Classification of derivative instruments

Introduction
This report has been written to identify how to extend ISO 10962 – the Classification of Financial Instruments (ISO CFI) to support financial instruments that are primarily based around cash flows (normally classified OTC derivative instruments). Given the nature of the financial industry and the ever increasing regulatory requirements, over time these products are likely to become more mainstream and therefore standardized, and may not necessarily stay in the OTC domain.

The document incorporates recommendations from Financial Products Markup Language (FpML) and International Swaps and Derivatives Association (ISDA).

The proposal also examines the Options and Warrants domains within the CFI and provides some recommendations.

Financial instruments within scope
All the instrument types identified in the Bank of International Settlement’s derivative instrument classification publication, “Guidelines for semi-annual OTC derivatives statistics” are covered within this proposal as well as those identified in FpML and ISDA publications. In addition, the ECB’s statistical classifications were also examined.

However, from a classification perspective it is important to highlight that it is only possible to identify basic cash flow characteristics and constraints applied on those cash flows.

The products identified within this report are broken down under into the following headings:

- Interest rate derivatives;
- Inflation Swaps (though contractually the same as Interest Rate Swaps, the market tends to prefer to differentiate between an agreement based on an interest rate and one that is based on an economic rate);
- Credit event derivatives;
- Asset based cash flow derivatives:
  - Financial assets.
    - Equity Swaps,
    - Total Return Swaps, ...
  - Commodities assets
- Forwards.

It is worth highlighting that derivative instruments based on underlying financial products are semantically different from those based on commodities (including their legal definitions), therefore these have been separated into distinct groups within the proposal, this also adheres to the current version of the standard.
Business Context
The ISO CFI has two main business contexts in which it is widely used. Firstly for identifying the appropriate allocation rule for ISINs and secondly for regulatory transaction reporting primarily to support MiFID.

The ‘Call for Evidence’ by CESR in February 2009, to identify an appropriate mechanism for classifying OTC derivative instruments highlighted the need for action in this area and this report was sanctioned by TC68/SC4/WG6 to identify the appropriate solution that could be applied to ISO 10962. Nevertheless these new classifications can be used outside of the ISO standard, hence the use of diagrams to represent the classifications.

Interest rate derivatives (category)
Interest rate derivative products define the exchange cash flows of interest payments between parties, typically a fix rate steam in exchange for a variable rate. They may also comprise of foreign exchange component.

For interest rate swaps, currency is defined as a characteristic of a rate (Interest/Inflation) swap. To support this, the CFI group subdivides the instruments into ‘single currency’ or ‘cross currency’. For both these groups have the same set of attributes.

Figure 1. Classification for Single Currency Interest Rate derivative instruments

Attribute 1 - Cash flow legs: classifies cash flow legs (floater/fixed, floater/floater...)
Attribute 2- Floating rate leg constraints: basic constraints on the floating rate leg,
Attribute 3 - Unused.
Attribute 4 - Redemption/reimbursement: One year or less, one to five years, or greater and whether cancellable, redeemable, extendable...
Example Coding (Interest rate swap)

Assuming the CFI structure is followed, each element would be identified by a single character. For example: I-S-F-B-S-E

- I = A Category of Interest rate derivatives
- S = Single currency
- B = Collared (Both floored and capped)
- S = One year or less (Short-term)
- E = Extendable
Inflation based derivatives
The same structure as for Interest Rates Swaps.

Credit derivatives (category)
Under this category resides what is commonly know as credit default swaps, these are contracts which commits two counterparties to exchange a periodic fee in exchange for a payment contingent on an event (normally a default).

Figure 2. Classification for Credit event derivative products
Attribute 1 - Underlying asset: The type of underlying asset to which the event applies, primarily credit events are against Debt instruments (bonds, convertibles) and loans.

Attribute 2 - Credit event type and standard combinations of: Identifies the type of the event(s). ISDA identifies six kinds of events; nevertheless the most significant are Bankruptcy, Failure to Pay and Restructuring. These six are normally not used in isolation and tend to be grouped together in “standard” agreements, hence both the individual event types and standardized groups are covered by this attribute.

Attribute 3 – ISDA Agreement types, There are 22 ISDA "standard" Credit event agreements. As more become exchange traded these variants are expected to become fewer in numbers. Each agreement type represents a standardised set of attributes used (26 in total), which are defined in spreadsheet form published on the ISDA website (“Credit-Derivatives-Physical-Settlement-Matrix...xls”).

The agreement types are listed as:

- Standard North American Corporate (fixed income payments)
- North American Corporate
- European Corporate
- Australia Corporate
- New Zealand Corporate
- Japan Corporate
- Singapore Corporate
- Asia Corporate
- Subordinated European Insurance Corporate
- Emerging European Corporate LPN
- Emerging European corporate
- Latin America Corporate B
- Latin America Corporate BL
- Japan Sovereign
- Australia Sovereign
- New Zealand Sovereign
- Singapore Sovereign
- Latin America Sovereign
- Western European Sovereign
- US Municipal Full Faith and Credit
- US Municipal General Fund
- US Municipal Revenue

Attribute 4 – Unused.

