyingInstrument/<br>SecurityIDSource(305)=<br>1 (CUSIP)<br>2 (SEDOL)<br>4 (ISIN)<br>S (Financial Instrument Global Identifier – "FIGI") | For contracts where the underlier contains a basket that needs to also be explicitly identified what is in the basket, the RelatedInstrumentGrp component would be used to convey these related instruments, and the type of relationship would be identified. |
| Underlier ID | An identifier that can be used to determine the asset(s) or index (indices) underlying a contract. | UnderlyingInstrument/<br>SecurityID(309)=<identifier> | |

## FX

| FX | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| Asset class | | | |
| →FX | | Instrument/<br>AssetClass(1938)=2 (Currency) | |
| Instrument type | — | | |
| →Swap | — | Instrument/<br>SecurityType(167)=<br>FXSWAP (FX Swap)<br>InstrumentLeg[1]/<br>LegSecurityType(609)=<br>FXFWD (FX Forward)<br>FXSPOT (FX Spot)<br>InstrumentLeg[2]/<br>LegSecurityType(609)=<br>FXNDF (Non-deliverable forward)<br>FXFWD (FX Forward) | An FX swap is constructed in FIX as a 2-leg instrument with the spot and forward contracts in separate near and far legs. |
| →Option | — | Instrument/<br>SecurityType(167)=<br>OPT (Option)<br>CAP (Cap)<br>CLLR (Collar)<br>FLR (Floor)<br>UnderlyingInstrument/<br>UnderlyingSecurityType(310)=<br>SPOTFWD (Spot forward)<br>FXNDF (Non-deliverable forward)<br>FXFWD (FX forward)<br>FXSPOT (FX Spot) | |
| →Forward | — | Instrument/<br>SecurityType(167)=<br>SPOTFWD (Spot forward)<br>FXNDF (Non-deliverable forward)<br>FXFWD (FX forward) | |
| Option style | — | — | |
| →Swap | N/A | — | |
| →Option | American, European, Bermudan etc | Instrument/<br>ExerciseStyle(1194)=<br>0 (European)<br>1 (American)<br>2 (Bermuda)<br>99 (Other) | |
| →Forward | N/A | — | |
| Option type | — | — | |
| →Swap | N/A | — | |
| →Option | Put, Call, Chooser etc | Instrument/<br>PutOrCall(201)=<br>0 (Put)<br>1 (Call) | “Chooser” is a gap. |
| →Forward | N/A | — | |

| FX | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| Return, pricing method or payout trigger | — | — | |
| →Swap | N/A | — | |
| →Option | Vanilla, Asian, Digital (Binary), Barrier, Digital Barrier, Lookback, Other Path Dependent, Other etc | Instrument/<br>OptPayoutType(1482)=<br>1 (Vanilla)<br>2 (Capped)<br>3 (Binary)<br>ComplexEvents/<br>ComplexEventType(1484)=<br>1 (Capped)<br>2 (Trigger)<br>3 (Knock-in up)<br>4 (Knock-in down)<br>5 (Knock-out up)<br>6 (Knock-out down)<br>7 (Underlying)<br>8 (Reset Barrier)<br>9 (Rolling Barrier)<br>10 (One-touch)<br>11 (No-touch)<br>12 (Double one-touch)<br>13 (Double no-touch)<br>17 (Strike spread)<br>18 (Calendar spread)<br>19 (Price observation (Asian or Lookback)<br>20 (Pass-through)<br>21 (Strike schedule) | |
| →Forward | CFD, Spreadbet, Forward Price of underlying instrument etc | RateSource/<br>RateSource(1446)<br>0 (Bloomberg)<br>1 (Reuters)<br>2 (Telerate)<br>3 (ISDA)<br>99 (Other) | FIX spells out FX forward pricing methods but does not support an identifying description. |
| Delivery type | Cash, Physical, Elect at Settlement etc | Instrument/<br>SettlMethod(1193)=<br>C (Cash settlement required)<br>P (Physical settlement required)<br>E (Election at exercise) | |
| Underlying asset/contract type | — | — | |

