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RISK MANAGEMENT — RESHAPING THE DISTRIBUTION OF OUTCOMES, NOT JUST MODELING THEM

DAVID R. KOENIG

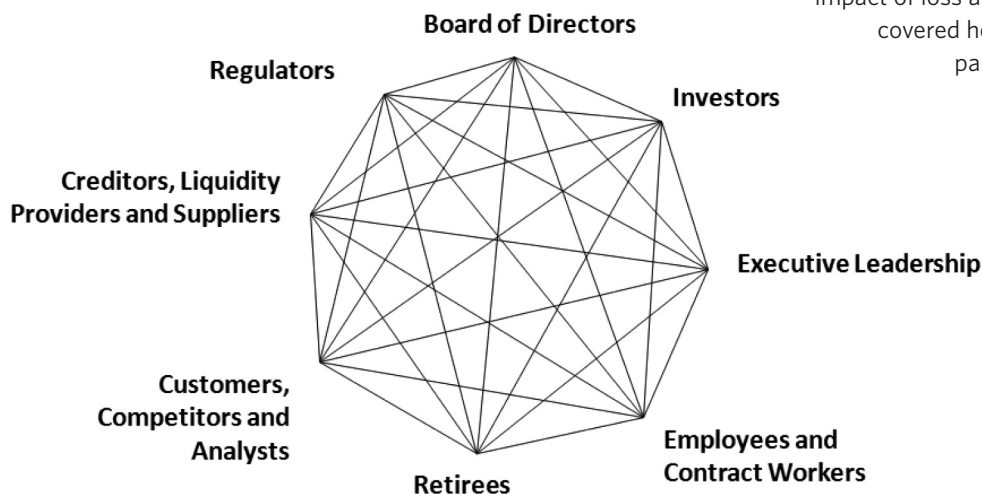
The Value Equation

Ultimately, our work as risk managers is about preserving and enhancing the ability for organizations to create value. That value can be defined by the value, or utility, our organizations can deliver to those in their networks.

When we consider that all organizations operate in a kind of social network, seeking to acquire scarce resources, or economic capital, in exchange for goods, services, or money, it is surprising how little risk managers focus on the human aspect of our jobs. Dipak Jain, Dean of the INSEAD School of Business asked me back in 2005, “How many Chief Risk Officers have responsibility for the customer?” My answer was “None, of which I am aware.” I doubt that assessment was far off the mark then and probably is not much farther off the mark now. His line of questioning on that day was direct and ended with the semi-rhetorical question “How can you call anyone a Chief Risk Officer when they don’t have responsibility for the single biggest risk a firm faces—that of not knowing its customers’ needs in the future?” He was correct then and remains so today.

But the customer is just one (very important) part of an organization’s social network among many with relationships that entail risk for the organization. An organization’s social network has multiple connections among participants. Consider Figure 1, which maps, in a simplistic way, the social network of an organization. Wherever two elements in this network are connected there is an assessment of value each makes of the relationship with the other. That assessment determines whether, ultimately, there will be an exchange between them of things that are valuable. The exchange can be of time, ideas, capital or any number of desirable, yet scarce, resources.

Figure 1 – Organization’s Social Network



In the equation below we can represent Value in the form of a discounting equation with utility (as something valuable to the recipient) in the numerator and some form of risk-based discounting in the denominator describing and determining “present value.” This works for any exchange, provided that each party accurately assesses the risk of the counterparty to the exchange.

$$Value = U_0 + \frac{U_1}{DR_1} + \frac{U_2}{DR_2} + \frac{U_3}{DR_3} + \dots$$

The tricky part to getting this right is properly discounting risk. For our organizations, a risk manager’s work must include a focus on the ways that critical partners form their expectations of us, in terms of the risk we present to them.

Perceptions of Risk

The literature around risk perceptions is voluminous; for the purpose of our discussion we highlight two important elements: loss avoidance and social amplification.

