

# ISChronicle

Investment Solutions Consultants

Autumn 2008

*A Chronicle of the Investment Management Industry*

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## Risk Management in Risky Times

### Introduction

As the dust begins to clear from the fallout following the detonation of the bombshell that has gone off in the financial markets this autumn, many investment managers will now be looking at themselves to see how best to operate in a slimmed down, potentially more volatile environment. Whether this is driven internally or forcibly by the regulatory authorities, it seems clear that Risk Management will once again be taking a front seat in everyone's list of priorities for 2009. If we learn just one thing from the crisis – it is that firms on both the buy and sell sides need to focus on risk management in general, and on those less operationally mature areas such as OTC derivatives in particular.

However, the slew of banking defaults and near defaults, and the huge losses made in the sub-prime market are not the sole driver in this trend. For several years now the fund management industry has been moving away from its relative return, beta-seeking roots towards a new paradigm. Alpha generation has been the watchword on the streets for several years now – driven in part by the need for positive differentiation in a crowded rising market, but also by the increasing sophistication and risk-awareness of the investors themselves. Investment products servicing more specific investor needs, such as capital preservation, time horizon management, and downside risk reduction have appeared and all require much more precise and proactive risk management. It is

this outcome oriented investment, as people plan for early retirement, or to put their kids through fee-paying schools, that is driving the importance of risk management as much as the recent crisis.

### Issues

The concepts and the practices of risk management in an investment manager are not new, but are implemented in a number of different ways and with varying degrees of success. In general terms however there are a number of issues that will need to be addressed when looking to improve internal practices – some that are more general in nature and some that are focused on OTC derivatives in particular;

**Organisational** – Risk Management as a function is not always viewed as top priority, especially as it not seen as a revenue stream in and of itself. Risk Managers do not always have Board representation and sometimes the governance structures (if they exist) cannot by their nature react fast enough to events or have the power to implement suggested solutions

**Technological** – risk is often managed well at the micro, fund level but not at the enterprise-wide level. In order to achieve a holistic view of a firm's diverse risks presents some difficult, but not insurmountable issues. These would include standardisation of risk measures and of the data required to calculate those measures – your front, middle and back offices should be using the same reference data for the risk analytics to make any sense.

In the world of OTCs there are new XML standards (FpML) for messaging that need to be built into the operating model and potentially new systems and services that automate current confirmation and processing workflows that require integration

**Technical** – the main tool used by risk managers, Value at Risk or VaR, is based on centuries old mathematics. Stemming back to Gauss in the 18<sup>th</sup> century, the normal distribution that underpins VaR calculations appears to work well in stable times, but does not seem to be able to cope with some of the large “six sigma” events that have occurred in the past (1987's Black Monday, Long Term Capital Management and the Russian Bond Default, as well as the current credit crunch). Indeed David Einhorn, of the Hedge Fund Greenlight Capital has been quoted as saying that VaR is “an airbag that works all the time, except when you have a car accident.”, and by Barry Schacter (who runs the risk management website Gloria-Mundi) that it is “a number invented by purveyors of panaceas for pecuniary peril intended to mislead senior management and regulators into false confidence that market risk is adequately understood and controlled.”

**Structural** – the OTC market in particular is about to go through a sea-change in its structure as a result of the credit crunch. For investment managers whose product range and trading strategies require the use of these instruments, this will mean that they must react to new regulations and processes. It

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### ISC Continues to Grow its Reputation in Derivatives

ISC continues to enhance its reputation as the number one consultancy for derivatives. We have recently been assisting our clients in projects to:

- Create a robust and scalable target operating model for the full lifecycle of both OTC and Exchange Traded Derivatives
- Analyse and implement the requirements for a Collateral Management function
- Manage the reconciliation and remediation work following the collapse of Lehman Brothers
- Assess the functionality of new software offerings in the post trade processing arena

We have also recently been featured in a number of publications providing commentary on derivatives issues. These include:



