MIFID II

DATA ELEMENTS AND THEIR AUTHORITATIVE, MASTER AND PRIMARY SOURCES

RECOMMENDED PRACTICE GUIDELINE DOCUMENT

VERSION 1.3

Proposal Status: Draft

DISCLAIMER

THE INFORMATION CONTAINED HEREIN AND THE FINANCIAL INFORMATION EXCHANGE PROTOCOL (COLLECTIVELY, THE "FIX PROTOCOL") ARE PROVIDED "AS IS" AND NO PERSON OR ENTITY ASSOCIATED WITH THE FIX PROTOCOL MAKES ANY REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, AS TO THE FIX PROTOCOL (OR THE RESULTS TO BE OBTAINED BY THE USE THEREOF) OR ANY OTHER MATTER AND EACH SUCH PERSON AND ENTITY SPECIFICALLY DISCLAIMS ANY WARRANTY OF ORIGINALITY, ACCURACY, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SUCH PERSONS AND ENTITIES DO NOT WARRANT THAT THE FIX PROTOCOL WILL CONFORM TO ANY DESCRIPTION THEREOF OR BE FREE OF ERRORS. THE ENTIRE RISK OF ANY USE OF THE FIX PROTOCOL IS ASSUMED BY THE USER.

NO PERSON OR ENTITY ASSOCIATED WITH THE FIX PROTOCOL SHALL HAVE ANY LIABILITY FOR DAMAGES OF ANY KIND ARISING IN ANY MANNER OUT OF OR IN CONNECTION WITH ANY USER'S USE OF (OR ANY INABILITY TO USE) THE FIX PROTOCOL, WHETHER DIRECT, INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL (INCLUDING, WITHOUT LIMITATION, LOSS OF DATA, LOSS OF USE, CLAIMS OF THIRD PARTIES OR LOST PROFITS OR REVENUES OR OTHER ECONOMIC LOSS), WHETHER IN TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY), CONTRACT OR OTHERWISE, WHETHER OR NOT ANY SUCH PERSON OR ENTITY HAS BEEN ADVISED OF, OR OTHERWISE MIGHT HAVE ANTICIPATED THE POSSIBILITY OF, SUCH DAMAGES.

DRAFT OR NOT RATIFIED PROPOSALS (REFER TO PROPOSAL STATUS AND/OR SUBMISSION STATUS ON COVER PAGE) ARE PROVIDED "AS IS" TO INTERESTED PARTIES FOR DISCUSSION ONLY. PARTIES THAT CHOOSE TO IMPLEMENT THIS DRAFT PROPOSAL DO SO AT THEIR OWN RISK. IT IS A DRAFT DOCUMENT AND MAY BE UPDATED, REPLACED, OR MADE OBSOLETE BY OTHER DOCUMENTS AT ANY TIME. THE FIX TRADING COMMUNITY GLOBAL TECHNICAL COMMITTEE WILL NOT ALLOW EARLY IMPLEMENTATION TO CONSTRAIN ITS ABILITY TO MAKE CHANGES TO THIS SPECIFICATION PRIOR TO FINAL RELEASE. IT IS INAPPROPRIATE TO USE FIX TRADING COMMUNITY WORKING DRAFTS AS REFERENCE MATERIAL OR TO CITE THEM AS OTHER THAN "WORKS IN PROGRESS". THE FIX TRADING COMMUNITY GLOBAL TECHNICAL COMMITTEE WILL ISSUE, UPON COMPLETION OF REVIEW AND RATIFICATION, AN OFFICIAL STATUS ("APPROVED") FOR THE PROPOSAL AND A RELEASE NUMBER.

Document History

Revision	Date	Author	Editor	Comments
0.1	14 November 2019	Philippe Perot	Uwe	Initial Draft
0.2	10 February 2020	Philippe Perot	Uwe	Revised Draft
0.3	12 March 2020	Philippe Perot	Uwe	Revised Draft
0.4	June 2020	Phillippe Perot	Maria Netley	Amendments as agreed by the Reference data subgroup June 2020
1.0	September 2020	Phillippe Perot	Maria Netley	Approval Version by Reference Data Working Group.
1.1	October 2020	Phillippe Perot	Maria Netley	Minor updates to tables 3.5.2 and 4.1
1.2	January 2021	Hanno Klein, Lisa Taikitsadaporn	Hanno Klein	Mapping of data elements to FIX fields in Chapter 2 and Appendix 3
1.3	March/April 2021	Hanno Klein, Lisa Taikitsadaporn	Hanno Klein	Updates based on working group review of mapping

TABLE OF CONTENTS

1 The purpose of authoritative data sources for MIFID II data elements

1.1 The need for industry guidelines on MIFID II data elements

Both regulators and the industry continue to focus on data quality issues and the root causes of these issues with a view to increasing co-operation to ensure further data quality improvements happen.

Using viable data sources that are widely accepted by the industry in a consistent manner is a solution to improve data post MIFID II. This may then translate into proposals on how the whole industry, including regulators, conducts data validation. In a recent speech the ESMA Chair Steven Maijoor placed onus on the industry to establish recommended guidelines.

"*Whilst ESMA remains open to hear feedback from market participants and to further improve the rules and guidance in future years, the private sector should now take the initiative to ensure data quality.*

Guidance for validation rules and warnings are already provided by ESMA in its taxonomy files and in the Reporting Manual, but ESMA thinks that there is an important role to play for industry recommended initiatives in providing peer-to-peer guidance." (Maijoor, 2019)

https://www.esma.europa.eu/sites/default/files/library/esma74-362-27_steven_maijoor_keynote_speech_-_eurofiling_0.pdf

The primary intention of this guidance document is to catalogue the mapping of MIFID II key data elements to existing data sources. Whilst a reference term for these data sources may be agreed by the industry, it is recognised that naming conventions may differ per market participant. Therefore, the spirit and intention of this document will focus exclusively on specifying mapping of these key data elements to data sources and does not seek to provide input related to the naming conventions for the data sources.

1.2 The drivers for and benefits of this approach

The design and solution proposed in this paper intends to replicate at an industry level the benefits of the working practices many firms apply to their internal "master reference data". MIFID II aims to enhance transparency across European financial markets and for transparency to be achieveable it is important that MIFID II reference data is standardised and that the management of this data is robust, reliable and that the duplication of data is avoided and the implementation costs kept to a minimum.

Further benefits of the proposed approach include:

1. Having guidance on key data element to data source mapping for MIFID II reference data would offer consistent access to information for all market participants and decrease duplicative spend on compliance and remediation whilst enhancing reporting accuracy across the market.
2. A feedback mechanism and processes to remediate data can be introduced at the most upstream data point, ensuring that issues are repaired at the root cause benefitting all downstream data users.

If market participants choose to implement the data mapping guidelines proposed in this document two items should be considered:

1. Data may be ingested directly from the proposed sources or ingested via data aggregators or via other market intermediaries. The guidelines proposed in this paper are agnostic to an individual organisation's specific data ingestion models and does not seek to guide on the benefits or limitations of each approach.
2. For the proposed model to be viable the ownership of specific data attributes should be established and over time processes to remedy data issues should be outlined.

Agreement on recommended practices for the mapping of MIFID II data elements to existing data sources will improve the ability of both the Buy-side and the Sell-side to deliver on their regulatory obligations, improve regulators' ability to monitor for compliance and benefit end investors through enhanced market transparency and streamlined operations.

1.3 Promoting improved data standards via communication and education

In order to accelerate the benefit realisation of this "recommended practice" approach to authoritative data sources and data standardisation it is crucial that all market participants using MIFID II data elements can access these guidelines. For that purpose it is requested that, as suitable, industry bodies and individual firms take the opportunity to distribute this document to their members, clients, trading counterparts and industry peers.

