To Err Is Human, but Smaller Funds Can Succeed by Mitigating Cognitive Bias

By Bruce Curwood, CIMA®, CFA®

The evolution of investment management has been a long and painful experience for many institutional plan sponsors. It’s been trial by fire and learning important lessons the hard way, generally from past mistakes. However, “risk” doesn’t have to be a four-letter word (@#$). In fact, in case you haven’t noticed, there is currently a revolution going on in our industry. Most mega funds (those well-governed funds in excess of $10 billion under management) already have moved to a more comprehensive risk management strategy, also known as enterprise risk management (ERM), with very positive results. Will smaller funds be able to overcome the governance gap (fewer resources, lack of scale, etc.) and cognitive biases to adopt these new risk-managed approaches? Or will apathy, inertia, and herding prevail such that smaller funds continue to invest as they have in the past, concerned more with asset returns than meeting liabilities or their primary goal? Risk management is now firmly ensconced in the recent investment literature. But knowing the right answer and implementing the best approach are two very different things, so this article will focus on overcoming investor irrationality by mitigating cognitive bias. Keep in mind that theory and practice approach are two very different things, so

An Historical Perspective on Risk

Risk management has evolved through three noticeable periods since 1980:

1. Pre-2000: Acceptance, where risk was largely ignored.


Before 2000, modern portfolio theory, which was developed in the 1950s and 1960s, was firmly entrenched in academia but not as well understood by practitioners, whose focus was largely on optimizing return. The efficient market hypothesis prevailed along with the rationality of man, grounded in sound economics. The tools within the investment industry were somewhat basic. The personal computer was just a standard deviation temporary setback, in an ever-rising equity market. Tail events were increasingly ignored, with most additional effort concentrated on adding value through active management, and tracking error denoted the real measure of active risk. Capital markets were nevertheless favorable and equities well-rewarded throughout this timeframe, with only brief downturns. You often saw articles with titles like “Why Not 100% Equities?” Academics and practitioners alike tended to treat investments as a science (e.g., physics, subject to natural law) where quantitative analysis was king.

Diversification meant simply expanding the portfolio beyond domestic markets into less-correlated foreign equities and return was a simple function of increasing the risk (more equity, increased leverage, greater foreign currency exposure, etc.). After all, history seemed to show that equities and excessive risk taking outperformed over the long term. In short, the crux of the problem was the inequitable amount of time and effort that investors spent on return over risk, and that correlation and causality were supposedly closely linked.

The wake-up call came during 2000–2008, when returns mean-reverted to their historical average and investment funds shuddered under the weight of three disasters in one decade: the “tech wreck,” the global financial crisis (GFC), and the European debt crisis. As equities fell nearly 50 percent during the GFC and most assets with any credit exposure were also negatively impacted, investors had few places to hide to avoid the market downdraft other than government bonds and gold. Normal standard deviation and correlation were fully exposed as unstable, inconsistent, and of limited value in a stressed environment. Pension surplus in the United States fell from 130 percent in 2000 to less than 85 percent in 2008, and endowments gave back most or all of their cumulative gains. Investment results were similar around the world. In fairness, after the first calamity some funds tried to diversify into alternatives (hedge funds, private equity, infrastructure, and so on), but they forgot about the three deadly portfolio sins: leverage, illiquidity, and the lack of transparency in many derivative products. These sins mag...
nified embedded market risks. Then, as our economic and banking systems teetered, the majority recognized the true meaning of proper portfolio diversification and the benefits of risk management. In short, investors realized that the global economy is a complex, tightly coupled, nonlinear system that is turbulent and nearly impossible to predict, and that equities and various risky assets could underperform for prolonged periods. There are just too many variables to consider, including investors’ emotions. People are often irrational, so the markets are irrationally exuberant, leading to bubbles and crashes. There are business cycles, credit cycles, market cycles, and yes, even cycles of market bubbles (investor optimism becomes euphoria, followed by disillusionment, ending in panicked losses). Economics fundamentally underlie market movements, but markets can be easily overwhelmed by fear and greed. We quickly understood that market risk was not stable over time and that investors’ risk tolerances were subject to dramatic change, which exacerbated the predicament. So trying to solve the risk riddle with a simple, two-dimensional (mean-variance) optimization tool designed for normal markets wouldn’t work (see appendix 1). Risk-return tradeoffs were needed, along with an evaluation of the multi-dimensionality of risk, which required better tools and insights. From a macro perspective, Stultz (2009) summed up the problem nicely, outlining six ways that risks are mismanaged:

