Risk Roadmap: Hedge Funds and Investors’ Evolving Approach to Risk

Key Findings

During the course of our research for this paper, the following global themes have emerged:

Hedge Funds are Empowering Risk Managers and Investors

- **Chronological Perspective:** Historically, hedge funds had a reputation of being closed books with little transparency around investment strategies, risk management and market outlook. Hedge funds today are increasingly more willing to tell their story in plain language with a keen focus on sharing and explaining their risk approach.

- **Independence of Risk Managers:** 79% of firms separate their risk manager and fund manager functions to ensure independent oversight.

- **Enhanced Risk Systems:** 84% of hedge funds use off the shelf risk analytics that form part of the portfolio management or trading system. More is needed to better model more complex multi-asset, multi-strategy portfolios. We can no longer use yesterday’s analytics in today’s environment.

- **Transparency through Data Mining:** With the onset of derivatives exchanges and standardized contracts, we should see marked improvements in the data available for exposure and risk analysis – a positive development in disclosure and transparency for investors in hedge funds.

- **Institutional Investors Want to Self-educate:** There is a huge opportunity to educate investors on their risk approaches. Hedge funds are increasing their efforts to educate the investor – and this growth needs to continue. Positive steps by the industry and educational groups like the Global Association of Risk Professionals (GARP), the Managed Funds Association (MFA) and the Professional Risk Managers’ International Association (PRMIA) are focused in the right direction, but those efforts need to keep pace with developments in the industry.
Investor Confidence

- **Public Transparency:** As directed by Congress through the JOBS Act, the Securities and Exchange Commission is expected to remove its ban on general solicitation for private funds. This change could encourage more publicly-accessible fund websites, and allow fund managers to be more candid and forthcoming when engaging with media on risk management practices and information.

- **Investor Protection:** The financial crisis resulted in governments tightening the financial system and putting in place measures to protect the investor and reduce systemic risk through legislation such as Basel III, the Dodd-Frank Act - including PF Form Reporting in the US, and, in Europe, the European Market Infrastructure Regulation (EMIR) along with other controls such as the Alterative Fund Managers Directive (AIFMD). Investor protection is a key to mutual success.

- **Investor Transparency through Third Party Administrators & Custodians:** Over 91% of hedge funds rely on a third party administrator in some capacity resulting in increased investor confidence in fund reporting and safekeeping funds. Third party administrators provide transparency for the investor through independent reporting.

- **Account Transparency through Managed Fund Platforms:** Hedge Funds project that five years from now 41% of investor reporting, up from 12% in 2007, will be published daily or weekly. Tighter control of assets, better governance, daily independent transparency, and in some cases timely and meaningful risk and exposures reporting to investors are excellent methods of mitigating many of the concerns investors have in allocating to hedge funds.

Executive Summary

These continue to be challenging times for hedge fund managers. Regulatory scrutiny is up, public understanding remains low, and even institutional uncertainty about the global economy has negatively impacted the industry. The hedge fund manager must now tread ever more carefully between the concentric boundaries of risk aversion and risk acceptance to achieve goals consistent with a particular fund’s stated purpose, pedigree, and assets. It is beyond question that the credit crisis of 2007-09 dramatically highlighted the importance of scrutinizing, re-assessing, and enhancing risk management practices throughout the entire financial sector, including hedge funds. Monumental losses at global banks, together with losses across all sectors of the institutional investor base, made for a “sea change” in how enterprise-wide risk management is conducted, evaluated, regulated, and, most importantly, effectively demonstrated by asset managers and financial institutions entrusted by investors to manage their money. Hedge fund managers recognized an even greater need to better segregate the risk management functions and to provide added scrutiny over portfolio construction and the individual positions initiated by investment staff. Specialized risk systems...
that model specific assets classes help fund managers better understand the inherent risks in their overall portfolio. In addition, greater technological advances have afforded managers the ability to make appropriate portfolio changes and to react swiftly to dynamically changing markets, thus helping to mitigate the depth of losses in times of extreme market distress.

Greater realization of the scope and severity of losses, came clearly into focus after 2008, particularly with the 2009 Basel Committee on Banking Supervision finding that Credit Valuation Adjustment (CVA) value-at-risk (VaR) (mark-to-market) losses accounted for two-thirds of counterparty credit losses during the credit crisis, with only one third attributable to issuer defaults. The previously-unimaginable Lehman default and subsequent collapse, coupled with the resulting loss of capital by investors and managers who did not have segregated custody accounts, brought the importance of having financially-sound, stable service providers together with operational and risk management best practices in place to better safeguard against future catastrophic events.

This heightened focus on risk identification and management clearly applies to all money-managers. This is arguably more acute for hedge fund managers already under scrutiny for several years due to the perceived opaqueness of the industry; the focus of the financial press and commentators on high profile hedge fund managers; the types of strategies employed and risks managed; and the revenue structure and relatively high return of a successful hedge fund. Even though the financial crisis led to massive government bailouts of public institutions and consequent public distrust in the entire domestic financial system, one fact should not be overlooked: no hedge fund firm received any government bailout money as a result. Despite this, hedge fund managers continue to be challenged to be at the forefront of risk management techniques and firm-wide risk management processes to attract and retain institutional style capital.

With the slowdown in global growth, continued sovereign issues and the October 2011 collapse of MF Global, the financial community still needs to navigate a broad range of risks. Hedge funds have come a long way in this period of uncertainty - not necessarily through their most recent performance, but through their willingness to be sensitive to investor concerns and to address the array of risks they and their investors seek to identify and mitigate. In the following pages we will discuss this evolution and our particular observations in further detail.

Research Approach

This paper seeks to articulate some key risks which hedge fund managers must manage. We will demonstrate that, although in the past hedge fund managers valued tightly guarded investment strategies, today transparency, improved data mining and analysis, and ongoing education efforts are being leveraged to help both the investor and the hedge fund make investment decisions. We will then suggest processes and best practices for investors to view these risks clearly, in an effort to better understand the intended and unintended risks presented with hedge fund investing and proactively address them with their hedge fund managers.

Hedge funds have come a long way in this period of uncertainty - not necessarily through their most recent performance, but through their willingness to be sensitive to investor concerns and to address the array of risks they and their investors seek to identify and mitigate.
The topics presented in the following pages will show the progression of risk management dynamics and some of the myriad processes and tools that the industry can use to identify, monitor, mitigate, and report on risk.

From an investor's perspective, there are many different perceptions. Each will vary from the type of investment sought, the level of acceptable risk, and the nature of the investor. Thus the views and opinions of a large state retirement plan, a private endowment, an insurance general fund, corporate plans, or a sovereign wealth fund may greatly differ from one another.

This paper, therefore, does not seek to address every aspect of risk but rather explores what we have found by discussing risk-related topics with chief investment officers, chief risk officers, and professional hedge fund allocators; by analyzing manager and investor survey responses outlining risk types and factors; and by examining how risk systems today are designed to monitor and report on some of them.

This paper is based on the following research methods and approaches:

- Qualitative and quantitative data from 50 hedge funds, 30 investors, 6 prime brokers, 13 hedge fund consultants, and 3 industry influencers collected by the MFA, BNY Mellon and HedgeMark from September 2011 - December 2011 (see Figures 1-4).
- Direct feedback on this paper gleaned through HedgeMark's managed fund platform managers and others. This included responses from another 70 attendees at the MFA's Outlook 2011 Conference.
- Interviews with several hedge fund allocators, predominantly US based, to obtain their insights into investor perspectives on the evolving nature of risk management with hedge funds. These allocators spoke from the perspective of state, municipal and corporate retirement plans, endowments, family offices, and sovereign wealth plans.