1.4 Document scope and target audience

This document provides descriptions of MIFID II data elements, provides the regulatory specification for each data element and identifies an authoritative data source for each data element. As mentioned above firms may choose to utilize the services of data providers or intermediaries rather than interacting with any of the sources identified here directly. This document is intended only to provide guidance as to the originators of key data sets relevant to MiFID II/MiFIR reporting, it is up to individual firms how they obtain this data This document has simply been created for all financial market participants who require, produce or otherwise use MIFID II/MiFIR data.

2 Description of specific data elements

This section outlines the basic data structure of and purpose for each data element. It lists entities which create this data alongside the relevant governing standards as specified by MIFID II. The first subsection explains the elements of key data identifiers, the second subsection explains elements of key status attributes.

2.1 Key data identifiers

DATA ELEMENT	DESCRIPTION OF KEY DATA IDENTIFIERS	STANDARDS	DATA PRODUCER
BIC[1]	The Business Identifier Code identifies institutions within the financial services industry. BIC is used for addressing messages, routing business transactions and identifying business parties. A BIC is formed of a 4 alphanumeric business party prefix, plus the country code of the entity (2 letters), business party suffix (2 characters either letters or numbers) and an optional 3 letter branch code to identify the branch.	ISO 9362	SWIFT
CFI Code	Classification of Financial Instruments Code identifies the type and characteristics of each financial instrument in accordance with international standards. CFI Code consists of 6 characters structured as follows. Character 1 is the instrument category. There are 14 categories including equities, debt instruments, entitlements (rights), options, futures, and other (miscellaneous)., Character 2 represents the group. Character 3-6 are the attribute values which indicate a special feature of the group. At present, a CFI maintenance agency is being created to assist with ongoing CFI code review and development.	ISO 10962	When there is an associated ISIN – ▪ ANNA Service Bureau (ASB) and the ▪ DSB for OTC Derivatives
ISIN	The International Securities Identification Number (ISIN) identifies financial and referential instruments. It consists of a total of 12 characters and is formed as follows. The first two characters are taken up by the alpha-2 country code as per ISO 3166 of the country where the issuer of securities, other than debt securities, is legally registered or in which it has legal domicile. For debt securities, the relevant country code prefix is based on the jurisdiction of the CSD or XS if the issuance relates to an International Central Securities Depository (ICSD), and the prefix EZ for all ISINs on OTC derivatives issued by the DSB. The next nine characters are comprised in some cases of the local numbering code of the security concerned. Where the local number consists of fewer than nine characters, zeros are inserted in front of the number so that the full nine spaces are used. The final character is a check digit computed according to the modulus 10 "Double-Add-Double" formula.	ISO 6166	ASB and the DSB for OTC Derivatives

---

[1] BIC is currently still in use but financial industry is moving towards the usage of LEI instead, especially for regulatory reporting.

DATA ELEMENT	DESCRIPTION OF KEY DATA IDENTIFIERS	STANDARDS	DATA PRODUCER
LEI	The Legal Entity Identifier identifies legal entities engaging in financial transactions. An LEI can be obtained by entities including: governmental organizations, supranationals, banks, investment firms, funds, companies and individuals when acting in a business capacity, but excludes natural persons. Each LEI is a 20-digit, alpha-numeric code. The metadata associated with the code contains information about an entity and this can include ownership structure. The code itself is formed as follows. Characters 1-4 identifies the Local Operating Unit (LOU) that issued the LEI using a unique 4 letter prefix. Characters 5-18 are 14 character alphanumeric which is specific to the entity. This aspect of the code which is generated and assigned by the LOU. Characters 19-20 are two digit validation check code. For the purposes of MIFID II the LEI can identify the parties to a transaction and either the issuer of a financial instrument or, in the case of a derivative the issuer of the underlying instrument. It is also used by APAs to locate the jurisdiction and apply the correct reporting timelines as per the deferrals.	ISO 17442	GLEIF via Local Operating Units
MIC	The Market Identifier Code is used to identify trading venues, trading platforms, trade reporting facilities and markets (both regulated and unregulated). It is comprised of four alphanumeric characters identifying the venue. There are two types of MIC, Operating MIC and Segment MIC. The Operating MIC identifies the parent entity operating the venue, platform or facility while the Segment MIC identifies the section of the entity specialising in specific instruments or subject to specific regulatory obligations.	ISO 10383	SWIFT
FISN	Financial Instrument Short Code comprised of the issuer short name and abbreviated characteristics for the financial instrument. Maximum length 35 alphanumeric characters. The FISN is designed to be human rather than machine readable and is structured as follows: Issuer name (maximum length 15 alphanumeric characters) Instrument description (maximum length 19 alphanumeric characters)	ISO 18774	ASB and the ANNA-DSB for OTC Derivatives
MIFIR Identifier	Classifier of equity and non-equity financial instruments. There are twelve MiFIR identifiers, each is a four character alpha code as specified in RTS 1 and RTS 2 for transparency reporting.	ESMA	Provided by Venues, consolidated by ESMA

2.1.1   FIX mapping of key data identifiers

DATA ELEMENT	MAPPING TO FIX LATEST
BIC	**Identification of business parties** **Option A**: Instance of the *Parties* component PartyID(448) = [BIC value] PartyIDSource(447) = B = BIC (Business Identification Code) (ISO 9362) PartyRole(452) = [any] **Option B**: Additional identifier attached to an instance of the *Parties* component by means of the *PtysSubGrp* component: PartySubID(523) = [BIC value] PartySubIDType(803) = 16 = BIC FIX provides a large number of parties components that are identical to *Parties* which equally support the identification of a party with a BIC. Refer to https://www.fixtrading.org/online-specification/introduction#global-components-for-parties for details.
CFI Code	FIX provides a number of different places where a CFI Code may be used: CFICode(461) – Indicates the security type of an instrument using ISO 10962 standard DerivativeCFICode(1248) – May be used to identify the security type of a derivative instrument. LegCFICode(608) – May be used to identify the security type of a leg of a multileg instrument. UnderlyingCFICode(463) – May be used to identify the underlying security type of an instrument.
ISIN	FIX supports the use of ISINs as (alternate) identifiers for (derivative) instruments, for the legs of multileg instruments and for underlying instruments: SecurityID(48) = [ISIN value] SecurityIDSource(22) = 4 = ISIN SecurityAltID(455) = [ISIN value] SecurityAltIDSource(456) = 4 = ISIN LegSecurityAltID(605) = [ISIN value] LegSecurityAltIDSource(606) = 4 = ISIN UnderlyingSecurityID(309) = [ISIN value] UnderlyingSecurityIDSource(305) = 4 = ISIN UnderlyingSecurityAltID(458) = [ISIN value] UnderlyingSecurityAltIDSource(459) = 4 = ISIN
LEI	**Identification of Parties** **Option A**: Instance of the *Parties* component PartyID(448) = [LEI value] PartyIDSource(447) = N = Legal Entity Identifier (ISO 17442) or PartyIDSource(447) = O = Interim Identifier (assigned by a regulatory agency prior to an LEI) PartyRole(452) = [any] **Option B**: Additional identifier attached to an instance of the *Parties* component by means of the *PtysSubGrp* component: PartySubID(523) = [LEI value] PartySubIDType(803) = 84 = Legal Entity Identifier (ISO 17442)