| FX | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| →Swap | Spot-forward, Forward- forward etc | InstrumentLeg[1]/<br>LegSecurityType(609)=<br>FXFWD (FX Forward)<br>FXSPOT (FX Spot)<br>InstrumentLeg[2]/<br>LegSecurityType(609)=<br>FXNDF (Non-deliverable forward)<br>FXFWD (FX Forward) | |
| →Option | Forwards, Futures, Spot, Volatility etc | UnderlyingInstrument/<br>UnderlyingSecurityType(310)=<br>FXSWAP (FX Swap)<br>SPOTFWD (Spot forward)<br>FXNDF (Non-deliverable forward)<br>FXFWD (FX forward) | "Volatility" may be a gap. |
| →Forward | Spot, Forward, Options, Futures etc | Instrument/<br>SecurityType(167)=<br>SPOTFWD (Spot forward)<br>FXNDF (Non-deliverable forward)<br>FXFWD (FX forward) | |
| Currency pair | eg ISO 4217 currency code | Instrument/<br>Symbol(55)=<ccy1/ccy2> | |
| Settlement currency | eg ISO 4217 currency code | SettlCurrency(120)=<ccy> | This FIX field is outside the Instrument component and is considered an attribute of the transaction or trade itself.. |

## Commodities

| Commodities | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| Asset class | | | |
| →Commodities | | Instrument/<br>AssetClass(1938)=5 (Commodity) | |
| Instrument type | — | | |
| →Swap | — | Instrument/<br>SecurityType(167)=<br>CMDTYSWAP (Commodity swap) | |
| →Option | — | Instrument/<br>SecurityType(167)=<br>CAP (Cap)<br>CLLR (Collar)<br>FLR (Floor)<br>OOF (Option on Futures)<br>SWAPTION (Swap Option)<br>UnderlyingInstrument/<br>UnderlyingSecurityType(310)=<br>FUT (Future)<br>CMDTYSWAP (Commodity swap) | |
| →Forward | — | Instrument/<br>SecurityType(167)=<br>FUT (Future) | A commodity futures contract, which by definition is a "forward", is constructed within the base <Instrument> component. |
| Option style | — | — | |
| →Swap | N/A | — | |
| →Option | European, American, Bermudan etc | Instrument/<br>ExerciseStyle(1194)=<br>0 (European)<br>1 (American)<br>2 (Bermuda)<br>99 (Other) | |
| →Forward | N/A | — | |
| Option type | — | — | |
| →Swap | N/A | — | |
| →Option | Put, Call, Chooser etc | Instrument/<br>PutOrCall(201)=<br>0 (Put)<br>1 (Call) | "Chooser" is a gap. |
| →Forward | N/A | — | |
| Return, pricing method or payout trigger | — | — | |

| Commodities | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| →Swap | Contract for Difference, Total Return, Excess Return, Loan/Lease, Physical Commodity, Value of underlying asset, Location Basis, Quality Basis, Calendar Basis etc | Instrument/StreamGrp/<br>PaymentStream/PaymentStreamFloatingRate/<br>ReturnRateGrp/<br>ReturnRatePriceGrp/<br>ReturnRateInformationSourceGrp/<br>ReturnRateDateGrp/ | The elements within the listed components of the Instrument streams detail how and when the swap stream's underlying return price is calculated, spread calculations, variance attributes, strikes, multipliers, vega notional, etc. |
| →Option | Vanilla, Asian, Digital (Binary), Barrier, Digital Barrier, Lookback, Other Path Dependent, Other etc | Instrument/<br>OptPayoutType(1482)=<br>1 (Vanilla)<br>2 (Capped)<br>3 (Binary)<br>ComplexEvents/<br>ComplexEventType(1484)=<br>1 (Capped)<br>2 (Trigger)<br>3 (Knock-in up)<br>4 (Knock-in down)<br>5 (Knock-out up)<br>6 (Knock-out down)<br>7 (Underlying)<br>8 (Reset Barrier)<br>9 (Rolling Barrier)<br>10 (One-touch)<br>11 (No-touch)<br>12 (Double one-touch)<br>13 (Double no-touch)<br>17 (Strike spread)<br>18 (Calendar spread)<br>19 (Price observation (Asian or Lookback)<br>20 (Pass-through)<br>21 (Strike schedule) | |
| →Forward | Spreadbet, Forward price of underlying asset, Contract For Difference etc | Instrument/<br>ComplexEvents/<br>ComplexEventType(1484)=<br>7 (Underlying)<br>18 (Calendar spread)<br>19 (Price observation (Asian or Lookback)<br>20 (Pass-through) | |
| Delivery type | Cash, Physical, Elect at Settlement etc | Instrument/<br>SettlMethod(1193)=<br>C (Cash settlement required)<br>P (Physical settlement required)<br>E (Election at exercise) | |

