



The business case for FIX allocations

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The Financial Information eXchange (FIX) Protocol has been with us for a number of years now. Having started out as a mechanism for exchanging order and execution information electronically between US money managers and broker dealers, it has grown into the de facto global standard for electronic front-office communications, at least in the equity markets. As usage of the protocol matures, a number of organisations are looking to expand its reach into other asset classes (e.g. fixed income, forex and derivatives) and other parts of the order- and trade-management processes.

While it's probably fair to say that much of the trading and settlements space has been or is in the process of being automated, the post-trade world between these two areas is often in a relatively sorry state, relying in many cases on antiquated technology (or none at all). It is this area that is the focus of this article, specifically the role FIX can play and the benefits it can bring.

Booking and allocation – wrapping up the dealing process

A lot happens between trading and settlement. What we're interested in here are the first two steps in the process – booking (the communication that one or more orders are

ready to be booked out into a bookable unit or 'block') and allocation (i.e. the definition of the way a bookable unit is to be split up across one or more accounts for settlement). Between them, these two steps define the conversion of tradable orders into 'settleable' trades, suitable for processing in the back office.

The booking process is generally either completely manual, or reliant on educated guesses or pre-defined rules (e.g. 'If you don't hear anything by the close, please book all my orders out'). In a traditional model, where orders and executions were communicated manually, the booking process was simply a natural extension of order

communication, i.e. any conversation to confirm/agree executed quantity and price would invariably include an instruction to book (and sometimes even the allocation details themselves). Replace the manual order communication with FIX and this conversation has potential to disappear, taking the booking process with it.

In addition, buy-side dealing desks are becoming more sophisticated in terms of their own order management capabilities. They are increasingly being empowered to break orders up, send them to brokers in multiple pieces and then recombine them for allocation. This makes the booking process more complicated as the final block could be made up of multiple orders, all received at different times throughout the day.

This is where the FIX allocation message comes in. This finalizes the order management process by including booking, and also allows the breakdown of the resultant block into individual trades to be communicated to the broker.

The benefits of using FIX

So why should anybody consider using FIX for post-trade messaging? This is actually a pair of questions; firstly, why should anybody use any form of electronic messaging for my post-trade flows, and secondly, why FIX in particular? There are several answers to both of these questions.

Why use electronic messaging for post-trade flows?

Booking out trades from the front office is the last step in the order management process. The decision as to what gets booked out and when is made on the buy-side. However, in order for accurate and timely confirmation to take place, this information needs to be communicated to the sell-side as completely and quickly as possible. In a phone-based trade environment, or where booking instructions are given up front, this is easy. In an electronic environment, some kind of booking instruction message needs to be sent from the buy-side to the sell-side in order for both parties to be able to move forward to the next step in the trade processing cycle.

In addition to providing booking details electronically, the allocations themselves can also be provided electronically. Even at the most simple level (e.g. allocations being provided simply as a list of account number/quantity pairs), there are advantages to both parties in terms of: 1) electronic acknowledgement of receipt and processing status, 2) the

removal of the need to re-key data, 3) a reduction in data errors and 4) speed. These advantages are compounded further on increasing the amount of data provided at this stage to include commissions, fees/expenses and even settlement instructions. Having these details present on an electronic message in a machine-readable format not only dramatically increases the efficiency of trade-processing operations, but also allows real-time matching of the data to take place. This in turn allows potentially costly errors to be identified and resolved very early in the trade's settlement cycle.

Why use FIX?

FIX is an open protocol, developed by the securities industry, for the securities industry. Those who design the protocol and provide the administrative support to ensure its widespread usage are committed to increasing the efficiency of the industry through the uptake of electronic messaging. There is no charge for FIX documentation and no licence fees for usage of the protocol. The only costs are hardware or software costs associated with specific installations.

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FIX is a network-independent protocol that will run over any IP-compatible network. FIX sessions can be run over leased lines, private networks or even the Internet. This makes FIX relatively quick and easy to implement. Most organisations have some form of connectivity to the outside world that could be used for handling FIX messages and there are large numbers of suppliers of hardware and software to assist organisations in buying or building the infrastructure they need.

One of the attractions of FIX that has proved its usefulness in the order-routing world is the 'session'. Before two FIX installations exchange any business data, a FIX session is created between them. This 1) provides a level of authentication between the two installations (i.e. so each installation knows the identity of the other one and can only be connected to by approved counterparties), 2) allows the messages to be encrypted if necessary, 3) allows both

installations to know whether the other party is still connected through the use of periodic heartbeat messages and 4) can identify duplicate or missing messages and either close down the session or attempt a recovery automatically. In addition to this, the business messages themselves use return acknowledgements to identify whether business-critical messages have been received. For example, a new order must be replied to using an execution report to acknowledge the receipt of the order before the order can be assumed to have been delivered successfully. Similar acknowledgement mechanisms exist in the post-trade space.

