Generic Product Representation

Data Representation for Complex and Bespoke OTC Derivatives

Interim Recommendations to the CFTC Technical Advisory Committee - December, 2011

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Executive Summary

As the marketplace landscape takes shape to address the financial reform commitments, we see some clear trends as it relates to electronic data representation of OTC derivatives. A dominant role of FIX in the execution space, where this lightweight protocol has been used for a number of years; a collective commitment to FpML for SDR reporting, as a result of its completeness for representing OTC derivatives terms; a dual role played by FIXML and FpML for clearing, often a function of whether the facility had roots in the listed derivatives or the OTC derivatives space.

In such context, leveraging FpML to represent complex and bespoke products carries the immense advantage of providing a common data representation across all OTC derivatives. Not only does a unique protocol translates into lower costs of interface and easier ability to aggregate data across products and asset classes, but it also provides a flexible framework for adjusting the level of data representation across the product innovation lifecycle.

FpML adopted the Generic Product representation to address the needs to capture the complete spectrum of OTC derivatives, for purposes such as portfolio reporting and internal data representation. The approach consists in having a simplified product representation, which focuses on describing some fundamental economic fields. As very similar concept has been embraced by the industry for representing non-electronically confirmed credit derivatives in the DTCC Trade Information Warehouse, one difference being that a spreadsheet is used to communicate the data in that latter case.

Current usage shows that when this Generic Product representation is used, it applies to less than 5% of the OTC derivatives population.

As it relates to prudential regulators, the main limitation of such data representation is that it cannot be used as an input for computing valuation and risk analysis, as the transaction economics are not fully represented. It is however understood that this will not constitute an issue in the foreseeable future, as reporting participants will be required to periodically send their own valuation, while regulators do not intend to independently perform such computation for some period of time.

It is expected that this machine-readable Generic Product representation will be supplemented with the legally binding confirmation of the trade, in a format that is to be determined. While it is understood that this requirement to have the legal trade confirmation sent to the SDR applies to all trade types, it would have further value in the case of generic and complex products, considering that the machine-readable algorithmic representation will only have partial information about the transaction economics. This confirmation document would equip prudential regulators with the ability to investigate the full terms of such complex OTC derivative trades on a case-by-case basis.

The cost-benefit analysis shows this Generic Product representation approach would preserve market participants' ability to effectively participate in the product innovation cycle, and translate into significantly lower reporting costs for those products, a number of which will anyway not reach a level of maturity that would lead to significant volumes of activity.

Adopting the FpML Generic Product representation for complex and bespoke products constitutes then a good stepping stone for SDR reporting of complex and bespoke products, in-line with a market practice that has proven to be quite effective at striking a good balance between product innovation and data reporting imperatives.

Scope and Approach

This paper aims at evaluating the suitability of the Generic Product representation for the reporting of complex and bespoke OTC derivatives to the Swap Data Repositories (SDR). [1]

The concept behind such approach is to report basic transaction economics until the product has reached a sufficient level in the innovation cycle to allow for the standardization of such terms, while provide appropriate level of details for the other parts of the derivatives representation.

Such approach allows for the usage of a consistent data representation protocol across the whole spectrum of OTC derivatives. This is deemed as preferable to an alternative avenue that would consist in having a distinct algorithmic protocol for such population of OTC derivatives, because of the implied costs and complexities associated with the development and maintenance of dual reporting protocols. [2]

This paper makes reference to two implementations of this concept: the FpML Generic Product representation, and the DTCC Copper Record representation.

The FpML protocol provides a normalized electronic data representation for OTC derivatives that is very closely aligned with the confirmation terms of those products.

The implication is that a product needs to have reached a certain level of marketplace standardization as part of its confirmation language in order to be fully expressible through FpML.

This was identified some years ago as an issue in the cases where FpML is meant to represent a complete spectrum of OTC derivatives, such as portfolio reporting or internal data representation.

The response to this issue has consisted in developing a simplified product representation, which focuses on describing some fundamental economic fields. It is called the Generic Product representation.