![Figure 1 - Survey Participant Breakdown by Type](image_url)
Hedge Fund managers tend to focus on granular risk factors within their portfolios.

Risk Dynamics and the Increasing Velocity of Risk

When discussing risk management in the hedge fund industry, obtaining a clear definition of the different types of risk for each kind of hedge fund has been difficult. Our research of hedge funds and their investors has focused on risk types/factors, people, systems, and portfolios. However, risk is dynamic and a discussion of risk or any specific risk factor will very likely have different meanings to different stakeholders.

By and large, our study revealed that Hedge Fund managers tend to focus on granular risk factors within their portfolios. This method dominates the manager’s response to risk and ultimately may restrict their timely reaction to it. Manager can have a limited view as to how the investment strategy fits within a broader, cross-asset portfolio and will consequently tend to focus on a particular mandate of the fund. Recognizing that possibility, it is consequently important to note that, for market risks, different hedge fund strategies pay attention to different risk factors and segments that hedge fund managers subjectively believe need monitoring.
We have seen in recent years that there has been a shift towards understanding enterprise risk – or the risk characteristics of an aggregate investment portfolio (the “enterprise”) and, in particular, towards understanding discrete operational and business risks, as well as risks with the potential to become both operational and business, such as reputational risk.

In contrast, our research indicates that an investor, not surprisingly, examines a risk spectrum before allocating assets to a hedge fund. This is evident in the sometimes very extensive pre-investment due diligence. It is underscored, of course, during post-investment monitoring of hedge fund investments and attempts by the investor to align hedge fund due diligence and transparency with standards of traditional investing. In line with this finding, a major concern for investors is the extent to which a fund is exposed to market (or systematic) risks. We conclude that investors have been at the forefront of change, becoming increasingly active in monitoring and in demanding more protection around this asset class as they steadily increase and hold allocations to hedge funds (Figure 5).
Indeed, the demand of increasing allocations from institutional investors has driven the alternative fund industry to evaluate and (ultimately) alter the way it views and manages risk. The events leading up to the Great Recession demonstrated that hedge funds and their investors must pay attention to all risk factors. Though there may be different types of risk, they are interdependent.

**Risk Types and Factors**

In a broad context, there are many different risks confronting hedge fund managers and investors when focusing on portfolios. Of course not every manager or investor perceives or considers each type of risk or accords them the same weight. The following are some key risk types and factors hedge funds and investors should acknowledge.

**Direct Market Related Risk (including interest rate risk):**

1. **Liquidity risk**, in its “market” form, is the risk of being unable to sell or unwind investment positions at previously prevailing market prices. In a sudden market downturn, margin calls can force the liquidation of portfolio positions. When combined with contracting liquidity, such as arising from unanticipated broad-based hedge fund redemptions, this type of risk can lead to large cash outflows, periods of pricing dislocations and...
inefficiencies, and greater portfolio losses. Because of its tendency to exacerbate market, credit, and other risks, it is difficult to isolate liquidity risk. For example, during periods of severe illiquidity it is common for bid-ask pricing spreads to widen to an extent that prices, although factual, may not be realistic or accurately reflect the intrinsic value of an asset, and the asset manager is forced to sell positions. Where appropriate, liquidity risk measurement should reflect the potential discounts in value that would effectively incorporate the potential impacts of severe market changes. Liquidity risk has additional bearing in the hedge fund context for fund strategies that involve the purchase of less liquid assets coupled with hedging short positions in more liquid instruments.

2. **Volatility risk** arises from increased market price fluctuations. Managing volatility risk in normal environments is generally accomplished through portfolio diversification by asset class, geography, market sector, and strategy. Volatility risk emerges on a different level under extreme market conditions in which correlations between asset classes and strategies tend to change and often converge. Managers may hedge volatility risk through use of financial derivatives.

3. **Credit risk** is the risk of default of an underlying borrower. Depending on the nature of the borrower, there can be consumer credit risk or corporate credit risk. Consumer credit risk is particularly relevant to the credit-origination market where, for example, investors holding structured pools of mortgages have direct or indirect credit exposure to the underlying borrowers. Corporate credit exposure arises, for example, when an investor owns fixed-income securities issued by a corporation. The expected cash flow from these securities is dependent on the financial condition of the issuer.

4. **Equity risk** is the risk that a portfolio will change in value due to fluctuations in equity prices. Hedge fund managers can manage equity risk through hedging strategies that utilize equity derivatives such as options and futures contracts or by employing market-neutral investment strategies that generally may correlate less with broad market movements and thus, carry less traditional or systematic market risk. The measure of risk used in the equity markets is typically the standard deviation of a security's price over a number of periods. The standard deviation will delineate the normal fluctuations one can expect in that particular security above and below the mean. However, since most investors would not consider fluctuations above the average return as “risk”, investment analysts prefer other means of measuring it.

5. **Currency risk** is the risk of changes in the relative value of a foreign currency in which investments are denominated. This risk directly affects the value of such investments and even yields and returns. Currency risk can be offset using forward or futures contracts and options as hedges against foreign exchange rate fluctuations.

6. **Commodity risk** refers to the risk of rising or falling commodity prices that may result from supply and demand imbalances, changing spending patterns, or changing input costs. Commodity risk can be hedged through futures and forward commodity contracts.
7. **Correlation risk** is the risk of changes in the way prices of different investments in a portfolio relate to each other. Increasing correlations can negatively impact the anticipated benefits of diversification.

**Other Investment Risks**

8. **Asset/liability matching risk**, sometimes referred to as funding liquidity risk, is the risk of loss when the amount of capital available to a hedge fund falls due to redemptions or the loss of other financing sources, and the hedge fund cannot fund its redemptions, investments, payments to creditors, or expenses. Investors assessing this risk must consider the investment strategies employed, the nature of the fund’s investor base, the rights of investors to redeem their interests, asset liquidity, and counterparty funding arrangements.

9. **Counterparty risk** arises from transacting with parties that are unable to meet their obligations. It is particularly important when investing in derivatives, in which either party's credit exposure to the other will change, perhaps significantly, over the term of a derivative contract. Managers may be able to mitigate or diversify counterparty risk on two levels. First, they should choose counterparties with strong balance sheets and consistent cash flow streams and monitor these counterparties closely for systemic risk. Second, they may be able to use security interests in collateral, covenants, and credit derivatives such as credit default swaps or other types of protection to support the timely and orderly repayment of financial obligations. Investors should understand the manager’s policies for selecting and monitoring counterparties.

10. **Basis risk** refers to the risk remaining after hedging has been implemented. Certain investment opportunities may not allow for effective hedging, and hedge funds may be able to hedge some components of risk but not others. Theoretically, perfect hedging should result in a return equal to the risk-free rate minus transaction costs. There will generally always be some basis risk in hedged investments.

11. **Common holder risk** (crowded trade risk) results where many investors holding the same asset need to exit it at the same time, resulting in significant downward price pressure.

12. **Event risks** are those unusual circumstances in which large-scale swings occur in capital markets. These may arise from unpredictable events such as terrorist attacks, natural disasters, unusual weather patterns, or oil supply shocks. To analyze extreme event risk, a hedge fund manager should employ a series of hypothetical scenarios that are relevant to the particular portfolio. Examples of market stress events may include rapid equity declines and credit-spread widening or a period of rapid equity advances and credit tightening. Managers should conduct appropriate stress testing based on the current portfolio exposures and specifics.
13. **Reputational risk**, or the potential threats to the desired reputation of an organization, is a rapidly rising consideration in commercial banking, investment management, asset management, and asset ownership. Although less easy to fully embrace or anticipate, we believe the mismanagement of any of the more traditional risk outlined above will translate into a broader range of reputational issues that can quickly translate into everything from a loss of investor and/or regulator confidence to employment termination.