DATA ELEMENT	MAPPING TO FIX LATEST
	FIX provides a large number of parties components that are identical to *Parties* which equally support the identification of a party with an LEI. Refer to https://www.fixtrading.org/online-specification/introduction#global-components-for-parties for details.
	Identification of Reference for Underlying Security
	UnderlyingSecurityID(309) = [LEI value] UnderlyingSecurityIDSource(305) = T = LEI
	UnderlyingSecurityAltID(458) = [LEI value] UnderlyingSecurityAltIDSource(459) = T = LEI
MIC	**Identification of markets and market segments**
	Option A1: Instance of the *Parties* component
	PartyID(448) = [MIC value] PartyIDSource(447) = G = MIC (Market Identifier Code) (ISO10383) PartyRole(452) = [multiple options] (e.g. 22 = Exchange, 73 = Execution Venue)
	Option A2: Additional identifier attached to an instance of the *Parties* component by means of the *PtysSubGrp* component:
	PartySubID(523) = [MIC value or non-MIC identifier] PartySubIDType(803) = 40 = Market Segment
	FIX provides a large number of parties components that are identical to *Parties* which equally support the identification of a party with a BIC. Refer to https://www.fixtrading.org/online-specification/introduction#global-components-for-parties for details.
	Option B: Dedicated fields
	MarketID(1301) – May be used to identify a venue or exchange MarketSegmentID(1300) – May be used to identify a segment of a venue or exchange MarketSegmentDesc(1396) – May be used to provide a description for a segment
	Identification of execution destinations
	ExDestination(100) = [MIC value] ExDestinationIDSource(1133) = G = MIC (Market Identifier Code) (ISO10383)
FISN	FinancialInstrumentShortName(2737) – Uses ISO 18774 (FINS) values.
	LegFinancialInstrumentShortName(2740)
	UnderlyingFinancialInstrumentShortName(2742)
MIFIR Identifier	**Securitized derivatives (SDRV)[2]**
	Product(460) = 12 (Other) SecurityType(167) = SECDERIV (Securitized derivative)
	Structured Finance Products (SFPS)[3]
	Product(460) = 13 (Financing) SecurityType(167) = SFP (Structured finance product)

---

[2] Mapping taken from EP238, Section 2.1.4.
[3] Mapping taken from EP238, Section 2.1.3.

DATA ELEMENT	MAPPING TO FIX LATEST
	Bonds (BOND)[4]
	Sovereign Bond (EUSB): Product(460) = 6 (Government), SecurityType(167) = EUSOV
	Other Public Bond (OEPB): Product(460) = 1 (Agency), 11 (Municipal), SecurityType(167) = EUSUPRA
	Convertible Bond (CVTB): Product(460) = 3 (Corporate), SecurityType(167) = CB
	Covered Bond (CVDB): Product(460) = 10 (Mortgage), SecurityType(167) = ABS (Asset Backed Security)
	Corporate Bond (CRPB): Product(460) = 3 (Corporate), SecurityType(167) = EUCORP
	Other Bond (OTHR): Product(460) = 8 (Loan), 9 (Money Market), 13 (Financing), SecurityType(167) = OTHER
	Exchange traded commodities (ETCS)[5]
	Product(460) = 2 (Commodity) SecurityType(167) = ETC (Exchange traded commodity)
	Exchange trade notes (ETNS)[6]
	Product(460) = 12 (Other) SecurityType(167) = ETN (Exchange trade note)
	Emission Allowances (EMAL)[7]
	AssetClass(1938) = 5 (Commodity) AssetSubClass(1939) = 18 (Environmental) AssetType(1940) = EMAL (Emission Allowances)
	Derivative (DERV)[8]
	Options (OPTN): SecurityType(167) = OPT
	Futures (FUTR): SecurityType(167) = FUT
	Forward Rate Agreements (FRAS): SecurityType(167) = FRA
	Forwards (FORW): SecurityType(167) = FWD
	Swaps (PSWP): SecurityType(167) = IRS, CDS
	Portfolio Swaps (PSWP): SecurityType(167) = PRTFLIOSWAP
	Swaptions (SWPT): SecurityType(167) = SWAPTION
	Futures on a swap (FONS): SecurityType(167) = FUTSWAP
	Forwards on a swap (FWOS): SecurityType(167) = FWDSWAP
	Forward Freight Agreements (FFAS): SecurityType(167) = FWDFRTAGMT
	Spread betting (SPDB): SecurityType(167) = SPREADBET
	Contracts for difference (CFDS): SecurityType(167) = CFD
	Other (OTHR): SecurityType(167) = Other
	See FIX Extension Packs EP235 (https://www.fixtrading.org/packages/ep235/) and EP238 (https://www.fixtrading.org/packages/ep238/) for further details.

---

[4] Product(460) values taken from EP238, Section 2.1.1, SecurityType(167) values taken from EP235, Table 1, No. 9 *Bond Type*.
[5] Mapping taken from EP238, Section 2.1.2.
[6] Mapping taken from EP238, Section 2.1.2.
[7] Mapping taken from EP235, Table 1, No. 4 *Asset class of the underlying*. Currently, there is no SecurityType(167) for EMAL.
[8] Mapping taken from EP235, Table 1, No. 5 *Contract type*.

2.2   Key data attributes

DATA ELEMENT	DESCRIPTION OF KEY STATUS ATTRIBUTES	STANDARDS	DATA PRODUCER
TOTV	Indicates that the Financial Instrument has been admitted to trading or has been traded on an EEA trading venue.	ESMA	Data provided by Venues, consolidated by ESMA
uTOTV	Indicates that the underlying Financial Instrument has been admitted to trading or has been traded on an EEA trading venue.	ESMA	Underlying data provided by Venues, consolidated by ESMA
Systematic Internaliser (SI) Status	Indicator of SI Status of a Firm at a MIC level per financial instrument. This is published by ESMA at a MiFIR identifier level and via the Industry SI Register maintained by APAs at the ISIN, COFIA and Issuer level. The industry SI Register has become the de facto source of SI status due to granularity of information. The SINT code is also used to identify them for Transparency purposes.	ESMA	Provided by Systematic Internalisers, consolidated by ESMA and APAs
Asset Class	A reference to an 'asset class' means a reference to the following classes of financial instruments: bonds, structured finance products, securitised derivatives, interest rate derivatives, equity derivatives, commodity derivatives, foreign exchange derivatives, credit derivatives, C10 derivatives, CFDs, emission allowances and emission allowance derivatives.	ESMA	Data attribute defined in RTS 2 which should be provided by ESMA in their databases at the ISIN level (not the case)
Sub-Asset Class	A reference to a 'sub-asset class' means a reference to an asset class segmented to a more granular level on the basis of the contract type and/or the type of underlying.	ESMA	Data attribute defined in RTS 2 which should be provided by ESMA in their databases at the ISIN level (not the case)
Sub-Class	A reference to a 'sub-class' means a reference to a sub-asset class segmented to a more granular level on basis of further qualitative segmentation criteria as set out in Tables 2.1 to 13.3 of RTS 2.	ESMA	Data attribute defined in RTS 2 which should be provided by ESMA in their databases at the ISIN level (not the case)

2.2.1   FIX mapping for key data attributes

DATA ELEMENT	MAPPING TO FIX LATEST
TOTV	InstrAttribType(871) = 39 (Admitted to trading on a trading venue) InstAttribValue(872) = Y or N

DATA ELEMENT	MAPPING TO FIX LATEST
uTOTV	InstrAttribType(871) = 39 (Admitted to trading on a trading venue) InstAttribValue(872) = Y or N
Systematic Internaliser (SI) Status	PartyID(448) = [MIC] or SINT PartyIDSource(447) = G (Market Identifier Code) PartyRole(452) = 73 (Execution Venue) PartySubID(523) = Y or N PartySubIDType(803) = 76 (Systematic Internalizer) The financial instrument is identified outside of the *Parties* component with the MiFIR identifier (see Section 2.1.1).
Asset Class	AssetClass(1938), used to extend the granularity provided by Product(460) and SecurityType(167)[9].
Sub-Asset Class	AssetSubClass(1939), see comment for Asset Class.
Sub-Class	AssetType(1940), see comment for Asset Class.

---

[9] see MiFIR identifier in Section *2.1.1 FIX mapping of key data identifiers* for details.

