Article from:

The Actuary

February/March 2011 – Volume 8 Issue 1

Changing Seasons

OF RISK ATTITUDES

BY DAVID INGRAM AND
DR. MICHAEL THOMPSON

RISK ATTITUDES ARE AN EXTREMELY IMPORTANT driver for financial decision making. The authors talk about how and why those risk attitudes keep changing with experiences and especially with surprises.

ON JULY 21, 2010, BEN BERNANKE, the chairman of the Federal Reserve, said that he thought that the economy was "unusually uncertain." Business leaders are reporting that there is relatively little investment going on by U.S. businesses. Companies are paying down debt and building up cash. Things are just too unsettled, too unpredictable for them to feel comfortable making commitments.

Just three years ago, Charles Prince made the now famous statement to a Hong Kong reporter regarding Citigroup's participation in the U.S. subprime mortgage market, "*As long as the music is playing, you've got to get up and dance, [and] we're still dancing*." That statement represented almost the exact opposite approach to business, a compulsion to participate in the market.

In between, U.S. businesses did a remarkably quick adjustment to a shrinking level of economic activity. Payrolls were trimmed, jobs were shed, benefits curtailed and businesses returned quickly to profitability in a no-growth economy.

If you look carefully enough, you will also find firms who avoided participating in either the high growth of the boom, the cuts of the bust or the paralysis of the uncertain environment. These firms seem to just keep steering their company carefully between the rocks, avoiding both shipwrecking rocks, fast currents and eddies.

But you can feel the sea change in the prevailing opinion of the economy. In a free market economy, this prevailing opinion is formed, not by edict but as individual managers and separate firms each reach the conclusion that some prior way of thinking is no longer working for them. They also notice that other managers and other firms with different attitudes are doing better (or less worse). These individuals and these firms all had firm opinions of how the world worked and therefore how best to run their firms that were formed based upon hard earned experience and careful perceptions.

Even in the best of times or the worst of times or even in "unusually uncertain" times, that prevailing opinion is never unanimous. In all times, these opinions about the environment and especially about risk in the environment tend to fall into four categories or risk attitudes. They are:

- Pragmatists who believe that the world is uncertain and unpredictable,
- Conservators whose world belief is of peril and high risk,
- Maximizers who see the world as low risk and fundamentally self correcting, and finally,
- Managers whose world is risky, but not too risky for firms that are guided properly.

(See "Full Spectrum of Risk Attitude" in the August/September 2010 issue of *The Actuary*.)

Changes come to these risk attitudes via the process of surprise. Surprise is the persistent, and very likely growing, mismatch between what we expect to happen based upon our chosen strategy and what actually happens. Surprise is the difference between Knightian risk and uncertainty.[1] If there is no uncertainty, there should never need to be a surprise. But there clearly is uncertainty because over and over again, we are surprised.

When we all have the exact same expectations, then we are all surprised at the same time. But at any point in time, there are firms and individual managers with totally different risk attitudes. So there is a varied and varying set of surprises that are actually happening at all times. In market terms, we might expect a moderate market with fluctuations that follow past experiences, an uncertain market with unpredictable volatility, a market boom when everything seems to be going up or a recession when everything seems to be going down. Different business strategies are usually chosen because of an expectation of a market in one or the other of those states. This means that surprises, when they come, can come in a total of 12 different ways. (See Figure 1 on page 22.)

Along the matrix's top-left to bottom-right diagonal, where the world is indeed the way it is stipulated to be, there are no penalties and therefore no surprises, but there are in each of the remaining 12 boxes. To deduce what each of these surprises will be, we need to contrast the strategy that is sensible to each firm with the responses the resulting tactics will provoke in each of the actual worlds.

- In the uncertain market there is no discoverable pattern to the responses: the world is an enormous slot machine. This is the world of financial uncertainty, when business activity and markets might turn abruptly. The model of the world has unknown drift and unknown volatility. Maximizers, Conservators and Managers are all surprised by the lack of predictability of the uncertain market. Each had their own different idea of what they were predicting and they are all disappointed.
- In a bust there is a discoverable order: the world is a vast negative-sum game. This is the world of the financial market bust. The world model has negative drift and low volatility. Of course, Maximizers and Managers are surprised. The Maximizers thought that persistent losses would just not happen and Managers are surprised by the magnitude of the losses. The Pragmatists were surprised when "correlations all go to one" and their preferred strategy of diversification fails to protect them.
- In a boom the reverse is the case—the world is a huge positive-sum game. This is the world when the financial bubbles form. The model for this world has high positive drift and low volatility. Managers and Conservators see the large gains of the Maximizers in the boom and are surprised that they can get away with that. Pragmatists see their own larger than expected gains and are surprised.
- In a moderate market there are two games going on—a positive-sum one and a negative-sum one. But, unlike the uncertain market, there is a discoverable order: it is possible to differentiate between those situations in which one game is operating and those in which the other holds sway. This is the "normal" world of the risk management models, with moderate drift and moderate volatility, perhaps at the levels of long-term averages. The Maximizers will be surprised that they underperform their outsized expectations, while Conservators see the Managers' careful taking of risks, which they had shunned, succeeding. Pragmatists are puzzled and surprised by the success of the orderly Managers as well.

