

# Hedge Fund Risk Winter 2010



**Addressing  
operational risk  
through outsourcing**

**Fraud puts due  
diligence process  
into the spotlight**

**Learning lessons  
of crisis for risk  
management**



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# After investors, regulators home in on risk issues

By Simon Gray

The alternative investment management industry has already had to come to terms with a wholesale shake-up in attitudes toward risk assessment and management in response to demand from investors. They are no longer willing to take on trust promises that managers are doing what they say they're doing. In addition, investors need assurance that managers are equipped with all the tools and system necessary to protect themselves not only against the predictable volatility of markets but unlikely and improbable events too.

The about-face on the part of both private and institutional investors, many of which withdrew substantial amounts of capital from hedge funds in the last quarter of 2008 and the first half of 2009 and are only now re-entering the market in substantial

numbers, has forced a reassessment of risk practices on managers themselves, as well as opening up opportunities but also challenges for providers of specialist risk tools and services, which are having to move swiftly to stay up to speed with market requirements.

Now the other shoe is dropping as regulatory changes start to catch up with developments in the marketplace. The European Union's newly-approved Directive on Alternative Investment Fund Managers, for example, is just one of the recent initiatives that brings risk management practices into the ambit of national and supranational financial supervision.

The AIFM Directive lays down that managers' remuneration policies and practices for staff whose professional

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# Best practice in post-crisis risk management

By Lance Smith

The market turbulence of the past three years has exposed a number of flaws and limitations in traditional approaches to risk management. In the aftermath of the crisis, investors are increasingly pressuring alternative investment managers to ensure the most advanced and appropriate tools and methodologies are being used to deliver the most robust risk management process possible.

In assessing risk management methods, timeliness requirements may be divided into three categories: real time, intra-day and end-of-day. Real-time risk measurement is vital, for instance, for option traders who need tick-by-tick deltas, but less essential to long/short equity traders, although real-time P&L can tell you a lot. Intra-day means on-demand, such as a stress test or scenario analysis to see the effect of trades on the portfolio's risk profile, while end-of-day means static risk reports compiled after trading is finished.

There has been much discussion over the past couple of years about the deficiencies of the best-known risk measurement, value at risk. VaR is based on various mathematical assumptions that may not hold true in the real world, particularly regarding correlations. Under extreme market conditions, these assumptions can break down and result in unexpectedly high losses. The premise of VaR is that experiencing losses due to a three-standard-deviation event is just bad luck, the result of an unhappy chain of coincidences. But in fact it is usually due to an event that the manager did not anticipate.

That's not to deny VaR's usefulness. Because it is calculated in the same way every day, any significant change in its value is an indication of something in the portfolio



**Dr Lance Smith is chief executive of Imagine Software**

that warrants investigation. A sudden increase in daily VaR can provide an early warning that something has changed, or that the manager has unknowingly taken on some directional exposure, although it will still be necessary to work out what it is.

Effective risk management, therefore, is proactive, and it should not rely on a single metric. It's critical to complement VaR with many other ways of looking at risk. One way is to carry out stress tests – as long as their design is effective in capturing what actually happens in the marketplace. For example, a standard risk slide for an options portfolio that moves stock prices and implied volatilities up and down will yield surprisingly little information of real value, and can obscure the data that are actually relevant to the manager's strategy.

Even well-designed stress tests may fail to capture the effect of market changes on liquidity. At times of extreme turbulence the liquidity of certain types of instrument can all but dry up, creating huge bid-ask spreads. While liquidity may eventually return, in the meantime portfolio managers facing margin calls may have to unwind more liquid positions at unfavourable prices. It's therefore important for managers to analyse positions by liquidity buckets to ensure they have a sufficiently large position in the most liquid bucket to be able to meet potential margin calls.