[1] And, more generally, to the respective derivatives Trade Repositories that have been mandated as part of the G20 commitment

[2] The usage of one consistent protocol allows to proceed by extension once a product becomes standardized. Making use of a distinct protocol for the early stages of a product lifecycle would, on the other hand, necessitate to re-do this initial implementation via an alternative protocol (say, FpML) once the product becomes mature. Furthermore, this would necessitate the maintenance of two standards across the industry for a similar purpose.

When asked in 2009 by prudential regulators to centrally record non-electronically confirmed Credit derivatives transactions, DTCC has developed a similar approach, in the form of the Copper Record representation.

The DTCC Gold Record representation was implemented as part of the initial inception of the DTCC Trade Information Warehouse for credit default swaps, in November 2006. It corresponds to a bilaterally agreed electronic representation of the full set of contract terms. The Copper Records, on the other hand, aims at capturing information for the credit derivative transactions which are not electronically confirmed. It was rolled out in July 2009, and corresponds to a single sided non-legal representation of some of the terms of the contracts. It has been enhanced in a number of respects since this initial implementation, to increase transparency and accommodate records submitted by clearing venues.

The purpose of this paper is to articulate how those concepts can be used for the purpose of reporting complex and bespoke OTC derivatives to the Swap Data Repositories.

The developments are organized in three sections and two appendices. The first section describes the data representation of the Generic Product implementation, using the analytical framework recently proposed by the CPSS/IOSCO Report on OTC Derivatives Data Reporting and Aggregation Requirements. The second section proposes a scope framework for this Generic Product representation in the context of the Dodd-Frank Wall Street Reform and Consumer Protection Act. The third section articulates a cost/benefit analysis in relation to this proposed approach.

The two appendices present more specific information and supportive examples for each of the two implementation approaches that are referenced as part of this document: respectively, the FpML Generic Product and the DTCC Copper Record representations.

As the FpML Generic representation and the DTCC Copper Record are very similar, the term ‘Generic Product’ will be used when referring to both of those as an implementation concept. The terms ‘FpML Generic Product’ and ‘DTCC Copper Record’ will be used when specifically referring to one of those respective implementations.

The Data Representation

The CPSS/IOSCO Report on OTC Derivatives Data Reporting and Aggregation Requirements [3] identifies the following functional categories of data elements that are of relevant value for the Trade Repositories:

1. Operational data, i.e. data used by a Trade Repository for internal management purposes and such as transaction number, trading and clearing venue, etc.
2. Product information, i.e. information that allows for the classification and/or identification of the instrument.
3. Transaction economics, i.e. the material terms of a transaction, including effective and termination dates, notional amounts, coupon amounts, payment schedules, etc.
4. Valuation data.
5. Counterparty information.
6. Underlyer information, i.e. unique code for identifying underlyers and various attributes of the underlyers.
7. Event data, i.e. information that records the occurrence of an event and includes a time stamp (which indicates precisely when a particular event occurred).

The below table presents the Generic Product representation coverage across each of those functional categories of data elements:

Functional Category	Generic Product Representation
Operational data	Same as standardized trades negotiated and confirmed non-electronically.
Product information	Taxonomy classification will be provided, but not the UPI.
Transaction economics	Basic information.
Valuation data	Same as standardized trades.
Counterparty information	Same as standardized trades.
Underlyer information	The data structure exists. Its usage may differ across products.
Event data	While the FpML structure exists, its usage may be limited in practice.

This table highlights the fact that the Generic Product fundamentally differs from the standardized instruments in relation to just one or two of those functional categories of data elements: the transaction economics and, to some extent, the lifecycle event.

The data representation consistency for the other functional categories relates to the fact that the firms that transact those complex and bespoke products need to integrate them as part of

[3] http://www.iosco.org/library/pubdocs/pdf/IOSCOPD356.pdf

their operational, risk management and control frameworks. As a result, they need to have such a similar data representation across standardized and complex products.

On the other hand, the straight-through-processing infrastructure in place for the standardized products typically does not apply to low-volume complex instruments, which in turn translates to an absence of data normalization for the representation of the transaction economics and the lifecycle event data.

Let's review more in detail each of those functional categories of data elements as they pertain to complex and bespoke products:

1. Operational data

   The key distinguishing factor among OTC derivatives as it relates to operational data attributes is whether a product is transacted electronically or through voice. A trade executed electronically will indeed carry information that is typically not available for voice trade, such as the order time and the execution time.