3 Authoritative / Master / Primary data sources

ESMA, in MIFID II/MiFIR, has chosen a number of international standards which must be used as appropriate in MIFID II/MiFIR compliance.The governance, creation, consolidation and storage of the key standards for the data elements covered by these guidelines is the responsibility of specific entities and organisations. This section introduces these entities and outlines the data and mapping between data elements that they are accountable for.

3.1 International Organisation for Standardisation (ISO)

Founded in 1947 ISO is an independent non-governmental organisation headquartered in Switzerland. With a membership of numerous national standards bodies ISO promotes around 20,000 common proprietary, industrial and commercial standards globally. ISO standard identifiers have become the common global language of financial transactions and processing and are ubiquitous to all entities involved in capital markets operations.

Identifier standards are developed by expert working groups via an iterative consultation process with the industry. Each identifier is subject to an ongoing governance process to ensure that its integrity is protected. This includes making and enforcing rules about the registration process and validation of collected data to promote quality.

MIFID II stipulates specific ISO standards for key data elements. ISO appoints entities as Registration Authorities to create and maintain data for some standards where a registration or maintenance function is required. Examples of Registration Authorities are e.g. ANNA for ISIN and FISN, as well as the official source of CFI codes, and SWIFT for the MIC and BIC standards

Care has been taken to conserve the national systems to the maximum possible extent due to the valuable experience collected in this field. Maintaining national systems also facilitates an international system which allows immediate information to be obtained.

3.2 Global Legal Entity Identifier Foundation (GLEIF)

Established by the Financial Stability Board in June 2014 and headquartered in Switzerland GLEIF is a supra national not for profit organisation with global responsibility to support the implementation and use of the Legal Entity Identifier (LEI).

GLEIF manages a network of issuing organisations (Local Operating Units – LOUs) which create and maintain LEI codes. GLEIF are playing an instrumental role for the industry by enhancing/mapping the data associated with LEI (such as ownership data) and extending the scope to cover branches.

Accurate connection between data elements being a key challenge for the industry the GLEIF has been encouraging the linkage of the LEI with other identifiers such as ISIN. Complete files of issued LEIs (and associated metadata) are available for free download from GLEIF and/or from LOUs.

3.2.1 GLEIF data format and access

LEI data can be accessed in human readable format via the free to the public LEI Search 2.0 web tool. GLEIF offers three sets of downloadable data mapping files which are accessible free of charge via their website.

The first is a certification process whereby organisations can verify mapping between LEI and their own identifiers.

The second is a mapping between BICs and LEIs that is maintained in conjunction with SWIFT. This file is published on a monthly basis.

Thirdly, since April 2019 GLEIF have published a daily ISIN to issuer LEI mapping file in partnership with ANNA. Both the BIC to LEI and the ISIN to LEI files are published in csv format.

3.2.2   Data elements sourced from GLEIF

DATA ELEMENT / PAIRING	DATA ELEMENT SOURCE	REFERENCE	NOTES
LEI	GLEIF	https://search.gleif.org/#/search/	GLEIF
LEI / MIC mapping	GLEIF	Not yet an existing table, could be planned by GLEIF in partnership with SWIFT	GLEIF in partnership with SWIFT
LEI / BIC mapping	GLEIF	https://www.gleif.org/en/lei-data/lei-mapping/download-bic-to-lei-relationship-files	GLEIF in partnership with SWIFT
ISIN / (issuer) LEI mapping	GLEIF	https://www.gleif.org/en/lei-data/lei-mapping/download-isin-to-lei-relationship-files	GLEIF and ANNA NNAs join the mapping programme on a voluntary basis covering new and pre-existing issues. The list of participating NNAs is available at: https://www.anna-web.org/standards/lei/
ISIN / (underlying) LEI mapping	GLEIF	https://www.gleif.org/en/lei-data/lei-mapping/download-isin-to-lei-relationship-files	GLEIF and ANNA

3.3   The Society for Worldwide Interbank Financial Telecommunication (SWIFT)

SWIFT is a cooperative utility formed in 1973 with the objective of facilitating cross border payments and providing a standardised and secure messaging services for the Financial Industry. SWIFT have been authorised by ISO to generate and maintain MIC and BIC.

3.3.1   SWIFT data format and access

SWIFT make MICs and BICs available for free via the ISO website. A consolidated list of MICs is available in .xls, .pdf, .csv, .xml formats and an updated list is published on the second Monday of every month. A consolidated list of BICs is available in pdf format, additionally a searchable web interface allows users to look up BICs on the ISO website.

3.3.2   Data elements sourced from SWIFT maintained on behalf of ISO

DATA ELEMENT / PAIRING	DATA ELEMENT SOURCE	REFERENCE	NOTES
MIC	ISO	https://www.iso20022.org/market-identifier-codes	ISO 10383 – SWIFT maintains the Registry on behalf of ISO
BIC	ISO	https://www2.swift.com/bsl/index.faces	ISO 9362 – SWIFT maintains the Registry on behalf of ISO

3.4   Association of National Numbering Agencies (ANNA) and the Derivatives Service Bureau (DSB)

The Association of National Numbering Agencies ("ANNA") is an ISO appointed Registration Authority for the ISIN and FISN standards. ANNA operates the ANNA Service Bureau (ASB) in partnership with CUSIP Global Service and SIX Financial Information Ltd that provides financial and referential instrument data with the objective of supporting straight through processing in financial markets. The ASB receives and consolidates ISINs, CFI and FISN, as well as other standard identifiers, such as LEI, from more than 120 NNA members and partners. The network of National Numbering Agencies (NNAs) which ANNA brings together, are responsible for the issuance of International Securities Identification Numbers (ISINs, FISNs and CFIs), in their market, with the exception for those identifiers assigned by the Derivatives Service Bureau (DSB) covering OTC derivatives.

ISO reference data (CFI code, FISN and ISIN) generated by the NNAs and the DSB serve as the authoritative source of these data elements, in keeping with ISO principles.

For MiFID II/MiFIR purposes, where the CFI has been assigned alongside the ISIN, then this is the CFI which must be used for MiFID II/MiFIR reporting.

3.4.1   DSB data format and access

ISIN Data generated by the DSB is available in a machine readable format, and can be obtained via two API services, manually queried via the ISIN search service, and is also available for download via daily End of Day files. The API services are the DSB Representational State Transfer (REST) API Web service and the DSB Financial Information Exchange (FIX) API.

These API interfaces provide near real time service to create and/or search for ISINs, CFI codes, FISNs, and the full data record for derivative financial instruments. Once connected to DSB, the client is able to create a new ISIN, search for one (or more) ISINs, or subscribe to updates for all ISINs or those in a specific asset class.

3.4.2   Data elements which can be sourced from ANNA and the/or ANNA DSB

DATA ELEMENT / PAIRING	DATA ELEMENT SOURCE	REFERENCE	NOTES
ISIN (for OTC derivatives)	ANNA and the DSB	https://www.anna-web.org/standards/isin-iso-6166/ https://www.anna-dsb.com/	ANNA ISIN Lookup Service available free of charge, includes FISN and CFI

DATA ELEMENT / PAIRING	DATA ELEMENT SOURCE	REFERENCE	NOTES
CFI Code (for OTC derivatives ISINs	ANNA DSB	https://www.anna-web.org/standards/cfi-iso-10962/	ESMA-ISO work to improve the mapping between CFI & ESMA asset class and sub-asset Class
CFI Code for OTC Derivatives (potentially without ISIN issuance)	The DSB	https://www.anna-dsb.com/ A centralised point between ANNA and DSB would be ideal.	The user must supply all ISIN data to generate the CFI in a lot of cases. At industry request, an additional service is under review by industry participants at the DSB Product Committee, with members of the Technology Advisory Committees due to comment on workflows, etc.
FISN	ANNA and the DSB	https://www.anna-web.org/standards/fisn-iso-18774/ https://www.anna-dsb.com/	ANNA ISIN Lookup Service available free of charge, includes FISN and CFI Currently part of all ISIN records generated by the DSB.
ISIN / CFI Code / FISN mapping	ANNA and the DSB	https://www.anna-web.org/standards/isin-iso-6166/ https://www.anna-dsb.com/	Currently part of the ISIN records, searchable via the ANNA and DSB ISIN service. A centralised access point between ANNA and ANNA DSB would be ideal.

