Russell Investments

Russell Research

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FEBRUARY, 2010

Risk management is the cornerstone of investing

This paper is the second of a three-part series on risk and its management. The first paper, “There’s nothing normal about risk”, discussed several myths and facts about risk, as well as problems with existing risk models. One of its main purposes was to communicate the confusion and anxiety investors felt when the 2007–2009 financial crisis revealed unintended exposures in their funds. This second paper explores the major reasons many institutional investors have trouble managing risk and proposes a new way to think about risk management and governance. (Please note that while we look at risk primarily from the perspective of defined benefit (DB) pension plans, much of what we discuss applies to other long-term funds, such as endowments.) Our final paper will be a case study demonstrating practical implementation of the concepts outlined in the first two papers. In total, this body of research will highlight the broad elements of risk, propose a viable approach to managing risk and provide an example of how to effectively incorporate risk management practices into the governance process.

Now is the time for fiduciaries to adopt better risk management processes and to consider the impact of human behaviour in decision-making. However, this requires an entirely different approach to risk management and governance (not just structural tweaks).

OVERVIEW

The root cause of failures in pension risk management is poor governance. Quite simply, most fiduciaries place too much emphasis on return and don’t spend the time it takes to understand and manage the risks in their funds. Everyone seems intent on rushing through the process of determining a plan’s asset allocation, so they can focus on manager selection and monitoring performance. Risk management is put on the back burner, and behavioural issues that affect decision-making are overlooked. When returns fall short of expectations, the “blame game” begins and changes are made. The more volatility there is in the market, the more turnover in the fund, primarily because the investment committee doesn’t have the conviction of logic to stay the course.

Now is the time for fiduciaries to adopt better risk management processes and to consider the impact of human behaviour on investment decision-making. However, this requires an entirely different approach to risk management and governance. We're not talking about structural tweaks, but rather the hard work of building a better risk management framework and culture. Sometimes it's only when you stare across the abyss that you truly recognise the enormity of the chasm between knowledge and action, and are then prepared to make a radical transformation in approach. The transformation begins with a greater understanding of risk and the willingness to change for the better.

A PERVASIVE PROBLEM

Recently published research conveys a sense of the enormity and urgency of the problem we all face when it comes to managing risk. The following are excerpts taken from the main conclusions of three lengthy research reports written in 2008 and 2009. Interestingly, they represent concurring opinions from two different perspectives – from the macro view, on the financial economy as a whole; and from the micro view, on just the pension industry. Both vantage points make it clear that risk has been broadly mismanaged across corporations and pension funds alike.

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The macro view

First, let's look at the macro view as perceived by the Organisation for Economic Co-operation and Development (OECD). In a 2009 report on lessons from the financial crisis, the OECD said:

> "This article concludes that the financial crisis can be to an important extent attributed to failures and weaknesses in corporate governance arrangements. When they were put to a test, corporate governance routines did not serve their purpose to safeguard against excessive risk taking in a number of financial services companies. A number of weaknesses have been apparent. The risk management systems have failed in many cases due to corporate governance procedures rather than the inadequacy of computer models alone: information about exposures in a number of cases did not reach the board and even senior levels of management, while risk management was often activity rather than enterprise-based. These are board responsibilities. In other cases, boards had approved strategy but then did not establish suitable metrics to monitor its implementation. Company disclosures about foreseeable risk have also left a lot to be desired, even though this is a key element".[1]

(See Appendix A for additional findings from this study.)

The micro view

From a more micro view, MetLife published a research report on the pension industry at about the same time that the OECD released its study. The MetLife report concluded:

> "The climate for change tends to be greatest when decision-makers acknowledge the need to improve current practices. … This survey suggests a wide gap between the importance plan sponsors ascribe to each risk area and the sponsors' own reported success at managing those risks. Overall, more than two-thirds of all plans studied indicate some degree of inconsistency in how they view and manage pension plan risk, and about 15% show significant problems in this area.

[1] "The Corporate Governance Lessons from the Financial Crisis". OECD Financial Market Trends, 2009; p. 2. Available at http://www.oecd.org (accessed Dec. 15, 2009).

For example, many respondents affirm their close attention to 'Plan Governance,' defined as the 'exercise of effective, independent oversight, supported by internal controls within all areas and at all levels of plan management.' However, the balance of the study's findings suggest otherwise.

This research indicates the possibility that DB plan decision-makers are failing to effectively align importance and success".[2]

(See Appendix B for a synopsis of the study's major points.)

Finally, Morgan Stanley conducted a survey of public fund chief investment officers (CIOs) in July and August 2008, just prior to the market debacle. It summarised what practitioners had to say as follows:

"The results of the Morgan Stanley Public Fund CIO Survey show that the demands associated with this increased [market] volatility and complexity have put a considerable strain on U.S. public funds' resources by introducing new issues (shortages of specialised staff, increasingly sophisticated risk-management needs) and exacerbating old ones (limitations imposed by politics, investment policies and the time needed to educate boards)".[3]

WHAT WENT WRONG?

How could all of these bright senior executives have gotten it so wrong and failed to protect their organisations? What behavioural impediments clouded their judgment? What masked their detection of the true nature of the problem?

From the macro perspective, a March 2009 article in *Harvard Business Review* outlined six ways that companies mismanage risk:

- Relying on historical data – history is an imperfect guide.
- Focusing on narrow measures – commonly used risk metrics don't capture catastrophes and/or ignore risks that count.
- Overlooking knowable risks – these risks include market concentration and illiquidity.
- Overlooking concealed risks – an organisation's risks are not transparent, or those responsible for assuming risk don't report it.
- Failing to communicate – there are delays or distortions in the reporting of risk exposures, or risk reports are overly complex.
- Not managing in real time – the risks associated with embedded derivatives can be dizzying in times of market turmoil.[4]

[2] "MetLife U.S. Pension Risk Behavior Index: A Study of Risk Management Attitudes and Aptitude Among Defined Benefit Pension Plan Sponsors". MetLife, 2009. Available at http://www.metlife.com (accessed Dec. 15, 2009).

[3] Morgan Stanley Public Fund CIO Survey. Morgan Stanley Investment Management Publications, 2008.

[4] Stulz, Rene M. "Six ways to mismanage risk". Harvard Business Review, March 2009.

These shortcomings are apparent in the pension industry. They are also strikingly similar to what Russell has identified as the main reasons many plan sponsors fail in their fiduciary duties:

- Defining the problem incorrectly by focusing too much on expected return while largely ignoring risk.
- Narrowly interpreting the solution set, thereby seeking a risk management tool instead of a risk management process.
- Underestimating the dynamic complexity of risk.
- Being impatient and looking for shortcuts, two related human behaviours.
- Allocating time inadequately by overemphasising what's easy, such as administrative tasks and dealing with the historical.

The issues facing plan sponsors are further complicated by frequent trustee turnover and poor documentation, as lessons go unlearned and institutional memories become short. In addition, a lack of investment expertise increases the odds of group behavioural biases.