SOME MANAGERS WILL NOTICE IMMEDIATELY AND ADAPT QUICKLY; OTHERS WILL KEEP EXPECTING THAT THEY WILL WAKE UP TOMORROW AND THE WORLD WILL AGAIN WORK THE WAY THEY EXPECT IT TO. …

The process of changing risk attitudes for business takes two routes. First, individual managers will be surprised just as is described earlier. The process of noticing again and again that their expectations are not being met by the world will wear away at their convictions about how the world works. Some managers will notice immediately and adapt quickly; others will keep expecting that they will wake up tomorrow and the world will again work the way they expect it to work, persisting in their unrequited beliefs even with repeated evidence to the contrary. As these individuals shift their risk attitudes, they will shift their approach to their business and especially to the risks of their business. If they are very perceptive and highly adaptable, they will change to a belief that aligns with the current environment and the process will begin again. They will help to lead their firms to the best result

Figure 1

EXPECTED WORLD \ ACTUAL WORLD	UNCERTAIN	BUST	BOOM	MODERATE
UNCERTAIN (Pragmatist)	NO SURPRISES	Expected windfalls don't happen—only losses	Unexpected runs of good luck	Unexpected runs of good and bad luck
BUST (Conservator)	Caution does not work	NO SURPRISES	Others prosper (especially Maximizers)	Others prosper (especially Managers)
BOOM (Maximizer)	Skill is not rewarded	Total collapse	NO SURPRISES	Partial collapse
MODERATE (Manager)	Unpredictability	Total collapse (when only partial was expected)	Competition	NO SURPRISES

Risk—The Concept of Dr. Michael Thompson's "Di-vidual"

BY ROBERT WOLF

ULTIMATELY, ONE CAN ARGUE that many of the risks that we face in society today manifest themselves through the decisions, behaviors and biases of people, and not necessarily through any exogenous and uncontrollable event. The collaboration of an actuary, Dave Ingram, FSA, CERA, MAAA, and anthropologist, Dr. Michael Thompson, continues to strengthen this notion and is prompting some tremendously interesting, evolutionary and thought-provoking articles (such as the one in this issue of *The Actuary*) around the cultural view of risk and how it relates to risk management and decision making.

I personally had the pleasure of meeting Dr. Thompson for the first time at the 2010 ERM Symposium in Chicago last April where I had recruited both he and Dave Ingram to speak on the human element of risk management. I learned that he not only is an eloquent speaker, and a tremendous individual, but he also is an avid mountain climber as 35 years ago he successfully climbed Mount Everest in the Himalayas. One would think this would give a great perspective of risk and reward—definitely a human element perspective.

As humans, we tend to not search for disconfirming evidence to our own beliefs. As decision makers, we all deviate from rationality based on our own biases, and we are clearly influenced by the format of how we receive information. Dr. Thompson goes further, saying, "At the heart of what I have to say is a very bold assertion. The world of human activity can be divided into four divergent views of risk, four resulting [types] of risk taking strategists, and four different environments that impact the views of risk and are themselves impacted by the [types]of srisk taking strategists. These four divergent views came from the eminent British anthropologist Mary Douglas in her work on plural rationalities."

Dr. Thompson is one of Mary Douglas' students. The main premise of plural rationalities concerns how we, as individuals, behave in groups. We as humans do not follow alone the risk-averse individual in classical economics, nor the emotional human via behavioral finance. Dr. Thompson states, "Groups form because people share the same concept of risk. In anthropology, the key term is 'social solidarity,' defined by the great French Sociologist Emiel Durkheim as, 'The different ways we bind ourselves to one another as a way of organizing and in so doing determine our relationship with nature.'" Dr. Thompson further states, "Cultural theory, in essence, maps all that in a four-fold typology of forms of social solidarity. These four specific models of nature, per se, are intended to sustain and justify the four fundamental arrangements for the promotion of social transactions."

