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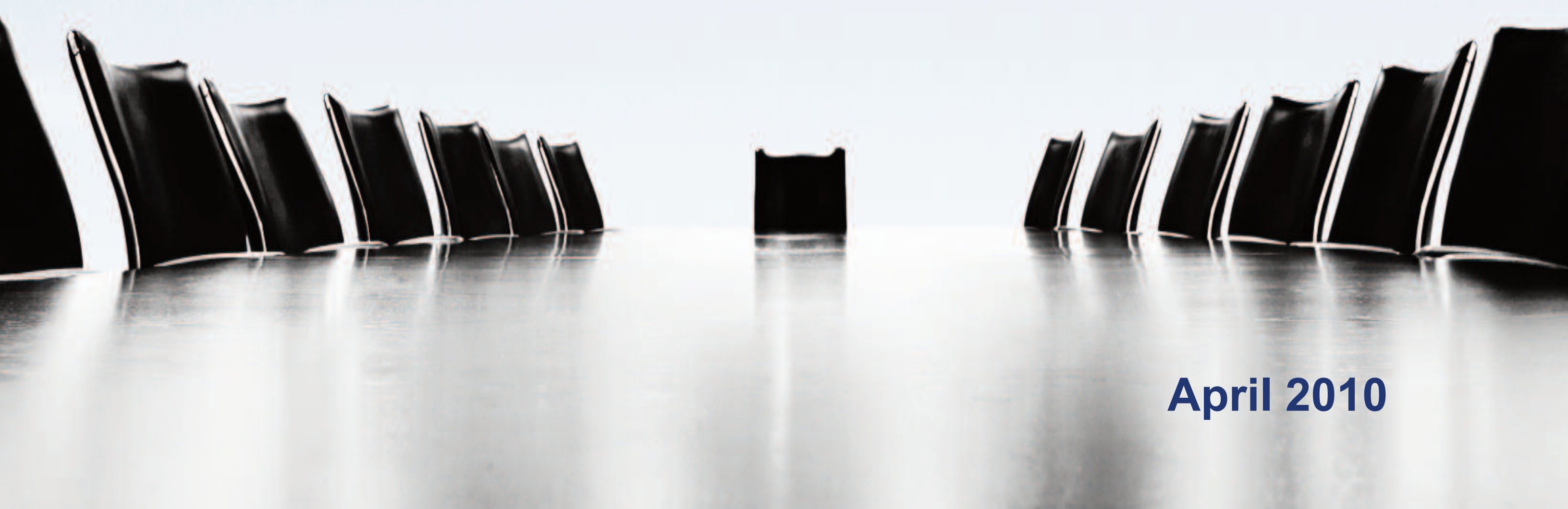
MUTUAL FUND DIRECTORS FORUM

The FORUM *for* FUND INDEPENDENT DIRECTORS

Risk Principles for Fund Directors

Practical Guidance for Fund Directors on Effective Risk Management Oversight



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Introduction

"Risk" is inherent in the investment management business. In particular, investment managers cannot invest their clients' funds and hope to earn a positive return without taking some measure of risk. In addition, in managing their businesses, investment advisers face a wide variety of risks, ranging from compliance-oriented risks to reputational risks to risks to the systems they use to run their businesses and beyond. Because risk is at the core of the investment management business, how advisers choose what risks to take and how they monitor and manage those risks is fundamental to their – and their clients' – success.

In light of the events of the past few years, the environment in which mutual fund investment advisers, mutual funds, and mutual fund directors operate has become significantly more "risk conscious" and the question of what constitutes effective "risk management" has become a key focus for regulators, legislators and academics. Not surprisingly, therefore, fund directors seek to understand better their role in the risk management process.

While a number of groups have undertaken to define what constitutes best practices in risk management[1] for various types of asset management companies, to date these efforts have focused on the role of management rather than the role of fund directors. In response to the growing interest of directors in this issue, the Forum organized a working group of Forum members, members of the Forum's Advisory Board, and other risk experts to assist in crafting practical guidance on risk governance focused specifically on the needs of fund directors.[2] The resulting document is intended to help fund directors understand their responsibilities with regard to the risks undertaken by their funds, and to provide tools and references useful to assist them in determining the best means to oversee their fund's risks effectively.

The Forum recognizes that the diversity among funds and fund families and the constantly evolving universe of risks in the market make it impossible to develop a "one-size-fits-all" approach to risk governance. Consequently, directors should consider fund size, the assets and number of funds in the fund family, the structure of management and service arrangements and fees, and the nature of fund investment objectives and strategies, among other factors, to determine whether and to what extent particular principles are applicable and appropriate.

The Risk Oversight Process

“Risk” is a fundamental part of the investment management business and cannot be eliminated. However, participants in the investment management business need to understand risk so that they can evaluate intelligently what risks to assume and manage those risks appropriately.

The goal of effective risk management is not to eliminate risk – indeed, neither fund management, other service providers, nor the board itself should be seeking to eliminate risk fully from a specific fund or fund complex. After all, while “risk” can be thought of as the possibility that something will go wrong from either an investment or operational perspective, fund shareholders will not be better off if risk is eliminated. Rather, from the investment perspective, managing risk requires balancing the probability that an investment will go bad against the possibility that it will perform well, taking into account the anticipated potential losses and gains associated with the investment. Similarly, from an operational perspective, managing risk involves balancing the possibility that something will go wrong, and the likely costs that would be incurred in that event, against the cost of mitigating or eliminating the risk.

In order to best determine what risks to take, and how they can be managed, fund managers need to understand what those risks are and evaluate and analyze them effectively. A failure to do so can result in an unrecognized, unanticipated, or misunderstood risk that might harm fund shareholders. Unless an adviser has a risk aware culture, its systems and processes for risk management are likely to be ineffective. In other words, effective risk management requires a culture where management employees all understand risk and take responsibility for managing it.

While fund directors generally cannot be expected to directly identify and analyze risks – tasks much more appropriately performed by the adviser and its personnel – their oversight responsibility impels them to ask whether the adviser has appropriate systems and processes in place for identifying, analyzing, and managing risk. Hence, much of the guidance outlined below is designed to help fund directors better understand how risk can be managed in the mutual fund business so that they can better assess whether, given the specific facts relevant to the funds they oversee, their funds’ adviser and other service providers address risk in a manner that protects the interests of fund shareholders.

Mutual fund directors are expected to oversee the investment adviser's management of the risks associated with the funds they serve. The nature and scope of this obligation, however, is not clearly defined.