These and other deficiencies in pension risk management have been well documented in research conducted over the past 20 years (see Exhibit 1). The element common to all of them is poor governance – poor governance resulting from insufficient attention to behavioural issues and inadequate risk management processes. The remainder of this paper will delve into these concerns in more detail, to better diagnose the problem and formulate a more prescriptive response.

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Exhibit 1: The pension governance deficit is still with us

- O'Barr and Conley (in their text *Fortune & Folly*), 1992
  "the aim of pension fund governance appeared to be focused more on responsibility deflection and blame management, rather than good governance and creating value for fund stakeholders"
- Ambachtsheer, Capelle & Scheibelhut, 1997
  "They found a positive correlation between pension fund governance quality and organizational performance"
- Ambachtsheer, Boice, Ezra & McLaughlin, 2004
  "excellence shortfall in their organizations … resulted in a median response of 66 basis points by the fifty senior pension executives who participated in the survey"
- Clark, Caerlewy-Smith & Marshall, 2005
  "pension fund trustee decision-making was less than ideal"
- Clapman et al, 2007
  "cited a litany of governance related problems in U.S. pension funds"

Source: Ambachtsheer, Capelle & Lum "The Pension Governance Deficit: Still With Us. "Rotman International Journal of Pension Management, Fall 2008

INSUFFICIENT ATTENTION TO BEHAVIOURAL ISSUES

Richard Thaler, professor of behavioural science and economics at the University of Chicago, astutely remarked that “One of the most important insights from behavioural research is that we need to distinguish between ‘normative’ theories that tell us how rational agents ‘should’ behave and ‘descriptive’ theories that tell us what real people do”.[5] In short, theory and practice often differ. All too frequently, however, we forget that investors are not always rational, and that human behaviour can impede investment decision-making.

Individual behaviour

One of the most fundamental characteristics of human nature is to think we are better than we really are. We make level-headed estimates of other people’s odds of success, but we typically overestimate our own chances of success, in a tendency called “optimistic bias”. For example, our positive view of investment vehicles like hedge funds in 2002 may have been coloured by their encouraging performance during the Tech Wreck relative to the rest of the stock market. Optimistic bias, combined with the so-called “recency effect”, caused us to invest more heavily in hedge funds than we should have, given their lack of transparency and our limited understanding of the risks. We also unconsciously mimic others or put too much trust in whatever is familiar to us, all of which leads to “herding” and “home bias”. We overestimate the power we wield over our own circumstances, an “illusion of control” that makes us complacent and results in too little planning. With “hindsight bias”, we convince ourselves that we foresaw what was going to happen, when actually we had no idea what the future would hold. As a result, we tend to fool ourselves into believing that we or others can make accurate predictions in a chaotic market. Above all else, we have a terrible time admitting that we don’t know something, as it lowers our self-esteem. (I can almost sense readers thinking, “Now that may be true elsewhere, but it certainly doesn’t occur in *our* investment committee meetings”. I believe that’s called “denial”!)

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Group dynamics

In discharging their duties, investment committees are prone to the same host of emotions and decision-making biases as individuals. Investment firm Vanguard documented this extremely well in a paper entitled “Group Decision-Making: Implications for Investment Committees”.[6] While acknowledging that groups have larger collective memories and greater information available, Vanguard also noted that group biases and behavioural hurdles can quickly derail these advantages. The four most notable hurdles put forth were *groupthink, group overconfidence, committee composition* and *group polarisation*. Groupthink occurs when members of a cohesive group are more interested in avoiding conflict than in realistically appraising various courses of action. Confirmation bias and shared-information bias, byproducts of overconfidence, ensure the group does not leverage its full investigative resources, which can lead to ineffective decision-making. Groups that are too large degrade performance through poor coordination or motivational issues. Group polarisation demonstrates how a committee may often make riskier decisions than individuals within the group would have made on their own.

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[5] Mitchell, Roger. “Risk: The Final Frontier”. *CFA Magazine*, March–April 2006; p. 25. Available at http://www.cfapubs.org.

[6] Mottola, Gary R. and Stephen P. Utkus. “Group Decision-Making: Implications for Investment Committees”. Vanguard Investment Counseling & Research, 2009. Available at https://institutional.vanguard.com (accessed Dec. 15, 2009).

The realities of our investing brains

"Your Money and Your Brain", by Jason Zweig, sheds additional light on why smart people make foolish and imprudent financial decisions.[7] I am going to borrow heavily from this book in the remainder of this section, although I highly recommend that readers study the full text themselves.

Apart from discussing the normal gamut of emotions, including fear, greed, surprise and regret, Zweig clearly points out that the investing brain is far from the consistent, efficient and logical device we like to pretend it is. Even though the brain functions superbly for most purposes in daily life, it can lead us astray when confronted with the challenge of choices within financial markets. Humans have a phenomenal ability to detect and interpret simple patterns, a skill that helped our ancestors survive the hazardous primeval world and still aids us today in meeting the stresses of daily life. But when it comes to investing, our incorrigible search for patterns leads us to assume that order exists when often it doesn't. We humans believe we're smart enough to forecast the future, even when we have been explicitly told that it is unpredictable. Our investing brains:

- Search for patterns when confronted with random data.
- Leap to conclusions, with two in a row of almost anything making us expect a third.
- Seek shortcuts through instinctive "solutions", even when we think we are engaged in sophisticated analysis.

This type of processing is unconscious, automatic and largely uncontrollable; you can't turn it off or make it go away. For example, many investment funds determined their asset mix on the basis of desired return and a belief in low correlation to diversify, without properly testing their assumptions – an unfortunate shortcut. As Charles Jacobs has noted, "At best, logic is just a way to justify conclusions we have already reached unconsciously".[8]

Broadly speaking, institutional investors have underestimated the significance of behavioural issues to their detriment. Riccardo Rebonato captured this point beautifully in "Plight of the Fortune Tellers" when he wrote:

> "There is a well-established science that teaches us how to extract the best information from the data. It is called statistics, and its use in risk management is well-known. There is, however, another science that deals with how actual human beings reach financial decisions once the data have been gathered. It is a branch of experimental psychology, and it is also well-established. Unfortunately, its use in risk management is nowhere near as widespread as that of statistics".[9]

INADEQUATE RISK MANAGEMENT PROCESSES

The occurrence of multiple risky events of significant magnitude and impact in the last decade – with models predicting that each would happen only once in a lifetime – has exposed weaknesses in pension risk management. To be able to address these deficiencies, plan sponsors must first comprehend the nature of the problem.

[7] Zweig, Jason. "Your Money and Your Brain: How the New Science of Neuroeconomics Can Help Make You Rich". Simon & Schuster, 2007.

[8] Jacobs, Charles. "Management Rewired: Why Feedback Doesn't Work and Other Surprising Lessons from the Latest Brain Science". Portfolio (The Penguin Group), 2009; p. 2.

[9] Rebonato, Riccardo. "Plight of the Fortune Tellers". Princeton University Press, 2007; p. 235.

