

A new clearing standard for listed derivatives

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Over the last several years a standards renaissance has been underway in the area of listed derivatives clearing. This standards initiative, which started modestly enough as a call to a common message format, has become a major force in the world of cleared derivatives products providing capabilities that cover the full spectrum of clearing needs.

The new standard has grown out of the momentum created by the Financial Information Exchange (FIX) and has become a legitimate option for those looking for an alternative to other global clearing standards. A new domain of functionality with a broad range of support for clearing and settlement services has emerged as the de facto standard among the major US Futures and Options Clearing Organizations.

The new clearing standard exhibits a gritty, no-nonsense practicality that sets it apart from more academic variants. The new standard has been developed as a working model which can immediately be applied to real world integration problems while exhibiting a flexibility and extensibility which will prove to be beneficial as the industry continues to evolve. This body of work is known as the FIA Extensions and has been defined as an addition to the base FIX 4.4 specification.

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The scope includes several significant enhancements to the base specification which includes an enriched business process flow, an expanded data dictionary, and robust message dialogue. The extended domain now provides functional support to the following areas: Allocation Reporting, Trade Reporting, Position Management, Static Data, and Corporate Actions. Additionally, the Listed Derivatives Industry has embraced FIXML as the syntax of choice due to the flexibility and pervasiveness provided by XML technology.

FIA and FIX team-up

In the summer of 2002 the Futures Industry Association (FIA) formed a Standards Working Group chaired by John Munro with the purpose of aligning the major Exchanges, Clearing Organizations and Firms on a new clearing standard. This committee had few preconceptions of how this new standard would look. One thing it did know is that

a standard was needed to provide a single clearing interface that could be used to communicate between parties; first Exchange-to-Firm and eventually Firm-to-Firm. The mission of the work group was to define a core set of common clearing functions and then formulate a standard to support those functions. The ultimate goal was the creation of a common interface which would allow firms to build to a template that could be re-used across the many different clearing interfaces. The mantra of the effort became "build once, interface many times" due to its potential to reduce overall integration costs.

The goal was ambitious given the fact that the current clearing world existed of a disparate set of legacy API's that were constrained by old technology and outdated implementations. The new world of electronic trading, Straight-Through-Processing and real-time risk management was simply unattainable using these aged API's and batch-oriented systems. Not since the mid-nineties when the Chicago Mercantile Exchange, Inc (CME) and New York Mercantile Exchange (NYMEX) worked together to build a back-end clearing system known as Clearing21 had a collaborative effort like this occurred. A core group of representatives consisting of CME, NYMEX, Options Clearing Corp (OCC), The Clearing Corp (TCC), and New York Board of Trade (NYBOT) joined the FIA Standards Group and with the help of key firms determined that FIX was the best fit for their needs.

FIX was a logical choice as the basis for a new clearing standard for two reasons. First, given its pervasiveness in order routing, it offered a broad knowledge base and proven effectiveness. Second, the FIX culture promoted responsiveness, openness, and innovation which would allow the team to move at a rapid pace. The team immediately began working with Jim Northey, Co-chair of FPL's Global Derivatives Committee (GDC), to define an entirely new set of processes and messages to support Position Management and Trade Capture Reporting. This effort began to bear fruit after several months of work, in time to be included in the FIX 4.4 release in April 2003. Shortly after this, a Memorandum of Understanding was signed between the parties cementing the relationship.

FIXML undergoes changes

As the new business model took shape, the FIA team worked in unison with FPL to make FIXML the technical

centerpiece of the new clearing standard. One problem at the outset was the sheer size of a FIXML message. Given the older element-based approach, a message with a detailed instrument definition, multiple party levels, and requisite details to support Position or Trade Reporting, could easily exceed 2000 characters in length. The teams quickly determined that an attribute-based approach with consistent use of abbreviations would drastically reduce the size of the message and make a FIXML implementation practical. After converting to XML Schema from a DTD and migrating to use of attributes where possible, message size was reduced by a factor of four.

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The FIA Standards Work Group, with the help of FIX, had now laid the foundation on which to construct a comprehensive clearing model. FIXML had been selected as the message syntax and basic clearing functionality had been rolled out in FIX 4.4. The next step was to construct a comprehensive clearing model that supported all clearing paradigms within Listed Derivatives.

Static data reporting

To this extent, OCC initiated the body of work known as FIA Extensions 1.0 in mid-2003 and by early 2004 had proposed extensions to the specification to include important updates to support Static Data Reporting. Static Data was the first application of FIX in the new world of clearing standards. FIX, having been primarily designed as a terse protocol for efficient order routing, was in need of increased depth and breadth in order to support the full array of details required by End-of-Day Reporting. Static Data Structures provide the means for aggregating data into End-of-Day Reports which in turn play a critical role in the clearing process by conveying details necessary to clear and settle transactions. End-of-Day Reports are then sent out for back office book keeping, allowing firms to perform final balancing for the day.

Static Data Reporting was enhanced in a number of areas:

- Security Definition - new messages were added to allow incremental updating of a security due to corporate actions and other business events
- Instrument and Underlying Instrument - updates were made to better describe the listing agents and characteristics of the underlying
- Market Data - minor changes to the market data messages to make them suitable for final price reporting
- Trade and Position Reporting - added support for batching together multiple reports

Adoption of FIXML

During this time the FIA Standards Work Group and FIA Extensions Work Group began to carry their message out to the firms and users who would be most impacted by the adoption of the new standard. Both Work Groups already consisted of firms and service providers who would become early adopters, but a broader base of support was necessary. In order to educate and inform the user community about the new clearing standard, the role of FIXML, and the benefits which would be realized, quarterly seminars were held by the participating exchanges. The seminars were structured to follow a logical progression; introduce the new standard, provide background and technical training, and finally present plans and implementation schedules. In effect, the partnership between the FIA, FPL, and Exchanges was extended to the user community who responded very positively and climbed on board.