- Relying on historical data
- Focusing on narrow risks
- Overlooking knowable risks
- Overlooking concealed risks
- Failing to communicate
- Not managing in real time

In short, behavioral impediments had clouded investors’ judgment. Only a few mega funds escaped the carnage by recognizing the possibility for extreme risks, lengthening bond duration and/or increasing their fixed income holdings to match their liabilities, and making corresponding improvements to governance processes.

Since 2009 and the perfect investment storm, a plethora of books on risk management and behavioral science have detailed the lessons learned. A variety of new and interesting investment solutions have been generated (risk parity, dynamic asset allocation, defensive equity, liability-responsive asset allocation, liability-driven investing, goal-oriented investing, etc.) and more reliable tools have been utilized (e.g., conditional Value-at-Risk, multi-factor analysis, stress testing, scenario analysis, and cash flow and liquidity reviews). Computer capabilities advanced tremendously and investors were willing to admit to their foibles and acknowledge the limitations of the human mind. They realized that sometimes they needed to be protected from themselves. A renaissance in thought process took hold regarding risk management and behavioral finance finally came of age. In addition, many recognized that being more forward-looking than historically focused in our investment approach was far more beneficial. Past deficiencies in risk management and distorted incentive systems clearly pointed to poor board oversight in the prior periods. Regulators entered the fray and saw risk policy as the primary duty of the board in any organization. The dominant theme in the literature, however, is that good risk-management policies and effective fund governance are intertwined and risk is a multi-dimensional process requiring various diagnostics, both quantitative and qualitative. Institutional investors finally understood that some risks are quantifiable but that uncertainty is not. Models can help to manage quantifiable risk, but uncertainty must be managed some other way. Most texts on investment theory assume market odds are known, like those at the roulette wheel or other games of chance. But in reality, market odds are never known and are even constantly shifting as market cycles evolve. Good governance is one of the few tools we have to better manage uncertainty (both our own and the markets’). Early quantitative investment theories are useful for a primitive understanding of investments, but new theories such as Andrew Lo’s adaptive markets hypothesis, seismic risk analogies (i.e., with each successive bubble the financial system becomes less stable), and co-variation (trading flows matter), better explain the complex dynamic world we live in and the effect of irrational investors on the markets. Therefore changing peoples’ views and outdated practices are a large part of the solution, which means behavioral science is also an important prescriptive element.

Larger institutional investment funds have seen the light and have taken action, and a risk-management revolution has taken hold, with corresponding changes in governance to limit cognitive error.

Since 2008, fund fiduciaries have realized the limitations of past practices and the need to change their approaches to investments by taking remedial action. Very little is straightforward in the world of economics because it is often governed by emotion. Attempts to make the profession more of a science than an art have floundered on the rocks of a constantly changing world that undermines economic models and makes forecasting hazardous. Many mega funds have adopted better, more prudent, risk-management and governance processes and started to consider the impact of human behavior on investment decision making. This requires a new approach to risk management and governance. We’re not talking about structural tweaks. We are talking about the hard work of building a better risk-management framework and collaborative organizational culture to overcome cognitive bias. This is why we are seeing a total transformation in our industry with a comprehensive approach to risk management. The mega funds are committed to this risk-managed approach, with often upwards of 20 specialists devoted to risk management alone (Beath and MacIntosh 2013). But how will smaller funds, which lack scale and resources and perhaps even the will to change, make that successful transformation?