Misdiagnosis of the problem

Many funds have simply failed to realise that risk is the cornerstone of investing, and instead have focused too heavily on expected return. Group overconfidence and the illusion of control have blinded fiduciaries to the fact that returns are largely unpredictable and outside their control. It is far more difficult to estimate trends than to determine an appropriate level of risk. Fiduciaries have forgotten that returns trend over time, vary with time and are subject to statistical noise. As such, they fell prey to the recency effect and were lulled into a false sense of security, thinking the exceptional market returns of the 1980s and 1990s would continue indefinitely. Good absolute returns masked the problem. But those days of irrational exuberance and heady market performance were driven by an unprecedented period of falling interest rates, which crested in 1981 and continuously abated thereafter.

Today we must realise that there is indeed a "new normal" which is truly uncertain. Part of the uncertainty is because we're in a low-return environment and interest rates, which are close to zero, are likely to rise. Furthermore, the potential outcomes for the financial markets are quite dichotomous and may well be politically motivated, making them even harder to fathom. Take the U.S. debt load, for example. Policymakers can either tax the populace to pay down the debt, or inflate their way out of it (retiring the debt with dollars that are worth less). Each option has political implications, as well as vastly different financial consequences for investors. The markets came close to falling off a cliff in 2008 but did not. Now we are in a situation where the whole cliff could still break off – or everything could return to a more pension-friendly environment.

When fiduciaries do look at risk, they tend to define risk management narrowly, as a tool or compliance vehicle rather than a process.

No silver bullet

When fiduciaries do look at risk, they tend to define risk management narrowly, as a tool or compliance vehicle rather than a process. Contributing to this problem is the fact that most of the people talking about risk management are trying to sell investors black-box models. Their wares are appealing to funds looking for a quick-and-dirty solution that lets them feel like they have effectively addressed the issue.

But buying the black box is not the answer. Perhaps no one makes this point better than Benoit Mandelbrot, a Yale mathematician who uses statistics to poke legitimate holes in modern financial theory. For example, in his "Ten Heresies of Finance"[10] (see Appendix C), Mandelbrot challenges the notion that market prices are normally distributed and move continuously, assumptions that form the foundation of many conventional risk models. He asserts that markets are much riskier than most people realise, and that current models are used not because they work well, but because the simplicity of the mathematical assumptions behind them is not disputed.

The complexity of risk

There are numerous facets to risk, and fiduciaries have generally failed to appreciate its intricacies. Russell believes that one of the best ways to visualise risk is to think of it as a three-dimensional matrix, something like a Rubik's Cube (see Exhibit 2). Envisioning risk in this way demonstrates some very important concepts, such as its complexity, multidimensionality and interdependency. Then consider that market risk is not stable over time and that investors' risk tolerances are also subject to dramatic change, and you start to understand the true extent of the predicament. In other words, the dimensions of each of the 125 equity risk boxes in Exhibit 2 are not constant and each or several can explode in size at any time. So trying to solve the risk riddle with a simple, two-dimensional (mean/variance) optimisation tool

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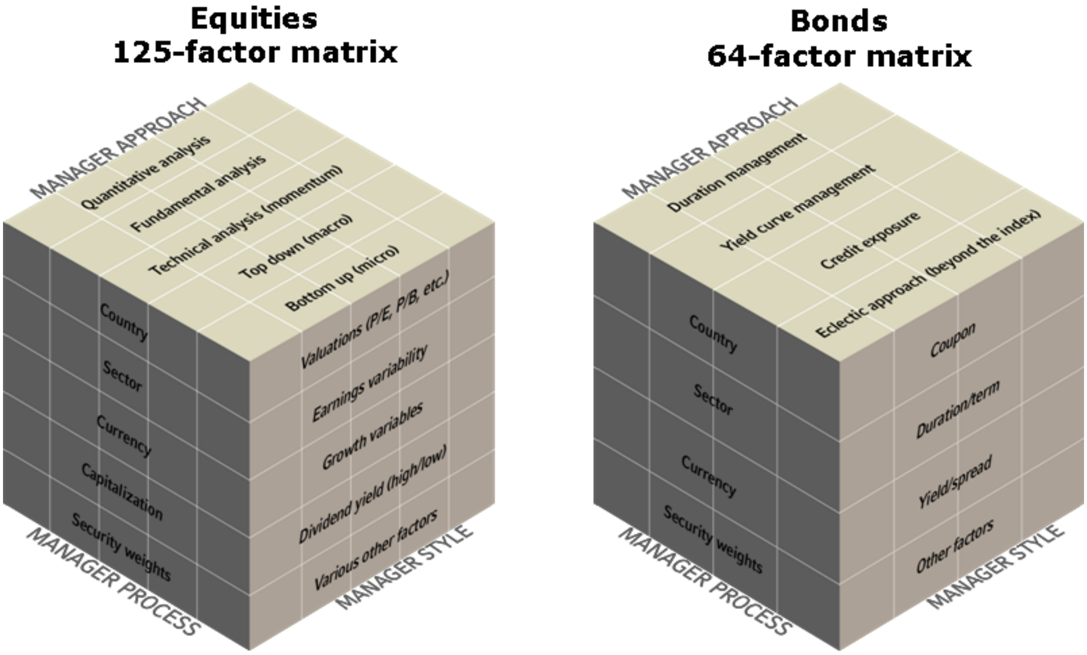
[10] Mandelbrot, Benoit, and Richard L Hudson. "The (Mis)Behavior of Markets: A Fractal View of Risk, Ruin and Reward". Basic Books, 2004; pp. 226–52.

designed for normal markets is suboptimal and prone to failure. Making incremental changes to outmoded models will not suffice.

Exhibit 2: Managing asset class risk is a multi-dimensional process



Therefore, using triangulation that incorporates various diagnostics and making trade-offs between multiple estimates of risk may prove more fruitful than attempting to achieve a precise estimate of risk-adjusted return. As we noted earlier, determining the level of risk is somewhat manageable, but accurately forecasting return is not. Given the complexity of risk, perhaps it is better to be *almost* right about achieving a somewhat manageable objective, such as a given level of risk, than to be *precisely* wrong about a totally uncontrollable variable, such as a forecast of risk-adjusted return. This, however, takes a complete reorientation of the fiduciary thought process.

RETHINKING RISK MANAGEMENT

Despite the abundance of research on risk management, findings have largely been ignored by pension plans. As plan sponsors face the uncertainties related to a new normal for the financial markets, it appears obvious that now is the time to focus on a better, more robust approach to managing risk.

Putting risk in the proper context

In our first paper in this series, we stressed the importance of clearly defining time horizon, goal setting and risk tolerance. These areas, unique to each investor, must be fully explored and clarified. Don't underestimate the time it takes to do this right, as the evaluation of each of these variables may affect your future response to risk.

