

Risk Management in Uncertain Worlds

Dr Brent Wheeler¹

Tuesday, 7 September 2010

Judge Not

Spain's two century old Christmas lottery is the biggest lottery in the world. In the mid-1970s a man sought and bought a ticket – last two digits 48. he won – and it was a big win.

He explained: “ I dreamed of the number “seven” for seven straight nights. And 7 times 7 is 48.” (Mauboussin, Legg Mason Capital Management 2010)

A persistent characteristic of living in an uncertain world is the ever present gap between perception and reality. Nowhere is this more apparent than in the realm of risk assessment and management where fears of risk and perceived risk are frequently estranged from reality. The unfortunate consequence is that we tend to pay too much attention to risks we might well ignore and too little attention to risks which ought to make us prick our ears up.

The reasons for this are many and varied. The temptation to judge is high – to blame people's irrationality, lack of intelligence, poor education or just plain stupidity. That is unhelpful and provides neither useful explanations of the perception reality gap nor any serious inspiration as to how we might deal with the problems it creates.

What is more helpful is to accept “what is”, seek to understand it better and adapt our responses to risk in the light of that reality. Events of the last twelve months – from geophysical through climatic to financial and, most recently and with all the horror of close up proximity, the Christchurch earthquake – remind us of the importance of understanding uncertain worlds.

Here I consider some oft overlooked points.

The Nature of Risk and Uncertainty

In a strictly technical sense risk involves situations where the outcome is unknown (heads or tails in a coin flip) but the underlying distribution of outcomes over time is known (the binomial distribution). Uncertainty by contrast involves situations where the outcome is unknown (direction of a share price change) and the underlying distribution is also unknown (possibly a “fat tailed” normal distribution – possibly not).

In business and certainly in financial markets we deal more with uncertainty than risk. Thus we should be dubious about generalising our reliable and comfortable knowledge about the mean

¹ Based on Brent Wheeler's presentation opening Day Two of the N.Z. Society of Risk Management Inc. Conference, Auckland, September 2010. Presentation available on the Society's website. Brent Wheeler, is an economist specialising in finance and governance www.brentwheeler.com. He is currently Executive Chair of The Boardroom Practice Limited.

variance model and Gaussian based models to all situations. There have been “too many” market crashes, “too many” liquidity events and too many “six sigma” events to justify generalisation.

Skill Versus Luck

It is critical too that we recognise the importance of luck and randomness as characteristics of the events and the processes that we deal with as risk assessors and managers. Where luck and randomness dominate managing responses is a more effective use of resources than trying to manipulate inputs.

Where luck dominates we see mean reversion over time (financial returns revert to average returns over time), a lack of transitivity (the Mk II product may be better than the Mk I but the Mk III is not necessarily better than the Mk I) and there are no predictable, systematic “streaks” to base risk management on.

Most uncertainties we deal with involve a mix of skill and luck unfolding in a probabilistic world. This behoves us to focus on process.

Robust Process is Critical

Dwelling on process where luck and skill are mixed overcomes several problems. It prevents an obsession with the distortions created by a short term focus, it recognises that “strings” of events rather than samples of “one” are determinative, it helps prevent noise being mistaken for “signal” and longer run consistent process lets skill shine through.

Systematic and consistent processes for assessment and the management of uncertainty thus provide a better chance – a sporting chance in fact – of achieving superior outcomes on average and over time.

Getting the Focus Right

Many commentators have noted that:

Much of the real world is controlled as much by the “tails” of distributions as by... averages: by the exceptional, not the mean; by the catastrophe not the steady drip.... We need to free ourselves from “average” thinking”. (Ropeik, 2010)

Both the financial calamities of the 2007 – 2009 credit crisis and the Canterbury earthquake attest to this. Economists have, since the time of Alfred Marshall in 1890 stressed the need to focus on the margin. Our Gaussian models however focus on the mean. It is a mindset which is not helpful.

The many thousands of earthquake tremors occurring in New Zealand annually produce an average magnitude somewhere near the bottom of the Richter scale – a statistic which is utterly irrelevant when a 7.1 strikes near Christchurch.

Public Policy – An Even Tougher Challenge

Translating such knowledge as we have about managing in uncertain worlds into useful public policy capable of producing net benefit over time is an even tougher problem than designing private sector risks management responses.

Public policy endeavours, driven as they are by political process, are ever hampered by the often ill-advised but nagging desire to “do something”, the unwillingness to accept imperfect worlds and instead to shoot for and judge by unattainable standards of perfection, the persistence of irrelevant and costly “empires” and the harsh mistress who deals out the cards of unintended consequence with alarming regularity.

There are some pointers toward better policy.

At a technical level these involve being wary of persuasive percentages and stating explicitly the base against which change is measured. In policy design they involve having the courage to consider the “do nothing” option and facing up to the existence of regulatory failure and the need for public agency sanctions.

Treating coercion as a last not a first resort is a sound starting point. Testing expected outcomes for equity as well as efficiency effects complements that.

Finally the focus should be ever on identified net benefit considering total social wellbeing – the beneficiary whose taxi fare is raised by compulsory taxi cameras as well as the potential to stop a mugging, the first home couple whose house price rockets as leaky home risk is possibly reduced, or the increased road toll occasioned by high cost and hassle value anti-terrorist measures post 9/11. Looking for general not partial solutions is paramount.

Conclusion

We cannot reduce the gap between risk perception and reality to zero – indeed given the cost that would be undesirable. We can however continue efforts to characterise risk more accurately, focus on the elements of risk which are important, ensure that we do not confuse luck with our own ability and concentrate hard on ensuring that we examine total costs and benefits – especially where we would impose our will on unsuspecting communities through the political processes of public policy.