   As a result, it is expected that Generic Products should carry the same level of operational data than standardized products that are executed through voice channels.

2. Product information

   The product taxonomies that are in the process of being finalized by ISDA include an 'Exotic' product identification for each of the 5 asset classes, which will allow reporting participants to appropriately classify the complex and bespoke products.

   Generic Products will however not have a distinct Unique Product Identifier (UPI), the reason for this being that the normalized product identification that is necessary to generate such UPI code will not be available. This has been discussed and acknowledged by the ISDA UPI Working Group.

3. Transaction economics

   The core set of transaction economics available as part of the Generic Product representation relates to dates and notional.

   The dates allow to determine the start and end period of the trade. The FpML Generic Product representation includes the effective date, besides the start date.

The notional allows to 'size' the trade, and is often required for financial reporting and other purposes. The FpML Generic Product provides the flexibility to express the notional either in currency or units, to accommodate the commodity and equity products.

The DTCC Copper Record representation being focused on the Credit products, it provides support to some other data elements that are specific to that asset class, when applicable: fixed rate, tranche attachment, tranche exhaustion, seniority, restructuring type. Those fields are however applicable to certain specific products types [4], and such an approach would be extremely difficult to extend to a broader cross-assets context where the set of complex and bespoke products in not well defined. As a result, the recommendation is to make use of the current FpML Generic Product representation as a starting point, and to potentially augment it down the road if need be.

4. Valuation data

It is understood that regulators will look for marketplace participants to provide on-going exposure information, and that they do not plan to compute exposure calculation independently in the foreseeable future.

In that respect, valuation information can be reported in exactly the same manner across the standardized and non-standardized (i.e. Generic) products.

5. Counterparty information

Similarly, the Generic Product representation should not affect the level of counterparty information to be reported to the SDR.

6. Underlyer information

Both the FpML Generic Product and DTCC Copper Record representations provide the ability to report the underlyer information, when applicable. (In the DTCC Copper Record representation, though, this representation is limited to the first underlyer in the case of basket trades.)

Such support can seem counter-intuitive considering that it is deemed extremely difficult to normalize complex and bespoke products. It should however be noted that the Generic Product only provides a list of underlyer constituents. It does not provide information as to

[4] The DTCC specification makes a distinction between seven product types: single name, index, index tranche, CDS on loans, CDS on ABS, swaption and structured transaction.

how those underlyer elements should be combined for the purpose of determining a payoff.

Furthermore, it should be expected that the level of underlyer information will vary among products and, possibly, reporting participants. It is recommended that the SDR reporting requirements should be kept flexible in that respect, at least in an initial period of time.

7. Event data

FpML models lifecycle events outside of the product/trade construct. As a result, from a strict data modeling standpoint the fact that a product is either fully or generically represented does not impact the lifecycle event representation.

That being said, the level of sophistication of a lifecycle event model is directly correlated to the level of straight-through processing that firms want to achieve. As a result, whenever possible firms tend to opt for a 'snapshot' approach as it relates to complex and bespoke products. The DTCC Copper Record is an example of such an implementation.

It is expected that this machine-readable Generic Product representation will be supplemented with the legally binding confirmation of the trade, in a format that is to be determined. While it is understood that this requirement to have the legal trade confirmation sent to the SDR applies to all trade types, it would have further value in the case of generic and complex products, considering that the machine-readable algorithmic representation will only have partial information about the transaction economics. This confirmation document would equip prudential regulators with the ability to investigate the full terms of such complex OTC derivative trades on a case-by-case basis.

The Product Representation Lifecycle

Adopting a Generic Product implementation for complex and bespoke products also requires the definition of an evolution path, to determine when a complete data representation should be adopted for a given product.

The following developments describe the approach currently in place at DTCC and at the market participants which make use of the Generic Product representation, and propose a possible avenue for SDR reporting.

The product representation cycle at DTCC

The ISDA Credit Implementation Group (CIG) is the governance structure for the DTCC Trade Information Warehouse as it relates to Credit derivatives. As such, it decides when it is appropriate for a Copper Record representation to be promoted to Gold Record. The decision combines volume, business prospects and product complexity considerations.