Current discussions of risk clearly assume that directors, including the directors of mutual funds, have a role in overseeing the risks taken by the entities on whose boards they sit, and often at least imply that role is legally mandated. Nonetheless, the source of directors' obligations with respect to risk may not be obvious. Most notably, federal laws, particularly the securities laws, say little about directors' obligations in this area.[3] Under state law and under section 36 of the Investment Company Act of 1940 ("Investment Company Act"), however, fund directors have a responsibility to oversee[4] their fund's affairs, including, presumably, a responsibility to oversee risk management that is similar in scope and nature to their other oversight responsibilities.

The directors' obligation to oversee risk management is implicit rather than explicit and, in many instances, is interwoven with their other duties. For example, a fund board has a duty to exercise informed oversight with respect to the investment strategies employed by the funds they oversee. To perform this duty effectively, directors need to understand the types of securities in which the funds invest as well as the nature of the risk posed by those securities and strategies. In most circumstances, the directors' understanding will be enhanced by an inquiry into whether fund management has implemented appropriate risk reporting systems and controls. Directors should understand the basics of how management's risk management systems work (and thus be in a position to assess management's use of those systems and to insist that management act on any significant warnings or "red flags" these systems provide).[5] ***Fund directors are not, however, responsible for designing and implementing the systems and procedures that are used to identify, analyze and track these risks. Instead, boards typically oversee risk management by reviewing and approving investment and risk management policies and procedures; evaluating the performance of the fund's adviser, any sub-advisers, and other services provider; and periodically reviewing the policies and procedures for material departures.*** Exhibit A provides a useful overview of the components of a risk management framework.

Most fundamentally, fund directors should be satisfied that their fund's adviser has a "risk aware" culture and, to the extent appropriate, seek to foster that culture.

Risk oversight by the board involves an assessment of the investment manager's

culture and risk awareness, and encouragement of the implementation and continuous improvement of a robust process for identifying, managing, prioritizing and monitoring the business and investment risks involved in fund management.

For fund directors, this first requires an understanding of the key risks affecting the funds on whose boards they serve. Directors should seek to understand the particular market, credit, legal, fiduciary, reputational, operational, organizational and other risks applicable to the fund's products and strategies. They should also seek to understand the 'risk appetite' of each fund, and how that risk appetite is rooted in investor expectations and affected by changing market conditions. Additionally, directors should understand how policies set at the board level relate to a fund's risk appetite, and should be satisfied that a robust and responsive process is in place to periodically review and revise risk tolerances as set forth in fund guidelines, position limits, counterparty credit limits, concentration limits, valuation policies and other relevant policies and procedures. Boards should also periodically review the effectiveness of the risk controls that have been established. The questions in Exhibit B may help boards determine whether their fund's adviser has established and maintains a risk aware culture throughout the fund complex.

Fund directors should understand the systems, practices and procedures that the funds' adviser uses to manage the various risks that its funds face.

At the most fundamental level, risk management in a fund complex grows out of the organizational structure that the adviser uses to identify and manage risk. As previously noted, fund directors are not responsible for designing, managing or operating the risk management system employed by the adviser. Given their oversight responsibilities, however, directors should seek to understand how the adviser's (and other key service providers') risk management systems are designed and operate.

From the adviser's perspective, risk management begins with the creation and use of organizational checks and balances and the segregation of functions within the organization as a means of mitigating risk. Although what constitutes good risk governance varies from fund complex to fund complex, and from fund type to fund type, directors generally may wish to determine that the adviser has addressed the following issues:

- Does the organizational structure provide adequate checks and balances, including appropriate segregation of front, back, and middle office functions?[6]

- Are there independent control groups including, where appropriate, an independent risk manager focusing on the risks of the fund as well as the broader organization, and who reports to – or has access to – the chief compliance officer ("CCO"), the fund's board, executive committee or the equivalent?

- Are adequate controls and performance analytical tools in place to manage the risks associated with new products and strategies?

In order to assist fund directors in answering these questions, the following material discusses each of these issues and identifies questions that boards may wish to ask.

Organizational Checks and Balances

In general, good risk governance encompasses the segregation of control functions from line functions as well as the segregation of front office functions from middle and back office functions. Thus, personnel charged with measuring and monitoring investment performance and risk, including tracking risk limits (and approving/disapproving exceeding established limits), should be organizationally separate from portfolio managers and traders. Similarly, those responsible for valuing positions, calculating net asset values ("NAV"), checking and entering trade details in fund systems, confirming, comparing and settling trades, approving and tracking counterparty credit, monitoring margining and collateral movements, and similar duties, should not report to portfolio management and trading personnel. These organizational separations help to assure to the degree possible within each fund and advisory firm that controls are administered – and transactions are verified – independently.

Independent Control Groups Including an Independent Risk Manager

Control groups, including legal, compliance, financial control, internal audit, credit, and risk management, all play important roles in managing risks attributable to the fund's business. These groups can have various reporting lines and be structured in various ways depending on the size and nature of the funds with which they are associated; but to the extent they perform monitoring functions, they need to have sufficient independence from the areas they monitor to perform these functions with integrity. Typically this means reporting outside the business lines they are charged with monitoring.

While the need for independence for some of these functions, such as the CCO, is well-established from a regulatory perspective, in the case of an independent risk manager or chief risk officer, regulation and practice are less well-developed. Thus, although every fund is required by the SEC to have a CCO with an appropriate reporting line to the fund's board, there is no comparable regulatory requirement with respect to the risk function.

Some fund groups have derived great utility from vesting risk management functions in a chief risk officer, while others have found similar success using existing business unit reporting in concert with active use of the CCO reporting to the board or a board committee. See "The Use of Board and Adviser Resources in the Risk Oversight Process."

To date, there is not universal understanding of the responsibilities of risk management personnel. In some mutual fund complexes, the risk management function consists primarily of monitoring and enforcing limits. In other complexes, risk management activities may also include a broader, more strategic function which includes consideration of risk on both an enterprise-wide and discrete basis, coordinating the periodic identification of risks in different areas, and providing input into investment strategy, risk budgeting, portfolio construction and the like. Similarly, some investment advisers place responsibility for both enterprise risk management and investment risk management in one organizational unit while others separate these responsibilities. Reporting lines vary accordingly, with some chief risk officers reporting to the board and/or the adviser, while others report to the adviser's chief financial officer and/or to the fund's CCO and still others report to the head of investments/portfolio management. Although an independent chief risk officer and/or dedicated risk management staff may not be appropriate for all funds/fund managers, a knowledgeable and skilled risk manager reporting to or, at a minimum, having access to the fund board or the board's executive committee or equivalent can provide an important risk control.

Given the current focus on risk management, fund directors may wish to discuss with the adviser whether a chief risk officer and/or dedicated risk management staff is appropriate or necessary, taking into account the size and complexity of their funds and the adviser and if so, whether the structure of the function is appropriate from a risk governance perspective. The list of questions in Exhibit C may help a board to determine whether the risk management function is appropriately organized and staffed and, depending on the answers to the questions, the board will be in a position to determine its level of comfort with existing structure and staffing.