| Commodities | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| Underlying asset/contract type | Energy, Precious Metals, Non-Precious Metals, Agriculture, Environmental, Freight, Polypropylene Products, Paper, Fertiliser, Index, Multi Commodity, Other etc | For swaps and forwards:<br>Instrument/<br>AssetClass(1938)=<br>5 (Commodity)<br>AssetSubClass(1939)=<br>8 (Exotic)<br>3 (Metals)<br>14 (Bullion)<br>15 (Energy)<br>16 (Commodity index)<br>17 (Agriculture)<br>18 (Environmental)<br>19 (Freight)<br><br>For options:<br>UnderlyingInstrument/<br>UnderlyingAssetClass(2013)=<br>5 (Commodity)<br>UnderlyingAssetSubClass(2014)=<br>8 (Exotic)<br>3 (Metals)<br>14 (Bullion)<br>15 (Energy)<br>16 (Commodity index)<br>17 (Agriculture)<br>18 (Environmental)<br>19 (Freight) | Additionally, FIX contains a SecondaryAssetGrp component that further allows for expressing additional multiple other AssetClass, AssetSubClass and AssetType combinations for a multi-asset swap.<br><br>Gaps: Polypropylene products, Paper, Fertilizer and possibly an explicit value for multi-commodity swap. |

| Commodities | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| Underlying asset/contract subtype | Aluminium, Azuki Beans,Baltic Exchange – Dry Bulk Routes, Baltic Exchange – Wet Bulk Routes, Barley, Benzene, Butter, Canola, 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, Palladium, Palm Oil, Plastics, 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, Other | For a swap or forward:<br>Instrument/<br>AssetType(1940)=<br><br>For an option:<br>UnderlyingInstrument/<br>UnderlyingAssetType(2015)= | AssetType(2015) is an unconstrained String field that can be used to further describe the type of asset sub-class.<br><br>Additionally there is the AssetAttributeGrp component which is a repeating component allowing for expressing multiple different detailed attributes for the associated UnderlyingAssetType. Example, for UnderlyingAssetType= Coal may include coal attribute such as ash content, grindability, SO2 content, etc. |
| Underlier ID source | The origin, or publisher, of the associated underlier ID. | For a swap or forward:<br>Instrument/<br>SecurityIDSource(22)=<br>4 (ISIN)<br><br>For an option:<br>UnderlyingInstrument/<br>UnderlyingSecurityIDSource(305)=<br>4 (ISIN) | |

| Commodities | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| Underlier ID | An identifier that can be used to determine the asset(s) or index (indices) underlying a contract. | For a swap or forward:<br>Instrument/<br>SecurityID(167)=<identifier><br><br>For an option:<br>UnderlyingInstrument/<br>UnderlyingSecurityID(309)=<identifier> | |

## Rates

| Rates | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| Asset class | | | |
| →Rates | | Instrument/<br>AssetClass(1938)=1 (Interest rate) | |
| Instrument type | — | | |
| →Swap | — | Instrument/<br>SecurityType(167)=<br>IRS (Interest Rate Swap) | |
| →Option | — | Instrument/<br>SecurityType(167)=<br>OPT (Option)<br>SWAPTION (Swap Option)<br>UnderlyingInstrument/<br>UnderlyingSecurityType(310)=<br>IRS (Interest Rate Swap) | |
| →Forward | — | Instrument/<br>SecurityType(167)=<br>FRA (Forward Rate Agreement) | A forward rate agreement is constructed within the base <Instrument> component. |
| Option style | — | — | |
| →Swap | N/A | — | |
| →Option | European, American, | Instrument/<br>ExerciseStyle(1194)=<br>0 (European)<br>1 (American)<br>2 (Bermuda)<br>99 (Other) | |
| →Forward | N/A | — | |
| Option type | — | — | |
| →Swap | N/A | — | |
| →Option | Put, Call, Chooser etc | Instrument/<br>PutOrCall(201)=<br>0 (Put)<br>1 (Call) | "Chooser" is a gap. |
| →Forward | N/A | — | |
| Return, pricing method or payout trigger | — | — | |
| →Swap | N/A | — | |