According to the DTCC monthly metrics for July 2011, 96.72% of total credit derivatives trade volumes were represented through Gold Records. The remainder 3.28% of the population were represented as Copper Records. [5]

The product representation cycle at the firms that make use of the Generic Product concept

Earlier version of this paper have been discussed with 20+market participants, either via group sessions hosted by ISDA or via one-on-one specific meetings.

These discussions appear to confirm the fact that this approach of having a more limited data representation downstream of the risk and pricing systems is quite widely used across the industry for representing non-standardized products. It is indeed not a coincidence if such approach was adopted by the large dealers to represent the complex credit derivatives for reporting purposes to the DTCC Trade Information Warehouse, in 2009.

The typical paradigm seems for those market participants to engage into a full representation of those products once there is a need to put in place straight-through-processing.

Those discussions with market participants also appear to confirm that those implementations of the Generic Product concept represent typically less than 5% of the number of outstanding

[5] It should be noted that those statistics indicate the number of trade records in the Trade Information Warehouse database. The Copper Records are then double-counted when compared to the Gold Records, because they are counted as submitted trades, while the Gold Records are counted as matched trades.

OTC derivatives – even if such percentages can be greater in certain asset classes, like equity and commodity.

The product representation cycle for SDR reporting - A proposed approach

The Dodd-Frank Wall Street Reform and Consumer Protection Act requires that standardized swaps be centrally cleared. As a result, it is proposed that this clearing requirement be used as the baseline for defining the set of products that should, at minimum, be fully represented as part of the reporting to the SDRs.

In practice, it can be expected that some products can reach an appropriate level of standardization, while liquidity and/or risk considerations might still be an impediment for mandating that they be centrally cleared.

As a result, it is suggested that the level of electronic confirmations be also used as a criterion for determining whether a product should be fully represented as part of the reporting to the SDRs.

Cost-Benefit Analysis

Methodology

This analysis compares the Generic Product implementation with the full representation of the transaction economics in terms of delivery timeline, implementation cost, and usage benefits for prudential regulators.

In order to accommodate for the widely accepted fact that the FpML standardized product representation would be inapplicable to the tail-end of the OTC derivatives lifecycle spectrum (i.e. those extremely tailored and exotic products, which in some cases are transacted only once), the analysis is focused on the 'emerging products', i.e. those which are marketed and traded in a repeated but still limited fashion and which terms are not yet completely standardized.

The analysis is based upon the extensive experience developed by industry participants in making use of FpML to represent OTC derivatives products, whether for internal data representation purposes or as part of marketplace initiatives (such as the DTCC Trade Information Warehouse). The time-to-market estimate has been developed leveraging the experience of the FpML working groups assigned to creating the respective product representations. The cost estimate has been evaluated leveraging participant experience in implementing such representation. This analysis has been discussed with 20+ market participants that included sell-side and buy-side firms, as well as industry service providers and marketplace utilities.

This analysis shows that the Generic Product representation for the purpose of reporting complex and bespoke OTC derivatives to the Swap Data Repository would result in two sets of benefits for the marketplace:

- It would preserve market participants' ability to effectively participate in the product innovation cycle;
- It would translate into significantly lower reporting costs for those products, a number of which will never reach a level of maturity that would lead to significant volumes of activity.

From a usage standpoint, it is estimated that such approach would meet prudential regulators' requirements until they decide to independently price and value such complex and bespoke transactions. At that point, experience demonstrates that reported transaction economics can be effectively enriched for the products that require it.

The Generic Product representation as a way to preserve market participants' ability to participate in the product innovation lifecycle

Developing a normalized representation for OTC derivatives is a two-step process:

- The development of an industry standard representation. This requires the definition of the appropriate legal language at the marketplace level, followed by the development of an algorithmic representation of those terms. The experience at ISDA shows that it typically takes between 3 to 6 months, depending of whether it's an extension of an existing product, or a completely new product.
- Once this industry standard is in place, the respective participants then need to integrate this new data representation into their respective systems. Here also, the experience shows that it typically takes 3 to 6 months to do so.