For more information on the services we provide in this area please contact sean.sprackling@iscslp.com or join us at the 4th Annual Optimising OTC Derivatives Operations In Fund Management Conference run by Osney Media Date: Tuesday 25- Wednesday 26 November

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seems likely that there will be more regulatory oversight on collateral management (see article “Buy, Build or Bounce” from ISChronicle Summer 2008), and a shift in industry focus from the confirmation arena towards post-trade lifecycle management and central clearing

### Organisational and Technological Issues

Essentially good risk management is about building awareness throughout an investment organisation, learning to apply quantitative techniques without being ruled by them, and developing a sound sense of judgement. In order to do this investment firms must be organised in such a way as to facilitate these things. In practice therefore that means that:

- Knowledge of risks and risk management techniques must pervade throughout the organisation all the way up to Board level
- Management of risk must be enterprise-wide and not silo-based
- Governance and management information structures are in place
- There is an agreed set of parameters for measuring risk
- Data is standardised for use by all areas of the firm

The first starting point for any firm should therefore be the publication of their Risk Management Policy. Recent studies (c.f. Deloitte 2007, E&Y 2005) have shown that investors are increasingly asking for stated policies and that the regulatory bodies (including the FSA) consider it to be best practice. The stated policy can be a powerful tool for communicating and focussing efforts internally towards the implementation of a fully articulated risk management framework and many external investment consultants require this as part of their manager assessments. Secondly firms should revisit their governance structures (an example of which is opposite), and

ensure that there is sufficient and accurate management data available to be able to set the parameters for and then manage the risk levels of the organisation. Data is clearly key here. Those measuring the risks, whether in the front, middle or back offices, should be doing so using the same data used in a standardised way – something that obviously has major technological implications. The implementation of a risk management system or service may go some way to achieving this, but should not be seen as a cure-all without continued organisational focus on the overall risk culture.

### Technical and Structural Issues

In the longer terms firms will also need to start addressing some of the issues detailed above. There are many different flavours of VaR – the most widespread being historical and parametric. However, as explained earlier these are based on the assumption that the markets have a normal probability distribution. Traditional theory has it that the capital markets are an equilibrium system, where prices tend to converge back towards stability. Recently however academics are increasingly seeing them as complex, adaptive (evolutionary) systems that are far more prone to periods of chaos than was at first thought. As far back as the 1960s Benoit Mandelbrot (he of the eponymous Mandelbrot Set) argued that markets behaved

more in line with his fractal theory than with the normal distribution, and more recently Nassim Taleb’s book on “The Black Swan: The Impact of the Highly Improbable” argues that large-impact, hard-to-predict, and rare events beyond the realm of normal expectations are far more common than is the case if you see the world through the normal curve.

I am not advocating that we ditch VaR forthwith however. VaR is extremely useful; not only as it is in fact a pretty good approximate measure in more stable times, but also as it gives us our only currently-available universal “language” of risk. But investment firms should be looking beyond VaR to see what other techniques are available. As Peter Cotton, the CEO of Julius Finance (a firm that provides innovative new risk and pricing models for complex credit derivatives) said to me “...it is very difficult to create a coherent mathematical picture of what the market is saying – you cannot use copulas to fit the whole picture...”. There are therefore firms, such as Julius Finance, that are capable of providing risk models based on new parameters. Indeed many firms are also using EVT (Extreme Value Theory) and ETL (Expected Tail Loss) that have come from research on the physics of tsunamis (which apparently have much “fatter tails” than you get with the normal curve) – as well as Stress Testing their models to



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see the effects of extreme market movements. All these new techniques however come with their own peculiar set of problems and have not yet become common currency throughout the industry.