Cognitive Bias Defined
Psychologist and writer Kendra Cherry defines cognitive bias as the following (see http://psychology.about.com/od/cindex/f/What-Is-a-Cognitive-Bias.htm):

"When we are making judgments and decisions about the world around us, we..."
like to think that we are objective, logical, and capable of taking in and evaluating all the information that is available to us. The reality is, however, that our judgments and decisions are often riddled with errors and influenced by a wide variety of biases. The human brain is both remarkable and powerful, but certainly subject to limitations. One type of fundamental limitation on human thinking is known as a cognitive bias.

A cognitive bias is a type of error in thinking that occurs when people are processing and interpreting information in the world around them. Cognitive biases are often a result of our attempt to simplify information processing. They are rules-of-thumb that help us make sense of the world and reach decisions with relative speed. Unfortunately, these biases sometimes trip us up, leading to poor decisions and bad judgments.

**Insufficient Attention to Behavioral Issues**

Richard Thaler, professor of behavioral science and economics at The University of Chicago, astutely remarked that “one of the most important insights from behavioral 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” (Mitchell 2006). In short, theory and practice often differ. All too frequently we forget that investors are not always rational, and that human behavior can impede investment decision making.

**Individual Behavior**

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 such as hedge funds in 2002 may have been colored by their encouraging performance during the tech wreck relative to the rest of the stock market. Optimistic bias, combined with the 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 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, we have a terrible time admitting that we don't know something; it lowers our self-esteem. (I can 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.) To err is indeed human. It’s really whether, and what, we learn from mistakes that counts.

**Group Dynamics**

In discharging their duties, investment committees are prone to the same emotions and decision-making biases as individuals. The investment firm Vanguard documented this extremely well in Mottola and Utkus (2009). Vanguard acknowledged that groups have larger collective memories and more available information, but it also conceded that group biases and behavioral hurdles can quickly derail these advantages. The four greatest hurdles identified were the following:

- **Confirmation bias**. Confirmation bias and shared-information bias, which are byproducts of overconfidence, ensure that the group does not leverage its full investigative resources, which can lead to inefficient decision making.

- **Committee composition**. Groups that are too large have degraded performance because of poor coordination or motivational issues.

- **Group polarization**. Divisions in the group may, for example, lead a committee to make riskier decisions than individuals within the group would have made on their own.

- **Groupthink**. Members of a cohesive group are more interested in avoiding conflict than in realistically appraising various courses of action.

The Realities of Our Investing Brains

Zweig (2007) sheds additional light on why smart people make foolish and imprudent financial decisions by pointing 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 can easily detect and interpret simple patterns, a skill that helped our ancestors survive and aids us in meeting the stresses of daily life. But when investing, our incorrigible search for patterns leads us to assume that order exists when often it doesn't. We believe we're smart enough to forecast the future, even when we have been told explicitly that the future is unpredictable. This is because 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; and seek shortcuts via 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 have determined their asset mixes on the basis of desired return and a belief in low correlation, without properly testing their assumptions—an unfortunate shortcut. As Jacobs (2009, 2) notes, “At best, logic is just a way to justify conclusions we have already reached unconsciously.”

Broadly speaking, institutional investors have underestimated the significance of behavioral issues—to their detriment. Rebonato (2007, 235) captured this point beautifully when he wrote the following:

“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.”

Let’s face it. Humans can make some pretty bewildering choices. Despite our best intentions to be wise, rational, and discerning, we are subject to overconfidence, regret, outright fear, and many other behavioral issues (see appendix 2).

Investment fiduciaries may never be able to completely control their human nature and maybe they shouldn’t try. They will make mistakes in a complex, adaptive system like the market. But they can identify situations where the dangers of cognitive bias and false perspectives are greatest and mitigate their human (mis)behavior by taking the following steps:

1. Recognizing who they are, behavioral biases and all.
2. Controlling the environment within which they have a propensity to display such behavior.
3. Establishing frameworks within which to apply their judgments so that they make different decisions or at least fully inform themselves of the consequences.

For institutional investors, risk management is therefore the key and better governance is the control. Good governance is all about better preparedness, discipline, stakeholder communication, and a prudent fiduciary process.