Time horizon is easiest to define, given the long-term focus of institutional investing. Nonetheless, it may not be apparent that any risk management solution must incorporate a long-term strategic asset allocation time frame of 10 to 20 years, an intermediate time frame of five to 10 years and a short time frame of less than five years, including crisis periods. The latter is particularly important to ensure that a fund can weather a potential market calamity to attain the expected long-run benefits. This requires having alternate ways to evaluate risk, which generally encompass risk management techniques such as stress testing and scenario analysis. Rebonato suggests always framing the issue by asking three simple but pertinent questions:

- "Can I survive the worst plausible outcome?" (Are the downside results considered unacceptable by the system of assessing performance?)
- "What is my breakeven?" (How badly do things have to go to yield a return no better than the riskless one?)
- "How much do I gain in the best plausible scenario?" (After understanding the risks, what could be gained?)[11]

Goal setting is more of a challenge. Since most investors have competing investment objectives, goals must be prioritised, with the primary objective kept solidly in mind at all stages of decision-making. That said, we might have to back up even further – to plan design – and ask ourselves, "What is the mission of the fund in regard to the overall organisation and our human resources policy?" And "Can we afford it?" Take a manufacturing company with easily replaceable, unskilled labor requirements and high employee turnover. The company may decide that a pension plan is not that important in hiring and retaining workers and therefore might favor a DC plan. At the other extreme is a management consulting firm whose services are defined by the sophistication and professionalism of its employees. To attract and retain the best and brightest associates and to differentiate itself within the industry, the consulting firm may decide that a rich DB plan is a competitive advantage. In other words, the better an organisation can envision the big picture, the likelier it is to arrive at the appropriate design.

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Risk tolerance is even more difficult to discern. Fiduciaries need to address its three components separately, but must also recognise the linkages between them. The three interwoven components of risk tolerance are:

- Risk psychology – a psychological trait, like intelligence, personality or aptitude;
- Risk capacity – a financial consideration establishing how much risk the organisation can afford to take in its pension fund; and
- Perceived risk – a subjective judgment about risk, such as the feeling that investing in stocks in a bull market is not as risky as investing in stocks in a bear market.

During the process of selecting or designing a portfolio, the client and consultant may discover gaps between required risk (the risk inherent in the return required to achieve the goals); risk capacity (the maximum affordable risk); and risk psychology (the preferred risk/return tradeoff). Exploring these relationships is usually a powerful educational experience about risk and return for the client. This diagnostic process should be led by the consultant, whose role is to suggest alternatives, illustrate outcomes and recommend – but not to decide. This process is commonly referred to as "gap analysis" and is usually handled with clients through a combination of:

- Increasing resources (returns) by earning more and/or spending less;
- Contributing more via employer and/or employee contributions;
- Delaying, reducing, discarding and prioritising goals; and/or
- Assisting in the determination of the appropriate level and preference for risk, so that it is enough to achieve the long-term goals, but not so much that the client might panic and sell in a downturn.[12]

[11] Rebonato, ibid, pp. 245–49.

[12] Black, Pamela, J. "The Three Faces of Risk; What You Need to Know about Risk Tolerance". The Global Association of Risk Professionals (www.GARP.com) newsfeed, 2009.

Risk capacity should also lead to a discussion about the financial health of the plan sponsor, the nature of the organisation (corporation or government entity) and the potential impact of the pension fund liabilities/contributions on the organisation's financials. Over the last decade, poor investment returns (decreasing assets) and declining interest rates (increasing liabilities) have devastated the funded status of many sponsors and forced them to try to find ways to make contributions at a time when they can ill afford to do so. Again, discussions between the consultant and client on this issue are critical.

Let's review two polar extremes. On one hand, a countercyclical consumer staples firm, such as a brewery, may actually find that its corporate profits increase during economic downturns. At times like these, the consumer feels less wealthy and opts to drink beer instead of more expensive wine and spirits. Consequently, the firm can well afford increased pension contributions when the economy is weak. Compare that to a discretionary consumer products company, such as a restaurant chain, whose profits are highly sensitive to the economy. All else being equal, the former should be able to afford a more risky asset allocation in the long term, as it will probably endure far less stress in a short-term crisis.

Risk capacity should also lead to a discussion about the financial health of the plan sponsor, the nature of the organisation and the potential impact of the pension fund liabilities/ contributions on the organisation's financials.

But the assumption of all else being equal rarely holds in real life, so the magnitude of the pension liability on the sponsoring organisation must be considered in great depth, too. Are pension liabilities and potential contributions minimal in relation to the corporate financials, as might be the case at a growing tech company with a small, young workforce? Or are they extremely large, such as we would expect to see at a mature car manufacturer? Each corporation's capacity to absorb the pension downside may differ considerably. Given the well-publicised challenges of managing a pension fund, corporations may also wish to understand their exposures compared to competitors and broader peer groups. After all, in any competitive environment, it behooves us to understand how we might gain an edge on our rivals, and the pension area is no exception. As the old joke goes, the hunter may not have to outrun the bear if he can run faster than his hunting buddies.

Weighing the alternatives

Once investment risk is put into context relative to the overall firm, and the nuances of risk have been thoroughly considered, the merits of various alternatives can then be appraised. Two broad options immediately spring to mind. The sponsor can either "de-risk"[13] the pension fund through pension buyouts, plan redesign or risk mitigation, including immunisation (although most find it too costly to de-risk). Or the sponsor can seek to better comprehend and manage the risks.

In our examination of the recent research, we have seen two principal schools of thought on how risk should be managed for those funds that decide not to de-risk. They fundamentally differ based on their market interpretation and beliefs.

1. Writers like Nassim Taleb, author of "The Black Swan", believe that the market is unpredictable and that any attempts to outsmart it are largely futile. In short, they argue that you shouldn't bet what you can't afford to lose, because the market may indeed be irrational, but it is always "right". Allow me to coin the argument, "be somewhat conservative", since risky investors are often just picking up pennies in front of the proverbial steamroller. The idea is to take no more risk than you are comfortable with and is deemed necessary to meet your fund's objective. Subscribers to this philosophy should explore more deterministic investment strategies,

[13] Please remember that all investments carry some level of risk. Although steps can be taken to help reduce risk it cannot be completely removed.

including liability-driven investing (LDI),[14] liability-responsive asset allocation (LRAA)[15] and buying cost-effective insurance, such as options, to hedge some of the risk.

2. Others, many of them investment managers, also believe the market is uncertain. That said, they think that through better research and understanding, informed professionals can determine when the market is cheap and rich. By weighing the probabilities and placing small, calculated bets (buying some risky assets) to increase market exposure when it is cheap, and reducing bets when the market is rich, value can be added over a deterministic approach. In summary, informed judgment, being more nimble with better risk intelligence and avoiding critical mistakes should lead to superior outcomes. More dynamic investment strategies, such as enhanced asset allocation (EAA)[16] and strategic tilting,[17] might be appropriate here.

Both of these schools of thought – conservative vs. informed judgment – and their corresponding investment strategies – deterministic vs. dynamic – agree on one overriding fact, which is that markets are uncertain. However, none of the strategies profess to eliminate risk; rather, they hope to assess and possibly contain it. Of course, effective risk management requires much more than simply figuring out which camp you are in and then picking an investment strategy. Fiduciaries need a framework for proactively managing the risks in their funds on an ongoing basis.