What can one conclude? Risk managers should be sceptical, proactive and interactive; they need constantly to slice and dice their portfolios looking for fault lines and combinations of events with consequences that traditional risk methods may not capture. It's a dynamic profession, as anyone sitting back to wait for their daily risk reports will sooner or later find out the hard way. ■

3 ► activities have a material impact on the risk profiles of funds they manage must be “consistent with sound and effective risk management”. The directive provides for secondary legislation to specify the risk management functions that managers should employ, review procedures for those functions and how they should be separated from operational activities.

Article 11 of the directive sets out a range of detailed aspects of risk management by which managers must abide, including documentation of their due diligence processes, implementation of stress-testing procedures, and prescription of the maximum level of leverage a fund can employ, including the details of leveraging arrangements that could pose system risk or expose the fund to counterparty risk. All these aspects will be subject to the supervision of national regulators for funds domiciled, managed or marketed within the EU, with oversight from the future European Securities and Markets Authority.

In a white paper published in October entitled *Managing Risk in a New World: Best Practices for Hedge Funds*, Advent Software notes that changing attitudes toward risk also reflect a shift in the composition of the sector’s investor base. “The decade leading up to 2008 and 2009 saw an explosion of fund managers and assets, and a transformation in the profile of investors,” the report says.

“Once the preserve of ultra-high net worth individuals, family offices and endowments, hedge funds began to attract institutional investors such as pension funds, as well as mass affluent investors via funds of hedge funds. The new breed of investor tended to have different risk tolerances from traditional hedge fund clients. Institutional investors and fund of funds managers tended to want more insight into investment policies and performance attribution, as well as assurances that funds had adequate infrastructures to mitigate operational risk.”

At the same time, Advent argues, the broader access to hedge funds around the upper end of the retail market has been a contributing factor in the increased interest in hedge funds on the part of regulators, which previously took the view that the sophisticated investors that made up most



of the market were capable of deciding on the riskiness for themselves of funds and strategies. “The mainstreaming of the customer base aroused regulatory concerns about investor protection, bringing more intense scrutiny of the sector, calls for greater transparency and the prospect of legislative action,” the report says.

This greater interest in hedge fund risks became suddenly focused by the financial crisis, despite the lack of substantial meaningful evidence that hedge funds either helped to precipitate the credit meltdown or that their subsequent struggles contributed to systemic risk. As Advent notes, “hedge funds faced not only steep declines in asset values and massive redemptions, but also bans on short selling, unprecedented counterparty failure, the collapse of markets for illiquid instruments and turmoil in the derivatives markets. Further, blatantly illegal behaviour on the part of a few tainted the reputations of many.”

Lance Smith, chief executive of Imagine Software says that while hedge fund managers are reluctant to admit that their proprietary risk management tools failed them during the crisis, they are under pressure from investors to upgrade and to be seen to do so. “Investors will not tolerate in-house systems based on spreadsheets and that sort of thing any more,” he says.

“Managers can no longer get away with saying they lost money because the model broke down and all the risk became correlated. Investors want to know what your assumptions are. They are also more comfortable with a third party providing analytics, as opposed to one of the traders or someone working for the fund. Investors are more cautious with their money now and they are liable to take it out very quickly.”

While hedge fund managers are always under pressure to achieve superior returns, Smith says, investors who have received disappointing returns through the crisis period now have a much broader list of demands. “One is a rigorous risk management methodology that is applied consistently, not just an occasional number fed to them,” he says. “They want increased transparency from their investment vehicles.”

A survey on operational risk conducted earlier this year by Advent in partnership

with Beacon Consulting Group finds, not surprisingly, that hedge fund managers are braced for “more intense demands for greater transparency, improved controls and regulation” in the future. “Nearly 80 per cent of respondents to the survey reported a marked increase in operational due diligence requests over the previous year. Many firms recognise the need for more efficient and comprehensive risk management and reporting policies to meet the more stringent due diligence requirements of today’s investors.”