**How Smaller Investment Funds Can Overcome Cognitive Bias**

There is no single solution to overcoming behavioral bias in a complex market, but there are many ways to remove some of the emotion from institutional investing. Figure 1 illustrates Richard Leblanc’s “Proposed Board Effectiveness Model,” which I find is a helpful framework for improving investment decision making, and I suggest that it may help smaller funds to mitigate behavioral bias and be more successful. Below I apply Leblanc’s model to investing, noting the cognitive errors it may overcome (in parentheses and italics).

LeBlanc’s model begins at the center of figure 1 with the three elements necessary to achieve common vision: resources, research/beliefs, and timely decisions.

The model expands from there by defining the three major areas for further improvement: governance structure, governance process, and board/committee membership.

Under each of these topics, the model itemizes possible areas for improvement, as described below with respect to important behavioral biases and other considerations that tend to be common among smaller funds.

**Common Vision**

The chief investment officer (CIO) and chair determine where the fund is today and where they wish to take it in future. Leadership comes from the chair, who with the CIO must cultivate the fund’s common vision, and together they must mentor committee members to clearly articulate and realize that goal (focusing effect). As an institutional consultant, I regularly see busy agendas disrupted by well-meaning members who early in the meeting ask, “Why haven’t we fired that manager who has underperformed by X percent for the past four years (regret)?” A poor chair, surprised by the question, will then allow the meeting to spiral out of control and a decision will be made on firing the manager without proper research and facts. A skilled chair will quickly get the meeting agenda back on track by retorting: “That’s an interesting
question but we already have a full and very busy agenda today. Let’s assign that task to the staff and consultant to review and report back to us at the next meeting on their findings” (well-traveled road effect). Yet the chair is often chosen haphazardly instead of based on skill.

Resources, Research/Beliefs, and Timely Decisions
Smaller investment funds have a competitive disadvantage in terms of resources (staff and tools), proprietary research, and risk-management practices, due to diseconomies of scale (restraint bias). However, investing is a search for returns, paid for through operating costs and the assumption of risks; costs are more predictable than risks, and risks are more predictable than returns. Stock market returns will always shock and surprise us (optimism bias). Smaller funds, however, have the ability to be more nimble than their larger counterparts without tipping their hand to the market. With fewer assets under management to transition, they can make timely decisions. Larger returns can be achieved by resisting emotion and being more counterintuitive, by investing more heavily in bear markets, and by being more conservative in the euphoric stages of bull markets.

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80/20 rule to simplify their approach and concentrate on those issues that matter most—defining the key fund objective, understanding the risks, setting risk parameters, establishing strategic direction, determining the asset allocation, etc.

Governance Structure
For governance to be an explicit rational focus all stakeholders must be unambiguously accountable and have clear understanding about the primary goal. But most trustees’ role is one of oversight, but they must be decisive and prepared to act when action is required (hard-easy effect). For smaller funds with limited staff, which may become insular in their views (illusion of control), obtaining insight on industry trends from a third party such as a consultant may be helpful. An annual business plan review allows sufficient time for setting strategic direction and risk definition/management, as well as education and innovation (anchoring). Everything on the agenda should have a clear purpose and be logically ordered, with time allotted by importance (attentional bias). Well-constructed investment policies and practices, supported by strong research (belief bias) and documented reasons for investing, are the best way to prevent being sidetracked by our emotions. Minutes should abide by the four C’s by being correct, concise, clear, and consistent (hindsight bias). Outstanding action items should be noted along with the individuals responsible for completion with specific due dates noted. Finally, when making major strategic decisions, ensure the right questions have been asked before proceeding (herding), such as the following:

- Does it make sense for this fund?
- Has the downside been adequately evaluated relative to the upside?
- Are there skewed incentives or agency issues?
- What else needs to be known and considered?