Establishing the right framework

Common sense dictates that fiduciaries pursue a fund-wide approach to risk management, an all-encompassing process that incorporates both quantitative and qualitative risks. This was the topic of my paper entitled "A Comprehensive Risk Management Framework for Investment Funds", which appeared in the summer 2007 issue of *The Journal of Investment Consulting*. In it, I concluded that a fund-wide investment risk framework, which addresses the following nine desirable attributes and six risk management elements, is a necessity for most plan sponsors.

Nine desirable attributes of an ideal risk management framework

Risk considerations

1. Has a fund-wide scope, encompassing all investment (quantifiable) and process (qualitative) risks.
2. Demonstrates that return and risk are interwoven.
3. Identifies and describes a general hierarchy of risks.
4. Allows for variations across funds in the importance of specific risks and/or risk tolerance.
5. Enables an assessment of risk using both quantitative tools and common sense.

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[14] LDI, or liability-driven investment, is a set of strategies designed to reduce risk by managing the volatility in the gap between liabilities and assets by better matching expected cashflows. See Scott M. Donald, "An Introduction to LDI", Russell Research, April 2007.

[15] LRAA, or liability-responsive asset allocation, adjusts asset allocation based on changes in a defined benefit plan's funded status, to reduce risk as the goal of full funding narrows or is achieved. See Sorca Kelly-Scolte's, "Liability-responsive asset allocation", Russell Research November 2009.

[16] EAA, or enhanced asset allocation, provides an additional source of potential active returns by aiming to identify which markets are poised to out- or under-perform one another, and take advantage of these views. This information can be used to temporarily adjust or "tilt" a portfolio's exposure from its long-term default strategic asset allocation in response to changes in expected returns. See "Enhanced asset allocation: a disciplined and strategic response to market dislocations", November 2009.

[17] Strategic tilting aims to deviate from the long-term strategic asset allocation to improve portfolio performance, only when markets are at some unsustainable extreme. See Andrew Pease and Geoff Warren, "Strategic Tilting", Russell Research, October 2008.

Organisational considerations

6. Is “owned” by the governing fiduciaries.
7. Is clearly articulated and understandable to all fiduciaries.
8. Is practical and proactive in dealing with risk.
9. Can be implemented with results that can be reviewed and evaluated.

Six elements of a standard risk management process

1. Identify and define all the sources of risk within a fund. (Note that we have focused on DB pension plans in our risk matrix in Exhibit 3, which lays out 57 risks. However, through minor modification, the matrix can easily be applied to an endowment fund by incorporating preservation of capital and spending/payout policy, or to a defined contribution plan by incorporating communication, advice and record-keeping risk factors.)
2. Understand the nature of the risks within your total investment context. Possible risk causes and scenarios should be developed.
3. Measure the potential magnitude and impact of those risks on your fund. Separate minor, more acceptable risks from major risks, and provide information to assist in the evaluation and treatment of risks.
4. Assess how and whether those risks have been addressed or mitigated by past actions. Develop a list of risks, in order of priority, that require further action.
5. Manage the largest unaddressed risks and utilise a hierarchical approach to sequentially deal with the remainder. Risk treatment involves identifying the potential range of options and preparing and implementing risk treatment plans. Document the process and your rationale.
6. Review the risks, continually utilising the hierarchy, while adding new risks as they are identified. Monitor the delegated risks to the desired outcomes. Set up a procedure for monitoring risk and evaluating the effectiveness of your risk treatment plan. Such an ongoing review is essential to ensure the relevancy of your approach.[18]

Combining these six elements with the nine desirable attributes yields a fund-wide investment risk management framework that is practical and understandable for fiduciaries. But this alone won’t get plan sponsors where they need to be. An entirely different approach to governance is also needed.

Combining these six elements with the nine desirable attributes yields a fund-wide investment risk management framework that is practical and understandable for fiduciaries.

[18] Curwood, Bruce B. “A Comprehensive Risk Management Framework for Investment Funds”. *Journal of Investment Consulting*, Summer 2007; pp. 51–52.

Exhibit 3: Russell's general hierarchy of governing fiduciary concerns

Decision/Risk	Fiduciary	Asset/liability	Structural	Implementation	Operational
Governance	1. Legislative 2. Political 3. Decision-making 4. Imprudent delegation 5. Publicity 6. Documentation	10. Benefits	18. Maverick 19. Research 20. Initial due diligence	29. Procedural control	51. Resources 52. Systems/ technology
Objective setting	7. Policy				
Asset allocation	8. Socially responsible investing 9. Actuarial/funding	11. Mismatch 12. Assumptions 13. Asset mix/classes 14. Model 15. Downside 16. Diversification	21. Rebalancing	30. Cash flow 31. Leverage	
Asset class strategy	17. Regret		22. Active/passive 23. Currency 24. Benchmark 25. Derivatives	32. Hedging 33. Tactical asset allocation 34. Timing 35. Credit	
Manager/portfolio structure			26. Style 27. Sector 28. Country	36. Manager 37. Holdings concentration 38. Tracking error 39. Counterparty	
Manager research & selection				40. Residual 41. Call	53. Liquidity
Custody/execution				42. Trading 43. Transition	54. Custodial 55. Securities lending 56. Valuation
Performance/process evaluation	44. Tolerance 45. Monitoring 46. Control 47. Contract 48. Audit/accounting 49. Oversight			50. Ongoing due diligence	57. Guideline breach

LEGEND
High impact
High risk
Moderate risk
Low risk

RETHINKING GOVERNANCE

Good risk management policies and effective governance are intricately intertwined. The OECD report mentioned earlier communicated this when saying, "Deficiencies in risk management and distorted incentive systems point to deficient board oversight". And, "Risk policy is a clear duty of the board in any organisation".[19] The Group of Twenty (G-20) finance ministers and Central Bank governors recently noted, "Failures in corporate governance must be addressed because they allowed the financial crisis to develop. … good governance, overseen by responsible shareholders, addresses management of risks in a way that underpins prudential supervision and regulation".[20]

The belief that managing risk is an essential part of good governance is reinforced by pension regulators, such as the Canadian Authority of Pension Supervisory Authorities (CAPSA). One of CAPSA's guiding principles states, "The plan administrator should provide for the establishment of an internal control framework, commensurate with the plan's circumstance, which addresses the pension plan's risks". In addition, CAPSA's self-assessment questionnaire asks:

- Have you identified the pension plan's risks?
- Do you have a process to manage these risks?[21]

What is important to understand is that CAPSA and other regulators are not offering up a precise prescription for how fiduciaries should manage risk. Instead, they are asking big-picture questions in an effort to motivate fiduciaries to think about risk from a broader perspective.

[19] "The Corporate Governance Lessons from the Financial Crisis". OECD Financial Market Trends, 2009; p. 17.

[20] "Calls for governance to take center stage at G20". *Corporate Secretary*, May 2009; p. 13.

[21] "Regulatory Principles for a Model Pension Law". Canadian Association of Pension Supervisory Authorities (CAPSA), 2004.