Evaluating New Portfolio Investments

Introduction of new investment products and strategies into a fund's portfolio often presents valuation, systems, legal and other risk issues which, if not properly addressed, could give rise to losses. Prior a fund engaging in a new type of portfolio investment, the board should be satisfied that the adviser has considered the risks of the new investment and determined that the instruments are appropriate in light of the fund's risk tolerance and investment strategies.

In order to fulfill their oversight obligations, fund directors should satisfy themselves that there is a process in place for reviewing the issues raised by new products and strategies before they are traded. Fund board members generally are involved in the process of approving new products, with some boards establishing a "new products committee" for the purpose of evaluating the appropriateness of new kinds of investments for the fund's portfolio. Some of the questions that fund directors might want to ask are listed in Exhibit D. By obtaining answers to questions similar to those outlined in the exhibit, boards will be in a better position to determine whether risks attributable to new products are being adequately addressed and to request additional clarification or to require remedial action to be taken if necessary.

Fund directors should seek to understand, in a broad sense, the types of risks that funds face.

The types of risk inherent in the fund business, and thus relevant to directors' oversight of risk, are operational risk and investment risk.

Operational Risk is the risk that issues will arise or errors or omissions will occur in the ordinary course of business or that, for whatever reason, will adversely affect the business enterprise. "Operational Risk Management" is the process of managing the risk that errors and mistakes may occur, or that the business will not be able to operate, whether in the ordinary course of business or during a disaster. Compliance risk generally is considered to be a kind of operational risk, but may be implicated in certain aspects of investment risk as well.

Investment Risk is the risk associated with the investments that a fund makes. "Investment Risk Management" is the process of identifying, measuring, monitoring and controlling economic risks attributable to the fund's investments.

Fund directors should understand how fund management identifies and manages operational risk.

Operational risk includes the risk to the business enterprise of all types of errors and mistakes that can be made both in the ordinary course of business and in a disaster. A partial list of such errors includes fails, reconciliation differences, customer complaints, guideline breaches, collateral disputes, systems problems and the like. In addition to risks attributable to errors, operational risks are also presented by the use of spreadsheets and models, as well as risks related to systems and resources, risks related to disaster recovery and backups, and risks related to record maintenance and security. Unlike investment risk, there is no potential upside associated with operational risk.

In managing (and overseeing the management of) operational risks, it is important for a fund adviser to have adequate methods of monitoring and tracking such risks over time, identifying trends that could indicate emerging or intensifying problems, and implementing an exception/escalation process that assures that such problems are brought to the attention of increasingly higher levels of management so that they can be properly addressed. Fund directors should understand whether systems and resources are adequate, whether adequate back-up and disaster recovery plans exist and whether sufficient attention has been paid to record retention and security issues. They should receive information about whether various types of errors are increasing or decreasing, how current levels of problems compare with historic levels, and how fund managers are dealing with them.

In addition, fund directors should satisfy themselves that “spreadsheet risk” is considered, addressed and controlled, particularly with respect to derivative instruments and complex securities. “Spreadsheet risk” is the risk attributable to the use of spreadsheets and other end-user tools that are used to trade products and instruments that cannot be processed by a firm’s existing computing and accounting systems. Spreadsheets and other end user tools warrant extra scrutiny because they often exist outside the regular internal controls and testing established for a fund’s accounting systems, books, and records. ***Fund directors may also wish to direct management’s attention to the adequacy of controls used to manage model risk – that is, the risk that models relied on for valuation and risk management purposes have been properly vetted, with a view to determining, among other things, the appropriateness of the assumptions and data on which such models are based.*** Similarly, fund directors may wish to ascertain that management has considered what types of backup and disaster recovery plans are in effect, how records are maintained and secured, and how often backup and restore functions are tested.

In considering these issues, directors may wish to review the answers to some or all of the questions presented in Exhibit E. By obtaining information relating to the issues set forth above, directors will be better equipped to review the mechanisms that have been adopted to control operational risk.

Fund directors should develop a foundational understanding of risks that arise as part of the investment management process and should be satisfied that their funds' adviser is effectively managing those risks.

As noted above, in investment management, taking risks is essential – if a fund does not take risks, it cannot earn a return on its investments. Because funds must take risks, that some investments do not perform as expected does not show that the fund's risk management processes are ineffective or unsuccessful. However, portfolio managers and others involved in investing fund assets should take risks in a thoughtful manner – they should do so knowingly and should monitor and manage the risks they take continually.

Fund directors have a clear role in this process. Because they are deemed to sign the fund's registration statement, they should be comfortable that the risks taken by the fund are consistent with the risks disclosed to shareholders. In order to discharge this obligation, ***directors need to have access to a variety of information that facilitates an understanding of how investments are performing as well as the various risks they entail.*** While the specific tools needed to manage investment risk will vary from fund to fund, depending on the fund's strategy and the nature of its investments, in general, boards should consider whether adequate mechanisms are in place to address the following issues:

- Are investment performance and investment risk monitored in a meaningful way?
- How is valuation risk handled to assure that valuations are fair and consistent?
- How does the adviser monitor the use of complex securities to ensure they are within a fund's investment guidelines?
- How is issuer and counterparty credit risk managed?

Because of a board's role in reviewing and overseeing fund performance, fund directors may take a more active role in overseeing investment-related risk than other types of risk. However, in doing so, directors need to recognize that risk is an inherent part of the investment process – if an actively managed fund never takes a risk, then no benefits will ever accrue for its shareholders. With that caveat, a discussion of each of these issues and what a board needs to consider in addressing them is set forth below.

Measuring and Monitoring Investment Performance and Investment Risk

Mutual funds are charged with investing shareholder money in accordance with strategies designed to achieve investment returns consistent with the risks undertaken, and disclosed to investors in fund offering documents. Typically, boards review their funds' performance by examining total return calculations with data provided quarterly or monthly by the portfolio manager. In most cases, a fund's performance is measured against a benchmark, although in some instances it is measured on an absolute return basis. In either case, a key risk is that performance will fall short – either of the benchmark or of returns commensurate with the level of risk assumed. Thus performance analysis, that is, tracking how a fund performs against its defined benchmark or other objective, is an important component of investment risk management which should be monitored over time, and may provide useful insights on performance trends.