Asset based cash flow derivatives (category)
These are cash flow based financial instruments where the one party receives payments based on the performance of an underlying reference asset normally in exchange for regular interest
payments from the other party. The performance may be a result of the change in value of the underlyer as well as income, or just one of these two. The payments from the reference asset can be protected against losses (an attribute normally associated with Total Return Swaps). In some instances parties may wish to exchange cash flows associated with the underlying assets that they hold, without transferring ownership of the holdings themselves, these are also supported within this category.

Under this category two groups reside, adhering to the same construct used within the existing ISO CFI’s Futures category, thus providing a clear differentiation between financial and commodity based financial products.

**Financial assets (group)**

This group supports all swaps that are based on one or more reference assets (e.g. Stock-Equity, indices, etc...). This group encompasses Asset, Equity, Variance and Total Return Swaps, among others.

![Diagram](image_url)

**Figure 3. Classification of swaps based on “Financial assets”**

**Attribute 1 - Swap legs:** Used to identify the legs of a non commodity swap. For example, swap may comprise of an equity return paid against a fixed rate (“Stock-Equity against fixed rate”).


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Attribute 2 – Payment rules: Identifies the payment rules that apply relating to the reference asset(s). Payments are based on income, price change in the underlying reference asset, etc... The “Others” definition would be used to cater for scenarios where reference assets are on both sides and different reference asset payment rules apply or for other more complex scenarios.

Attribute 3 - Delivery: Cash or Physical delivery.

Attribute 4 - Redemption/reimbursement: One year or less, one to five years, or greater and whether cancellable, redeemable, extendable...

Commodities assets (group)
Fixed or variable (floating) payments are made to secure the interest in the underlying asset, in return for payments received based on its market price. In some instances this may result in physical delivery.

Figure 4. Commodity derivatives

Attribute 1 - Swap legs: Used to identify the legs of a swap where one of the reference asset(s) is a commodity.
Attribute 2 - Identifies the payment rules that apply relating to the reference asset(s). Payments are based on income, price change in the underlying reference asset, etc... The “Others” definition would be used to cater for scenarios where reference assets are on both sides and different reference asset payment rules apply.

Attribute 3 - Delivery: Cash or Physical, this is defined in the 2001 version of the CFI as:

\[ P = \text{Physical (The underlying instrument must be delivered when the option is exercised)} \]
\[ C = \text{Cash (The settlement of the option is made in cash)} \]

Attribute 4 - Redemption/reimbursement: One year or less, one to five years, or greater and whether cancellable, redeemable, extendable...

Forwards (category)

Forwards are widely used in the OTC world; however the ISO CFI currently only supports Forwards using the 1st attribute of the “Other Assets” Category with the value of M-M-F-X-X-X, providing no details about the forward itself.

The proposal is to create a Forwards category and like Futures, this would be subdivided into two major groups, financial forwards and commodity forwards.

Financial forwards (group)

The classification for financial forwards would be broken down as follows:

![Diagram of Financial Forwards]

**Figure 5. Financial forwards**

**Attribute 1** - Identifies the reference assets.

**Attribute 2** - Delivery: Cash or Physical.

**Attribute 3** - Strategy: Outright forward, spread, FX Swap (spot and a forward), FRA (two forwards)...

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**Attribute 4 - Redemption/reimbursement:** One year or less, one to five years, or greater and whether cancellable, redeemable, extendable...

**Commodities forwards (group)**

![Diagram of Commodities forwards (group)](image)

**Figure 6. Commodity forwards**

This group has essentially the same attribute as financial forwards, however with a different set of reference assets.

**Attribute 1: Underlying assets as defined for Commodities futures, extended in Bold/Blue:**

- E = Extraction resources (Metals, precious metals, coal, oil, gas)
- A = Agriculture, forestry and fishing
- I = Industrial products (Construction, manufacturing)
- S = Services (Transportation, communication, trade)
- P = Electricity?
Option Considerations

Exchange-traded options
Exchange-traded options are always on a Stock-Equities or a Future on an underlyer (i.e. the holder has the rights to purchase/sell the Future not the underlyer). For example, one can have an option on a Future of an interest rate or an option on a Future of a bond. Therefore, if one adheres to the text in the standard, “the type of underlying assets that the option holder is entitled to purchase or sell”, the 2nd attribute: Underlying assets should only be set to "S" or "F". Other than these two the use of any other value is rather confusing as a result.

Swap options (Swaptions and Credit derivative options)
In its current form, the standard is unable to properly support swaps. Swaps cannot be classified as either a call or put options, as they are options on agreements that define the flow (cash or assets) between parties, the parties are either the receiver or payer.

Therefore a Swap options category is proposed broken down by the following groups Financial Swaptions, Commodity Swaptions and Credit Derivatives.

Figure 7. Financial swaptions
Figure 8. Commodity swaptions

The right to enter into a swap agreement that is made up "Attribute 2" swap legs.

For scenarios with more than two legs or other combinations not specified within this attribute list.
Warrant Considerations
There is a requirement to extend Attribute 1 – Underlying assets to include a definition for “Interest rate”.

Figure 9. Credit derivative options