But the pressure to invest in improved risk management tools is not just a negative factor for managers in terms of the cost involved, but can also represent a marketing advantage. Says the report: “Forward-thinking managers also recognise that an advanced risk management infrastructure can be an important differentiator, providing them with a competitive advantage in attracting and retaining assets.”

Adds Smith: “More savvy hedge fund managers came around some time ago and realised that risk tools are not just something that will generate a number to feed to investors and keep them happy. It’s a tool to help them identify the market opportunities.”

One aspect of the crisis that was little anticipated beforehand was the challenge faced by many hedge fund managers in managing their financing, according to Liam Huxley, chief executive of Syncova, a software vendor that provides tools to managers and prime brokers designed to provide better calculation and transparency in the areas of margining and financing costs.

In the past, for the most part hedge fund managers have found it difficult to see what parts of a portfolio are using disproportionate amounts of their capital because of the way they are treated by the prime broker, Huxley argues. “If they have a portfolio with a certain prime broker that is treating a couple of trades within that portfolio very punitively, historically the hedge fund manager would not have been able to identify where the firm’s capital was being used up,” he says. “Now they can drill down and understand which particular trades are chewing up the capital. They can also compare that with other counterparties and see where they could get better treatment.”

Huxley says this offers managers not only



much better control of day-to-day use of capital and the risk involved in the portfolio but enables them to stress-test the portfolio and understand the impact of shocks to the market such as the bankruptcy of Lehman Brothers in September 2008.

“What the Lehman collapse highlighted was not only a manager’s exposure to a particular counterparty, but also their overall risk if the whole market starts to drop and they start getting margin calls from all their counterparties,” he says. “Sophisticated hedge funds managers are now focused on making sure that they are not exposed to such shocks and to the risk of being forced to unwind trades to meet margin calls.”

This issue is highlighted by Smith, who says: “Even with stress-test calculations, what you may not adequately capture is the effect on liquidity. When a market gets really stormy, liquidity can rapidly dry up. It depends what you’re trading, and there’s not the same problem with currencies or listed equities, but traders of Eurobonds might suddenly find themselves faced with huge bid-ask spreads.

“The stress test may not take into account the knock-on effect of market turbulence on liquidity and what that could mean for the manager. If they hang on, the liquidity may come back eventually, but if they suffer a loss that requires them to meet a margin call, they may be forced to sell at current prices or pay dearly to buy back stocks they have shorted. But liquidity is simply not captured in a standard stress test or value at risk calculation.” ■

# Operational risk, IT and outsourcing

By Paul Compton

The traumatic crisis that engulfed the industry two years ago prompted a renewed concern among many hedge fund managers to gain control over their positions and exposures. Traumatized investors started asking managers many more questions about how positions were being valued, and even, in the wake of Madoff, whether the assets the fund claimed actually existed. This greater activism on the part of investors has turned out to be a lasting phenomenon, with managers under pressure to answer questions continually about their investment exposures and operational risk.

Meanwhile, hedge fund managers also have to deal with the lasting financial consequences of the crisis. Many faced extensive redemptions from investors who were disenchanted with performance or needed to realise assets. In the industry as a whole, assets under management have only just recovered the level of November 2008, still some way below their peak, and many funds remain below their high water marks.

So although fund inflows are recovering, many incumbent hedge fund managers now have to run more robust and transparent operations on reduced fee income. For start-ups the situation is worse. Most fund inflows lately have gone to the largest incumbent managers. Wannabe start-ups struggle to attain critical mass, and investors are reluctant to commit money on the traditional model whereby a 2 per cent management fee was intended to fund the bulk of operating expenses.

It's now common to see start-ups launch with only USD25m-USD50m of committed capital, often with only a 1.5 per cent management fee. That doesn't leave much of a budget, putting funds in the risky position of funding their operations from expected performance fees.

All this means the hedge fund COO has



Paul Compton is head of product management for alternative investments at SunGard

to do more, with less. Technology is the key to managing operational risk and delivering transparency to management and investors.