Fund directors should focus on policies that drive performance, and should always be mindful of how much risk is being undertaken to generate incremental performance. Most boards request performance information that takes into account some measure(s) of risk be included in their 15(c) materials (and providers of fund performance data such as Lipper tend to suggest they do). In order to better understand the risk and return profiles of their portfolios, some boards have begun to move beyond benchmarking, and request additional and more sophisticated forms of analysis from their fund's portfolio manager, in particular, performance attribution analysis of how individual securities may have affected fund performance from quarter to quarter. Though not an entirely new practice, given market volatility and the recent declines in fund performance, fund boards increasingly are asking for management to undertake this kind of analysis of their funds' portfolios in order to better understand how individual securities contribute to fund performance from quarter to quarter. Though boards should avoid the temptation to micromanage in this area, asking management to utilize attribution analysis tools and to share the results with the board, will provoke discussion of the risk profile of particular kinds of securities, and the corresponding returns the fund derives from taking those risks. Taken together with other performance and risk measures and indicators, attribution analysis can provide yet another valuable tool in understanding and measuring risk relative to return.

The key issues in assessing risk-adjusted performance data are how risk is defined and what mathematical models provide the most insight. "Risk" in this context can also be defined beyond volatility as the probability that a fund's goals may not be achieved. As described below, some methods embrace standard deviation, others employ the Sharpe ratio[7], and still others use the information ratio[8]. Each is different in its own way and all have their limitations.

Besides tracking performance, it is also important for fund managers to measure and monitor various aspects of investment risk utilizing metrics such as standard deviation, tracking error, expected shortfall, downside semi-standard deviation, value at risk (VaR) and other metrics. There are numerous metrics available for measuring risk on an ex post or ex ante basis. Each metric has its strengths and weaknesses and no one statistical or quantitative measure is sufficient to describe complex investment risk in its entirety. VaR for instance, is useful for estimating how much one can expect to lose every day or every month, based on historical experience, but is not indicative of potential cumulative loss. Standard deviations of return provide information about the past, not the future, and do not take into account the effect of liquidity, bid/offer spreads, frequencies of marks to market, etc. What is appropriate for a particular fund depends on the instruments employed and strategies being traded. But since no single metric can tell the whole story, it is important, particularly in cases where complex instruments and strategies are being traded, to use a variety of tools.

It may also be helpful to utilize stress testing to increase an understanding of the sensitivity of the particular portfolio to various market changes and anticipating the potential effect of trends or events such as changes in interest rates and volatility, correlation changes, widening or narrowing of credit spreads, various historical crises, and potential 'worst case' management nightmares, *e.g.*, stagflation, unemployment over a defined percentage, etc. Notwithstanding the foregoing, it should be emphasized that fund directors are not expected to engage in statistical or mathematical analysis. Their role is to use basic business judgment to assess whether management has the appropriate tools and the necessary sophistication to use those tools.

In addition to the statistical measures and stress tests described above, as recent market events have demonstrated, there may be significant risks associated with liquidity, concentrations, and leverage. Thus, it is important to take into account liquidity risk, including the liquidity of individual instruments in a portfolio and the implication of such liquidity on pricing as well as any mismatches between the liquidity of the portfolio versus the daily liquidity offered to fund investors. Similarly, the potential effects of concentration (large, undiversified positions at the portfolio level and large concentrations across portfolios under common management) need to be measured and monitored.

Leverage risk may be of particular concern to fund boards and should be monitored closely. Leverage risk manifests itself when a derivative in which a fund invests is structured to produce a substantial value change in proportion to the initial cash invested, thereby magnifying the risk of loss as well as the potential gains. Because they enable investors to buy or sell exposures without committing cash equal to the instruments' notional values, investments in derivative securities can result in a magnification of risk, or leverage effect. For this reason, such investments should be measured and closely monitored for leverage risk.[9]

Accordingly, in overseeing and assessing the adequacy of a fund's investment risk management, fund directors may wish to consider asking some or all of the questions in Exhibit F.

Valuation Risk

Valuation risk is a critical issue for mutual funds and their directors because inaccurate valuations result in incorrect NAVs, potentially causing unfair treatment to one set of shareholders versus another. For this reason, fund directors are legally obligated under Section 2(a)(41) of the Investment Company Act to determine the fair value of securities for which market quotations are not readily available, and to consider the adequacy of a fund's fair valuation procedures. ***While boards are permitted to delegate day-to-day valuation responsibilities to an investment adviser or committee (which may or may not include board members), boards retain ultimate accountability for valuations and, according to the SEC, boards as a whole need to consider the adequacy of their fund's fair valuation policies and procedures.***

To discharge this obligation, directors need to understand the characteristics of the securities in which the fund invests as well as the risks posed by the securities, since the riskiness of a security can affect the price a third party is willing to pay for it. Complex over-the-counter derivatives, high-yield bonds, mortgage and asset-backed securities, collateralized debt obligations, collateralized loan obligations, and other complex and/or illiquid securities, for example, may not have readily available fair market values, and must be 'fair valued' using independent pricing services, pricing models or other mechanisms in accordance with valuation policies and procedures. Boards need to assure themselves that the valuation methodologies that have been developed and implemented are reasonable and effective and that strong controls are in place to assure that they are being consistently applied.

Fund directors may find the questions in Exhibit G useful in helping to assess the adequacy of the fund's valuation policies and procedures, particularly with respect to complex and hard to value instruments. By periodically satisfying themselves as to the answers of some or all of the questions set out in Exhibit G, directors will be in a position to better discharge their oversight responsibilities regarding valuations.[10]

Risks of Complex Securities

When funds use more complex securities such as repurchase agreements, reverse repurchase agreements, forward commitments and similar arrangements, options, futures and other derivative transactions and synthetic instruments, boards are expected to give heightened attention to the potential risks of these instruments.[11] Indeed, the SEC has made clear that, with regard to derivatives and complex securities, boards have a "particular responsibility to ask questions concerning why and how the fund uses futures and other derivatives instruments, the risks of using such instruments, and the effectiveness of internal controls designed to monitor risk and assure compliance with investment guidelines regarding the use of such instruments."[12] Further, when examining the activities of funds using derivatives, the SEC has focused on adequate prospectus disclosure, valuation procedures for derivatives, liquidity assessments, as well as strong management controls to monitor and control the risks associated with derivatives and complex securities. Fund directors should consider these areas carefully in their oversight of fund investments.[13]

Issuer and Counterparty Credit Risk

Mutual funds face two types of credit risk:

1. Issuer credit risk is the credit risk attributable to individual securities.

2. Counterparty credit risk is the risk attributable to the downgrading and/or insolvency of a counterparty in an over-the-counter security or derivative trade.