As a result, implementing a full normalized representation of the trade economics for bespoke and complex OTC derivatives would add a 6 months to 1 year time-to-market lead time for each product as part of the product innovation cycle. [6]

As mentioned as part of the introduction to this cost-benefit analysis, it is certainly not suggested here that we should look to develop a standardized data representation for each and every OTC derivative that is traded on the marketplace. Some of those are traded only once, among two parties, and it would then not be feasible to agree on and implement a standard representation at the industry level for those.

The Generic Product representation as a way to control the reporting infrastructure cost

Evaluating the incremental cost associated with a complete product representation versus a Generic Product representation requires 3 data estimates:

- The incremental cost per OTC derivative product;
- The number of products currently represented as Generic Products across the industry;
- The number of reporting participants and SDR that would have to undertake the work.

[6] These estimates will vary according to whether it is a variation of an existing product, or a new product altogether. They are based upon the experience that was developed for representing new products through FpML over the past 10 years or so. While the industry had the experience of implementing very simple variations of existing products more quickly than mentioned here, some products also took significantly longer (mortgage derivatives would be an example that comes to mind). The goal here is to focus on the typical cases, as opposed to the tail-end of the distribution.

Estimating the implementation cost differential associated with a Generic Product representation versus a full product representation

For the purpose of simplicity, we assume that the implementation cost is limited to two set of actors: the reporting participants and the trade repositories. [7]

- **Market participant development costs**: the additional incremental cost of a full implementation versus of Generic Product implementation is estimated at 4 man-months when limited to the transaction economics, and 1 man-year if lifecycle events also need to be modeled. [8] Assuming that two of the five asset classes will have a lifecycle event model, while the other three will have a snapshot update model [9], this leads to an averaged 7 man-months work estimate per product.
- **Trade repository cost**: internal analysis by DTCC concluded that the above cost can also be applied as the estimate of the incremental effort required for implementing a Gold Record representation by the trade repository. As noted the previous page, while experience shows that this effort can vary significantly depending on how unusual the product is, this estimate is a fair reflection of such incremental effort.

Estimating the number of products currently represented as Generic Products across the industry

This is certainly the most difficult part of the exercise. As stated above, the proposed approach is to limit the scope of this cost-benefit analysis to the products that are already traded in some 'reasonable' volumes.

Information collected from market participants leads to think that we have in the order of 10 to 15 products per asset class which have more than 100 open trades associated with each of them, but which transaction economics are not yet full normalized and standardized in order to allow (among other things) for operational straight-through processing.

[7] In particular, we are proposing to ignore the cost associated with the definition of the standardized representation itself at the marketplace level. While such effort translates into a significant elapse time (the 3 to 6 months already mentioned), the actual work involved is indeed quite difficult to estimate. It is also estimated to be much less significant than the overall implementation cost across participants.

[8] This cost includes the combined set of Technology and Operations resources typically associated with such implementation.

[9] See CFTC proposed rule 17 CFR Part 45 Swap Data Recordkeeping and Reporting Requirements.

Estimating the number of reporting participants and SDR that would have to undertake the work

The CFTC proposed rule 17 CFR Part 45 Swap Data Recordkeeping and Reporting Requirements, estimates the number of entities impacted by the reporting obligations as follows: 15 SDRs, 50 MSPs, 250 SDs, 12 DCOs, and 40 SEFs.

Considering that the DCOs and SEFs will only get involved in standardized products, they should not be part of the scope analysis as it relates to the Generic Product representation.

As a result, the number of entities to be considered as part of the cost-benefit analysis should be 300 reporting entities and 15 SDRs.

For the purpose of this cost-benefit analysis, this assumption however needs to be further refined in order to account for the fact that some participants will play a role in relation to only certain of the asset classes, while a number of them will also outsource the work to marketplace service providers (either software development firms or middleware service providers). As a result, we have adopted the following further assumptions:

- 10 first tier reporting participants will undertake the work internally, across the 5 asset classes.
- 30 second tier reporting participants will undertake the work internally, across 3 asset classes.
- 260 reporting entities will rely on service providers to do the work. For the purpose of this exercise, we assume that there will be 20 such service providers, each of them covering 2 asset classes.
- While we will have one global SDR covering the 5 asset classes, we assume that the 14 other SDRs will be asset-class specific.