Adopting an enterprise risk management culture

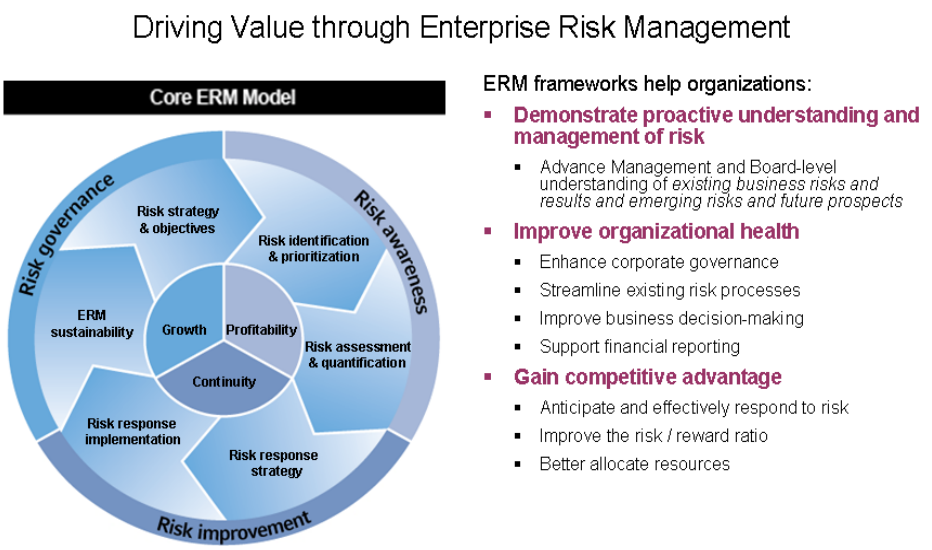
Exhibits 4a to 4c outline three modern depictions of a robust risk management process, all of which see risk from a more holistic, enterprise-wide view. In the modern context, "Enterprise risk management is a structured and disciplined approach that supports the alignment of strategy, processes, people, technology and knowledge with the purpose of evaluating and managing the uncertainties an organisation faces as it creates value.

- Aligns with strategic intent and related objectives.
- Includes all risks, not just financial.
- Integrates into the management process, becoming every manager's responsibility.
- Addresses both the hard and soft sides of risk management".[22]

Fiduciaries must understand the complexities of risk and, to be effective, dramatically change the way they think and act. This means adopting an enterprise risk management culture, embracing appropriate behaviours and attitudes and developing and rewarding competencies. It also involves having all of the fiduciaries agreeing on their risk management beliefs. *There are no shortcuts to changing a culture*. Effective risk management requires collaborative and cohesive governance, which fosters top-down oversight, bottom-up involvement for risk-taking and coordinated monitoring of the process. In short, we must have effective communication around risk issues.

Exhibit 4: Depictions of robust risk management processes

Exhibit 4a

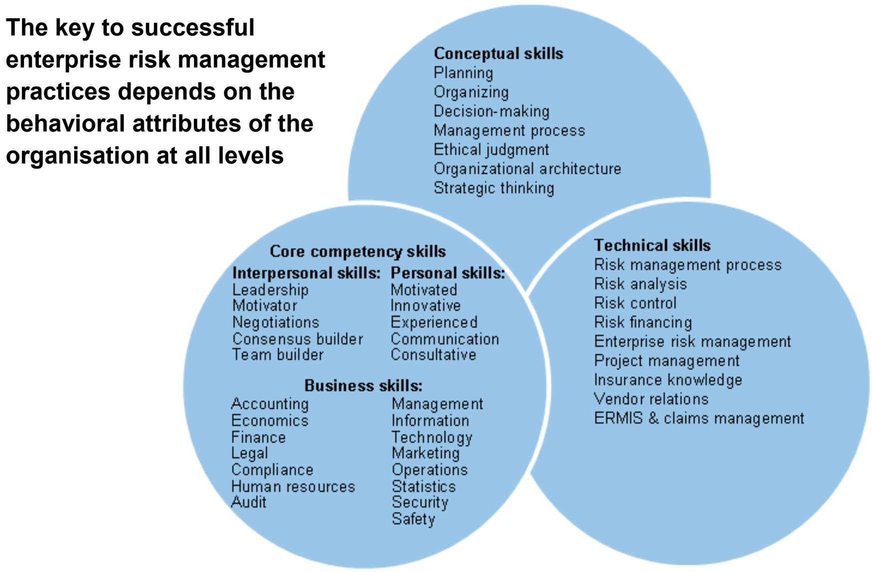


Source: Foley & Lardner, National Directors Institute — 2009 Web Conference Series, " "Risk Management in the Boardroom", March 18, 2009

[22] Makomaski, Joanna. "Harnessing the Power of ERM". The Conference Board of Canada, 2009.

Exhibit 4: Depictions of robust risk management processes (continued)

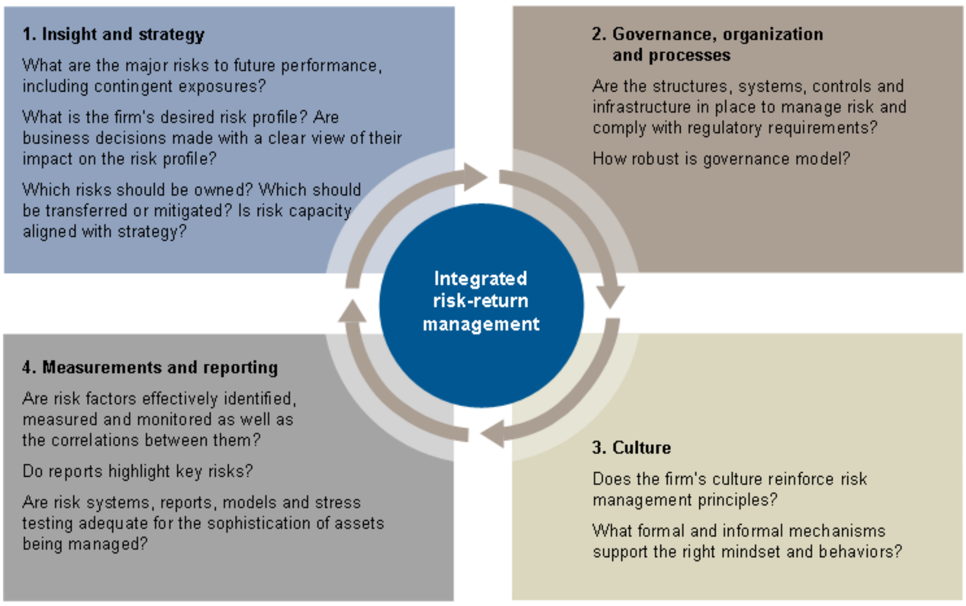
Exhibit 4b



Source: Risk and Insurance Management Society (RIMS). Image copyright 2007 by the Risk and Insurance Management Society, Inc. All rights reserved

Exhibit 4c

Asset managers need to modernise risk management processes across four fronts



Source: U.S. Institute Risk Management Survey, “Recovering From the Storm”. McKinsey & Company, Inc. 2009