A major hurdle in the creation of the new standard was the acceptance of FIXML itself. Initially, the industry was not convinced that an XML-based technology was in their best interest. FIXML required a paradigm shift that at the outset appeared to be miles away from the capabilities of most back office systems. There were people to train, new platforms and software tools to install, and an entirely different way of thinking to adopt.

Industry technology was still firmly entrenched in fixed length formats running on older IBM or HP operating systems. The challenge was to convince back office business and development managers that the cost of converting to FIXML was an investment that would pay off many times over as development cycles were shortened and changes became less disruptive to existing applications. Eventually, the industry responded to FIXML and began the process of

integrating XML capabilities into their systems. The migration was gradual and started slowly, but has reached the point where all service providers, back offices, and even FIX engine vendors now support FIXML such that it can be used to support the new set of clearing interfaces.

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Trade and position reporting

As CME and OCC began to build to FIA Extensions 1.0 specification, it became apparent that additional areas of functionality needed to be supported. In mid-2004 CME requested that FIA Extensions 1.1 be initiated for the purpose of defining a Three-Party Allocation Model. CME's next big challenge was to convert its aging legacy Give-up and Average Price API to a much more flexible FIXML-based model. A core team of allocation experts consisting of Dick Baker (TCC), Mark Cox (CME), Niranjana Sharma (CME) and Jim Northey (FPL) met throughout the summer of 2004 to hash out a straw man. They didn't know it at the time but the resulting proposal had some stormy waters to navigate.

Meanwhile, NYMEX, NYBOT and TCC began to consider plans for implementations of their own. All of the projects surrounded either the automation of trades to firm back offices or static end-of-day data reporting. An impressive aspect of these new systems is that each is predicated on the same core set of FIX business flows and message sets, ostensibly Trade Capture Reporting and Position Management. Trade Capture Reporting is used to support all trade-related interface needs. Firms may submit and receive trades, request trade reports, and update and cancel trades using this model. It is also possible to allocate trades to a party other than the original executor. Position Management provides the ability to adjust, exercise or report on a position.

Specialized support for Instrument definition was also added at this point. Specific tags, such as the "Unit of Measure" to describe the physical unit of the commodities (Barrels, tons, etc.), were also added to support an API to the NYMEX ClearPort® Clearing system, where voice brokers can submit off-exchange transactions on over 100 energy futures contracts (including recently introduced emissions and freight products) to be cleared through NYMEX.

Industry-wide compliance

The concurrent development efforts of these exchanges and clearing corporations gave rise to an unprecedented opportunity to ensure that the new standard was being correctly interpreted and applied. Taking advantage of the opportunity, the team of exchanges met on several occasions during the latter part of 2004 to diligently review the use of each tag and each message. Paul Sacristan (NYMEX), Mildred Rodriguez-Olarte (NYMEX), Barry LeGros (NYBOT), Dick Baker (TCC), Gerry Fritsch (OCC), Matt Simpson (CME), and John Munro (Rolfe&Nolan) formed the core team that worked to identify and remove potential inconsistencies in the application of the standard. The ultimate outcome was a dictionary which described the definition and proper use of each tag in the model. By the end of 2004 the FIA could boast of a solid standard that was seeing rapid adoption in a controlled manner.

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Three-party allocations

As FIA Extensions 1.0 was reviewed and accepted by the Global Technical Committee (GTC), the next iteration, FIA Extensions 1.1, was just beginning to undergo the first rounds of critical review. The Three-Party Allocation Model which made up the bulk of the proposal had stretched the newly minted Two-Party model to the breaking point. In the Three-Party Model a Central Counter Party stands between the Allocating Firm and Accepting Firm.

Additional changes were made to the FIA Extensions 1.1 to support the "New York" allocation model used on the

trading floors of NYMEX and NYBOT, as implemented in the NYMEX intraday FIXML clearing feed, which can be received in real-time by both clear firms (all trades and allocations which they will clear), and trading firms (trades specifically allocated to their accounts).

The new Allocation model allows the aggregation of trades into allocation groups, groups to be allocated to a claim firm, acceptance or rejection of the allocation, and subsequent allocation to a third-party

By working closely with members of FPL's Global Technical Committee, Paul Sacristan, and Jim Kaye (Goldman Sachs) who co-chairs the FIX Allocation Working Group and is one of the architects of the two-party model, a modified approach emerged which turned out to be an improvement over the initial proposal. The result was a Report-centric model which emphasized the use of the Allocation Report message. The new Allocation model allows the aggregation of trades into allocation groups which are then allocated to a claim firm. The claim firm will either accept or reject and may subsequently allocate to a third-party. The model also supports creation of average price allocations which allow trades of different prices to be allocated at fixed price. This model has just recently been put into use by CME as of August 2005, and NYMEX has plans for a future implementation utilizing the same model.

So where are we now?

Collaboration and communication among the major derivatives exchanges has never been stronger. The team is well-positioned to tackle other major issues such as Order Routing and Market Data Standardization. The FIA and FPL's Global Derivative Committee form a formidable team that is able to create change within the industry and move initiatives forward with greater efficacy. FIXML, once little more than a concept with promising potential, is today fulfilling that promise as it gains rapid adoption by firms and vendors alike. The versatility inherent in FIXML has been embraced, the new clearing standard has matured, and the industry has achieved a significant milestone that has equipped it for future business challenges. **FIX**

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