The table below presents the outcome of this incremental cost analysis. Assuming that 10 products per asset class would have the potential to be eligible for a full representation of their transaction economics, such representation would translate into an additional reporting cost of 1,161 man-years across the industry. This incremental cost would be 1,741 man-years if we assume 15 products per asset class.

	Number of asset classes per entity	Effort per entity if 10 products per asset class (man-years)	Effort per entity if 15 products per asset class (man-years)	Number of Entities	Marketplace effort if 10 products per asset class (man-years)	Marketplace effort if 15 products per asset class (man-years)
1st tier reporting participants	5	29	44	10	292	438
2nd tier reporting participants	3	18	26	30	525	788
Service providers	2	12	18	20	233	350
Global SDR	5	29	44	1	29	44
Asset-class specific SDRs	1	6	9	14	82	123
Total					**1,161**	**1,741**

The Generic Product representation as satisfying prudential regulators needs in the foreseeable future

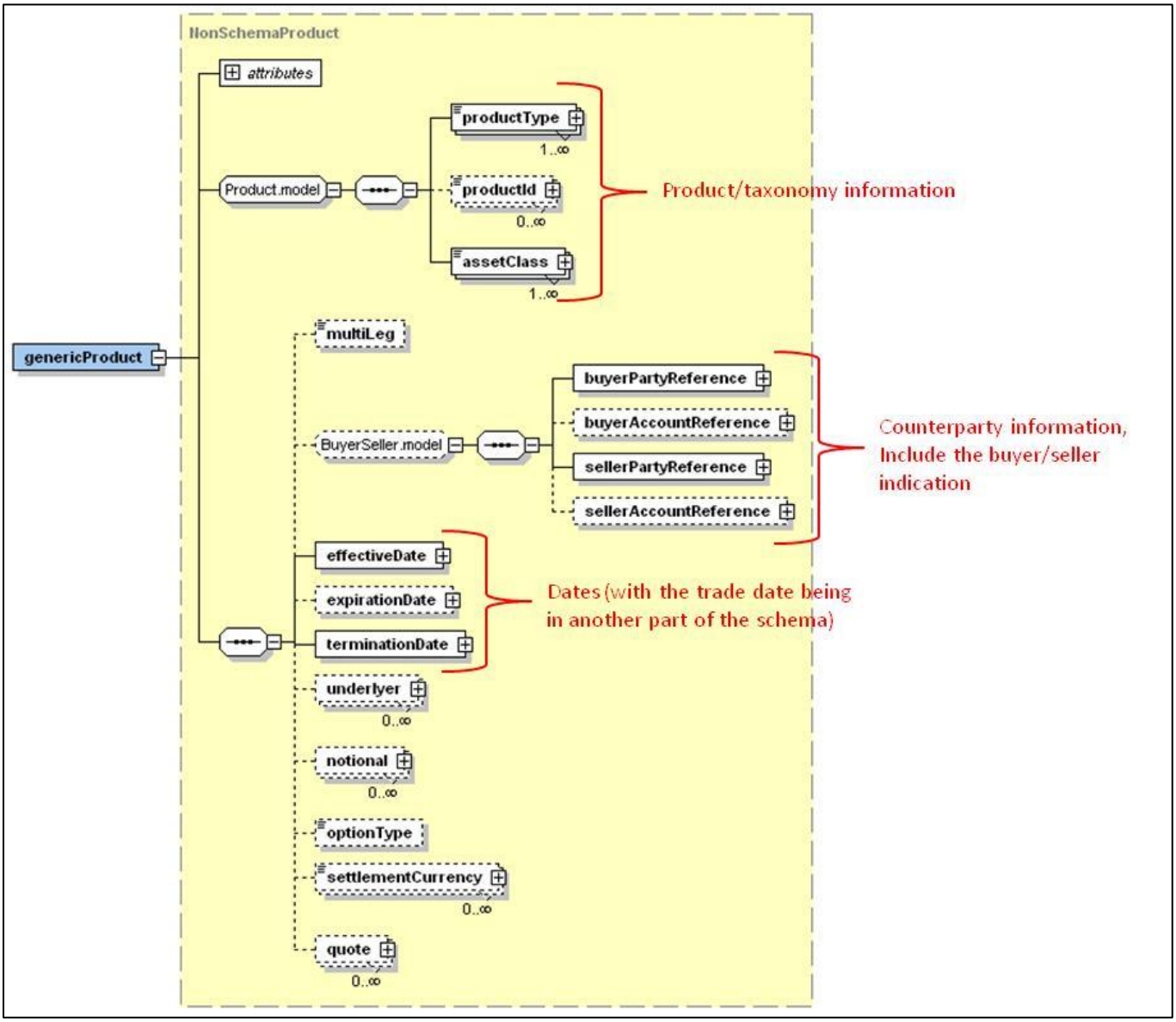
As indicated in the second part of this document, the key limitation associated with the Generic Product representation is that it cannot be used as an input to independently compute valuation and risk analysis.