| Rates | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| →Option | Vanilla, Asian, Digital (Binary), Barrier, Digital Barrier, Lookback, Other Path Dependent, Other etc | Instrument/<br>OptPayoutType(1482)=<br>1 (Vanilla)<br>2 (Capped)<br>3 (Binary)<br>UnderlyingPriceDeterminationMethod(1481)=<br>1 (Regular)<br>2 (Special reference)<br>3 (Optimal value (Lookback))<br>4 (Average value (Asian option))<br>ComplexEvents/<br>ComplexEventType(1484)=<br>1 (Capped)<br>2 (Trigger)<br>3 (Knock-in up)<br>4 (Knock-in down)<br>5 (Knock-out up)<br>6 (Knock-out down)<br>7 (Underlying)<br>8 (Reset Barrier)<br>9 (Rolling Barrier)<br>10 (One-touch)<br>11 (No-touch)<br>12 (Double one-touch)<br>13 (Double no-touch)<br>17 (Strike spread)<br>18 (Calendar spread)<br>19 (Price observation (Asian or Lookback))<br>20 (Pass-through)<br>21 (Strike schedule) | |
| →Forward | Spreadbet, Forward price of underlying instrument, Forward rate of underlying X notional, Contract For Difference etc | Instrument/StreamGrp/<br>PaymentStream/PaymentStreamFloatingRate/<br>ReturnRateGrp/<br>ReturnRatePriceGrp/<br>ReturnRateInformationSourceGrp/<br>ReturnRateDateGrp/ | The elements within the listed components of the Instrument streams detail how and when the Forward Rate Agreement underlying return price is calculated, spread calculations, variance attributes, strikes, multipliers, vega notional, etc. |
| Notional schedule | — | — | |

| Rates | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| →Swap | Constant, Accreting, Amortising, Custom etc. | Instrument/StreamGrp/<br>PaymentStream<br>PaymentScheduleGrp<br>Instrument/<br>SwapClass(1941)<br>BS (Basis swap)<br>IX (Index swap)<br>BB (Broad-based security swap)<br>SK (Basket swap)<br>SwapSubClass(1575)<br>AMTZ (Amortizing)<br>COMP (Compounding) | A constant contract does not have a PaymentScheduleGrp component.<br>An accreting, amortising or custom contract has one or more instances of PaymentScheduleGrp and is further identified in SwapSubClass(1575). |
| →Option | N/A | — | |
| →Forward | N/A | — | |
| Single or multiple currency | — | — | |
| →Swap | Single Currency, Cross Currency | Instrument/<br>AssetSubClass(1939)=<br>1 (Single currency)<br>2 (Cross currency) | |
| →Option | N/A | — | |
| →Forward | N/A | — | |
| Single or multiple tenor | — | — | |
| →Swap | N/A | — | |
| →Option | N/A | — | |
| →Forward | Single, Multiple etc | Instrument/StreamGrp/<br>PaymentStream/PaymentStreamFloatingRate/<br>PaymentStreamRateIndex(40789)<br>PaymentStreamRateIndexCurveUnit(40791)<br>PaymentStreamRateIndexCurvePeriod(40792)<br>PaymentStreamRateIndex2CurveUnit(41195)<br>PaymentStreamRateIndex2CurvePeriod(41194) | A single tenor contract has only a single PaymentStreamRateIndexCurveUnit(40791)/…CurvePeriod(40792) pair whereas a multiple tenor contract has both …CurveUnit(40791)/…CurvePeriod(40792) and …2CurveUnit(41195)/…2CurvePeriod(41194) |
| Delivery type | Cash, Physical etc. | Instrument/<br>SettlMethod(1193)=<br>C (Cash settlement required)<br>P (Physical settlement required)<br>E (Election at exercise) | |
| Underlying asset/contract type | — | — | |