The importance of managing both types of credit risk has never been clearer than during the recent market turbulence, when numerous issuer and counterparty credit ratings have dropped by multiple notches in single downgrades, in some instances falling from triple A to below investment grade, and when formerly top-rated counterparties have failed or experienced major credit impairments. ***Indeed, the default of Lehman Brothers demonstrates just how real and expensive counterparty credit risk can be.***

From a fund perspective, the risks attributable to issuer and counterparty credit are significant. First, unless levels of issuer and counterparty credit risk are consistent with what has been disclosed to investors, funds face potential liability. Second, the deterioration of issuer and counterparty credit quality can give rise to significant losses. Third, in the case of money market funds, in accordance with Investment Company Act Rule 2a-7, portfolio securities need to have “minimal credit risk” as determined by a fund’s board. While in the past many money market funds relied primarily on ratings issued by rating agencies, recent experience has demonstrated that such ratings are not necessarily reliable measures of credit risk. Fourth, credit risk exposure is not static, but rather may fluctuate over time. Thus, it may be important to track potential future exposure as well as current exposure. Finally, there is a growing understanding that issuer and counterparty credit risk arise in multiple contexts, including through exposure to debt and equity portfolio holdings, over-the-counter derivatives counterparty exposure, securities lending and repo counterparty exposure, as well as exposure to custodians and other service providers. Therefore, in order to address credit risk in a meaningful way, it is important to look at it in the aggregate and develop limits or other means of managing it.

In overseeing issuer and counterparty credit risk management, therefore, fund directors may wish to consider addressing some or all of the issues outlined in Exhibit H. By determining the answers to these and similar questions, directors can establish a foundation on which to evaluate the adequacy of their funds’ approach to issuer and counterparty credit risk management.

The Use of Board and Adviser Resources in the Risk Oversight Process

The board should employ the funds' CCO to assist in its oversight of risk.

In the current regulatory framework, the CCO, acting on behalf of the board, is essential in assisting boards to oversee risk management effectively.[14] Because most boards are engaged in evaluating the risk assessment and management practices at their funds and their service providers as part of the existing fund management and compliance reporting process, it is important to recognize that the CCO already plays a role in many aspects of risk management that may be thought of as being outside the realm of compliance risk assessment (*e.g.*, operational, investment, credit and counterparty, and market risks). Further, because many of the compliance controls and procedures already in place at a fund, like those for valuation, portfolio management, securities lending, performance reporting, disclosure, etc., are also designed to address certain aspects of risk, a fund's CCO is an integral part of risk governance.

In assessing how a board may wish to employ its CCO in its risk governance activities, directors should start by assessing whether the CCO possesses the requisite training and competence to assist the board in meeting its fiduciary duty to evaluate risk matters outside areas more traditionally considered compliance-related. ***A knowledgeable CCO can assist the board in a wide range of risk governance and data gathering activities. Boards should be mindful, however, of the CCO's workload and how most appropriately to use the CCO's time.***

Risk Inventory Matrix

An effective compliance function requires a thorough and thoughtful appraisal of areas of risk applicable to the fund and its adviser. A useful tool for both CCOs and boards to identify and understand these risks is a "risk inventory" or "risk matrix." Such an inventory, developed with the assistance of internal audit and the adviser's business units, will help a CCO step beyond technical legal considerations and serve as a method to identify compliance, operational, investment, and other risks beyond the factors identified in the compliance rule (Investment Company Act Rule 38a-1). The risk inventory matrix may also be structured not just to pinpoint risks, but also to (a) provide examples of quality control processes and compliance policies and procedures in place to mitigate the risks, (b) provide examples of review procedures and forensic tests the compliance staff has performed with regard to each identified risk, and (c) highlight required disclosure changes. A risk inventory can also serve to rate risks and point to specific policies in need of refinement or revision.

Identification of Red Flags

The CCO, through the risk inventory process and his or her daily engagement with the operations of the adviser's business units, can also identify "red flags" or risk areas that might require extra attention from the board such as:

1. NAV, pricing issues, or impairment of value;
2. Frequent or unusual overrides of policies;
3. Conflicts of interest;
4. Areas of compliance, at the fund or among its competitors, identified by regulators as having experienced shortcomings;
5. Special or unusual aspects of the fund that may require attention (*e.g.*, heavy use of derivatives or complex securities);
6. Developments at the adviser, the adviser's parent, or affiliates: and
7. Industry issues that highlight particular regulatory concerns (*e.g.*, SEC sweeps, exams, or enforcement cases).

As stated above, a vital part of the role of fund directors in risk management oversight is monitoring the compliance and risk management systems put in place by the adviser, and insisting that management act on any significant warnings or "red flags" that may arise.

Fund directors may rely on other personnel at the adviser to assist it in overseeing risk.

As previously discussed, some fund complexes employ personnel specifically devoted to risk management including, in some cases, a chief risk officer. In such situations, directors may find it useful to develop a relationship with risk management personnel and use their knowledge and insights to assist in fulfilling the board's oversight responsibilities. Depending on specific circumstances boards may also wish to consider whether there should be risk management staff who report directly to and are responsible to the board. (See "Independent Control Groups Including an Independent Risk Manager").

Fund directors may wish to consider modifying their board's structure to improve the effectiveness of oversight of risk management.

Some fund boards have formed risk oversight committees.[15] The practice is not yet widespread, with many fund directors feeling that separate risk committees may not be appropriate for fund boards because risk considerations are integral to all of the duties of fund directors, with risk awareness being a vital component of good business judgment. Further, many directors believe individual risks can be more competently and efficiently governed from within existing committees including the audit committee, investment committee, valuation committee, or new products committee. However, in certain circumstances, a risk oversight committee for a fund board may be particularly useful and appropriate for risks that do not fall neatly within exiting board committee structures. Such a committee may be an appropriate forum for board considerations of enterprise risk, that is, requesting and understanding information about what the affiliates – or the parent – of the fund's adviser are doing to incorporate the fund in risk considerations for the greater enterprise. ***Regardless of the structure a board adopts to address risk management oversight, risk awareness and an ongoing and robust dialog with the fund's management regarding its reactions to emerging or evolving risks facing the fund is vital to good governance.***

Other Obligations With Respect to Risk

Boards are required to disclose to shareholders how they are overseeing the risks their funds face.

In December 2009, the SEC approved rules requiring new disclosure in investment company proxy statements and registration statements describing the extent of the board's role in the risk oversight of their fund.[16] In the final Rule Release, the Commission stated that it considers risk oversight a "key competence of the board." Given the board's central role, the Commission reasoned that additional disclosures would improve investor and shareholder understanding of the role of the board in a fund organization's risk management practices, and would provide important information to investors about how a fund perceives the role of its board and the relationship between the board and the fund's adviser in managing material risks facing the fund.

The disclosure requirement is fairly flexible, and gives little guidance about the level of detail funds must employ in describing how the board administers its risk oversight function.[17] The Rule Release gives one example of what this new risk disclosure might contain:

> *Disclosure about the board's approach to risk oversight might address questions such as whether the persons who oversee risk management report directly to the board as whole, to a committee, such as the audit committee, or to one of the other standing committees of the board; and whether and how the board, or board committee, monitors risk.*[18]

Boards should work closely with the adviser, fund counsel, and board counsel in crafting this new set of disclosures.