14. **Meta risks** are the qualitative risks beyond explicitly measurable financial risks. They include human and organizational behavior, moral hazard, excessive reliance on and misuse of quantitative tools, complexity and lack of understanding of market interactions, and the very nature of capital markets in which extreme events happen with far greater regularity than standard models suggest. While these qualitative risks exist and it is useful to be aware of them, it is virtually impossible to plan for and hedge against them.

In a survey of participants taken at the MFA Outlook 2011 conference, of all the types of direct market related risk, participants indicated that firms manage liquidity risk most explicitly. Of the 70 alternative fund managers who responded, 39 (55%) pointed to liquidity risk as being of the highest importance in risk management practices (as shown in Figure 6).

**Figure 6 - Managing Fund Liquidity Risk**

In all, these risk types essentially comprise a broad risk view of which hedge fund managers and investors need to be aware. We recognize but have not covered other aspects such as politics, country, regulatory, fraud, and concentration risks these being beyond the scope of this paper. Our findings, though based on a smaller fund manager focus group, seem to concur with a findings matrix developed by Jaeger and Säfvenblad, who define the different risk exposures by each type of hedge fund (Figure 7).
Viewing the table above from an investor’s perspective, it can be seen that many of the risks associated with investing in a long-short hedge fund are completely different from those associated with, for instance, investing in a fixed-income arbitrage hedge fund.

For both hedge fund managers and investors, uncovering the different dimensions of risk present in each hedge fund portfolio becomes the first step towards managing risk effectively. This is the crucial point: all investments are not the same, and different hedge fund strategies, in particular, may introduce a broad range of different risks which must be viewed and analyzed individually. Thus hedge fund risk, at both the manager and the investor levels, must be very well identified and understood in order for them to be effectively measured, monitored, and managed. In the following section, we will examine how the need to understand these types of risks (both by the fund and the investor) and execute portfolio allocations accordingly, directly led to the evolution of the Risk Manager.
Constructing the Missing Links

When discussing risk with hedge fund managers, we found the tenor of the discussion to be quite different depending on whom we spoke with at each fund. Responses from Chief Investment Officers (CIO) or senior portfolio managers’ responses overwhelmingly focused on the portfolio and often the CIO’s qualitative relationship with the underlying fund managers. Chief Risk Officers (CRO), on the other hand, presented risk concepts more holistically and frequently included not only the portfolio from a quantitative perspective but also the qualitative perspectives impacting their business as a whole. This broad standpoint was evident for those hedge funds who segregate duties between the head of the fund and the CIO.

The Evolution of the Risk Manager

New regulations, such as Basel III, the Dodd-Frank Act in the U.S., and EMIR, will increase capital adequacy requirements to reduce counterparty credit risk and precipitate significant changes to internal counterparty risk management practices. This, in turn, has led more and more hedge funds, particularly the larger ones, to add a dedicated head of risk management (CRO) to their staff. This has also been the case with allocators to hedge funds, such as retirement plan sponsors, endowments, and fund of hedge funds. In recent years, the responsibilities associated with this role have dramatically grown.

We found that investors and fund managers increasingly attempt to separate portfolio management and risk duties within the investment process to allow for a more balanced and independent decision-making process (see Figure 8). Today, it is less common to encounter a hedge fund where the risk manager and portfolio manager is the same person.

The risk manager now plays an important part in the overall investment process and the continued monitoring of portfolio(s). As a result, today’s risk manager may help the fund manager decide on such things as allocations, stop losses, limits, thresholds, and concentrations in the portfolio. Furthermore, it appears that risk managers increasingly lead discussions surrounding reputational risk, as well as their more traditional analytical discussions. In support of this observation, 60% of the larger hedge fund managers now have a dedicated risk function. Many managers stated that before 2008 this role was not a separate function. However, this was mostly true of managers with greater than $5 billion in AUM, which are considered large hedge funds. Only 17% of emerging managers, those with less than $1 billion AUM, had a dedicated risk manager. For emerging managers with more limited financial resources, the risk management role is encompassed within the chief investment officer’s or senior portfolio manager’s mandate, doing little to provide the balance or independence the role realistically requires and the current environment and prudence arguably demands.

Risk managers are also increasingly being used by hedge fund managers to aid in the portfolio allocation process. Many managers now employ risk committees and formal processes to make decisions around the risk management process and business issues in general. This approach allows for managers to be increasingly transparent with respect to their tactical and...
strategic decisions. This type of approach allows managers and investors to develop better metrics to measure the impact of their decision-making successes and/or failures.

Large hedge fund managers we spoke to stated that increased investor demand since 2008 had been an important driver for why they had implemented dedicated risk management structures. However, following 2008, as many new funds formed from divested proprietary trading operations at investment banks, most have adopted the risk culture of their prior employers, a comfort zone that may be logical, but runs the risk of ignoring the investment culture and investment census in their new position, at least initially.

From the investor perspective, our research found a mix of allocators to hedge funds that sought to have a dedicated CRO. In the case of large retirement funds, foundations, and endowments, we found no dedicated risk manager for hedge fund investments but rather a head of risk across all asset classes. The role of manager and assessor of risk was dominated by the portfolio manager or chief investment officer. This view was mainly shared with allocators of less than $1billion in hedge funds, where our research overwhelmingly found the need for a dedicated head of hedge fund risk for this asset class to be low. On the other hand, we found that investors with $1billion or more allocated to hedge funds were planning to add a dedicated risk manager in the future.

As demonstrated in Figure 8, at one extreme Risk Management may be totally separate and independent from Portfolio Management. At the other extreme, Risk Management and Portfolio Management could be one and the same. While the wisdom of the former is undoubtedly sounder, the exigent circumstances may very well dictate, however ill-advised, the latter. The following figure shows the distribution of 33 responding hedge funds along that spectrum. This demonstrates functions that are totally separate and independent, both to portfolio managers who have some risk management oversight (represented by the 21%) and to funds that support fund managers acting completely in a risk management role.

Figure 8 - Structure of Risk Management: Relationship between Risk Management and Portfolio Management

Source: BNY Mellon and MFA Research, 2011
Although we have considerable evidence supporting the premise that hedge fund managers are seeking to bolster risk management, the question as to whether these individuals are truly empowered to manage risk, as opposed to monitoring risk, has generated interesting comments. When discussing this issue with hedge funds, we found most respondents indicated that, although someone may be considered the head of risk management, the actual risk management is done by portfolio managers or chief investment officers.

As a result, it appears that risk managers may actually be tasked with the roles of monitoring and assessing risk and making recommendations, although they do not necessarily ‘manage risk’, particularly at the portfolio level. It is certainly fair to say that there have been numerous examples of hedge fund risk managers raising concern over the risks taken by portfolio managers, only for their protests to be ignored by the portfolio managers. This has led to instances of risk managers resigning from funds who have not shared their views and then afterwards seeing the fund collapse.

In early 2011, GARP and the Wharton School at the University of Pennsylvania conducted a study to better understand the impact of employing a head of risk at hedge funds. This study reviewed the performance of hedge funds in 2008 and found that those hedge funds that had a dedicated head of risk outperformed those that did not. Though the data is limited and therefore not conclusive, the study does support the proposition that dedicated in-house risk professionals can be positively correlated to additional alpha.

One way to better understand the growing importance of having a competent senior risk manager (albeit a relatively subjective measure) is to consider shifts in compensation for this position. When compared with compensation for a position that was largely non-existent 10 years ago, this measure is clear evidence that can be used to both prove the growing demand for risk managers and demonstrate that this position is still perceived to be significantly less valuable than the portfolio manager. However, the reason for the discrepancy is that the risk manager’s compensation is not directly related to portfolio performance.