| Rates | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| →Swap | Basis swap, Fixed – Floating, Fixed – Fixed, Inflation, OIS, Zero Coupon, Other etc | Instrument/<br>AssetSubClass(1939)=<br>1 (Single currency)<br>2 (Cross currency)<br>AssetType(1940)=<br>LIBOR<br>*other index*<br>*currency*<br>*any other descriptive token*<br>SwapClass(1941)<br>BS (Basis swap)<br>IX (Index swap)<br>BB (Broad-based security swap)<br>SK (Basket swap)<br>SwapSubClass(1575)<br>AMTZ (Amortizing)<br>COMP (Compounding) | |
| →Option | Interest Rate Index, Swaps – Basis swap, Swaps –Fixed/ Floating, Swaps –Fixed/Fixed, Swaps – Inflation, Swaps – (OIS), Options, Forwards, Futures, Other etc | Used to identify the option's underlying swap contract type:<br>UnderlyingInstrument/<br>UnderlyingAssetClass(2013)=<br>1 (Interest rate)<br>UnderlyingAssetSubClass(2014)=<br>1 (Single currency)<br>2 (Cross currency)<br>UnderlyingAssetType(2015)=<br>LIBOR<br>*other index*<br>*currency*<br>*any other descriptive token*<br>UnderlyingSwapClass(1941)<br>BS (Basis swap)<br>IX (Index swap)<br>BB (Broad-based security swap)<br>SK (Basket swap)<br>UnderlyingSwapSubClass(1575)<br>AMTZ (Amortizing)<br>COMP (Compounding) | |

| Rates | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| →Forward | Interest Rate Index,<br>Options,<br>Other,<br>Single Name,<br>Basket<br>etc | For the forward:<br>Instrument/<br>AssetSubClass(1939)=<br>1 (Single currency)<br>2 (Cross currency)<br>AssetType(1940)=<br>LIBOR<br>*other index*<br>*currency*<br>*any other descriptive token*<br>SwapClass(1941)<br>BS (Basis swap)<br>IX (Index swap)<br>BB (Broad-based security swap)<br>SK (Basket swap)<br>SwapSubClass(1575)<br>AMTZ (Amortizing)<br>COMP (Compounding)<br><br>For baskets, the basket's underlying asset/contract type:<br>UnderlyingInstrument/<br>UnderlyingAssetType(20141940)=<br>LIBOR<br>*other index*<br>*currency*<br>*any other descriptive token*<br>UnderlyingSwapClass(1941)<br>BS (Basis swap)<br>IX (Index swap)<br>BB (Broad-based security swap)<br>SK (Basket swap)<br>UnderlyingSwapSubClass(1575)<br>AMTZ (Amortizing)<br>COMP (Compounding) | |
| Underlier ID source | The origin, or publisher, of the associated underlier ID. | For a swap or forward of a vanilla forward rate or fix-float swap for example:<br>Instrument/<br>SecurityIDSource=<br>4 (ISIN)<br><br>For an option on a forward rate or fix-float swap, for example, the underlying contract type is identified in UnderlyingInstrument component fields:<br>UnderlyingInstrument/<br>UnderlyingSecurityIDSource(305)=<br>4 (ISIN) | |

| Rates | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| Underlier ID | An identifier that can be used to determine the asset(s) or index (indices) underlying a contract. | For a swap or forward of a vanilla forward rate or fix-float swap for example:<br>Instrument/<br>SecurityID(167)=<identifier><br><br>For an option on a forward rate or fix-float swap, for example, the underlying contract type is identified using the UnderlyingInstrument component fields:<br>UnderlyingInstrument/<br>UnderlyingSecurityID(309)=<identifier> | |
| Underlying rate index tenor | Day, week, month, year, term etc | For a swap or forward:<br>Instrument/StreamGrp/PaymentStream/<br>PaymentStreamFloatingRate/<br>PaymentStreamRateIndexCurveUnit(40791)=<br>D (Day)<br>Wk (Week)<br>Mo (Month)<br>Yr (Year)<br><br>For an option:<br>UnderlyingInstrument/UnderlyingStreamGrp/UnderlyingPaymentStream/<br>UnderlyingPaymentStreamFloatingRate/<br>UnderlyingPaymentStreamRateIndexCurveUnit(40622)=<br>D (Day)<br>Wk (Week)<br>Mo (Month)<br>Yr (Year) | |
| Underlying rate index tenor period multiplier | eg 1, 2, 3, 4, … | For a swap or forward:<br>Instrument/StreamGrp/PaymentStream/<br>PaymentStreamFloatingRate/<br>PaymentStreamRateIndexCurvePeriod(40792)=<n><br><br>For an option:<br>UnderlyingInstrument/UnderlyingStreamGrp/UnderlyingPaymentStream/<br>UnderlyingPaymentStreamFloatingRate/<br>UnderlyingPaymentStreamRateIndexCurvePeriod(40623)=<n> | |