Oversight of Sub-Advisers

The use of sub-advisers for day-to-day portfolio management is not uncommon among US mutual funds. While the use of sub-advisers may offer many potential benefits for fund advisers and fund shareholders, fund directors face a number of unique challenges in overseeing their funds' use of sub-advisers, including governing a sub-adviser's risk-taking activities, poses a number of unique challenges for fund directors. Though a board's duties with respect to the oversight of sub-advisers are similar to the oversight of a fund's investment adviser, practical considerations, such as the complications involved in obtaining and reviewing comprehensive information from sub-advisers, make the board's responsibilities more challenging. Key components of effective risk governance of sub-advisers are: (a) active involvement in the adviser's selection of a sub-adviser; (b) ensuring the adviser employs a vigorous vetting process; and (c) with the assistance of the fund's CCO, monitoring of the performance and compliance activities of the sub-adviser, including understanding how the sub-adviser monitors risks associated with the use of complex instruments.

The Forum has addressed the oversight of sub-advisers at length in its April 23, 2009 *Report of the Mutual Fund Directors Forum: Practical Guidance for Directors* on the Oversight of Sub-Advisers. The report contains comprehensive practical guidance to assist fund directors in the complex task of overseeing all phases of their funds' sub-advisory relationships – from entering sub-advisory relationships, through monitoring existing relationships, to ending these relationships. The guidance in the report may also be used as the foundation for effective risk governance.

Conclusion

Risk is an integral part of the investment management business, and no set of principles or guidance can take the place of a rigorous and thoughtful examination of the particular and unique role risk plays in the return and operation of a fund. As fund directors reexamine their risk oversight practices in the wake of the financial crisis, it is important that they resist the urge to micromanage or overemphasize process over more thoughtful and practical considerations. On a threshold level, though, the board can work with the fund's adviser to encourage the proper "tone at the top," that is, that risk is an important issue, and that effective risk management is good for return, not harmful. Beyond helping to set the tone, fund directors should consider their oversight of risk management, not as an oversight duty separate from those they are accustomed to, but as an awareness of and consciousness about the concept of risk as they perform those familiar duties.

Notes

[1] See, for example, “Best Practices for the Hedge Fund Industry: Report of the Asset Managers' Committee to the President's Working Group on Financial Markets” (2009) http://www.amaicmte.org/Public/AMC%20Report%20-%20Final.pdf ; “Risk Principles for Asset Managers” prepared by the Buy Side Risk Managers Forum (2008). Because “Risk Principles for Asset Managers” was created by a group of chief risk officers at major traditional asset management companies and addresses best practices for dealing with the risk management issues that are most relevant to mutual funds, this report relies heavily on that paper in identifying key issues.

[2] This report was developed by a working group of leaders in the independent director community with advice given by members of the Forum’s Advisory Board, and with extensive aid from and collaboration with Capital Market Risk Advisors, a financial advisory firm specializing in risk management, risk diagnosis, financial forensics and risk governance, and with the advice and material input of risk professionals at PricewaterhouseCoopers LLP. Members of the working group participated in this report in their individual capacities and not as representatives of their organizations, the fund boards on which they serve, or the funds themselves. Drafts of this report were reviewed by the Forum’s Board of Directors and Steering Committee. This report does not necessarily represent the views of all Forum members in every respect.

[3] As discussed below, however, the SEC recently has adopted a requirement that boards outline in proxy statements and registration statements the extent of the board’s role in risk oversight. (See, Note 16) While this does not establish any requirement in the Commission’s regulations that directors manage risk, it does suggest that the SEC has increasing expectations of directors. In some specific areas, the SEC is also beginning to require that directors play a specific role in overseeing an adviser's risk management processes. Most notably for mutual fund directors, the recently adopted amendments to the rules governing money market funds require that directors play a role in portfolio stress testing. See, Release No. IC-29132 (Mar. 3. 2010) [75 FR 10060, 10079 (Mar. 4, 2010)].

[4] See, Md. Code Ann. Corp. & Assoc. §2-405.1.

[5] See, In re Caremark International, Inc. Derivative Litigation, 698 A 2d 959, 971 (Del.Ch. 1996), and progeny.

[6] Financial services companies are often thought of as being broken logically into three parts: the front office includes investment management, sales personnel and corporate finance; the middle office manages risk and IT resources; and the back office provides administrative and support services. Middle offices may or may not exist in smaller fund management companies. From a control perspective, it is less important that a middle office exist than that there is appropriate segregation of functions between the front office (portfolio managers and traders) and persons required to monitor and control their activities.

[7] The Sharpe ratio is used to characterize how well the return of an asset compensates the investor for the risk taken.

[8] The "information ratio" is a measure of the risk-adjusted return of a financial security (or asset or portfolio). It measures the expected active return of a portfolio divided by the amount of risk that the manager takes relative to the benchmark.

[9] Investments in derivatives should also be monitored closely for compliance with SEC regulations. Insofar as they are contractual obligations under which the fund may be required to pay more money in the future than the amount of its initial investment, certain investments in derivatives may be considered "senior securities," and violate leverage prohibitions of the Investment Company Act. See Section 18 of the Investment Company Act of 1940. See also, Investment Company Act Rel. No. 10666 (April 18, 1979).

[10] The SEC has assembled a bibliography, "Valuation of Portfolio Securities and other Assets Held by Registered Investment Companies – Select Bibliography of the Division of Investment Management," intended to assist funds and their counsel in understanding and applying the valuation requirements under the Investment Company Act. Also included are proposing releases, select staff guidance (including no-action letters), and enforcement actions in this area. This bibliography may serve as a key resource for boards in fulfilling their valuation responsibilities. http://www.sec.gov/divisions/investment/icvaluation.htm

[11] Keynote Address at Mutual Fund Directors Forum Program by Gene Gohlke, Associate Director, Office of Compliance Inspections and Examinations (Nov. 8, 2007). Available at www.sec.gov/news/speech/2007/spch110807gg.htm.

[12] Rule 17f-6 Adopting Release, Investment Company Act Release No. 22389, Dec. 11, 1996 [61 FR 66207, 66209 (Dec. 17, 1996)].

[13] In addition to the special considerations relevant to derivatives, boards also must make determinations of credit quality with respect to investments in debt securities of issuers deriving more than 15 percent of their revenues from securities-related activities, and must adopt certain policies and procedures with respect to investments in money market funds permitted by Investment Company Act Rule 12d1-1. While not specifically related to directors' oversight of risk, obligations such as these sometimes require that directors understand the risk characteristics of the securities.