From a structural point of view many firms have already begun to ensure that they have robust and scalable operating models that cover all asset classes, including OTC derivatives. This is being helped by the mushrooming of the number of service providers offering them assistance in these areas. In the last few months alone there have been announcements from the likes of State Street, Northern

Trust, SmartStream, DST International and Checkfree about their new offerings for monitoring OTC products post trade. IT budgets may be tightening across the industry, but I suspect that many boards will see this as a necessary, and a risk-mitigating expense.

### Conclusions

In the coming downturn, and with conditions as uncertain and volatile as they are at present, Risk Management will become a top priority for the investment management community in 2009 and beyond. Driven both by an internal need to more closely control risk in risky times, by the coming regulatory backlash,

and by the ever increasing sophistication of investor's requirements all managers will need to reassess their risk management structures, processes and systems—a situation that is unlikely to be transitory as we enter a new era in financial services, and an era where we will likely be referring to ourselves in the future as Risk Managers rather than as Fund Managers.



Sean Sprackling  
Partner  
ISC LLP

*"it is very difficult to create a coherent mathematical picture of what the market is saying – you cannot use copulas to fit the whole picture"*

Peter Cotton

CEO Julius Finance

## 11 Reasons Why Investment Managers Are Demanding Consolidated Positions Data

The current market turmoil and volatility has emphasized the necessity of being aware of details behind positions and transactions. An environment with increased risk has drawn attention to re-evaluating data management practices across positions, client/counterparty, and instrument reference data systems.

Positions data manifests a firm's investment strategy and demonstrates its performance. It also can reveal a firm's exposure and potential risk through a variety of aggregation techniques. Because of diversity across instruments, businesses and regional requirements, as well as corporate reorganizations, firms frequently have multiple transactions software and data solutions. It is a challenge for institutions to bring together the data repositories backing these solutions to get a "big picture view" of the firm's holdings, its risk, and its overall exposure. This big picture view also assists management make risk / reward tradeoffs.

This paper identifies some of the key market drivers that are forcing the investment community to adopt data management practices that enable aggregate position keeping across their organizations and how an enterprise data management strategy can help achieve this.

### The Business Drivers

The creation of a single view of positions data is a topic that has received considerable attention in recent years. In a sector in which consolidation continues to feature prominently, many firms are forced to address the problems created by the disparate sets of data mergers and acquisitions bring. Furthermore, with the rapid growth in the breadth of instruments being traded and the current inability of many of the established systems to handle such data, firms are compelled to use short-term tactical solutions to address their immediate operational issues. This serves to further exacerbate the problems posed by multiple 'versions of the

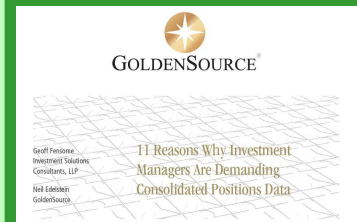
truth' of position data.

Many firms have already or are in the process of addressing these problems. Others are yet to fully appreciate the operational efficiencies that can be realized by tackling this problem head on. The results of a recent ISC industry survey of European Investment Management companies, commissioned by GoldenSource, identified the primary drivers for position consolidation which has led to many firms establishing business cases for the adoption of such initiatives. The eleven key business drivers identified as influencing consolidated position keeping can be summarized as follows:

There are a number of key drivers today that are influencing with a degree of urgency the search among the investment community in particular for aggregated position keeping across the industry.

### 1. Straight Through Processing

The need to transition to electronic trading and the drive for



This article was originally published as a White Paper in conjunction with Neil Edelstein of GoldenSource in April 2008



*“Performance Measurement’ requires the sourcing of appropriate position data, which according to Geoff Fensome of ISC, is a recognised challenge. This is especially important when the same data is used by other functions such as client reporting.”*



## 11 Reasons Why Investment Managers Are Demanding Consolidated Positions Data

STP has seen many Asset Management companies implement integrated Order Management (OMS) and Trading systems. These systems often support a variety of front office functions within an organization: decision support, order management, compliance and the trading interface.

To function efficiently OMS applications require accurate and timely position data at the security level.