Board/Committee Membership
A logical framework will evaluate each and every issue (recruitment, tenure, development, self-evaluation, etc.) to determine whether the board and investment committee have the requisite skills, education, and experience. Developing a risk-adjusted culture where direct, serious, and important questions are asked and plainly answered is a good way to ensure trust between staff and members. Two areas where smaller funds often fall short are a lack of diversity in membership and limited practical knowledge of the latest investment ideas (status quo bias).
Many corporate plans are stacked with executives from the same firm, whose collective knowledge of investments may be somewhat limited (groupthink). Adding outsiders who sit on larger, more-experienced funds and play the role of devil’s advocate can be extremely helpful in advancing the committee’s thought process and providing differing views. Feedback is essential. Maintaining a log of strategic past decisions and revisiting the effectiveness of those decisions a year or two later is a great way to understand what worked or didn’t work, why, and if improvements are necessary (reference framing). A well-functioning board is imperative to keep pace with the numerous and significant changes occurring in the investment industry.

Conclusion

The global financial crisis exposed many deficiencies in investment literature and fund governance practices. Making investment decisions in turbulent economic times is no easy process. It requires vigilance, objectivity, and a culture of risk-adjusted decision making that many better-managed mega funds have readily adopted. Smaller funds, which lack the economies of scale, need to be more deliberate in thinking about what may work best. They must think outside the box and establish frameworks to help ensure access to critical information and diverse perspectives to facilitate balanced thinking and overcome cognitive bias.

Bruce B. Curwood, CIMA®, CFA®, is director, investment strategy for Russell Investments Canada. He earned a BComm in economics from the University of Toronto and an MBA from York University. He is a member of IMCA’s Board of Directors. Contact him at bcunwood@russell.com.

References


Appendix 1: Problems with Over-Emphasizing Quantitative Tools

Risk models used inappropriately may lead to a false sense of security, requiring model users to apply a healthy sense of skepticism to any and all models. Risk models are crude approximations of the real world because of the following:

1. Returns are not independent.
2. Distributions are not normal.
3. Correlations are time-varying and unreliable in extremes.
4. The quality of inputs is often suspect because of, e.g., data quality, relevance, and historical length.
5. Optimizers are highly sensitive to the assumptions (model risk).

Appendix 2: A List of Some Behavioral Issues

Post-purchase rationalization
Time-saving bias
Optimism bias
Social comparison bias
Risk compensation
Hard-easy effect
Attentional bias
Ambiguity effect
Congruence bias
Hindsight bias
Clustering illusion
Rhyme as reason effect
Moral credential effect
IKEA effect
Overconfidence effect
Forer effect
Contrast effect
Bias blind spot
Sub-additivity effect
Endowment effect
Anchoring
Impact bias
Hostile media effect
Selective perception
Essentialism
Ostrich effect
Reactive devaluation
Hyperbolic discounting
Choice-supportive bias
Bandwagon effect
Observation selection bias
Iliusory correlation
Backfire effect
Recency illusion
Belief bias
Social desirability bias
Outcome bias
Information bias
Irrational escalation
Unit bias
Decoy effect
Denomination effect
Pro-innovation bias
Experimenter’s bias
Negativity effect
Negativity bias
Focusing effect
Restraint bias
Just-world hypothesis
Availability heuristic
Conjunction fallacy
Empathy gap
Identifiable victim effect
Gambler’s fallacy
Observer-expectancy effect
Well travelled road effect
Hot-hand fallacy
Pseudocertainty effect
Curse of knowledge
Insensitivity to sample size
Loss aversion
Illusion of control
 Conservatism bias
Negativity bias
Normalcy bias
Base rate fallacy
Mere exposure effect
Zero-sum heuristic
Availability cascade
Less-is-better effect
Confirmation bias
Money illusion
 Status quo bias
Frequency illusion
Neglect of probability
Distinction bias
Pessimism bias
Semmelweis reflex
Illusion of validity
Stereotyping
Omission bias
Duration neglect
 Functional fixedness
Exaggerated expectation
Reactance
Framing effect
Survivorship bias
Subjective validation
Zero-risk bias
Pareidolia
Planning fallacy

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