## Credit

| Credit | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| Asset class | | | |
| →Credit | | Instrument/<br>AssetClass(1938)=3 (Credit) | |
| Instrument type | — | | |
| →Swap | | Instrument/<br>SecurityType(167)=<br>CDS (Credit Default Swap) | |
| →Option | | Instrument/<br>SecurityType(167)=<br>SWAPTION (Swap Option)<br>UnderlyingInstrument/<br>UnderlyingSecurityType(310)=<br>CDS (Credit Default Swap) | |
| →Forward | | Instrument/<br>SecurityType(167)=<br>FWD (Derivative Forward)<br>UnderlyingInstrument/<br>UnderlyingSecurityType(310)=<br>CDS (Credit Default Swap) | |
| Option style | — | — | |
| →Swap | N/A | — | |
| →Option | European, American, Bermudan etc | Instrument/<br>ExerciseStyle(1194)=<br>0 (European)<br>1 (American)<br>2 (Bermuda)<br>99 (Other) | |
| →Forward | N/A | — | |
| Option type | — | — | |
| →Swap | N/A | — | |
| →Option | Put/receiver, Call/payer, Chooser etc | Instrument/<br>PutOrCall(201)=<br>0 (Put)<br>1 (Call) | "Chooser" is a gap. |
| →Forward | N/A | — | |
| Return, pricing method or payout trigger | — | — | |
| →Swap | Credit Default, Total Return, First to Default, Nth to Default, Contingent, Recovery etc | Instrument/<br>LegNthToDefault(1942)=<n><br>LegMthToDefault(1943)=<n><br>CashSettlTermGrp/ *[in general but particularly:]*<br>CashSettlPriceDefault(42217)=<br>0 (Close)<br>1 (Hedge)<br>CashSettlRecoveryFactor(40035)=<factor> | See also the following components within Instrument:<br>MarketDisruption<br>ProtectionTermGrp<br>PhysicalSettlTermGrp<br>ExtraordinaryEventGrp |

| Credit | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| →Option | Vanilla, Lookback, Other<br>Path Dependent etc | Instrument/<br>OptPayoutType(1482)=<br>1 (Vanilla)<br>2 (Capped)<br>3 (Binary)<br>UnderlyingPriceDeterminationMethod(1481)=<br>1 (Regular)<br>2 (Special reference)<br>3 (Optimal value (Lookback))<br>4 (Average value (Asian option))<br>ComplexEvents/<br>ComplexEventType(1484)=<br>1 (Capped)<br>2 (Trigger)<br>3 (Knock-in up)<br>4 (Knock-in down)<br>5 (Knock-out up)<br>6 (Knock-out down)<br>7 (Underlying)<br>8 (Reset Barrier)<br>9 (Rolling Barrier)<br>10 (One-touch)<br>11 (No-touch)<br>12 (Double one-touch)<br>13 (Double no-touch)<br>17 (Strike spread)<br>18 (Calendar spread)<br>19 (Price observation (Asian or Lookback))<br>20 (Pass-through)<br>21 (Strike schedule) | |
| →Forward | Spread, Forward price of underlying instrument etc | Instrument/<br>ComplexEvents/<br>ComplexEventType(1484)=<br>7 (Underlying)<br>18 (Calendar spread)<br>19 (Price observation (Asian or Lookback)<br>20 (Pass-through)<br>22 (Equity valuation) | |
| Delivery type | Cash, Physical etc | — | |
| →Swap | — | Instrument/<br>SettlMethod(1193)=<br>C (Cash settlement required)<br>P (Physical settlement required)<br>E (Election at exercise) | |
| →Option | — | Instrument/<br>SettlMethod(1193)=<br>C (Cash settlement required)<br>P (Physical settlement required)<br>E (Election at exercise) | |