### 2. Compliance

With the acceptance in recent years that prevention is better than cure, there has been a much greater emphasis on pre-trade compliance. Despite this, most firms still engage in levels of post-trade compliance for certain types of limit checking. Many firms are using a comprehensive OMS system such as Charles River or Latent Zero that incorporate compliance functionality.

These OMS systems are often implemented for a single asset class (e.g. Fixed Income only) or for one or two of their offices (e.g. used in London but not in Asia). These OMS systems can only evaluate accounts/positions that reside in the system therefore organizations typically use the OMS for specific compliance checks and then consolidate all holdings into a single repository to analyze concentrations across all holdings.

### 3. Assets Under Management

Reporting the total market value of investments managed has proved to be a difficult task for a number of organizations. The creation of a consolidated view of positions, avoiding any double counting typically thrown up by pooled investments is regarded as a necessary first step that supports the calculation of AUM (Assets Under Management) which is essentially a reporting function. AUM reporting has received widespread attention

in recent years partially due to the creation of ethical standards to which asset management companies should comply.

Due to the practice employed by some asset managers to charge management fees based on a percentage of AUM, it is understandable that this reporting requires both accuracy and transparency.

### 4. Performance and Attribution

Performance Measurement requires the sourcing of appropriate position data and is a common challenge. If performance data is used by other functions within an asset manager, it is important that a common source of position data is used. An example is client reporting (i.e. the performance figures must be calculated on the same position values that will show on the client report).

### 5. Risk

Risk Management is closely aligned to performance. In some Asset Managers they are handled by the same group while other organizations have performance and risk as separate groups. Calculation of risk characteristics is now a common process within Asset management companies (e.g. Value At Risk). For this there may also be a requirement to source and store data explaining the historic relationship between sectors, industries and asset classes (i.e. covariance data).

### 6. Cash Management

Cash Management throws up two main drivers for consolidated positions data. The first, cash inflows and outflows need to be passed to the front office to ensure the required investment/disinvestment occurs in a timely fashion.

This process supports management of subscriptions and redemptions of unitized funds, dividend and coupon income and any transitioning to/from the manager of client moneys. This can be a complex process with information potentially coming from different sources (e.g. outsourced back office, Internal Transitions Team, Fund Administrator) and at different times of the day.

The second area is the management of discrete cash funds which will typically seek to outperform a given index (e.g. 3-month Libor). These funds will typically invest in cash or near cash instruments (CDs, CP) with a tenure of up to 1 year. They may well look to arbitrage between cash and derivatives markets in order to boost returns (e.g. FRA/futures arbitrage).

### 7. Collateral Management

Baskets of assets are committed as collateral to back derivative positions. These may be individual securities, cash balances or groups of assets. These positions need to be maintained individually, but also as consolidated positions where a basket of assets is used as collateral.

This information is used in the front office and is typically fed into back office systems and relevant third parties. One aspect of collateral management is to ensure that held/pledged collateral is (or is not) included in fund valuations and is marked as unavailable for trading dependent upon any rehypothecation agreements entered into. Consolidated reporting is also required to support

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operational tasks and reconciliation v counterparties.

The temporary exchange of securities against collateral is a widely used, low-risk yield enhancement strategy. The costs of operating a comprehensive lending program are driving some firms to consider the outsourcing of this service.

### 8. Futures

Initial and variation margins need to be maintained v clearing brokers for futures contracts. Again this is primarily a reconciliation function that drives the need for consolidated positions - positions need to be aggregated to the level at which the reconciliation v the third party (or other internal system) holds positional data.

### 9. Fee Billing

Fee Billing is an area that is particularly important where the Asset Manager has large volumes of discrete clients, either institutional or private client. The process of updating and managing client data (names, addresses, contact points) along with details of the billing calculations themselves (fee rates on unitized products held, fee scales dependent upon fund size - either AUM or number of holdings- and periodicity of billing) has come in for scrutiny in the last few years.