Traditionally, a hedge fund manager would build its own operational infrastructure in-house, implementing third-party software as part of the solution but also building their own applications and integrating it all into coherent workflows. The manager's own IT group would have responsibility for running and developing the in-house platform, involving ongoing costs of headcount and infrastructure maintenance.

Today hedge fund managers are increasingly outsourcing more of these operational requirements to specialist vendors such as SunGard. Our business is increasingly about hosting and maintaining systems on behalf of our clients. Managers still have full access to and control over their operational processes, but can significantly reduce the 'total cost of ownership' of the systems they need to have in place.

This new model requires long-term partnerships between hedge fund manager and vendor; no longer is software deployed and then managed by the client with arms-length support from the vendor. From the manager's point of view, selecting a strong vendor with a good understanding of the challenges facing its clients can offer a number of benefits. This can include the ability to go to market quickly with a ready-made technology solution, and to leverage the expertise of a vendor which specialises in technology design, quality assurance and scalability.

But ultimately it is investors who are the principal driver for change, by turning the spotlight on issues of operational risk. They are demanding more information on internal systems, and a strong vendor partnership can provide added assurance to investors that the fund's systems are robust and based on reliable technology. ■



# Risk industry adapts to challenge of “unknown unknowns”

By Simon Gray

Risk is the element that hedge fund managers above all others, are supposed to thrive on, but members of the industry long ago understood that there are many more facets to the concept than the market volatility that brings opportunities to the strong-nerved. Indeed, the past few years have highlighted the factors memorably described by US Secretary of Defence Donald Rumsfeld, in another context, as “unknown unknowns” – risks that could not be protected against because their very possibility was not conceived of.

A recent white paper from Advent Software on *Managing Risk in a New World: Best Practices for Hedge Funds*, highlights some of the risks that were unknown in early 2007 but are all too familiar today. “Monitoring and managing historical risks is still crucial for hedge fund managers; however, the scope of what they monitor has grown,” the report says. “While fund risk metrics used to focus primarily on beta and ‘the Greeks’, today funds must also consider risks arising from globalisation, product proliferation, greater trading sophistication and even the financial crisis itself.”

Advent spotlights various historical risks that were familiar to managers and investors before the crisis but to which insufficient attention was paid in some cases. Market risk was illustrated by the correlated meltdown of disparate markets precipitated by the collapse of the US sub-prime mortgage market, and specific risk by the disproportionately severe and sustained impact upon the financial sector.

The crisis also spotlighted credit risk through the default on the part of issuers of collateralised mortgage and debt obligations based on sub-prime mortgages and other overheated areas of the credit market, and by the problems faced by credit default swap counterparties that offered credit protection beyond their ability to pay. Liquidity risk emerged when markets for whole swathes of assets offered by distressed sellers disappeared.

At the same time, Advent says, the crisis brought some of the “unknown unknowns”, or emerging risks, into view. They include counterparty risk, most prominently illustrated by the collapse of Lehman Brothers and the subsequent freezing of substantial volumes

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# Fraud remains key due diligence driver

By Doug Nairne

One of the most important changes in the global financial industry over the past three years, and indeed the business environment as a whole, is the increased importance placed upon due diligence. That means paying closer attention not just to counterparties in order to detect any evidence of fraud – although this is certainly a vital component – but also wider issues, especially legal ones, to see whether they could have any detrimental effect on a firm's business.

For example, an important focus for business is the possible impact of the new UK Bribery Act, which will take effect next year and could prove as much a compliance issue as the US Foreign Corrupt Practices Act. Because the legislation doesn't just cover bribery of foreign officials but all types of bribery, it could turn out to be an important concern for UK companies and those that do business with the UK, depending on how stringently it is applied and enforced.

The US law originally dates back to the 1970s and was designed to prevent US arms manufacturers paying bribes to foreign government officials as kickbacks to obtain contracts. However, there were few enforcement actions until the early 2000s, in the wake of 9/11 and also the collapse of Enron, when the US Department of Justice began to apply the act much more rigorously than over the previous couple of decades, as part of a general move toward stricter compliance and enforcement of existing laws.