In a risk-aware culture, communication is frequent and inclusive, resulting in multiple views of risk for increased transparency. So we must look beyond the normative, use multiple scenarios and stress test our assumptions. We must consider capital adequacy and liquidity in the event of systemic shock or unexpected volatility. We must strike the right balance between the quantitative and the qualitative, to establish risk-adjusted performance measures to influence behaviour and strategy. Risk management should be a dynamic, forward-looking and comprehensive process; however, it is just evolving. Nonetheless, the Risk and Insurance Management Society recently endorsed this approach in its Enterprise Risk Management Report, which stated that "organisations seeking better performance need to broaden and deepen their programmes to mature in the competency drivers that support front-line risk ownership, linkage and governance oversight…to build a culture of risk-adjusted decision making throughout an organisation".[23]

Bill Martin, Chief Risk Officer of the Commonfund, summed it up nicely when he noted that "the key elements that drive the effective and proactive management of risk for any organisation fall into two dimensions:

1. Action – all staff members are able to act with confidence if they are supported by:
    - Accurate, timely data.
    - Information flow that gets the right analysis to the right person at the right time.
    - Decision rights that clarify decision-making authority while eliminating unnecessary steps or inefficient processes.
    - An ability to execute that focuses on minimising errors and providing feedback on actions taken.
2. Discipline – a quality control mechanism that seeks a higher level of consistency and predictability … during periods of acute uncertainty".[24]

The bottom line is that good fund governance is critical to acquiring and retaining the necessary skill sets to decide, implement and oversee the appropriate investment policies.

The bottom line is that good fund governance is critical to acquiring and retaining the necessary skill sets to decide, implement and oversee the appropriate investment policies. It is grounded in a deep understanding of markets and requires both expertise and education in managing risk. The human element therefore permeates all aspects of effective governance and risk management.

Addressing the human element

It's critical to acknowledge that human beings are emotional and inconsistent, and that investment decision-makers, alone or in groups, may therefore fall victim to human frailty. Even our moods can momentarily affect our behaviour, so it must be remembered that our investment decisions generally extend far beyond the moment. Behavioural impediments are now, more than ever, being regularly discussed by sophisticated investment managers, academics and leading investment strategists, including Bill Gross, Warren Buffett, Keith Ambachtsheer and Don Ezra. When we fail to listen to both investment theory and practice, we do so at our peril. Therefore, wherever possible, we must rethink the consequences of our actions and not let our feelings rule our investment decisions. It's vital to put sound practices in place to protect us from our emotions.

[23] Coffin, Bill. "The 2008 Financial Crisis: A Wake-up Call for Enterprise Risk Management". Risk and Insurance Management Society, 2009; p. 7.

[24] Martin, Bill. "Connecting the dots: Managing risk in an environment of unprecedented uncertainty". Commonfund Mission Matters, Winter 2009; p. 14. Available at http://www.commonfund.com (accessed Dec. 15, 2009).

Jason Zweig provides a number of folksy but proven ways to make our brains work for us instead of against us, as shown in Appendix D. At the top of the list is "Control the controllable", which speaks to our central premise – that risk management, and not expected return, is the cornerstone of investing. Similarly, the Vanguard article previously mentioned ("Group Decision-Making: Implications for Investment Committees") outlines several recommendations for realising a group's full potential. The firm's research hints at several basic and easy-to-implement tactics that committees should consider, including inviting a devil's advocate into the discussion of key issues. (See Appendix E.) These suggestions are just the tip of the iceberg. The main point is that discipline, prudence and adherence to basic guidelines, rooted in the fundamental research of decision-making, can reduce behavioural problems and leverage the full power of individuals and groups.

CONCLUSION

Poor governance in the pension industry has led to the mismanagement of risk, resulting in painful consequences for plan sponsors. Yet the need for better governance is not a new or revolutionary concept. Numerous strategists have conducted ample research on this topic over the last 20 years, documenting the need for change in fund and fiduciary behaviour. This is encapsulated in Exhibit 5 and well chronicled in Exhibit 1 and in a paper entitled "Narrowing the Knowing-Doing Gap in Investments through Effective Fund Governance".[25] Nevertheless, evolution and progress have been slow – some might say glacier-like.

Better governance starts with the understanding that risk management is indeed the cornerstone of investing – that investment management must begin with risk considerations and not with simply pursuing returns.

Better governance starts with the understanding that risk management is indeed the cornerstone of investing – that investment management must begin with risk considerations and not with simply pursuing returns. Failing to grasp this, most plans have focused on optimising (uncertain) returns rather than managing the level of acceptable risk. Beyond misdiagnosing the fundamental problem, investors have narrowly interpreted the solution set, underestimated the complexity of risk and fallen prey to behavioural biases. As a result, they have spent too little time and effort on managing risk. The vast majority of their time has been spent in routine administration and control, instead of in education, training and strategy assessment around risk management. This has led to a dearth of resources for addressing risk management and a widespread inability to focus and delegate.

Risk management cannot be summed up in a number, nor is it an exercise in compliance and box-ticking. It involves a well-defined process and intangibles like human behaviour and organisational culture. Douglas Hubbard, author of "The Failure of Risk Management", made this point quite nicely when he said:

> "… if you were to implement better methods for measuring risks, then you would have much better guidance for managing risks. To achieve an improvement, however, your organisation has to have a way to deal with barriers that are not part of the quantitative methods themselves. You need to break organisational silos, have good quality procedures, and incentivise good analysis and good decisions".[26]

The behavioural aspects can be especially challenging. This is because good governance is required to overcome bad behaviour, but *unconscious* bad behaviour causes fiduciaries to take the easy way out and not focus on governance. This devious loop is analogous to what many of us have encountered when constructing a complex Excel spreadsheet and the infamous error message "Circuitous Reference" appears. You must either go back through countless data entries, many interconnected by complex formulae, to solve the loop, or scrap the spreadsheet

[25] Curwood, Bruce B. "Narrowing the Knowing–Doing Gap in Investments through Effective Fund Governance". Russell Monograph, October 2006.

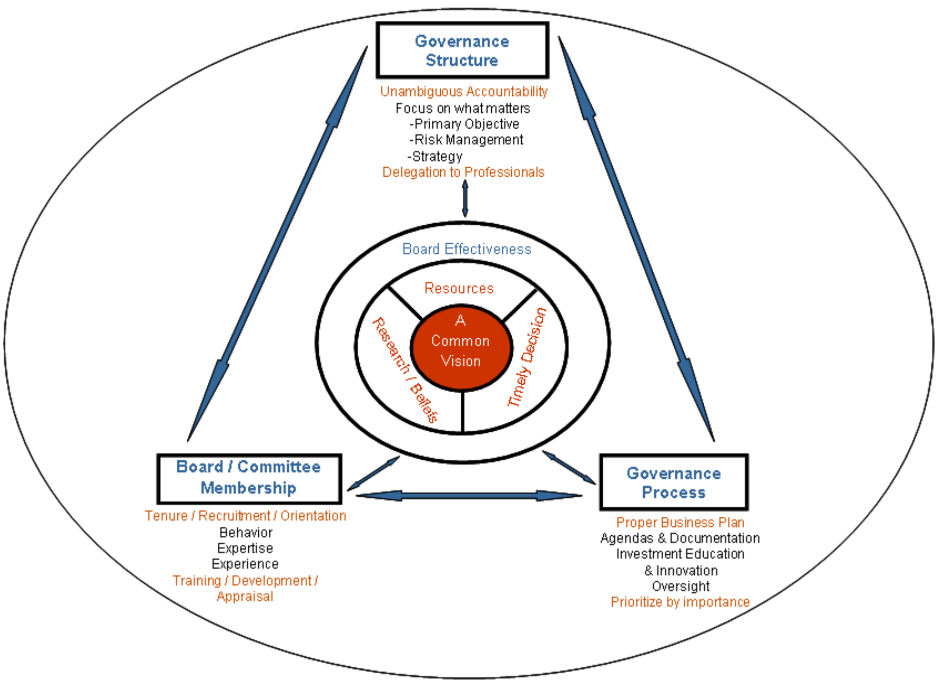
[26] Hubbard, Douglas W. "The Failure of Risk Management". John Wiley & Sons Inc. 2009; p. 241.