[14] SEC Chairman William H. Donaldson, Remarks Before the Mutual Fund and Investment Management Conference, March 14, 2005. http://www.sec.gov/news/speech/spch031405whd.htm

[15] Senators Charles Schumer (NY-D) and Maria Cantwell (WA-D) have introduced a bill, the "Shareholder Bill of Rights Act of 2009," which among other things would impose certain corporate governance standards, including requiring boards of public companies to have a risk committee. The proposed language requiring risk committees reads:

> *Each issuer shall, 1 year after the date of issuance of final rules under paragraph (2), establish a risk committee, comprised entirely of independent directors, which shall be responsible for the establishment and evaluation of the risk management practices of the issuer.*

The legislative language would also give the SEC the rulemaking powers necessary to effectuate the requirements for risk committees. The proposed bill in its current form does not exempt investment companies from the risk committee requirement. http://www.corpfinblog.com/uploads/file/bill-text-shareholders-bill-of-rights-act-of-2009%282%29.pdf

[16] Release No. IC-29092 (Dec. 16, 2009) [74 FR 68334] ("Rule Release")

[17] Generally speaking, funds with fiscal years ending on or after December 20, 2009 must follow the new disclosure rules for proxy and registration statements (or post-effective amendments) for their filings on or after February 28, 2010.

[18] 74 FR 68334, 68345

Exhibits

Exhibit A
Risk Management Framework Components

Organization and Governance

- Is there adequate independence, accountability and segregation of duties involved in the oversight and management of risks?
- Does the existing structure allow for an enterprise-wide view of risk management?
- Are policies and procedures adequately governing risks and operational controls?
- Is senior management and the board properly informed of risks and mitigating controls?

Culture

- Does our culture and "tone at the top" support sound risk management practices?
- To what extent are the incentive structures and talent management promoting the "right" behaviors?

Risk Management and Process - Risk Appetite, Strategy and Asset Allocation

- Is risk appetite/tolerance clearly defined?
- Are our strategies and asset allocation processes aligned with our risk appetite?

Risk Management and Process - Risk Identification and Assessment

- Have we identified relevant and material Market, Credit, Operational, Liquidity and Counterparty risks?
- Is our product approval process adequate to identify risks and ensure proper controls?

Risk Management and Process - Risk Measurement and Analysis

- Do we have sufficient risk measurement tools and processes?
- Is management able to aggregate risk exposures, identify concentrations, and manage risk as a portfolio?

Risk Management and Process - Risk Mitigation, Control and Monitoring

- Do we have an effective process to escalate risk issues?
- Are our limit structure and management practices adequate?

Risk Management and Process - Reporting and Performance Measurement

- Do current risk reports facilitate timely and informed management decision making for board level and senior management?
- Do we evaluate our performance on a risk-adjusted basis?

Risk Management and Process - Periodic Review

- Are we executing our risk management strategies effectively?
- Are our processes consistent with industry leading practices?

Infrastructure

- Is our infrastructure appropriate given our growth strategy and complexity of the investments and type of risk?
- Are there adequate controls to guarantee risk and finance data completeness, integrity and adequacy?

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Exhibit B
A Risk Conscious Culture

To determine whether a risk aware culture exists, directors should consider questions similar to the following:

- Is there some mechanism in place to identify relevant enterprise and investment risks on an ongoing basis?
- Are risk tolerances defined in fund disclosure documents and monitored over time in light of changing market conditions?
- Who establishes a risk aware culture?
- Does executive management embrace the culture or risk awareness?
- Is there an organizational structure in place in which responsibilities for managing various types of risks are clearly defined?
- Has senior management set an appropriate fiduciary and ethical tone for the organization?
- Do employees understand their fiduciary and ethical responsibilities?
- Do written risk policies and procedures exist and if so, do they identify specific people within an organization with responsibility to approve various actions, make exceptions, etc.?
- Are risk policies and procedures realistic or aspirational?
    - Are they well communicated to affected employees?
    - Are they enforced?
    - What happens when they are violated?
- How often have ‘surprises’ or situations in which results differ significantly from expectation occurred?

    - Have changes been made in response to such surprises?

- Do employees receive training and educational programs that help them understand risk, risk management and the fund's requirements?

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Exhibit C
Staffing and Organization of the Risk Function

From a board perspective, it is important to understand whether the adviser has in place an adequately robust and empowered risk management program, taking into account the size and complexity of the fund or fund complex. The following questions may help a board to determine whether the risk management function is appropriately organized and staffed:

- Does the fund/fund manager have in place dedicated risk management staff, or are risk monitoring duties the responsibility of department or business unit heads?
- Is risk monitoring adequate in terms of numbers of people and levels of expertise?
- If the fund has a chief risk officer, does he or she have enough seniority, knowledge and organizational respect to be effective?
    - To whom does he/she report?
    - Is he/she considered a member of senior management and does he/she have ongoing access to senior management?
    - Does he/she have access to the board on a regular basis?
    - Does he/she have access to the CCO?
    - Does he/she provide risk reports to management and the board, either directly or through the CCO?
- If risk management includes a risk monitoring as opposed to strategic function, is it located outside the portfolio management and trading functions?
- If risk management responsibilities are divided between different areas, i.e., investment risk management versus enterprise risk management, are their respective responsibilities clearly defined?
- Do various people/groups with risk management responsibilities communicate

with senior management, the board, the CCO, and each other on a regular basis?

- Does the board receive adequate risk information? Does the risk manager have in camera sessions with the board?

- Is there a level of comfort among board members that sufficient resources and attention are devoted to risk management?

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Exhibit D
Evaluating the Risks Attributable to New Investments

In order to discharge their oversight obligations, board members must satisfy themselves that there is a process in place for reviewing the issues raised by new investment products and strategies before they are added to the fund's portfolio. Some of the questions that a board might want to ask are as follows:

- Is there a formal new products policy or procedure?
- Is there a new products committee?
- Who signs off on new products and have people from all affected areas, including legal and compliance, risk, operations, valuations, etc., had an adequate opportunity to review the products and the issues they raise?
- How many new products have been considered in the relevant time frame?
- How is seed capital budgeted?
- Has consideration been given to whether the risks of these products are commensurate with potential returns?
- How are new risks associated with new ideas assessed and discussed?
- Are the products permissible investments under applicable fund guidelines?
- Do the products require development of new valuation and/or risk models?
- Can the products be properly booked and accounted for using existing systems?
- Do they create increased "spreadsheet risk"?
- Do they place an undue burden on back and middle office personnel?
- Have any proposed new products been turned down and if so, why?

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Exhibit E

Determining the Mechanisms for Controlling Operational Risks

By asking the questions below, directors may be better equipped to determine the adequacy of mechanisms that management has adopted to control operational risk.

- Is the board receiving adequate information to assess how operational risk is being handled?