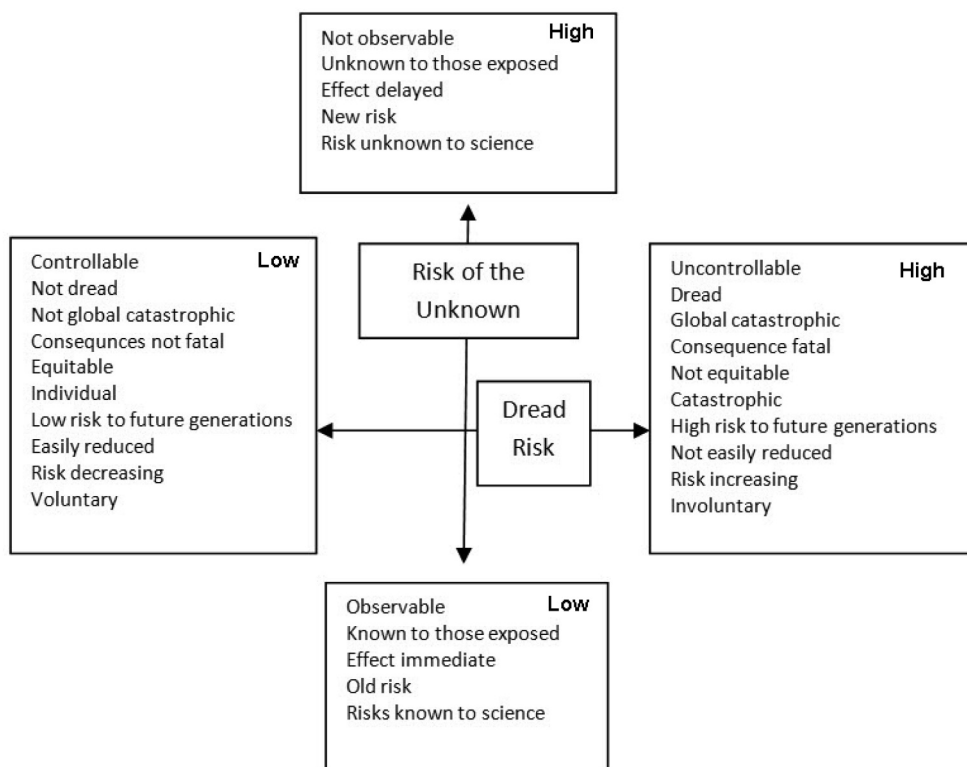
Loss avoidance refers to the observation that most people don’t like losses and really dislike large losses....or even the prospect of large losses. In practice, it turns out that people may demand two to three times the prospect of large gains to compensate them adequately for the fear of a large loss.¹ Translating this observation to our social network, when someone considers an exchange with us and believes there is a possibility that things could go very, very wrong, the transaction is highly likely to fail. Or, with certainty, the transaction will be far more expensive for our organization than it would have been in the absence of such fear. Again, there is an abundance of literature discussing the impact of loss avoidance on perceived value that is not covered here. It is worth some extra research on the part of the reader to become more familiar with the concept and its implications for the valuation of risk.

Social amplification describes the combination of two key human activities. First, people talk. (And when they have something important or surprising to discuss, they talk a lot.) Second, such talk often influences the actions of others. Why are there lines outside of Apple stores when new iPads are released? Why do people become rabid fans of a particular

professional sports club? These outcomes (clearly positive for Apple and for the owners of the club) are amplifications of feelings held by some social network relevant to a particular individual.

Social amplification cuts on the negative side as well. Research by Paul Slovic and Elke Weber identifies the drivers of social amplification around risk events as being tied to two key factors: *Dread* and *Knowledge*.ⁱⁱ Over simplifying greatly, in the former, the extent to which a realized risk event creates fear of something dreadful happening to you can make you over-react. If that fear is combined with a lack of understanding, or, perhaps worse, a potential lack of understanding by the experts trusted to deal with such problems, disproportionate fear is further amplified. Figure 2 below illustrates the types of things that can drive such reactions.