Risk management is still largely perceived as a necessary, but non-revenue producing requirement. Everyone needs it to keep clients and stakeholders, not to mention regulators, satisfied, but no one wants to pay the costs associated with a sound risk management program. An interesting observation of industry influencers is that risk managers and portfolio managers are, from a personality perspective, two very different types of people. Some feedback we received suggested that portfolio managers may have more of a ‘gambling mentality’ as part of their psychology. They take what they consider to be calculated risks in order to make profit. These individuals are generally assumed to be outgoing and extroverts by nature, although our personal experience does not always support this generalization. Risk managers, we found, are generally viewed as “risk averters/avoiders” or protectionist, perhaps defensive in nature, often with personalities considered introverted. A highly regarded risk manager is frequently characterized as being “pro businesses” - a choice of words that serves as an interesting commentary of how risk managers are otherwise viewed.
Hedge fund risk managers are challenged with balancing exposure and risk limits while at the same time partnering with portfolio managers to generate alpha. The idea is to ensure that portfolio managers have extremely high convictions for their trades, while operating with the risk constraints established by the company and enforced by the risk department. By having risk management as a separate function, portfolio managers can be more formally challenged in their thinking and the function can remain independent and objective. In some structures the risk department reports directly to the company’s board of directors, not the CEO or portfolio management team. This segregated approach is, from our perspective, a more prudent, transparent, and effective risk management approach than that of a bundled risk/portfolio manager and seems to be growing in prevalence.

In the case of both hedge fund managers and investors in this asset class, we have identified another trend that has developed since the financial crisis of 2008. In addition to improving compensation guidelines, there has been a significant increase in the number of professionally qualified risk personnel being hired. We define these individuals as people qualified with the Financial Risk Manager (FRM) or Professional Risk Managers’ International Association (PRMIA) certifications. Both organizations have seen exponential growth in those being certified since 2008, and managers and allocators alike are hiring people specifically with these qualifications. As can be seen in data from the GARP, the growth of those qualified has doubled in the last 3 years (See Figure 9).

Figure 9 - FRM Annual Growth in Registrations Management and Portfolio Management

![FRM Annual Growth in Registrations Management and Portfolio Management](image)

Source: Global Association of Risk Professionals, 2012

In our research, 40% of surveyed managers and allocators had team members with these qualifications. More and more, it is becoming a pre-requisite that dedicated risk professionals follow a different, more robust educational profile than that of investment personnel. The distinction at junior level positions, where we see the greatest amount of growth, is marked by the growth of personnel with professional risk designations, versus investment qualifications such as the Chartered Financial Analyst (CFA).
Hedge funds and their investors increasingly value general staff having attained the Chartered Alternative Investment Analyst (CAIA) designation.

Tackling System Gaps – One System Does Not Fit All

Another key metric since 2008 is the investment by hedge fund managers and investors into dedicated risk reporting systems. Better firm-wide consolidated risk reporting has become a top priority. In 2011, industry research claimed that over $2 billion was spent by hedge funds on implementing risk systems and infrastructure as they seek to establish themselves as an increasingly institutional investment product.* There has yet to be a shift in the industry to any one standard, nor are there any specific risk systems or standards for hedge fund strategies. Recently-introduced “global” standards rely on managers’ voluntarily submitting their data, unsupervised and unverified by independent sources. Analytically, these “global standards” at this point in time seem to be little different from the unvarnished subjective and individual historical approach. While there is certainly a benefit to those submissions, at least from a mid-level comparative analysis perspective, it would appear that a risk gap still remains at the more granular, unverified level.

Many of the largest hedge fund managers have developed proprietary systems that complement the gaps in commercial products. These internal development efforts force managers to rely on their own research and development of models and systems, rather than simply relying entirely on off-the-shelf services that may fail to cover the specific nature of the investment themes, securities, and investment strategies. However, smaller, more focused analytics providers, with specific industry or asset class expertise in modeling and assessing specific product risk, have begun to thrive with the realization that managers will seek a “best practice” approach. Industry participants also realize that one system cannot provide effective coverage of all products and asset classes. The result is increasing demands (and opportunities) for service providers in the hedge fund space to provide comprehensive risk services to alternative fund structures.

Investors are now also demanding independent verification and model validation of their proprietary models and systems to provide investors comfort with the output and results. In addition, the trend toward real-time risk management for all products continues to get pushed to the forefront by investors. Risk management and VaR values had traditionally been always an end-of-day process or overnight (“batch”) process. The ability to assess risk instantly for all products (including liquid over the counter products) is becoming increasingly more important to investors and is continuing to push the limits for real-time risk data.

*Source: Hedge Funds Review: Hedge fund technology spending projected to top $2 billion in 2011, www.hedgefundsreview.com
Technology and speed of processing are other issues that run in tandem with real-time risk. The ability to filter and process enormous amounts of data and information has become a necessity, not a luxury. This in turn puts significant strain on internal human resources. Managers are thus now relying on their vendors and administrators to provide these services quickly and accurately to aggregate and sort data on their behalf. The new mantra for managers has become outsourcing as many functions as possible that are not core to their business.

What we have noticed, is that the choice of system is largely based on the past experiences of the manager’s team. If a risk manager has used a particular system at a prior employer, they tend to have a level of comfort and will seek to implement the same system. If a manager has developed tools and systems proprietarily, they tend to reinforce a basic law of inertia: they stay on that same path and continue to do so until re-directed by some external influence. Although much of the decision-making process is driven by past experiences and the potential shortcomings of vendors, the decision process is also driven by the nature of the hedge fund manager, the resources of the firm, the specific trading strategies employed by the firm, the size of the firm, and the extent to which it has the resources to fund these types of development efforts, which can be very expensive.

To illustrate the frequency with which these strategies are employed in the industry, we would reference the UK-based Financial Services Authority (FSA). In its report on its surveys of hedge funds in September and October 2010, the FSA provided a macro-view of the investment strategies employed by hedge funds, as shown in Figure 10.

**Figure 10 – Investment Strategies Employed by Hedge Funds**

![Figure 10 - Investment Strategies Employed by Hedge Funds](source: FSA (UK). "Assessing the possible sources of systemic risk from hedge funds", 2011)
Existing systems do not specifically focus on an investment strategy, per se. Most systems are general in nature and limited with respect to complex derivative securities or instruments. Generally, they force the user to rely on the available data incorporated into risk systems. Tradable instruments like options, futures, swaps, credit derivatives, bonds etc. are slowly becoming more standardized, but our examination of the risk vendor industry suggests that most vendors are under-staffed or unwilling to properly cover new products that make use of combinations or special iterations of complex instruments.

Risk systems face the greatest challenges in the underlying market. Beyond being able to model an equity option or a variance swap, risk system providers need specific market data. As managers participate in broader markets, risk measurement and monitoring becomes challenging. Credit markets are a simple example of this challenge. To date there is very limited data available on sovereign spreads and lesser known corporate names. In another example, Asian markets also offer inadequate data. Yet commercial risk systems have not grown as quickly and are not yet in a position to fully capture exposures and model the risk in a portfolio. Our research found many managers in Asian markets proxying positions with current risk vendors until models and data became available. We conclude that risk is inaccurately measured, either being over or understated in these developing markets.

From the investor’s point of view, our research has found that investment via a third party risk aggregation service is the predominant trend. To a great degree, most of the research undertaken by HedgeMark found that investor hedge fund systems still remains focused on returns based analytics, such as those found in well-known products like PerTrac. Larger investors (those with over a $1billion in hedge fund allocations) have begun to invest in portfolio level analysis tools, based on position level transparency, to better understand overall exposures and risk. However many investors still believe that access to position level transparency is difficult to uncover, particularly if their investments are not focused on more liquid strategies such as distressed debt. Despite growing evidence to the contrary, many hedge fund investors still retain this belief.