- Are fails, reconciliation differences and other types of errors increasing or decreasing? If so, why?

- Are systems and resources adequate to deal with the products and strategies traded?

    - In this regard, does the fund/fund manager have appropriate tools to meet its research, portfolio management, portfolio risk measurement, sales support, trading, settlement and record-keeping needs?

- How frequently does the fund/fund manager reassess the adequacy of its systems?

- What systems changes/enhancements are contemplated over the next year and what are the system priorities?

- How much reliance is placed on spreadsheets and other end-user tools?

    - What plans, if any, exist to eliminate such reliance? In what time frame?

- Are models independently validated? By whom?

- Who controls access to models?

- How are key model assumptions vetted?

- How have key models performed?

- Are models used for valuation purposes the same as or different than models used for risk purposes?

- What model weaknesses have been revealed by the current market situation and how are they being addressed?

- What kind of off-site backup is there of key systems and information?

  - Is the backup located in a different region and power grid than the primary business location?

  - Do key employees have access to backup and disaster plans on their desks? At home? In their cars? At remote locations?

- Have plans been developed for various types of disasters, i.e., terrorism, fire, water, power problems, pandemics, quarantines, etc?

- What type of record management and retention programs are in effect?

  - Do they meet legal and regulatory retention requirements?

  - Are they periodically tested and revised to take into account changing circumstances and regulatory requirements?

- How is confidential client and employee information safeguarded?

- What types of physical security exist?

- How are computer networks protected?

- What attention has been given to information security, including safeguarding access to information, disposing of information, identity management and the like?

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Exhibit F

Assessing the Adequacy of a Fund's Investment Risk Management

In overseeing the adequacy of a fund's investment risk management, boards may wish to consider asking some or all of the following questions.

- How is investment performance measured and monitored?
- Are the benchmarks or objectives against which performance is measured appropriate to the strategies traded?
- Is there a stated policy on the amount of risk to be taken?
- Is there a risk budget for particular strategies or instruments?
- Are causes of under and over-performance tracked and understood?
- Is performance attribution measured in a meaningful way?
- How is investment risk measured and monitored?
- Are multiple metrics utilized?
- Are the metrics both forward and backward looking?
- What type of stress-testing is done?
- Were the stress tests in use helpful in predicting the effect of recent market upheavals on the portfolio?
- If not, what changes should be made going forward?
- What sensitivity does the fund's portfolio have to various events such as historical market events, changes in interest rates and correlations, potential worst case scenarios?
- How is liquidity measured and monitored?

- Has management encountered problems relating to liquidity and if so, what has it learned?

- What liquidity concerns does management have going forward and are appropriate steps being taken to deal with them?

- How are illiquid positions valued? What issues has the fund encountered with respect to such valuations?

- How are concentration risks measured and controlled?

- What concentration concerns does management have going forward and are appropriate steps being taken to deal with them?

- Are concentrated positions subjected to valuation haircuts in recognition of potential difficulties in selling such positions?

- How is leverage defined?

- How is leverage measured and monitored?

- Are both economic and structural leverage measured and monitored?

- Is the fund's leverage consistent with disclosures made to investors?

- What leverage concerns does management have going forward and are appropriate steps being taken to deal with them?

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Exhibit G

Assessing the Adequacy of a Fund's Valuation Polices and Procedures

In overseeing a fund's valuation process, boards need to satisfy themselves as to the answers to some or all of the following questions:

- Are there written policies and procedures for valuing all types of instruments traded by the fund?
  - Do they spell out the methodologies to be used with sufficient specificity to assure consistency?
  - Are these methodologies consistent with disclosures provided to investors and if not, what remedial steps are being taken?
  - Do the policies clearly define the events that could give rise to a need to fair value securities? If so, is there a process for monitoring for the occurrence of such events?
- Is there a valuation committee? If so, what is its composition?
- How many securities have been fair valued in the current reporting period? Is the number trending up or down?
- How many meetings has the valuation committee held during the current reporting period and what do the minutes reveal about the committee's deliberations?
- Where broker quotes are relied on, are they obtained by personnel who are independent of portfolio management/trading? Is there a prescribed methodology (*i.e.*, averaging, discarding the high and the low, marking to bid/offer/mid) etc.?
- Under what circumstances are single broker quotes relied on, and what controls are in place?
- Where independent pricing services and/or third party service providers are utilized, what due diligence does the fund perform to assure itself of the vendor's competence, control environment, etc.?

- How are pricing services used with respect to complex instruments?

- Are independent pricing services/service providers periodically reviewed/reevaluated?

- Where independent pricing services are relied on, is there a prescribed methodology for challenging prices? If so, how are challenges documented and who is responsible?

- Where models are relied on, is there a process for independently validating the model and vetting the assumptions used?

    - Who determines the reasonableness of such assumptions?

- When prices derived from established methodologies are overridden, by whom are they authorized and how are they tracked?

- How many overrides occurred in the current reporting period? Over time? What trends are being observed?

- Are marks to market for purposes of margin and collateralization (in the case of over the counter derivatives) compared to marks to market for books and record purposes? Are discrepancies between the fund's marks to market and counterparty marks to market taken into consideration?

- Are valuation methodologies reevaluated in light of changing market conditions?

- Are prices obtained from independent pricing services and/or models periodically compared with actual transaction prices where possible?

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Exhibit H
Issuer and Counterparty Credit Risk Management

In overseeing issuer and counterparty credit risk management, boards may want to consider addressing some or all of the issues outlined below.

With respect to issuer credit risk:

- What sources are used to evaluate issuer credit risk?
- If reliance is placed exclusively on ratings issued by rating agencies, is there an understanding on the part of the board and relevant fund personnel of the criteria used by the rating agency?
- Are other factors, such as internal rating systems, credit default spreads, analyst reports and the like taken into consideration?
- What factors are evaluated for nonrated issuers? In this regard, are equity-based credit exposure measurement tools used?
- Are maturities considered in evaluating unrated debt obligations?
- Are changes to issuer credit ratings monitored over time, and if so, what is required in situations where credit quality is deteriorating? How have these situations worked out?
- Are there credit limits in place and if so, who monitors them?
- Have there been limit exceptions? Are they trending up or trending down?
- How often is credit quality reviewed?
- How are downgrades and other credit events monitored?
- Is issuer credit exposure monitored in the aggregate?
- Are counterparty collateral arrangements in place?

- Who monitors the current value of counterparty collateral?
- What arrangements are in place if the fund complex must pay out collateral?

With respect to counterparty credit risk:

- Is counterparty credit exposure monitored in the aggregate (i.e., OTC derivatives plus repos plus securities lending plus outsourced relationships such as custodianship)?
- Are there counterparty risk limits? Concentration limits?
- Is potential future exposure to OTC derivatives counterparties taken into account?

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