It is widely expected that the UK law too will be applied strictly from the outset, confounding expectation that authorities in many countries might take a softer approach toward enforcement to avoid adding to the burdens of business in a



Doug Nairne is head of enhanced due diligence operations at World-Check

more difficult economic environment. This means that more than ever, due diligence on counterparties is a vital business tool, not an optional luxury.

Despite the economic upturn in some parts of the world, especially Asia, conditions remain difficult elsewhere, especially in the US and across much of Europe. The possibility of fraud remains a key driver of growth for the enhanced due diligence business at World-Check, which in any given month provides due diligence reports in more than 100 countries and now accounts for around 225 of the group's total workforce of more than 400.

Cases such as Madoff have kept fear of fraud in the front of mind for investors, although the environment is less propitious for wrongdoers than at the height of the boom a few years ago. The world is no longer awash in cheap money, and tighter international financial regulation has made it harder for fraudsters to shift money around undetected or to cover their tracks.

But there's no decline in interest in due diligence – quite the contrary. Everyone understands that you need to do background checks on business counterparties, and are acutely aware of risks such as overseas corruption or the opportunities for misconduct by fund managers not subject to adequate scrutiny.

Today there is growing focus on emerging markets, including the BRIC countries but also frontier markets in Africa and central Asia, whose economic potential and rich commodity resources are attracting extensive investment. Since due diligence depends upon open flow of information and good public records, conducting research can be more difficult in these countries, but at the same time it is more vital than ever. ■



9 ► of hedge fund assets in London, but also the drying up of stock lending and the curtailing of leverage by prime brokers; issuer/name risk, including the complex mix of different types of security issued by a single company; operational risk, which was often exacerbated by the stresses placed on businesses by the crisis; and reputational risk, which can lead to businesses failing as a result of redemptions by investors who no longer trust or have confidence in the manager.

Already, the report says, best practice has evolved in the light of these developments. For example, hedge fund managers have sought to diversify their range of prime brokerage relationships to reduce counterparty risk, or - where possible - to change the terms governing use of the assets lodged as collateral. And like it or not, most managers are having to provide a much greater degree of transparency into their investment processes and operational procedures - including risk management itself - in order to reassure investors about their ability to deliver on their promises.

What's certain is that the 'seat of the pants' approach to risk management is history, says chief executive Liam Huxley of Syncova, a vendor of margining and financing cost software to hedge fund managers and prime brokers. "Hedge funds used to be launched by traders who came out of proprietary trading desks, and they tended to be focused on investment decisions and trading rather than operations," he says.

"Amid all the turbulence in the market over the past two years, there has been an overall trend toward greater structure, stronger processes and systems in the middle and back office, across the board from pure market risk management to operational and liquidity risk. We see that trend only accelerating in the future because of ever-increasing awareness of the need for control and analytics. Obviously

how much a manager can invest in technology depends upon the size of their funds, but we're also working with third parties such as fund administrators to provide some of these services to smaller firms."

One of the most important areas of focus for all members of the industry is the due diligence necessary before entering into a broad range of business relationships, from the manager's examination of a fund administrator's or custodian's systems to the research undertaken by investors before taking decisions on where to place their money. And inevitably, since the crisis shone a light on numerous cases of negligence and outright fraud, the honesty and reputation as well as capability of counterparties is a key focus.

It all means additional work for companies such as World-Check, which today has more than 220 people serving the worldwide customer base of its enhanced due diligence business. The firm's Hong Kong-based head of enhanced due diligence operations, Doug Nairne, says that even though the crisis temporarily slowed growth of activity from banking clients, overall activity has been boosted by other firms starting to take due diligence more seriously than in the past.