| Credit | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| →Forward | — | Instrument/<br>SettlMethod(1193)=<br>C (Cash settlement required)<br>P (Physical settlement required)<br>E (Election at exercise) | |
| Underlying asset/contract type | Single name (CDS), index (CDS), (CDS on) index tranche etc | For identifying the asset of the swap or forward<br>Instrument/<br>AssetClass(1938)=<br>3 (Credit)<br>AssetSubClass(1939)=<br>4 (Single name)<br>5 (Credit index)<br>6 (Index tranche)<br>7 (Credit basket)<br><br>For identifying the underlying security of an option on a swap contract.<br>This identifies the product/security type:<br>UnderlyingInstrument/<br>UnderlyingSecurityType(310)=<br>CDS (Credit Default Swap)<br><br>This identifies the underlying risk exposure of the product:<br>UnderlyingInstrument/<br>UnderlyingAssetClass(2013)=<br>3 (Credit)<br>UnderlyingAssetSubClass(2014)=<br>4 (Single name)<br>5 (Credit index)<br>6 (Index tranche)<br>7 (Credit basket) | The AssetClass(1938) and AssetSubClass(1939) (and optionally AssetType(1940)) are used to identify the underlying risk exposure of the security being trade (identified in SecurityType(167)). |

| Credit | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| Underlying asset/contract subtype | Sovereign, Municipal, Corporate, Loan pools etc | For identifying the asset of the swap or forward<br>Instrument/<br>AssetType(1940)=<br>Corporate<br>Sovereign<br>CDX<br>*etc.*<br><br>If an option on a swap contract, this can be used for expressing the subtype of the option's underlying swap contract:<br>UnderlyingInstrument/<br>UnderlyingAssetType(2015)=<br>Corporate<br>Sovereign<br>CDX<br>CDX Structured<br>iTraxx<br>iTraxx Structured<br>*etc.* | This field is uncontrained and falls under the AssetSubClass(1939) in terms of hierarchy.<br><br>This field is uncontrained and falls under the UnderlyingAssetSubClass(2014) in terms of hierarchy. |
| Seniority | Senior, Subordinate etc | For identifying the seniority of the swap or forward<br>Instrument/<br>Seniority(1450)=<br>SD (Senior Secured)<br>SR (Senior)<br>SB (Subordinated)<br><br>For identifying the seniority of the option on a swap contract<br>Instrument/<br>UnderlyingSeniority(1454)=<br>SD (Senior Secured)<br>SR (Senior)<br>SB (Subordinated) | |

| Credit | | | |
|---|---|---|---|
| **Data element name** | **Data element description** | **FIX Mapping** | **Notes** |
| Underlier ID source | The origin, or publisher, of the associated underlier ID. | For a swap or forward on single name, index, etc.:<br>Instrument/<br>SecurityIDSource=<br>4 (ISIN)<br><br>For an option on a single name, for example, the single name is identified using the UnderlyingInstrument component fields:<br>UnderlyingInstrument/<br>UnderlyingSecurityIDSource(305)=<br>4 (ISIN) | We assume that only ISIN is acceptable. However, other ID source schemes are supported in FIX (e.g. CUSIP, SEDOL, RED Code, FIGI, LEI)<br><br>Note for an option, the option itself would have a separate identifier for the option contract specified in the SecurityIDSource/SecurityID fields of the Instrument component. |
| Underlier ID | An identifier that can be used to determine the asset(s) or index (indices) underlying a contract. | For a forward, a swap on a single name, index, etc.:<br>Instrument/<br>SecurityID(167)=<identifier><br><br>For an option on a single name, for example, the single name is identified using the UnderlyingInstrument component fields:<br>UnderlyingInstrument/<br>UnderlyingSecurityID(309)=<identifier> | Note for an option, the option itself would have a separate identifier for the option contract specified in the SecurityIDSource/SecurityID fields of the Instrument component. |
| Underlying credit index series | eg 1, 2, 3, 4, … | For a swap or forward on an index:<br>Instrument/<br>IndexSeries(1957)=<series><br><br>For an option on an index:<br>UnderlyingInstrument/<br>UnderlyingIndexSeries(2003)=<series> | |
| Underlying credit index version | eg 1, 2, 3, 4, … | For a swap or forward on an index"<br>Instrument/<br>IndexAnnexVersion(1958)=<version><br><br>For an option on an index:<br>UnderlyingInstrument/<br>UnderlyingIndexIndexAnnexVersion(2004)=<version> | |