Prudential regulators involved in discussions with the Working Group confirmed that this would not constitute an issue in the foreseeable future, as reporting participants will be required to provide valuation information.

If prudential regulators want to independently compute valuation and risk analysis at a later point, experience shows that such Generic Product representation constitutes a flexible paradigm, which can be extended for the products that justify it.

Appendix 1 - The FpML Generic Representation

The diagram below presents the main components of the FpML schema for the Generic Product representation.



The following comments can be made in relation to this schema representation:

- This schema representation doesn't incorporate the operational data elements that are part of the tradeHeader information, which corresponds to the root element that is common across all the FpML trade representations. This tradeHeader construct includes the trade date, the relevant timestamps, the clearing status, the execution and clearing information, etc.)
- Most of the data elements are optional, to accommodate the fact that the ability to provide the relevant information may vary among asset classes and products. (In the above diagram, optional components are represented with dotted lines.)
- This diagram only highlights the main components of this Generic Product representation. The complete set of information can be accessed from the ISDA FpML web site, at http://www.fpml.org/ . (It is part of the recordkeeping and reporting views.)

FpML Generic Product examples

The three examples below present the set of data points that would typically be available through an FpML Generic Product representation. For simplicity purposes, the data is presented through a table format, instead of a sample XML file.

Example 1 – Exotic interest rate swap

Functional Category	FpML Data Element	Example Value
Operational data	Event type	New trade
Operational data	Trade identifier	12345
Operational data	Execution type	Voice
Operational data	Execution venue	Not Applicable
Operational data	Clearing indicator	N
Product information	Asset class	Interest rate
Product information	Base product	Exotic
Product information	Sub-Product	*Not populated*
Product information	Transaction Type	*Not populated*
Counterparty information	Party A identifier	LEI A
Counterparty information	Party B identifier	LEI B
Transaction economics	Buyer party	Party A
Transaction economics	Seller party	Party B
Transaction economics	Trade date	2010-08-10
Transaction economics	Effective date	2010-08-10
Transaction economics	Termination date	2015-08-10
Transaction economics	Notional amount	123,200,000
Transaction economics	Notional currency	USD
Transaction economics	Settlement currency	USD
Underlyer information	Fixed rate	*Not populated*
Underlyer information	Floating rate	*Not populated*

Example 2 – Exotic credit derivative

Functional Category	FpML Data Element	Example Value
Operational data	Event type	New trade
Operational data	Trade identifier	23456
Operational data	Execution type	Voice
Operational data	Execution venue	Not Applicable
Operational data	Clearing indicator	N
Product information	Asset class	Credit
Product information	Base product	Exotic
Product information	Sub-Product	Corporate
Product information	Transaction Type	*Not populated*
Counterparty information	Party A identifier	LEI A
Counterparty information	Party B identifier	LEI B
Transaction economics	Buyer party	Party A
Transaction economics	Seller party	Party B
Transaction economics	Trade date	2009-05-10
Transaction economics	Effective date	2009-05-21
Transaction economics	Termination date	2012-06-20
Transaction economics	Notional amount	50,000,000
Transaction economics	Notional currency	USD
Transaction economics	Settlement currency	USD
Underlyer information	Reference entity - Entity name	Alcoa Inc.
Underlyer information	Reference entity - RED ID	0A4848
Underlyer information	Reference obligation – ISIN	US00440EAC12