"Money laundering is still as important as ever, it's always an ongoing issue," he says. "Most of the financial industry is now alert, sophisticated and prepared enough to be much better at detecting and countering money laundering than they would have been 10 years ago. Huge strides have been made, but it will probably go on as long as criminals have money and there are banks in which they can launder it."

Nairne says a turning point was the 9/11 attacks on the US, which suddenly brought home the importance of monitoring financial flows and added preventing the financing of terrorism alongside efforts to counter money laundering as a key priority for the financial industry, regulators and law enforcement agencies. "The attacks brought home that it's not just narco-traffickers that attempt money laundering but other sorts of criminal, and terrorists too. Often they can be one and the same."

Internally, IT security has also become a bigger focus - ironically, in part because of the theft of data from private banks and wealth managers that was subsequently sold

on to national tax authorities. But there has also been increased concern about identity theft and the online manipulation of customer accounts, on top of the longstanding desire for confidentiality shared by many hedge fund managers with their investors.

"Security is clearly viewed as extremely important in the hedge fund industry and elsewhere," says Paul Compton, head of product management for alternative investments business at software provider SunGard. "However, the financial world has become a lot more comfortable with the idea of very commercially sensitive data being held off-site and being exchanged through the wires.

"It's now very standard for firms to hold customer relationship management data offsite, because the CRM space is an application service provider model" in which services are provided over electronic networks. "Five years ago hedge funds might have been reluctant to put their positions on someone else's server, but most attitudes have changed. Today sensitive files don't get sent over the internet without being encrypted and scrambled. There is no way anyone intercepting one of those files could make any sense of the data unless they had the context and the key for it."

Compton notes that while the crisis has pushed more managers to employ third-party administrators, especially in the US where the practice used not to be as prevalent as in Europe, it has also prompted managers to monitor the work of their independent service providers more closely. "Most funds have a third-party administrator responsible for independently calculating and verifying their NAV, but we find that more and more hedge fund managers are effectively shadowing that process.

"There will be a daily process of reconciling the positions with the administrator's view of those positions and conducting analysis if there is any variance between the numbers. That can be a time-consuming process, and that is one of the areas where technology can help a lot. We have accounting systems that enable managers to do this."

Lance Smith, chief executive of Imagine Software, cautions that judgement must be exercised about some of the risk measurement techniques upon which managers rely, notably

value at risk. "VaR does have some usefulness because you run it every day, so if it changes suddenly, something's happened in your portfolio that you need to investigate," he says. "It can be an early warning that something has changed, or that you have perhaps unknowingly taken on some directional exposure. But you still have to go in and figure out what it is.

"It's critical to accompany VaR with other ways of looking at risk. The risk in a portfolio is not just single numbers but multi-dimensional. One of the things you do to complement VaR is to conduct stress tests, but what people don't talk about is how exactly to design them. You want to look at something that is unlikely, but not so unlikely that that you can ignore it.

"Some of the stress tests people carry out don't seem on target. They move the market and the volatility up and down and see what happens. That traditional method can mask what's going on because you're looking for a grain of sand on the beach. You have far too many numbers and you don't know which ones matter."

Smith argues that more work needs to be done to design stress tests according to the trading strategy in question. "It's very important to take into account all the underlying factors - for example, equity prices, yield curve, credit spreads and defaults," he says. "You need to be able to experiment with all the underlying factors. A risk practitioner with experience of the market has access to a lot of historical data to help them design a meaningful test." But he adds: "All the same, you don't want to over-engineer stress tests. The market always surprises you with something new."

Readiness to manager unforeseen risk is part of the challenge facing the industry, according to the Advent study. "In light of the inevitable risks that come from the pursuit of superior absolute returns, hedge funds have long recognised the need for effective risk management and monitoring capabilities," the report says. "Yet as the 2008-09 crisis illustrates, events can get out of control quickly. In the face of faster trading speeds, increased volume, growing instrument complexity and greater globalisation, hedge funds must manage a wider array of risks today than even five years ago." ■