Many large fund managers have implemented specialised billing systems to automate the process. It is not unknown during these implementations for fund managers to discover clients which had been under-billed or not billed at all. Having all this billing data within one system or easily extracted and combined with other data into a data hub can provide accurate and timely management information and can be used to model the impact of shifts in variables impacting cashflows (e.g. fee

rates, market index levels).

### 10. Client reporting

Many Asset Managers consider their Client reporting to be a significant differentiating factor to their competition. Asset Managers have various types of clients and often have different approaches to reporting to them.

Highly graphically printed client reports are still the predominant model used within European Asset Management. The process of producing client reports tends to have many steps and review points (i.e. a series of processes linked into a workflow, culminating in a reporting pack being produced).

Collation of position data from around an Asset Management organization is one of the first and fundamental steps in the whole process. Unlike many of the processes within Asset Management, Client Reporting is focused on a significant point in time rather than the latest set of information. The typical points in time are month, quarter and year end. Accurate and complete information is a priority for Client reporting.

The depth and diversity of the customer base within an organization for positions data dictates that achieving accurate, consistent and accessible consolidated positions data must produce significant economies of scale for any asset manager, large or small. The longer this problem is left unresolved, the greater the cost and effort to address it.

### 11. Request for Proposal (RFP)

Asset Managers obtain the majority of their institutional, pension or insurance clients by responding to RFPs. An RFP typically needs to include analysis of the Asset Manager's existing funds. Although

each RFP is unique, the majority of the information required is common across all of them.

The challenge for asset managers is to be able to 'slice and dice' information in a variety of ways to suit the demands of the RFP. Without a consolidated view of all of the investment management company's assets this is at best 'a challenge' for those involved in this sales process.

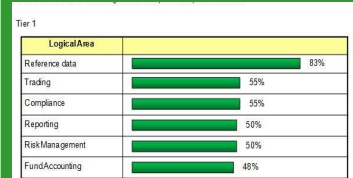
In some instances, where information is not available at a sufficiently granular level, questions cannot be answered accurately. To provide meaningful responses to RFPs 3 main data groups are required; Accounts and associated account structures, position values and performance returns at the security level and security attributes necessary to 'slice and dice' the information.

### Do you Know Your Positions – And Understand Them?

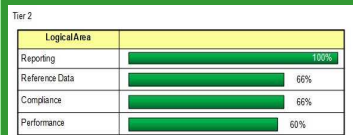
The current market turmoil and volatility has emphasized the necessity of being aware of details behind positions and transactions. An environment with increased risk has drawn attention to re-evaluating data management practices across positions, client/counterparty, and instrument reference data systems.

Firms are seeing value in connections across reference data components to arrive at the bigger picture affecting their exposures across the organization. In September 2007, GoldenSource commissioned the A-Team Group, a specialist research and publishing house to carry out an industry survey into the status connecting positions/holdings data with reference data. The findings show that 57% of the participants in this study ranked business risk as the highest

Where do Investment Managers feel the pain with Positions Data? The results of a survey of a wide range of firms are shown below:

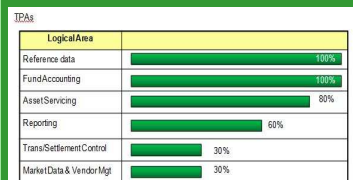


All respondents in the main work with end of day data. Some did reveal that they are starting to build cases for the introduction of real-time data although this is still at an early stage.



All respondents again cited the growing use of derivatives and the lack of support for such instruments in installed applications as the primary area of concern.

In some instances, firms have been forced to implement multiple solutions (eg trading systems) to provide a short term solution to this problem. In others, the administration of hedge funds has been outsourced to a third parties or it has been accepted that highly manual processes are required. All respondents work with end of day/snapshot data.