entirely and start over again. Neither alternative is easy, but you can't proceed until you correct the error. And no matter which route you choose, you must always keep the error itself in your mind, to solve it or avoid it. That is the key to fixing the Excel spreadsheet issue – and it may also be the key to fixing the governance-behaviour loop. If plan sponsors are to progress in solving this Catch 22 and, by doing so, enable a better risk management process, they must be consciously aware of their emotions and harness them through a better governance process. In other words, they must be consciously aware of the unconscious. Now we know the true challenge of risk management.

Is it any wonder that mega funds such as the Caisse in Canada and CalPERS in the United States have recently instituted massive governance/risk management initiatives, established the position of Chief Risk Officer and beefed up their risk management capabilities by adding over 20 new hires in the area?[27] The question that remains is how mid-sized funds lacking economies of scale will compete, and whether they can create a competitive advantage.

Exhibit 5: The chair and CIO play a vital role in fund governance

A culture of collaboration through partnership and rigorous self-assessment



Source: Based on the "Proposed Board Effectiveness Model" of Richard Leblanc, PhD.

[27] "Caisse shakes up structure after big 2008 losses". Reuters. 30 April 2009. <http://www.reuters.com/article/idUSN3053734720090430>. "Risk Management Committee Chair and Vice Chair Elected". CalPERS press release. 29 April 2009. <http://www.calpers.ca.gov/index.jsp?bc=/about/press/pr-2009/april/risk-management-chair-elected.xml>.

APPENDICES

Appendix A: Corporate Governance Lessons from the Financial Crisis - OECD Report 2009

- Risk policy is a clear duty of the board.
- Deficiencies in risk management and distorted incentive systems point to deficient board oversight.
- A solid risk culture throughout the firm is essential.
- Boards need to be educated on risk issues and be given the means to understand risk appetite (tolerance) and the firm's performance against it.
- Above all, boards need to understand the firm's business strategy and have a forward-looking perspective.
- The composition of any risk committee is an important issue.
- The issue is not just independence and objectivity, but also capabilities (and may require formal education and training).
- A number of the members of the risk committee should be individuals with technical financial sophistication in risk disciplines.

Source: The Corporate Governance Lessons from the Financial Crisis", OECD Financial Market Trends, 2009.

Appendix B: MetLife U.S. Pension Risk Behaviour Survey Executive Summary January 2009

This report represents 168 plan sponsor views on current risk management practices and identifies inconsistencies:

- "The study found most plan sponsors focus on a few risk factors rather than addressing the full range of relevant risks.
- On many occasions plans were not addressing the risks they viewed as most important.
- The survey suggests a wide gap between the importance plan sponsors ascribe to each risk area and the sponsors own reported success at managing those risks.
- Many affirm their close attention to Plan Governance …however, the balance of the study's findings suggest otherwise.
- This research indicates the possibility decision-makers are failing to effectively align importance and success across risk factors".

"The results of this study should be a call to action for pension plans not yet comprehensively and systematically managing risk".

Source: "MetLife U.S. Pension Risk Behaviour Study: A Study of Risk Management Attitudes and Aptitude Among Defined Benefit Pension Plan Sponsors", MetLife, 2009.

Appendix C: Mandelbrot's Ten Heresies of Finance

1. Markets are turbulent.
2. Markets are very risky - more risky than the standard theories imagine.
3. Market timing matters greatly – big gains and losses concentrate into small packages of time.
4. Prices often leap, not glide – that adds to the risk.
5. In markets, time is flexible.
6. Markets in all places and ages work alike.
7. Markets are inherently uncertain, and bubbles are inevitable.
8. Markets are deceptive.
9. Forecasting prices may be perilous, but you can estimate the odds of future volatility.
10. In financial markets, the idea of "value" has limited value.

Source: Mandelbrot, Benoit, and Richard L. Hudson. The (Mis)Behaviour of Markets: A Fractal View of Risk, Ruin & Reward. Basic Books, 2004.

Appendix D: Zweig's Suggestions for Making Our Investing Brains Work for Us

- Control the controllable - we cannot control the return on our investment, but we can control our expectations, the amount of risk we take and our readiness or patience.
- Stop predicting and start restricting - don't make too many large bets and consider smaller allocations over time via dollar-cost averaging.
- Ask for evidence – ensure you have good investment research to support your decision.
- Try to prove yourself wrong – the refusal to second-guess yourself can lead to huge losses or crippling regret.
- Know yourself – your attitudes toward financial risk can differ drastically depending on how they are framed.
- Get reframed – seeing risk estimates from alternative perspectives in both percentage and personal terms may limit overconfidence (e.g., a 78% chance of success versus 22 out of 100 investors get it wrong).
- Track your feelings – writing down your past emotions may help you realise that you are often overenthusiastic when markets are rising and vice versa.
- When the market blinks, blink back – doing advance research may enable you to take advantage of investment strategies that are undervalued or currently out of favor (i.e., take advantage of mean reversion).
- Only fools invest without rules – don't be governed by guesswork but by clear policies and procedures.
- Write it down, right away – document your reasons for investing before you buy.

Source: Zweig, Jason. Your Money & Your Brain: How the Science of Neuroeconomics can Help Make You Rich. Simon & Schuster, 2007

Appendix E: Vanguard's Recommendations for Realising a Group's Full Potential

- Engender healthy debate with heterogeneous groups – member diversity in knowledge, skills, abilities, personality, attitudes and demographics can help.
- Invite a devil's advocate or outside members, such as expert professionals, to discuss key issues – differing opinions can remedy the negative effects of groupthink, reduce confirmation bias and limit group polarising effects.
- Minimise dysfunctional behaviour like social loafing – mutual trust and high involvement in group activities make members feel personally responsible.
- Make committee members aware of decision-making biases –knowledge, which comes from reporting, self appraisals and external evaluations, can begin to remedy these biases.

Source: Mottola, Gary, R. & Utkus, Stephen, P., "Group Decision-Making: Implications for Investment Committees", Vanguard Investment Counseling & Research, 2009.

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