3.5   European Security Markets Authority (ESMA)

Founded in 2011 The European Securities and Markets Authority (ESMA) is accountable to The European Parliament and The European Commission. ESMA provides independent supervisory oversight with the objective of enhancing investor protection and promoting stable, orderly financial markets in the European Union.

To enable market participants to meet these objectives and to facilitate market transparency ESMA has built and maintains a free to access reference data system which was significantly expanded in 2017 in preparation for MIFID II.

Two components of this system store key data elements included in this guidance document.

3.5.1   ESMA data format and access

Financial Instrument Reference Data System (FIRDS)

This is reference data formed of all financial instruments admitted to trading in the European Union is submitted from trading venues and Systematic Internalisers for consolidation and publication by ESMA.

To illustrate the importance of this in August 2019 the German Ministry of Finance provided recommended revisions to MIFID and MiFIR in which they proposed (and have since implemented) to improve reference data quality by making FIRDS the primary source of reference data.

FIRDS data is updated daily via a combination of full and delta files.

Financial Instrument Transparency Reference System (FITRS)

ESMA conducts transparency calculations on behalf of NCAs for instruments that are included in FIRDS and publishes these results via FITRS. Transparency calculations determine the relevant liquidity status and the thresholds applicable to pre-trade transparency waivers and deferrals of post-trade public trade reporting. The published transparency thresholds are used by market participants to determine in which cases quotes or trades have to be publicly reported.

Data is accessible via a searchable web interface as well as downloadable XML files and is sorted into two types, Full Files and Delta Files. For each ISIN and each reporting period, the file contains the latest version of the calculations performed by the system.

Delta Files contain the transparency calculation results for which a change (addition, modification, and deletion) has occurred since the generation of the previous set of Full Files. Due to the volume of data both the Full Files and the Delta Files are split into product groupings using the first letter of the CFI code.

3.5.2 Data elements sourced from ESMA

DATA ELEMENT / PAIRING	DATA ELEMENT SOURCE	REFERENCES	NOTES
EU/EEA instrument reference data	ESMA FIRDS	Article 27 of Regulation (EU) No 600/2014 (MIFIR) [1] Article 4 of Regulation (EU) No 596/2014 (MAR) [2] https://registers.esma.europa.eu/publication/searchRegister?core=esma_registers_firds	
EU/EEA equity & non-equity transparency (thresholds / liquidity) data	ESMA FITRS / TTC files	https://registers.esma.europa.eu/publication/searchRegister?core=esma_registers_fitrs_equities https://registers.esma.europa.eu/publication/searchRegister?core=esma_registers_fitrs_nonequities	
EU/EEA TOTV / uTOTV status	ESMA FIRDS	https://registers.esma.europa.eu/publication/searchRegister?core=esma_registers_firds	It should be noted that currently there is no flag available; an explicit inclusion of this status should be introduced.

DATA ELEMENT / PAIRING	DATA ELEMENT SOURCE	REFERENCES	NOTES
EU/EEA MIFID II Asset Class & Sub-Asset Class status	ESMA FITRS & FIRDS	https://registers.esma.europa.eu/publication/searchRegister?core=esma_registers_firds https://registers.esma.europa.eu/publication/searchRegister?core=esma_registers_fitrs_equities https://registers.esma.europa.eu/publication/searchRegister?core=esma_registers_fitrs_nonequities	It should be noted that currently there is no flag available; an explicit inclusion of this status should be introduced.
EU/EEA RMs MTFs OTFs DRSPs (APAs, ARMs) - Entity Register	ESMA	https://registers.esma.europa.eu/publication/searchRegister?core=esma_registers_upreg MiFID entity source: • Investment Firm (MIF) • Regulated Markets (MIR) • Multilateral Trading Facility (MIT) • Organised Trading Facility (MIO) • Systematic Internaliser (MIS)	Also provides details for • UCITS Management Company • AIFM • Approved Reporting Mechanism • Commission delegated Regulation • Approved Publication Arrangement • Consolidated Tape provider
EU/EEA SI Calculations (ESMA denominators)	ESMA	https://www.esma.europa.eu/data-systematic-internaliser-calculations	
EU/EEA Derivatives Trading Obligation Register	ESMA	https://www.esma.europa.eu/press-news/esma-news/esma-publishes-register-derivatives-be-traded-venue-under-mifir	
CFI Code / MIFIR Identifier mapping	ESMA	https://www.esma.europa.eu/document/firds-transparency-reporting-instructions-annex-911-update 2016-1523ANNEX9.11_CFI-RTS2_FIELD_MAPPING.XLSX	

3.6   Approved Publication Arrangement (APA)

APAs are regulated platforms that provide services to an investment firm in order for it to meet its MIFID II Transparency obligations. APAs are governed by rules related to corporate governance, operational structure and data management.

Along with publication of transparency data, APAs maintain a register of Systematic Internaliser status at an ISSUER, ISIN and COFIA level. Investment Firms have a mandatory obligation to notify their NCA of SI status. Subsequently the ESMA SI register includes SI status at a MiFIR Identifier level.

Firms can opt to submit SI status at a more granular ISSUER, COFIA or ISIN level to the Industry SI Registry via their APAs.

3.6.1   APA data format and access

Data is consolidated by APAs and distributed to subscribing and contributing firms on a daily basis via a number of different formats including .csv files. The data is arranged into ISSUER, ISIN and COFIA files.

3.6.2   Data elements sourced from APA

DATA ELEMENT / PAIRING	DATA ELEMENT SOURCE	REFERENCES	NOTES
Systematic Internaliser Status at ISSUER, ISIN or COFIA level	APA SI Registry	The whole industry should continue to promote a single source of SI status identification at the required granular level. The ESMA SI Registry and the industry SI Register from the APAs can be complementary for cross-check purposes.	The industry SI Register maintained by APAs has become the de facto source of SI status due to its granularity

4 Summary view mapping of authoritative data elements to data source

On the basis of the list of currently identified key data elements, the below table outlines what the industry could consider as **"authoritative, master or primary" data sources**, where any identified issue with data quality could be escalated for remediation.

4.1 MIFID II DATA SOURCES TABLE[10]

DATA ELEMENT / PAIRING	SOURCE	REFERENCE	DATA REMEDIATION
EU/EEA instrument reference data	ESMA FIRDS	https://registers.esma.europa.eu/publication/searchRegister?core=esma_registers_firds	ESMA
EU/EEA equity & non-equity transparency (thresholds / liquidity) data	ESMA FITRS / TTC files	https://registers.esma.europa.eu/publication/searchRegister?core=esma_registers_fitrs_files	ESMA
EU/EEA TOTV / uTOTV status	ESMA FIRDS	https://registers.esma.europa.eu/publication/searchRegister?core=esma_registers_firds It should be noted that currently there is no flag available, an explicit inclusion of the status should be introduced	ESMA
EU/EEA MIFID II Asset Class & Sub-Asset Class status	ESMA FITRS & FIRDS	https://registers.esma.europa.eu/publication/searchRegister?core=esma_registers_fitrs_files https://registers.esma.europa.eu/publication/searchRegister?core=esma_registers_firds It should be noted that currently there is no flag available, an explicit inclusion of the status should be introduced	ESMA
EU/EEA MIFID II Investment Firms	ESMA	https://www.esma.europa.eu/investment-firms	ESMA

---

[10] If, as, and when Brexit unfolds, additional data elements will be added to this table taking into account differing data element requirements between EU and the UK.