Due Diligence Improvements

The RFP process has evolved with deeper and more meaningful questions for hedge funds. Investors increasingly ask more complex questions in connection with risk systems and models and are looking deeper at the specific personnel, reporting, and overall risk management processes and policies of their vendors. Manager blow-ups in the last few years have led to more robust investment policies and procedures, encouraging investors to seek better controls. Our research has found that more than 50% of institutional investors we surveyed did not focus on risk-specific questioning before 2008. Today, these same investors surveyed all have dedicated risk questioning which is less abstract and more focused in nature. Investors want to see clear evidence and examples of how a hedge fund manager is monitoring, measuring, and managing risk holistically. It is important to note that the RFP and later hedge
fund due diligence is now seeking to fully explore how a hedge fund manager manages all types of risk, whether the risks are portfolio or business specific. It is the latter area of risk, business related risk, which has been a growing area of consideration.

Investors obviously want to avoid manager failures, which according to industry research, are more connected to business and reputational risk than to portfolio risk. By sustaining robust policies and procedures when assessing how managers look at risk, investors today gain a different level of comfort than they had prior to the financial crisis of 2008. The overwhelming response to this aspect of our research was that investors have looked to seriously enhance the due diligence process to avoid and mitigate these risks, to at least control risk exposure and to more accurately assess potential loss. The prevailing industry notion is that there is very little elasticity in the marketplace for major problems; reputational risk, a derivative of business risk, is of greater concern than ever before.

Some examples of the type of RFP questions now asked by investors include, but are not limited to:

- “What is your risk management culture and how do you as a business measure, monitor and manage risk?”
- “What is the relationship between portfolio management and risk management? Is there a separate function?”
- “What structure is in place to ensure that the ‘CIO or CEO’ is getting independent advice from risk management/Chief Risk Officer? Can you evidence this? Show examples?”
- “How do you measure and express your risk appetite?”
- “Can you show me the source of your returns? (Can you decompose your returns by source?)” One of the interviewees who indicated this type of question said it more succinctly as: “If there is ‘alpha’, I want them to show it to me.”
- “What risk measurement system (software) do you use? Was it developed in-house or purchased from a third-party vendor? If it was purchased from a third-party vendor, can you demonstrate that you understand the analytics and can demonstrate its use at the portfolio management levels?”
- “What technique(s) do you use to hedge away unwanted risks that are not your focus? How do you identify specific risks that impact your portfolio?”
- “Are you using stress tests and historical scenarios to answer ‘what if’ questions? If not, what do you use?”
- “Can you demonstrate the limitations of your models and show how you may have had to implement proxies?”

These questions demonstrate that the role of operational due diligence focusing on potential risks in hedge funds has been made more crucial in recent years. In recent years demand for this function is growing the most from the investor perspective. This is particularly true for hedge funds that refuse to provide position-level transparency to investors, either directly or through a risk aggregator.
Feedback from fund of hedge funds, hedge fund consultants, and institutional investors’ illustrate that operational due diligence personnel form the backbone of pre-investment analysis. This role is seen as a key element of the risk management and due diligence processes. By frequently relying on professionals with backgrounds in public accounting and audit, investors are seeking a deep understanding of hedge funds controls, processes, procedures, and systems. Thus operational risk mitigation must be a primary goal of all heads of operational due diligence.

In addition to investors ‘beefing up’ their due diligence processes, these types of questions demonstrate that the industry, as a whole, is seeking to standardize the level of information expected of managers with regard to risk management. GARP, the MFA, the Presidents Working Group on Hedge Funds and others have sought to inform investors of the type and scope of information and data they should be looking for from hedge fund managers with regard to quality risk management.

This attempt to standardize impacts the entire industry. Some of the emerging managers we asked to review this paper indicated that because of the growing push towards certain standards for risk management, they needed to prepare for imminent industry change by building businesses and funds that meet a minimum threshold of investor demands. Precise articulation of those standards must continually evolve as the synergies between investors and investments within the financial industry themselves evolve.

The next step for investors is the ongoing, informed monitoring of their investments. This area of the industry has seen change particularly with respect to position level transparency and the frequency with which that level of reporting is being made available to investors. Our survey results show that hedge funds will make daily and weekly reports more available to their investors (Figure 11). Five years from now, they project that 41% of investor reporting will be published daily or weekly. Only 9% will be available less frequently than monthly, down from 38%, a very significant drop.

Figure 11 - Frequency of Risk Information by Hedge Funds to Investors (How frequently did/do/will hedge funds disclose risk information to investors – 5 years ago, today, and 5 years from now.)
Hedge fund returns are most frequently captured by analytics, but the frequency of this information and usefulness of returns-based analytics can be questionable when hedge fund strategies are considered. Returns-based data is provided by managers with a time lag. The data is not, however, independently verified. Position level data allows investors to better understand their exposures. The risk data based on positions can provide more accurate stress and VaR calculations.

The demand for positions-based data is now on the rise, and our research finds that this will be a continued theme going forward. However, we should note that although positions-based data is something investors may want, the frequency and quality of the data are also extremely important considerations.

The challenge, as later discussed, is whether investors have the resources to use this level of data in a meaningful and effective way.

**Business and Counterparty Risk**

The largest numbers of responses to our research emphasized the way hedge fund risk has changed in recent years as a response to operational and counterparty risks. Hedge fund research demonstrates that the majority of manager failures and closures are a consequence of these business risks. While these types of risks can be separated and argued at length as how best to define them, for our purposes, counterparty risk falls under the operational risk umbrella. Counterparty risk, given the events of 2008, has left an indelible mark on managers and investors and changed risk analysis metrics.

The growth of third party administrators and custodians in the hedge fund space cannot be ignored. Prior to 2008, administrators offered limited capabilities to the manager and investors. In the last few years we have seen administrators increasingly offering increased verification, independent pricing, higher quality reporting, and, in some cases, position-level risk analysis capabilities.

Hedge fund investors who want more information on their investment and do not want to fall afoul of some of the lessons learned from fraudulent activities made very public in 2008 have demanded these developments. The following diagram (Figure 12) summarizes the responses about the importance of the top three measures in the risk management process at a hedge fund. Of the risk measures identified, potential exposure is the top counterparty risk measure.
Hedge fund managers are gradually recognizing that risk measurement, monitoring, and managing can improve performance, help gain investor confidence, and, as a result, help grow their bottom line.

In summary, Hedge Funds seeking to deliver Alpha have found that global markets are increasingly correlated. Thus the search for Alpha on a global scale is becoming harder. Implementing best practices at the hedge fund level in terms of comprehensive enterprise risk management is increasingly seen as directly contributing to alpha. Hedge fund managers are gradually recognizing that risk measurement, monitoring, and managing can improve performance, help gain investor confidence, and, as a result, help grow their bottom line. This is evidenced by the huge increase seen in risk systems and human resource investments in the last few years. It is also an increasing part of a hedge funds’ marketing approach. A number of hedge funds have stated that these capabilities are important to prospective investors and are something they increasingly use to differentiate themselves from managers with similar investment themes.

**Operational Risk Analytics**

**Manager-based Analytics**

This section of the paper focuses on how various risk analytics are employed both by hedge funds and by investors. Through our research, we have found that the analytics employed at the fund level are, in many cases, very sophisticated and typically require a team of well-trained, highly educated people to effectively use them. These analytics model risk exposures and scenarios, and, in some cases, help portfolio managers identify profitable trades.
One of the more notable findings of our research is that risk vendors and their systems tend to focus on empirical portfolio risks and largely ignore the many other types of risk addressed in this paper. From the perspective of a systems provider, this is not that surprising. However, it underscores the need by risk managers to use a broader spectrum approach to risk analytics to include consideration of risk factors discussed in this paper. To date, we have not been able to identify a single system that specifically seeks to address more than portfolio-type risks.