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The FIX post-trade messages have been designed such that they can operate either independently of, or in conjunction with, FIX trading messages. If FIX is used both for trading and post-trade messaging, then the trade identifiers used in the electronic trading environment can be referenced on the post-trade messages, making accurate matches easier. Combining FIX-based electronic trading with FIX-based post-trade processing also has a number of other advantages:

- Implementation is often straightforward, as much of the essential infrastructure for FIX post-trade messaging (e.g. FIX engine, network connections, etc.) already exists in any FIX-based electronic trading environment. Indeed, anybody using a recent version of many of the off-the-shelf FIX-compliant order management systems will already have FIX allocation functionality available to them.
- Trade booking is fundamentally a front-office activity and therefore fully connected to the order management process. The front office job is therefore complete (at both the buy-side and the sell-side), not when the trade has been completed, but when that fact has been communicated and agreed between the two parties to the trade, and that the originator of the trade (the buy-side) has confirmed that the trade is ready to be booked out. Using FIX to communicate these booking instructions allows electronic booking to be treated as a simple extension of the existing FIX-based order management process.

- Extending order management to including booking and, optionally, allocation messaging, allows the FIX order identifiers and other relevant details to be used on the post-trade messages. This makes unambiguous matching of trade details to allocations a more straightforward and accurate process, thereby reducing the risk of error.

Implementation considerations

There is no single right way to implement post-trade FIX messaging. The optimal implementation depends on a number of factors, not least of which being the way the rest of the trade-processing infrastructure is put together. Where front-office order management and middle-office trade processing take place in different systems (which is often the case), a decision has to be made as to which system to use for the FIX messaging. The use of front-office order management system allows for seamless integration of the order management and booking processes. Such systems usually contain basic allocation details, but may not necessarily include all the information required for passing fee/expense or settlement instruction information. Middle office systems generally do contain this level of information but, if used for FIX post-trade messaging, must be relatively seamlessly connected to the front-office order management system in order to retain any benefits of speed and accuracy.

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A second question concerns the version of FIX to use. This will generally be dictated by the level of functionality required. For example, basic allocation messaging can take place using any version of FIX from version 4.0 onwards, but confirmation messaging requires version 4.4. It is worth pointing out that it is not required that order routing and post-trade messaging take place over the same FIX session or even the same version of FIX. Indeed, it is quite common for allocation messages to be sent over a 4.2 session with orders and executions using a separate 4.0 session.

One of the biggest problems associated with any form of electronic messaging is static data quality and consistency. Reading account numbers, soft dollar codes and so on from a fax clearly involves an interpretative step performed by a human. Replacing this with an electronic messaging engine

requires that all static data definitions be agreed up front and programmed into the messaging software. Adherence to commonly agreed standards is vitally important to avoid having different static data definitions for every counterparty. Unfortunately, such standards do not yet exist for every type of data, although work is being performed in a number of areas to define them.

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Implementation and running costs

Any organisation already using FIX for orders and executions will be familiar with the costs associated with their FIX infrastructure, which can be broken down into software (purchase, build and/or leasing of order management and FIX engine software) and network charges (whether subscription based, connection based or message based). Firms that use off-the-shelf third-party order management systems will find that the more recent versions of many of these systems will have FIX allocation capabilities as standard.

As far as the networks are concerned, all the usual FIX network providers support FIX allocations and do not charge any extra for handling this kind of message. Regardless of network and internal infrastructure, firms will need to test their allocation messaging with their trading counterparties, in the same way they did for order routing. The level of effort required here will depend on things such as the complexity of the implementation and type of network (hub versus direct), although this is significantly less than that required in testing a new order routing connection.

In summary, therefore, set-up costs (for both buy- and sell-side firms) fall into the following categories:

- For firms who have built their own FIX and order management infrastructure, the cost of building and testing FIX allocation functionality and messaging.
- For firms who use third-party FIX and order management systems, the cost (if any) of upgrading to the minimum version of that system that supports FIX allocations.

- For all firms, the cost of testing with their trading counterparties.

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Realizing the benefits

There is no single set of actual values for the costs and benefits of using FIX for allocation messaging – the numbers will vary by firm. However, the main categories of benefit can be defined and are listed as follows:

- Time saved on the buy-side dealing desk as a result of automating the booking process. A rough estimate for this can be derived simply by multiplying time spent per booking (2 minutes say), by the daily number of orders, by the per-minute cost of each dealer. Similar logic can be applied to the allocation process.
- Time saved on the sell-side dealing desk/middle office as a result of automating the booking and allocation processes (same calculation as above).
- Benefits of earlier matching, specifically that anything between basic allocation details (size, price, identify of each account) to full trade details (including net monies and settlement instructions) can be transmitted on a FIX allocation message allowing all such details to be matched on trade data even before the confirmation has been generated. This is harder to quantify, though for all firms to look at their fail/late match rates and eliminate those caused due to match fails or late matching would be a good place to start. **FIX**

Last words

If you want to learn more, either about individual experiences of working with FIX allocations, or for more general background, please contact any member of the FIX Allocations Working Group (see the FIX website: www.fixprotocol.org, under Working Groups, Allocations for a full list).