DATA ELEMENT / PAIRING	SOURCE	REFERENCE	DATA REMEDIATION
EU/EEA RMs MTFs OTFs DRSPs (APAs, ARMs) - Entity Register	ESMA	https://registers.esma.europa.eu/publication/searchRegister?core=esma_registers_upreg MiFID entity source: • Investment Firm (MIF) • Regulated Markets (MIR) • Multilateral Trading Facility (MIT) • Organised Trading Facility (MIO) • Systematic Internaliser (MIS)	Also provides details for • UCITS Management Company • AIFM • Approved Reporting Mechanism • Commission delegated Regulation • Approved Publication Arrangement • Consolidated Tape provider
EU/EEA SI Calculations (ESMA denominators)	ESMA	https://www.esma.europa.eu/data-systematic-internaliser-calculations	ESMA
EU/EEA Derivatives Trading Obligation Register	ESMA	https://www.esma.europa.eu/press-news/esma-news/esma-publishes-register-derivatives-be-traded-venue-under-mifir	ESMA
LEI	GLEIF	https://search.gleif.org/#/search/	GLEIF
MIC	ISO	https://www.iso20022.org/market-identifier-codes	ISO 10383 – SWIFT maintains the registry on behalf of ISO
BIC	ISO	https://www2.swift.com/bsl/index.faces	ISO 9362 – SWIFT maintains the registry on behalf of ISO
LEI / MIC mapping	GLEIF	Not yet an existing table, could be planned by GLEIF in partnership with SWIFT	GLEIF in partnership with SWIFT
LEI / BIC mapping	GLEIF	https://www.gleif.org/en/lei-data/lei-mapping/download-bic-to-lei-relationship-files	GLEIF in partnership with SWIFT
ISIN	ANNA and the DSB	https://www.anna-web.org/standards/isin-iso-6166/ https://prod.anna-dsb.com/	ANNA and the DSB

DATA ELEMENT / PAIRING	SOURCE	REFERENCE	DATA REMEDIATION
ISIN / (issuer) LEI mapping	GLEIF	https://www.gleif.org/en/lei-data/lei-mapping/download-isin-to-lei-relationship-files NNAs join the mapping programme on a voluntary basis covering new and pre-existing issues.	GLEIF and ANNA The list of participating NNAs is available at: https://www.anna-web.org/standards/lei/
ISIN / (underlying) LEI mapping	GLEIF	https://www.gleif.org/en/lei-data/lei-mapping/download-isin-to-lei-relationship-files https://www.anna-web.org/standards/lei/ Partnership between GLEIF & ANNA	GLEIF and ANNA
ISIN / CFI Code / FISN mapping	ANNA and the DSB	https://www.anna-web.org/standards/cfi-iso-10962/ Currently part of the ISIN records, a centralised access point between ANNA / ANNA DSB would be ideal	ANNA and the DSB
CFI Code (potentially without ISIN issuance)	ANNA and the DSB		ANNA and the DSB
CFI Code for OTC Derivatives (potentially without ISIN issuance)	The DSB	A centralised access point between ANNA & the DSB would be ideal	ANNA DSB
CFI Code / MIFIR Identifier mapping	ESMA	https://www.esma.europa.eu/document/firds-transparency-reporting-instructions-annex-911-update 2016-1523ANNEX9.11_CFI-RTS2_FIELD_MAPPING.XLSX	ESMA
FISN	ANNA and the DSB	https://www.anna-web.org/standards/fisn-iso-18774/	ANNA and the DSB
MIFID II Systematic Internalisers status and SI MICs	APAs	https://registers.esma.europa.eu/publication/searchRegister?core=esma_registers_upreg The industry SI Register has become the de facto source of SI status due to granularity of information. The whole industry should continue to promote a single source of SI status identification.	APAs

DATA ELEMENT / PAIRING	SOURCE	REFERENCE	DATA REMEDIATION
ISIN / CFI Code / MIFIR Identifier / FISN/ ESMA Asset Class & Sub-Asset Class	ANNA and the DSB ESMA	Overall, the misalignments between these data elements need to be fully addressed and fixed, possibly with the involvement of ISO and other relevant bodies. In conjunction with industry participants at the DSB Product Committee, analysis is ongoing to identify a mapping between each DSB product template and the associated sub-asset class as specified by the ESMA MiFID II RTS-2 taxonomy.	ANNA and DSB, ESMA, ISO, Other (tbc)

5   Appendix 1 - Glossary

ACRONYM	TERM
ANNA	Association of National Numbering Agencies
DSB	The Derivatives Service Bureau Ltd
APA	Approved Publication Arrangement
BIC	Business Identifier Code
CFI	Classification of Financial Instrument Code
DRSP	Data Reporting Services Provider
DTO	Derivatives Trading Obligation
ESMA	European Securities and Markets Authority
FIRDS	Financial Instrument Reference Data System
FISN	Financial Instrument Short Name
FITRS	Financial Instrument Transparency Register System
FIX	Financial Information Exchange
GLEIF	Global Legal Entity Identifier Foundation
ICSD	International Central Securities Depository
ISIN	International Securities Identification Number
ISO	International Standards Organisation
LEI	Legal Entity Identifier
LIS	Large in Scale
MIC	Market Identifier Code
MIFID II	Markets in Financial Instruments Directive
MTF	Multilateral Trading Facility
OTF	Organised Trading Facility
REST	Representational State Transfer
RM	Regulated Market
SI	Systematic Internaliser

SMS	Standard Market Size
SSTI	Size Specific to the Instrument
SWIFT	Society for Worldwide Interbank Financial Telecommunication
TO	Trading Obligation
TOTV	Traded on a Trading Venue
TTC	Transitional Transparency Calculation
uTOTV	Underlying traded on a trading venue

6 Appendix 2 - References

6.1 Reference URLs

ISO	https://www.iso9362.org/isobic/
	https://www.iso.org/standard/66153.html
	https://www.iso20022.org/market-identifier-codes (https://www.iso10383.org)
GLEIF	https://www.gleif.org/en/
SWIFT	https://www.swift.com/standards
ANNA	http://www.anna-web.org/standards/about-identification-standards/
	https://www.anna-web.org/standards/isin-iso-6166/
	https://www.anna-web.org/standards/cfi-iso-10962/
	https://www.anna-web.org/standards/fisn-iso-18774/
	https://www.anna-web.org/standards/mic-iso-10383/
	https://www.annaservice.com/anna/annaisin/AnnaIsinLoginServlet
DSB	https://www.anna-dsb.com/
	https://www.anna-dsb.com/products/
	https://www.anna-dsb.com/connectivity/
	https://www.anna-dsb.com/fees-rules-2020/
	https://www.anna-dsb.com/blog/
	https://prod.anna-dsb.com/
	https://prod.anna-dsb.com/file-download/
ESMA	https://www.esma.europa.eu/sites/default/files/library/public_register_for_the_trading_obligation.pdf
	https://www.esma.europa.eu/sites/default/files/library/esma65-8-5240_firds_download_and_use_of_full_and_delta_transparency_results_files.pdf
	https://www.esma.europa.eu/sites/default/files/library/esma74-362-27_steven_maijoor_keynote_speech_-_eurofiling_0.pdf
GERMAN BMF	https://www.bundesfinanzministerium.de/Content/DE/Gesetzestexte/Gesetze_Gesetzesvorhaben/Abteilungen/Abteilung_VII/19_Legislaturperiode/Position-paper-MIFID-and-MiFIR.pdf?__blob=publicationFile&v=10

7   Appendix 3 - ESMA Asset Class and Sub Asset Class Taxonomy

A further breakdown of the RTS2 Sub-Class Reference can be found at here[11]. See also FIX Extension Pack EP238 (https://www.fixtrading.org/packages/ep238/) for further details.