Hedge fund managers invest in risk analytics systems for a variety of reasons. Some analytics form part of the portfolio management systems solely used by portfolio managers. Some are dedicated risk systems unrelated to portfolio construction. These systems fit at the back end of the process and will review the aggregate risks correlating to a hedge fund or investor or the order management systems, and/or act as risk reporting systems designed for in-house analysis, for client reporting, or some combination of the two.

A smaller number of the managers we interviewed have developed their own internal risk analytics systems, generally to complement capabilities they acquire through the off-the-shelf systems they use. These home-made tools are typically a combination of Microsoft® Excel spreadsheets and statistical analysis tools like MATLAB®.

Of the 50 hedge fund managers surveyed, 42 (84%) used off-the-shelf risk analytics that form part of the portfolio management or trading system, as shown in Figure 13.

Figure 13 – 84% of Hedge Fund Managers Employ Off-the-Shelf Risk Analytics Systems

Although there are risk analytics available to hedge fund managers, the true challenge lies in the identification and use of the input data they use to better manage their portfolios. We have found that the more simple or liquid a strategy, the more useful the outputs of an off-the-shelf risk system can be. Managers with access to a larger universe of useful data and historical information, particularly for equities and commodities trading, find that these risk analytics can provide them with more meaningful output.
By contrast, strategies with less historical or analytic data, such as unique or complex credit trading or investment in new markets or instruments, find that the risk analytics outputs can be less robust or useful. As many risk managers told us, the information coming from risk systems is subjective. Mining and assessment of risk data is unquestionably an art. There is simply no empirical metric for data selection, weighting, and relevance, let alone any “complete” solution. Risk managers try to use these existing systems to measure, monitor, and eventually manage risk and exposures. If the input data is not available, the process is less robust and more difficult. This is where more complex strategies end up creating proxies as a way to approximate the risk and exposures of the portfolio. Such proxies help risk managers place some gauge on their risk, but ultimately could under or overstate risk in their portfolios.

**Investor-based Analytics**

At the investor level, risk analytics are connected to the degree of transparency an investor has across all their investments. In speaking with investors, we found that the level of data investors seek is not necessarily a function of how much they have invested with hedge funds. We have found that very large US endowments, with billions of dollars in hedge funds, may still rely exclusively on returns-based information and use only internal systems to monitor exposures and risk statistics that are provided directly by the hedge fund manager, information which cannot be independently verified.

Other research shows a number of funds of hedge funds utilizing position level data on a monthly frequency to better monitor their managers. We also found family offices that capture basic performance attribution data, based again on unverified data provided by the underlying hedge fund manager.

Our analysis has shown that these varied processes and policies are in most cases a function of the resources the investor has allocated to monitor the fund. “Resources” here can be defined by the budget the investor has to purchase analytics tools and its ability, and even willingness, to hire professionals that can use this information in conjunction with portfolio managers. Risk analytics tools and people to monitor and assess managers on an ongoing basis is still only a ‘nice to have’ for many institutional investors rather than a ‘need to have’.

The majority of investors, including endowments, retirement plans, and funds of hedge funds, surveyed in our research use their portfolio managers to monitor their respective portfolio managers. Complications may likely arise when you have many managers to monitor across multiple investment strategies and no way to empirically verify the data being provided by the manager. Trust, by itself, is neither an effective nor prudent investment strategy, but it remains a primary tool for many investors. The negative consequences of such blind trust have become notorious in recent years. This is not to say that trust is not an element to be considered by an investor. Rather, it is merely one element of a reasoned approach involving multiple factors, including those outlined herein.
During interviews with investors, we heard feedback on the limitations of risk analytics services. With respect to position-level services, comments range from being able to source all manager positions (rather than just a portion of the underlying investments) to correctly modeling the positions and reporting in a timely fashion. On the returns-based providers, many respondents thought the data lag and overall functionality/capabilities of the systems create limitations.

Our research finds the more sophisticated the investors, the more they find they are influencing the design and modeling of positions by their service providers. In fact, some managers commented that they have also helped to design effective models for the portfolios. While more needs to be done in the evolution of risk systems, it remains clear that these services have grown enormously in terms of functionally and capabilities in the last few years. This has been primarily because investors no longer blithely accept basic information direct from hedge fund managers, but rather go beyond basic return-based analytics and enter the realm of position-level reporting. In the next section we discuss the ways which investors seek to protect investments through information provided through third party administrators and data aggregation services.

Protecting Alpha through Risk Mitigation

Investors face huge challenges when trying to gain insight into hedge fund investments. Getting accurate, high quality, consistent, and timely data on fund portfolios is a resource and time intensive task, even for a sophisticated investor. In recent years, the industry has witnessed a shift in transparency with hedge funds providing returns and more recently positions to risk aggregators and in some cases investors themselves. However, sourcing data on hedge fund investments is an enormous undertaking.

As discussed, our research revealed that, across the industry, no standard method exists for capturing position data for risk purposes. Different vendors use a variety of risk models to measure the risk of a position. Reasons for this vary:

- Some risk models are more data intensive than others.
- Some models require the human intuition offered by portfolio managers versus the conservative calculations preferred by risk managers.
- Some models are not updated with historical data.
- Some models are just not available for the instruments now being traded by hedge funds.
We have concluded that there is a considerable gap in the commercial development of new products and systems. Some are focused primarily on making money for the developer, while others are developed by risk purists that are more concerned with whether their systems produce accurate data. Neither subset fully addresses the holistic needs of the investor or the risk management duties of the risk managers. This gap can very well result in a dangerous and costly detour in the path risk managers must tread unless they subjectively adapt and merge both perspectives to create a confluent path.

**Third Party Administrators**

In today’s world, there remains the added concern that data be held in a secure location, and not shared with unwanted observers. As discussed earlier, the more complex the investment strategy, the greater this task is. The simplest approach is to capture returns data, which are largely visible to all industry participants with virtually no entry barrier. The next level is to capture exposure data. Ideally, this data needs to be sourced independently, through a hedge fund manager’s administrator. The third party administrator offers hedge funds and their investors risk mitigation and transparency through presumably unbiased asset position reporting.

As shown in Figure 14, over 50% of investor respondents agree that independent verification of position data is essential.

**Figure 14 – Investor Sentiment on Independent Data Verification**

![Figure 14](image)

<table>
<thead>
<tr>
<th>Source Independently</th>
<th>Source from manager direct</th>
<th>Rely on external risk system process</th>
</tr>
</thead>
<tbody>
<tr>
<td>52%</td>
<td>26%</td>
<td>22%</td>
</tr>
</tbody>
</table>

Source: BNY Mellon/MFA Survey of Hedge Funds, 2011

Accordingly, the challenge here is not to just source data from managers but to obtain the information – or at the very least, confirmation of information already on hand - from an independent, credible, reliable third party who is likely to actually be in possession of all, not just some, of the transaction history.

Providing funds with historical scenario simulations is an area of great focus for third party administrators. Many third party providers now have the ability to not only provide basic exposure data to investors, but also provide advanced risk functions such as, for example:

- Daily VaR analysis using multiple models
- Sensitivities to market factors & interest rates
• User defined stress tests
• Support for UCITS exposure reporting

In addition to providing advanced risk reporting services, many third party administrators today offer funds access to automated global custody risk management systems and have the ability to review a subcustodians’ performance throughout the year to ensure that they maintain the highest level of service.