In order to attract business, TPAs seek to offer enhanced capabilities in certain key areas. All the respondents saw their ability to accommodate derivatives as a key differentiator. One firm was intent on establishing a world class market leading asset servicing capability.

The survey yielded inconclusive results for tier 3 managers with no clear consensus on the areas receiving most attention at present

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### Next Editions:

In upcoming editions of the ISChronicle we will be looking at other issues in the Investment Management world, including:

- Client reporting
- The governance of OTC derivatives
- Running a successful front office implementation
- Current trends in the outsourcing market

## ISC Recruitment Update

We currently have the following positions open:

- **Business Analysts with CRD (Fixed Income) experience (Contract)**
- **Business Analysts for a large Performance project (Contract)**
- **Testing manager for a Calypso implementation (Contract)**
- **PMO resource for a large program of change (Contract)**
- **Senior Consultant and Consultant positions at ISC (Permanent)**

For more details on any of these roles please send your CV to:  
[recruitment@iscclp.com](mailto:recruitment@iscclp.com)

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factor in building a business case for central data management.

Positions data manifests a firm's investment strategy and demonstrates its performance. It also can reveal a firm's exposure and potential risk through a variety of aggregation techniques. Because of diversity across instruments, businesses and regional requirements – as well as corporate reorganizations – firms frequently have multiple transactions software and data solutions. It is a challenge – yet essential – for institutions to bring together the data repositories backing these solutions to get a "big picture view" of the firm's holdings, its risk, and its overall exposure. This big picture view also assists management make risk/reward tradeoffs.

To get up-to-date information, firms are linking to central reference data hubs prior to aggregating across transactions systems. In the same survey 75% had already implemented these changes in data access of positions and transaction systems due to the growing complexity of their business.

### Complexity and Diversity

The current environment encourages asset managers to invest in complex instruments so that they can compete with more aggressive, unregulated hedge funds. But these, complex derivatives, electronic swaps, electronic messaging, and trading are challenging the fabric of today's trading environment, by requiring system enhancements to deal with volume and complexity of transactions. There is still much manual effort

involved, where Over the Counter (OTC) derivatives have been introduced into previously automated processes, especially when record keeping was combined with regulatory compliance.

Previously, before complex instruments, firms could calculate valuation and measure exposure through the relatively straightforward operation of multiply-ing holdings by latest price – both of which were stored in their transaction and accounting systems. Now, the industry is beginning to see that examining positions' exposure, in particular when investments include derivatives and structured finance, requires more depth in data than traditionally kept in transaction management systems.

In the new world, "defining the holding" could require knowledge of its underlying instrument and related information like collateral – reference data held in a different data repository. So, to identify true exposure, firms need to link their transaction application systems data with data in other systems. Adding to the complexity, nominal values of contracts, like options, far outstrip actual investment exposure. It is extremely difficult to obtain, model, or derive prices of these contracts. Human interaction and judgments across systems may be necessary.

The result is that firms need to capture and validate the key factors related to their investments that contribute to exposure – e.g., holdings, underlying instrument, credit information, risk data, prices

(actual and evaluations), mark-to-market/mark-to-model, descriptive data, and other derived indicators. This process will help provide clear picture of performance, valuation, and risk; it takes access to and connections across, a spectrum of reference data elements.

### Conclusion

It is a common misconception that the consolidation of positions data is a relatively simple process. Experience has shown this to be particularly challenging to all Investment Managers. Replacing a manual process with an automated and scalable solution is not without problems. When the manual process includes spreadsheet adjustments and undocumented local knowledge, the challenges can be acute. Regardless, this is a key building block of an Investment Manager's operation.

This is where an Enterprise Data Management (EDM) platform provides the ability to dynamically integrate data across the enterprise architecture and create centralized, consistent data sources. Applying EDM involves a significant sea change in approach to the management of an organization's IT infrastructure as well as data governance. The challenge remains to break down the silos in favour of an integrated data platform.



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