SecurityType(167) identifies the security that is traded whereas AssetClass(1938), AssetSubClass(1939) provide more granularity about the security.

ASSET CLASS	SUB-ASSET CLASS	MAPPING TO FIX LATEST
MIFID II EQUITY		
Equity & Equity-like		**Product(460) = 5 (Equity) for all the entries, additionally:**
	Shares	SecurityType(167) = CS (Common stock)
	DRs	SecurityType(167) = DR (Depository receipts)
	ETFs	SecurityType(167) = ETF (Exchange traded fund)[12]
	Certificates	TBD[13]
	Others	AssetClass(1938) = 4 (Equity), AssetSubClass(1939) = 48 (Other)
MIFID II NON-EQUITY		
Equity derivatives[14]		**AssetClass(1938) = 4 (Equity) for all entries, additionally:**
	Stock index options	AssetSubClass(1939) = 11 (Equity index), SecurityType(167) = OPT
	Stock index futures/ forwards	AssetSubClass(1939) = 11 (Equity index), SecurityType(167) = FUT, EQFWD
	Stock options	AssetSubClass(1939) = 9 (Common), SecurityType(167) = OPT

---

[11] A login to the FIX Trading Community Website is required to access the file.
[12] SecurityType(167) currently does not have a value for ETF.
[13] Definition of such certificates in the context of ESMA outstanding. May be different from SecurityType(167)=CD (Certificate of Deposit) defined for the money market.
[14] Mappings to FIX Latest for AssetClass(1938), AssetSubClass(1939), and SecurityType(167) taken from EP238, Section 2.1.6.

ASSET CLASS	SUB-ASSET CLASS	MAPPING TO FIX LATEST
	Stock futures/ forwards	AssetSubClass(1939) = 9 (Common), SecurityType(167) = FUT, EQFWD
	Stock dividend options	AssetSubClass(1939) = 35 (Stock dividend), SecurityType(167) = OPT
	Stock dividend futures/ forwards	AssetSubClass(1939) = 35 (Stock dividend), SecurityType(167) = FUT, EQFWD
	Dividend index options	AssetSubClass(1939) = 34 (Dividend index), SecurityType(167) = OPT
	Dividend index futures/ forwards	AssetSubClass(1939) = 34 (Dividend index), SecurityType(167) = FUT, EQFWD
	Volatility index options	AssetSubClass(1939) = 37 (Volatility index), SecurityType(167) = OPT
	Volatility index futures/ forwards	AssetSubClass(1939) = 37 (Volatility index), SecurityType(167) = FUT, EQFWD
	ETF options	AssetSubClass(1939) = 36 (Exchange traded fund), SecurityType(167) = OPT
	ETF futures/ forwards	AssetSubClass(1939) = 36 (Exchange traded fund), SecurityType(167) = FUT, EQFWD
	Swaps	SecurityType(167) = CRLTNSWAP, DVDNDSWAP, RTRNSWAP, TRS, VARSWAP
	Portfolio Swaps	SecurityType(167) = PRTFLIOSWAP
	Other equity derivatives	AssetSubClass(1939) = 48 (Other)
Bonds (all bond types except ETCs and ETNs)[15]	Sovereign Bond	Product(460) = 6 (Government), SecurityType(167) = EUSOV[16]

---

[15] Mappings to FIX Latest: Product(460) values taken from EP238, Section 2.1.1, SecurityType(167) values taken from EP235, Table 1, No. 9 *Bond Type*.
[16] SecurityType(167) currently does not have a value for non-EU as well as non-US sovereign bonds.

ASSET CLASS	SUB-ASSET CLASS	MAPPING TO FIX LATEST
	Other Public Bond	Product(460) = 1 (Agency), SecurityType(167) = EUSUPRA[17] Product(460) = 11 (Municipal), SecurityType(167) = [multiple options]
	Convertible Bond	Product(460) = 3 (Corporate), SecurityType(167) = CB
	Covered Bond	Product(460) = 10 (Mortgage), SecurityType(167) = ABS (Asset Backed Security)
	Corporate Bond	Product(460) = 3 (Corporate), SecurityType(167) = EUCORP
	Other Bonds	Product(460) = 8 (Loan), 9 (Money Market), 13 (Financing), SecurityType(167) = [multiple options]
Bonds (ETC and ETN bond types)[18]	Exchange Traded Commodities (ETCs)	Product(460) = 2 (Commodity) SecurityType(167) = ETC (Exchange traded commodity)
	Exchange Traded Notes (ETNs)	Product(460) = 12 (Other) SecurityType(167) = ETN (Exchange trade note)
Interest rate derivatives[19]		**AssetClass(1938) = 1 (Interest rate) and AssetSubClass(1939) = 1 (Single currency) for all entries, additionally:**
	Bond futures/forwards	SecurityType(167) = FUT / FWD, AssetType(1940) = BNDF
	Bond options	SecurityType(167) = OPT, AssetType(1940) = BOND
	IR futures and FRA	SecurityType(167) = FUT / FRA, AssetType(1940) = IFUT
	IR options	SecurityType(167) = OPT, AssetType(1940) = INTR
	Swaptions	SecurityType(167) = SWAPTION

[17] Public bond issued by an EU-supranational body.
[18] Mappings to FIX Latest taken from EP238, Section 2.1.2.
[19] Mappings to FIX Latest taken from EP238, Section 2.1.5.

ASSET CLASS	SUB-ASSET CLASS	MAPPING TO FIX LATEST
		AssetClass(1938) = 1 (Interest rate) and AssetSubClass(1939) = 2 (Cross currency) for all entries, additionally:
	Fixed-to-Float 'multi-currency swaps' or 'cross-currency swaps' and futures/forwards on Fixed-to-Float 'multi- currency swaps' or 'cross-currency swaps'	SecurityType(167) = IRS / FUTSWAP / FWDSWAP AssetType(1940) = XFMC
	Float-to-Float 'multi-currency swaps' or 'cross-currency swaps' and futures/forwards on Float-to-Float 'multi- currency swaps' or 'cross-currency swaps'	SecurityType(167) = IRS / FUTSWAP / FWDSWAP AssetType(1940) = FFMC
	Fixed-to-Fixed 'multi-currency swaps' or 'cross-currency swaps' and futures/forwards on Fixed-to-Fixed 'multi- currency swaps' or 'cross-currency swaps'	SecurityType(167) = IRS / FUTSWAP / FWDSWAP AssetType(1940) = XXMC
	Overnight Index Swap (OIS) 'multi- currency swaps' or 'cross-currency swaps' and futures/forwards on Overnight Index Swap (OIS) 'multi-currency swaps' or 'cross-currency swaps'	SecurityType(167) = IRS / FUTSWAP / FWDSWAP AssetType(1940) = OSMC
	Inflation 'multi-currency swaps' or 'cross- currency swaps' and futures/forwards on Inflation 'multi-currency swaps' or 'cross- currency swaps'	SecurityType(167) = IRS / FUTSWAP / FWDSWAP AssetType(1940) = IFMC
		AssetClass(1938) = 1 (Interest rate) and AssetSubClass(1939) = 1 (Single currency) for all entries, additionally:
	Fixed-to-Float 'single currency swaps' and futures/forwards on Fixed-to-Float 'single currency swaps'	SecurityType(167) = IRS / FUTSWAP / FWDSWAP AssetType(1940) = XFSC
	Float-to-Float 'single currency swaps' and futures/forwards on Float-to-Float 'single currency swaps'	SecurityType(167) = IRS / FUTSWAP / FWDSWAP AssetType(1940) = FFSC
	Fixed-to-Fixed 'single currency swaps' and futures/forwards on Fixed-to-Fixed 'single currency swaps'	SecurityType(167) = IRS / FUTSWAP / FWDSWAP AssetType(1940) = XXSC
	Overnight Index Swap (OIS) 'single currency swaps' and futures/forwards on Overnight Index Swap (OIS) 'single currency swaps'	SecurityType(167) = IRS / FUTSWAP / FWDSWAP AssetType(1940) = OSSC