When asked how he differs from the points of view of behavioral economists, Dr. Thompson says, "Behavioral economists assume that we individuals get it wrong in a systematic way. I argue that these forms of social solidarities should be the true units of analysis, and not that of the individual. Indeed, if you take this approach, it makes more sense to speak not of the individual, but of the 'di-vidual.' If you think about it, we all move in and out of those different solidarities in different parts of our daily lives. These views contrast the more familiar theories that take the 'individual' as the unit of analysis, such as the case in classical economics, and behavioral finance. "

From these views one can truly substantiate why we as individuals sometimes say one thing, and do the other. Dr. Thompson and Dave Ingram's work continues to evolve in integrating the anthropological viewpoints and the financial problems that actuaries and risk managers face with the four seasons of risk, the types of risk management tools, and the ultimate solution of rational adaptability and what Dr. Thompson calls clumsy solutions. Their contribution via the voice and the pen, I envision will continue to evolve how we will think in risk management terms. I thank Mike and Dave for being our catalysts in bringing about, perhaps, a new way of thinking. I'm looking forward to their next chapter. A

Robert Wolf, ASA, CERA, FCAS, MAAA, is staff fellow, Risk Management for the Society of Actuaries. He can be contacted at *rwolf@soa.org.*

they can achieve in that environment. If they are less adaptable and less perceptive, they might well shift to a different risk attitude that does not align with the environment. Their firms might then lurch along from one type of suboptimal performance to another.

The second way that firms adapt is by changing leaders. This happens when the firm has been spectacularly surprised. Firms that were led by Maximizers like Mr. Prince at Citigroup are more likely to create large crashes for their firms when the environment shifts and the firm persists with its "all ahead full" approach to business. Firms led by leaders with a Manager strategy are also subject to potential collapses. We saw that in the past two years when the firms who used their excellent risk models to help them to take the maximum amount of risk that was tolerable as shown by those models and subsequently choked on the outsized losses. Conservators and Pragmatists are much less likely to suffer collapse because their strategies tend to be much less aggressive. Their surprises are more often disappointments because their firms miss the opportunities that the Maximizers are jumping on and the Managers are taking up in moderation.

In the firms where the board reacts to a collapse or even to a disappointment by changing leaders, then the new leader faces the problem of shifting the prevailing risk attitude of the firm. The new leader will be looking around for managers within the firm who share his or her attitude. Through a series of persuasions, orders, reorganizations, promotions, retirements and layoffs, the new leader will eventually get the firm's risk attitude to be what he or she and the board want.

Meanwhile, the success of the firms with an approach that aligns with the environment will cause them to grow and the firms with a misaligned approach will shrink relative to each other. That process will additionally create a shift of the emphasis of the market to different risk attitudes. The risk attitude that aligns well will eventually control more of the market's resources.

Back in the risk department, there is a model, and a group of modelers. They will be seeing and experiencing the changing environment. Emerging experience will fit one and only one of these four situations. (See fig. 2 below)

Figure 2

	Drift	Volatility
Moderate	Moderate	Moderate
Boom	High	Low
Bust	Negative	Low
Uncertain	Unknown/ Unpredictable	Unknown/ Unpredictable

The modelers will also experience the changing winds of corporate risk attitude described above. Most often the risk models will fit into the moderate mold. These modelers will find that their work will be seen to have high value by management sometimes and completely ignored in other times. However, there may be folks within the modeling group who think that the model is too conservative and see that it will keep the firm from growing at the time when business is very advantageous. There may be others who think that the moderate assumptions understate the risks and lead the firm to excessive risk taking at just the wrong time. And when the discussion in the modeling group turns to correlation calculations, the fourth group will identify themselves by their skepticism about the reliability of any tail diversification effects.

The same surprise process that causes changes in firm risk attitude will have a profound impact on the risk modelers. That impact may mean that management looks at different outputs from the models at different points in time. Or it might mean that the firms ignore the models and the modelers some of the time. And some firms will simply stop funding risk modeling and disband the entire group.

To avoid this cycle of irrelevancy and defunding, risk modelers need to be aware of this process of changing environments and changing risk attitudes, and perhaps to be more adaptable to the different environments and to the different needs for risk information from managers with different risk strategies.

And to expect surprises. A

For more on Surprise see Thompson, M. (2008). Organising and Disorganising, Triarchy Press.

David Ingram, FSA, CERA, FRM, PRM, is senior vice president for Willis Re Inc. He can be contacted at *dave.ingram@willis.com*.

Michael Thompson, Ph.D., is a fellow at the James Marin Institute for Science and Civilization, University of Oxford and a Senior Researcher at the Stein Rokkan Centre for Social Research, University of Bergen, Norway. He is a research scholar with the Risk and Vulnerability Program at the International Institute for Applied Systems Analysis (IIASA) in Laxenburg, Austria. He can be contacted at *Michael.Thompson@uib.no*.

ENDNOTES:

[1] Frank Knight famously separated the definitions of Risk (as purely statistical variations with known frequency distributions) and Uncertainty (variations with unknown distribution of frequency and severity) in his 1921 book *Risk, Uncertainty, and Profit*.