Administrators are growing in number, training, and sophistication. Their challenge is the ever increasing number of players in this market which offer more services for the “right” price. Competition among these administrators may not, however, necessarily be between “equals” in ability or propriety if price-driven. The delta may be addressed by the administrator positioning itself to represent and deliver in a timely, effective, relevant, and effectively risk-managed manner to the investor. This is further complicated by their need to navigate the challenges of being the independent pricer and verifier of assets in order to build trust with hedge fund investors.

Many of our respondents commented on the need for better reporting when combining their hedge fund with their other investments. Respondents noted growth trends in the areas of enterprise risk reporting across multiple asset classes. One of our respondents noted that managers require further development and enhancement, as well as a body of better trained professionals to manage these processes.

Yet despite such demands, not all hedge fund managers will provide data – or allow for a third party to provide such data – to investors. Our research has confirmed that there are still managers who will not allow investors access to position or aggregated data. These managers may be willing to provide exposures, performance attribution, risk analysis, and other reporting to the investor as part of their monthly commentary, but even that data is not independently verified. Trust remains the primary strategy of investors relying on these inputs. As previously noted, reliance solely on trust can result in a risky and costly outcome.

Consequently, a shift in industry standards and expectations is a solid and more prudent theme to be followed: more investors want to ‘trust and verify’ what the hedge managers exposures and risk are. There have been too many examples, both publicized and not, of hedge funds that state one thing and do another. The benchmark example of hedge funds reporting on themselves and having no independent verification is, of course, Madoff Investments, although investors have had similar experiences with many other funds that have experienced losses of between 50% and 100% and not just because of covert criminality.
In our survey, we asked hedge fund participants how their relationship with third party administrators has changed: how they did it five years ago, how they do it today, and how they expect to be doing it five years from now. The following set of three pie charts summarize that, overwhelmingly, hedge funds have increased reliance on independent administrators and will continue to do so going forward (Figure 15).

**Figure 15 – Fund Reliance on Third-party Administrators**

<table>
<thead>
<tr>
<th>5 Years Ago</th>
<th>Today</th>
<th>5 Years From Now</th>
</tr>
</thead>
<tbody>
<tr>
<td>63% done solely in-house</td>
<td>75% done solely in-house</td>
<td>81% done solely in-house</td>
</tr>
<tr>
<td>25% done solely by a third-party administrator</td>
<td>9% done in-house but by a third-party administrator</td>
<td>9% done in-house but by a third-party administrator</td>
</tr>
<tr>
<td>6% done by a third-party administrator but reviewed in-house</td>
<td>6% done by a third-party administrator but reviewed in-house</td>
<td>3% done by a third-party administrator but reviewed in-house</td>
</tr>
</tbody>
</table>

Source: BNY Mellon /MFA Survey of Hedge Funds, 2011

**Risk Aggregation Services**

One way for investors to better understand exposures and risks is to invest via a well-designed, independent, managed fund platforms and risk aggregation service. Managed fund platforms employ fund structures that provide independence, control, independent governance, and high frequency, position-level risk and analytics. Risk aggregator services receive position data in most cases from the hedge fund administrator who is often integrated into the platform structure.

Many investors look only to these position-level risk analytics services and to the less expensive (and significantly less effective) returns-based tools to monitor hedge fund exposures, performance, and risk. These systems offer transparency and allow investors to gain a view into their portfolios, although returns-based tools have no transparency and use only monthly returns to extrapolate their assumptions. However, position-level systems are limited to the managers that agree to provide data. Even then the frequency of the reporting is an important consideration. Not only do risk systems have these limitations, but also the quality and frequency of data provided by hedge funds can be inconsistent. There is no standard approach for every asset class, and, as discussed earlier, the more complex the strategy the more subjective the inputs and eventual outputs these analytics providers will be.
Other challenges to risk aggregators arise from the frequency, or rather infrequency, of position-level data from hedge funds. Most respondents stated that they receive monthly data from their underlying hedge fund investments. Obviously, by the time an investor gets to see the reports, the information is often stale since processing monthly ‘snapshots’ are not representative of ‘real-time’. The majority of investors surveyed indicated that this lag was a continuing source of concern and highlights issues linked to the validity and fundamental worthiness of the process. For those investors who have the resources and are able to focus on the measuring, monitoring, and management of their portfolios, the future for them is real-time analysis of their managers. This is because high-frequency data allows investors (risk managers) to actually take steps to mitigate unwanted risks as close to the time when they are happening, and not well after the fact.

When asking investors what they could do with monthly positions and returns to manage risk, the feedback was very limited. Generally, older data is used primarily for internal and client reporting purposes. For investors that had real-time data, the feedback showed actionable steps that led to risk reducing overlays, better portfolio allocation/selection, and tighter management overall of their managers.

Higher frequency data can also be used to increase (or decrease) confidence in a particular hedge fund manager because the investor can do a better job of analyzing sources of return. Higher confidence can translate into more concentrated allocations to the managers that have exhibited the greatest skill, thereby increasing investor returns and helping one investor differentiate themselves from others. But, as stated, our research found only a small number of investors in the position to use real-time data commonly found in managed fund platforms.

Most investors we researched have yet to take this step. This is mainly due to resource constraints, limited experience as active risk managers and, to some extent, a lack of understanding into what managed fund platforms can offer. Investors also may not yet prioritize, for whatever reasons, comprehensive risk analytics despite recent market events. We also found that investors initially had positive reactions to the idea of improving fund reporting but often expressed concern over the financial implications of additional reporting.

Some investors maintain strong relationships with their managers. Asking for more data or to move them to managed funds platforms is not something they see as a priority. Therefore, these investors will not advance to this level of monitoring as they feel comfortable with basic data from returns based analytics combined with what the manager comments on a monthly basis. We believe this will change over time, regardless of whether it is voluntarily, because of catastrophic financial setbacks, or through the impetus of increased regulatory scrutiny, and investors will increasingly demand higher frequency transparency and learn better how to manage this data.
Conclusions

Hedge fund investment allocations continue to rapidly grow. Allocations to this asset class are increasing and demand for high quality managers is still growing. But along with this growth, allocators and managers enter a period of increasing demand with respect to understanding, measuring, monitoring, and managing the risks associated with the many hedge fund investment strategies.

The Business

From a personnel perspective, hedge fund managers and allocators have added risk managers and have better and more broadly adopted risk tools. Growth investment by asset owners in both people and systems evidence a growing awareness and sensitivity to both the importance and value of having a robust risk infrastructure. The challenge is still to work out how best to make this function highly effective and something that could be measured in the future. Demand for these systems, and increasing levels of employee compensation, will be based on the ability of risk professionals to demonstrate their value and to show how investment returns are enhanced by their participation.

Systems and models have more data available that now include numerous examples of highly volatile risk periods. 2008 has provided hedge funds and allocators with a new body of historical data that can be used to create ‘what if’ scenarios that are both relevant and authentic. Investors and hedge fund managers now look at systematic stress testing more than any time in the past. Tail protection and tail risk events are an aspect that now form an integral part of every hedge fund investor’s concerns. This has become so much more prevalent that there are now many hedge funds that are essentially designed as tail risk strategies, focusing primarily on black swan events, rather than normal return distributions.

We are seeing more institutions developing formal standards within this asset class. Expectations are higher and investors are demanding robust risk monitoring, and management in return for the fees they pay for the management of the funds. Formalization of policies and procedures, strong and robust processes managed by the fund in the fashion of best practices, are now expected. Hedge fund managers who now seek to market their best practice standards for risk management resonate more soundly with institutional investors. From an alternative perspective, hedge fund managers at the same time believe that managing their business more effectively is a component of the alpha generator qualities, and risk management is a part of effective business management.