Example 3 – Exotic equity derivative

Functional Category	FpML Data Element	Example Value
Operational data	Event type	New trade
Operational data	Trade identifier	23456
Operational data	Execution type	Voice
Operational data	Execution venue	Not Applicable
Operational data	Clearing indicator	N
Product information	Asset class	Equity
Product information	Base product	Exotic
Product information	Sub-Product	*Not populated*
Product information	Transaction Type	*Not populated*
Counterparty information	Party A identifier	LEI A
Counterparty information	Party B identifier	LEI B
Transaction economics	Buyer party	Party A
Transaction economics	Seller party	Party B
Transaction economics	Trade date	2009-05-10
Transaction economics	Effective date	2011-10-14
Transaction economics	Termination date	2012-01-04
Transaction economics	Notional amount	108,000,000
Transaction economics	Notional currency	USD
Transaction economics	Settlement currency	USD
Underlyer information	Instrument ID – RIC Code	GOOG.O
Underlyer information	Instrument ID – ISIN Code	US38259P5089
Underlyer information	Market ID	NASD

Appendix 2 - The DTCC Copper Representation

Following are two Copper Records examples which highlight the main features of the Copper Record data representation that has been in use at DTCC since 2009.

Example 1 – Structured transaction

Functional Category	DTCC Data Element	Example Value
Operational data	Activity	New
Operational data	Transaction Type	Trade
Operational data	Participant Account ID	00006440
Operational data	Participant Trade Reference Number	123
Operational data	Counterparty Trade Reference	456
Operational data	Counterparty Account ID	00006441
Operational data	Clearing Product Code	*Not populated*
Operational data	Cleared Trade	No
Operational data	Record Type	Trade
Operational data	Counterparty Exchange ID (DCM)	RPX
Operational data	Customer Account ID	9A4C6G45
Operational data	Customer Account Origin	CUST
Operational data	Participant ID of the Customer	00006441
Product information	Asset Class	Credit
Product information	Product Type	Structured Transaction
Counterparty information	Counterparty Account Name	Party A
Counterparty information	Customer Account Name	ABC TRADING COMPANY
Transaction economics	Buyer/Seller Indicator	Buyer
Transaction economics	Effective Notional Amount	70,000,000
Transaction economics	Effective Notional Currency	USD
Transaction economics	Multi-Leg	N
Transaction economics	Trade Date	2010-01-01
Transaction economics	Maturity Date	2011-01-01
Transaction economics	Fixed Rate	*Not populated*
Transaction economics	Tranche Attachment	1.75
Transaction economics	Tranche Exhaustion	1.75
Transaction economics	Seniority	*Not populated*
Transaction economics	Restructuring Type	*Not populated*
Underlyer information	Reference Entity ID	123456
Underlyer information	Reference Entity Name	ABC Company

Example 2 – Loan CDS

Functional Category	DTCC Data Element	Example Value
Operational data	Activity	New
Operational data	Transaction Type	Trade
Operational data	Participant Account ID	00006440
Operational data	Participant Trade Reference Number	123
Operational data	Counterparty Trade Reference	456
Operational data	Counterparty Account ID	00006441
Operational data	Clearing Product Code	*Not populated*
Operational data	Cleared Trade	No
Operational data	Record Type	Trade
Operational data	Counterparty Exchange ID (DCM)	SPX
Operational data	Customer Account ID	9A4C6G43
Operational data	Customer Account Origin	HOUS
Operational data	Participant ID of the Customer	00006441
Product information	Asset Class	Credit
Product information	Product Type	Loan CDS
Counterparty information	Counterparty Account Name	Party A
Counterparty information	Customer Account Name	ABC TRADING COMPANY
Transaction economics	Buyer/Seller Indicator	Buyer
Transaction economics	Effective Notional Amount	40,000,000
Transaction economics	Effective Notional Currency	USD
Transaction economics	Multi-Leg	N
Transaction economics	Trade Date	2010-01-01
Transaction economics	Maturity Date	2011-01-01
Transaction economics	Fixed Rate	1.50000
Transaction economics	Tranche Attachment	*Not populated*
Transaction economics	Tranche Exhaustion	*Not populated*
Transaction economics	Seniority	*Not populated*
Transaction economics	Restructuring Type	*Not populated*
Underlyer information	Reference Entity ID	123456
Underlyer information	Reference Entity Name	ABC Company