ASSET CLASS	SUB-ASSET CLASS	MAPPING TO FIX LATEST
	Inflation 'single currency swaps' and futures/forwards on Inflation 'single currency swaps'	SecurityType(167) = IRS / FUTSWAP / FWDSWAP AssetType(1940) = IFSC
	Other Interest Rate Derivatives	SecurityType(167) = IRS, AssetSubClass(1939) = 1 (Single currency) or 2 (Cross currency) AssetType(1940) = OTHR
Credit derivatives[20]		AssetClass(1938) = 3 (Credit) for all entries, additionally:
	Index credit default swap (CDS)	SecurityType(167) = CDS, AssetSubClass(1939) = 5 (Credit index)
	Single name credit default swap (CDS)	SecurityType(167) = CDS, AssetSubClass(1939) = 4 (Single name)
	Bespoke basket credit default swap (CDS)	SecurityType(167) = CDS, AssetSubClass(1939) = 7 (Credit basket)
	CDS index options	SecurityType(167) = OPT, AssetSubClass(1939) = 5 (Credit index)
	Single name CDS options	SecurityType(167) = OPT, AssetSubClass(1939) = 4 (Single name)
	Other credit derivatives	SecurityType(167) = CDS, AssetSubClass(1939) = 48 (Other)
Structured Finance Products (SFPs)	N/A	SecurityType(167) = SFP
Securitised derivatives	N/A	SecurityType(167) = SECDERIV
Foreign exchange derivatives[21]		AssetClass(1938) = 2 (Currency) for all entries, additionally:
	Non-deliverable forward (NDF)	SecurityType(167) = FXNDF
	Deliverable forward (DF)	SecurityType(167) = FXFWD
	Non-Deliverable FX options (NDO)	SecurityType(167) = OPT, UnderlyingSecurityType(310) = FXNDF
	Deliverable FX options (DO)	SecurityType(167) = OPT, UnderlyingSecurityType(310) = FXFWD
	Non-Deliverable FX swaps (NDS)	SecurityType(167) = FXNDS

[20] Mappings to FIX Latest taken from EP238, Section 2.1.9.
[21] Mappings to FIX Latest taken from EP238, Section 2.1.8.

ASSET CLASS	SUB-ASSET CLASS	MAPPING TO FIX LATEST
	Deliverable FX swaps (DS)	SecurityType(167) = FXSWAP
	FX futures	SecurityType(167) = FUT
	Other Foreign Exchange Derivatives	SecurityType(167) = OTHER
Commodity derivatives[22]		**AssetClass(1938) = 5 (Commodity) for all entries, additionally:**
	Metal commodity futures/forwards	SecurityType(167) = FUT / FWD, AssetSubClass(1939) = 13 (Metals)
	Metal commodity options	SecurityType(167) = OPT, AssetSubClass(1939) = 13 (Metals)
	Metal commodity swaps	SecurityType(167) = CMDTYSWAP, AssetSubClass(1939) = 13 (Metals)
	Energy commodity futures/forwards	SecurityType(167) = FUT / FWD, AssetSubClass(1939) = 15 (Energy)
	Energy commodity options	SecurityType(167) = OPT, AssetSubClass(1939) = 15 (Energy)
	Energy commodity swaps	SecurityType(167) = CMDTYSWAP, AssetSubClass(1939) = 15 (Energy)
	Agricultural commodity futures/forwards	SecurityType(167) = FUT / FWD, AssetSubClass(1939) = 17 (Agricultural)
	Agricultural commodity options	SecurityType(167) = OPT, AssetSubClass(1939) = 17 (Agricultural)
	Agricultural commodity swaps	SecurityType(167) = CMDTYSWAP, AssetSubClass(1939) = 17 (Agricultural)
	Other commodity derivatives	AssetSubClass(1939) = 48 (Other)
C10 derivatives[23]		**AssetClass(1938) = 5 (Commodity) for all entries, additionally:**
	Freight derivatives	SecurityType(167) = FWDFRTAGMT, AssetSubClass(1939) = 19 (Freight)
	Other C10 derivatives	SecurityType(167) = FUT / OPT, AssetSubClass(1939) = 47 (Other C10)

---

[22] Mappings to FIX Latest taken from EP238, Section 2.1.7.
[23] Mappings to FIX Latest taken from EP238, Section 2.1.10.

ASSET CLASS	SUB-ASSET CLASS	MAPPING TO FIX LATEST
Emission allowances[24]		<u>**AssetClass(1938) = 5 (Commodity), AssetSubClass(1939) = 18 (Environmental), and AssetType(1940) = EMAL (Emission Allowances) for all entries, additionally:**</u>
	European Union Allowances (EUA)	AssetSubType(2735) = EUAE
	European Union Aviation Allowances (EUAA)	AssetSubType(2735) = EUAA
	Certified Emission Reductions (CER)	AssetSubType(2735) = CERE
	Emission Reduction Units (ERU)	AssetSubType(2735) = ERUE
Emission allowance derivatives[25]		<u>**SecurityType(167) = FUT / OPT, AssetClass(1938) = 5 (Commodity), AssetSubClass(1939) = 18 (Environmental), and AssetType(1940) = EMAL (Emission Allowances) for all entries, additionally:**</u>
	Emission allowance derivatives whose underlying is of the type European Union Allowances (EUA)	AssetSubType(2735) = EUAE
	Emission allowance derivatives whose underlying is of the type European Union Aviation Allowances (EUAA)	AssetSubType(2735) = EUAA
	Emission allowance derivatives whose underlying is of the type Certified Emission Reductions (CER)	AssetSubType(2735) = CERE
	Emission allowance derivatives whose underlying is of the type Emission Reduction Units (ERU)	AssetSubType(2735) = ERUE
	Other Emission allowance derivatives	AssetSubType(2735) = OTHR
Financial contracts for differences (CFDs)[26]		<u>**SecurityType(167) = CFD for all entries, additionally:**</u>
	Currency CFDs	AssetClass(1938) = 2 (Currency)
	Commodity CFDs	AssetClass(1938) = 5 (Commodity)

---

[24] Mapping to FIX Latest taken from EP235, Table 1, No. 4 *Asset class of the underlying* and No. 43 *Emission Allowances derivative sub-type*.

[25] Mapping to FIX Latest (except SecurityType(167) taken from EP235, Table 1, No. 4 *Asset class of the underlying* and No. 43 *Emission Allowances derivative sub-type*.

[26] Mappings to FIX Latest taken from EP238, Section 2.1.11.

ASSET CLASS	SUB-ASSET CLASS	MAPPING TO FIX LATEST
	Equity CFDs	AssetClass(1938) = 4 (Equity), UnderlyingSecurityType(310) = CS / PS
	Bond CFDs	AssetClass(1938) = 8 (Debt)
	CFDs on an equity future/forward	AssetClass(1938) = 4 (Equity), AssetType(1940) = FTEQ, UnderlyingSecurityType(310) = FUT / FWD
	CFDs on an equity option	AssetClass(1938) = 4 (Equity), AssetType(1940) = OPEQ, UnderlyingSecurityType(310) = OPT
	Other CFDs/ spread betting	**CFD**: SecurityType(167) = CFD, AssetClass(1938) = 6 (Other) **Spread betting**: SecurityType(167) = SPREADBET