Research has shown billions of dollars being invested in systems for not just risk purposes. These systems comprise of better straight through processing (STP) infrastructure, order management, pricing, and internal and external reporting. Funds are trying to efficiently and effectively build the institutional aspects of front, middle, and back office capabilities. These systems, and eventual people investments, bring more control and accountability to the hedge fund asset class. From the risk systems perspective, managers where
possible are trying to use them as effectively as possible. In the new normal we see investors wanting to understand both the risk systems and how the risks modeled influenced the portfolio and any decisions by hedge fund managers.

**Operational Risk**

Due diligence in this space has shown rapid improvement from the perspective of investors. Questionnaires, background checks, interviewing of key personnel, and constant post-investment monitoring have seen the deepest evolution. The majority of managers interviewed stated that investor’s due diligence of them has deepened. They see this by investors themselves, as well as by specialized hedge fund consultants and fund of hedge funds who are generally tasked with providing the deepest levels of hedge fund due diligence. We have seen the subject of “best practices for due diligence” develop into the focus of many industry publications over the past few years, with most research focusing on avoiding manager investment blow-ups and fraud risk. We fully expect that this trend will continue to develop exponentially in the future.

In response hedge fund managers have had to demonstrate their controls, policies, and procedures. They have been forced to open their business for what can essentially be described as a forensic analysis, a level of inquiry that did not exist prior to the 2008 crisis and the Madoff scandal. The examination of operational components of hedge funds is as important as the investment themes and processes. This is something that has come to the forefront of the hedge fund investment experience, as investors increasingly concern themselves with reputational issues of risk management.

We have seen improvements in managing counterparty credit risk by knowing your counterparty quality in extreme detail. This has been a development since 2008 given the crisis experience. Ratings, equity prices, credit spreads, data integrity, and sources are now more fully appreciated by manager and investors than ever before. In particular, there has been recognition of the limitations of certain risk and industry assumptions. Our research has shown that diversification is being used as the best method to mitigate counterparty risk, since the financial condition of a counterparty can seemingly change virtually overnight. Manager’s intentions are to avoid high concentrations in a single counterparty; few believe that any institutions are immune from periods of systemic and non-systemic volatility, contagion, and exogenous risks. There are some instances where managers and investors may seek to hedge counterparty risk with derivatives.

Operationally third party fund administrators are offering more services and products to help mitigate operational risk to hedge funds. Many funds have opted to outsource their fund administration and accounting to independent administrators because they may not have the needed resources in-house. They are seen as more of an integral component to investing in this asset class, although it should be noted that most administrators are unregulated and/or unattached to regulated companies. Custodians can also offer a level of increased investor confidence especially if the firm is highly rated and financially stable.
**Systems and Transparency**

Transparency has improved, but getting independent and high frequency reporting on risk and exposures is still not the norm. Trusting a manager is one thing, since trust is important to any business relationship. But verifying and validating this relationship through position-level analytics of exposures and risk should be seen as the only prudent and effective path going forward. This can be expensive, perhaps resource intensive, and requires both managers and investors to pressure their managers to implement these developments. We are seeing managers increasingly embrace the transparency process, and well-designed managed funds platforms can speak volumes to the advantages of high frequency data and reporting. But we also have examples of managers who remain unwilling to provide independently validated and verified portfolio data. The evolution in this space is hopefully not a result of additional hedge fund failures but rather an industry recognizing the need to be open and honest at a time during which the global financial services industry, and its regulators, are demanding full and frequent transparency and risk reporting. The implementation of checks and balances should only enhance the hedge fund investment experience for the best managed funds, not hinder it.

Evolution towards an optimal process takes time and testing. The last few years have seen substantial progress, but more still needs to be done to make this asset class better measured, monitored, and managed. The improvements to operational risk are clear. Portfolio managers themselves have had to focus on risks even more and have had greater challenges in producing returns as markets have become correlated. We now have more information, more analytics, and more people than before. Making it all effective remains the challenge best measure by positive returns and fewer manager blow-ups.
Risk Roadmap

- Invest in risk management as a required business practice to protect the fund and firm, and ultimately investors – not as an optional expense but as a means of protecting alpha.

- Empower Risk Managers by separating the Risk Management functions from the investment and due diligence functions and, when possible, designating a Chief Risk Officer.

- Set the Chief Risk Officer’s compensation so that it is not correlated to performance, yet substantial enough to provide appropriate incentive to properly do the job and stay at the firm to better ensure continuity and consistency.

- Consider employing managed account platforms to offer tighter control of assets, better governance, and daily independent transparency and in some cases good risk and exposures reporting to investors can be viewed as an excellent method of mitigating many concerns investors have in allocating to hedge funds.

- Hire a third party administrator for fund administration, middle office, accounting, and/or investor services and communication to enhance investor operations, transparency, and pricing and to allow the manager to focus on their core business.

- Consider hiring a highly rated custodian to safe-keep assets, which can increase investor confidence.

- Proactively encourage investors to play a bigger role in defining successful attributes in measuring, monitoring, and managing their investments in hedge funds.

- Dedicate time to educate investors on risk management best practices – hedge fund managers can add value and build trust by educating investors on the various aspects of hedge fund risks.

- Invest in specific technologies and systems better tailored to your portfolio and strategy to provide better quality data, analysis, and transparent modeling capability; there is no one size fits all.

- Collaborate with hedge funds and risk providers to enhance disclosure, investor risk reporting with more frequency, granular detail, and meaningful and actionable data and reporting.

- Dedicate time to learn more about principles of risk through industry associations such as GARP, MFA, and PRMIA.

Source: BNY Mellon, 2012
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Galena Asset Management Ltd
Highbridge Capital Management LLC
Highside Capital Management LP
Investor Analytics LLC
J.P. Morgan
Lyster Watson & Company
Moore Management Inc.
Morgan Stanley
New York State Common Retirement Fund
Orchard Capital Partners Ltd.
Paulson & Co. Inc
PCE Investors Limited
Permal Asset Management Inc.
PricewaterhouseCoopers LLP
Pyramis Global Advisors, LLC
RogersCasey, LLC
The Rohatyn Group
SAIL Advisors Ltd
Schulte Roth & Zabel LLP
Sullivan & Cromwell LLP
TPG-Axon Capital
TT International
White & Case LLP
Winton Capital Management

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HedgeMark is an independent hedge fund managed account and risk monitoring platform and an affiliate of BNY Mellon. The platform features a broad range of investment strategies managed by many of the industry’s leading hedge fund managers. The funds management program is supported by a fully-integrated suite of risk and performance analytics, which include portfolio construction, back-testing, stress testing, and scenario modeling tools. Analytics are based on daily, position-based reporting that enables our clients to analyze sources of portfolio risk and performance on an aggregate level. Through the HedgeMark platform, users can build, analyze, and monitor their investments while using a proprietary surveillance engine to ensure that investments are managed in accordance with written guidelines and objectives.

About Managed Funds Association (MFA)

The Managed Funds Association (MFA) represents the global alternative investment industry and its investors by advocating for sound industry practices and public policies that foster efficient, transparent, and fair capital markets. MFA, based in Washington, DC, is an advocacy, education, and communications organization established to enable hedge fund and managed futures firms in the alternative investment industry to participate in public policy discourse, share best practices and learn from peers, and communicate the industry’s contributions to the global economy. MFA members help pension plans, university endowments, charitable organizations, qualified individuals, and other institutional investors to diversify their investments, manage risk, and generate attractive returns. MFA has cultivated a global membership and actively engages with regulators and policy makers in Asia, Europe, North and South America, and all other regions where MFA members are market participants.
Thought Leadership Project coordinated by Aniko DeLaney, Managing Director and Joy Falconer, Vice President.