Figure 2 - Elements that Drive or Mitigate Social Amplification of Risk Eventsⁱⁱⁱ



When risk becomes amplified via social networks modest or significant risks for an organization can quickly become critical events of a magnitude that may be multiples of the original loss. Think of Bear Stearns and Lehman failures during the financial crisis. In fact, consider the entire subprime crisis and its resultant impact. How much larger are the total costs of the reaction to the crisis than the actual losses on subprime loans?

The Left Tail

Events like these, or as another example, magnitude 9.0 earthquakes, can be classified as unlikely or “left-tail events.” We know about these as risk managers and we spend a good deal of time trying to model their impact on value. But, we can easily

make (at least) two mistakes in our focus on modeling such events. The first mistake is missing events that have the potential for amplification. In the typical probability-impact quadrant approach to identifying and prioritizing risks, some low probability-low impact events, as determined by the risk assessment process, may have the seeds of amplification sown into them. But, because they fall into the quadrant given the least priority they risk receiving little or no attention and, thus, not being addressed.

The second mistake is in focusing primarily on capital as a buffer against the perceived impact of the event, or transferring the risk at full cost, rather than dedicating the resources required to interrupt the event before it reaches its full potential. Taking actions to bolster corporate resiliency in ways that make positive

use of an organization’s social network- internal and external – will often be less expensive than building and dragging along excess capital, assuming capital is even available at times of stress.

The Path From the Middle to the Left Tail

All problems have two things in common. First, they take time to develop. It may be seconds or years, but the financial impact of an emerging problem begins at zero and moves to its end point. This is the second thing that all problems have in common. They have a potential impact.

Effective resiliency means establishing a framework that interrupts problems before they reach their potential impact. Unchecked, some problems will be left-tail events. Others will result in more moderate losses and some only minor. But, without an appropriate risk governance

framework in place, they are far more likely to reach their full potential.

Good risk management includes spending resources on building resiliency and interrupting problems as they emerge. We can illustrate the effect of such a change graphically as a change in the shape of the distribution of possible outcomes for the “value” of our organization. As is illustrated by Figure 4, resiliency will truncate the left tail; this by itself makes our organization more valuable. Note that scarce resources may be more efficiently allocated in this manner than they would be simply building up capital to absorb large losses from a distribution we hope we have modeled correctly.

The Right Tail

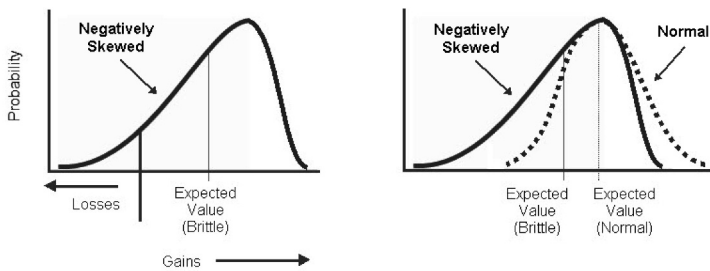
But, risk, in the value equation our network partners use, is not just to the downside. Risk has a positive aspect to it as well. Sometimes, if we over-deliver on expectations, for example providing a really good service experience when a customer expected a hassle, utility increases. Over-delivering on expectations is also influenced by risk governance. Yet we spend little time pursuing this idea. The ways that organizations interact with their social network may be better understood by applying the concepts of complexity economics, and analysis of complex systems, such as the work led by researchers at the Santa Fe Institute.^{iv} In practice, failing to understand this science may itself be a risk that needs to be managed.

Enhancing the way in which agents in our organizational social network engage each other increases the chance that we will over-deliver on the expectations of our counterparties and increase their expected utility from interfacing with us. Our value to them will increase and, hence, the cost of exchanging what we have of value for what they have (that we want) will go down. The effect of such an approach is to extend the right-tail of the distribution of possible outcomes and to increase the value of our organizations.

Positive Skewness

Truncated left tails and extended right tails are features of a positively skewed distribution. Conversely, when problems are left unchecked, or there is no system in place to interrupt them, we encounter a negatively skewed distribution, as illustrated below in Figure 3.

Figure 3 - Fat Left Tails and Negative Skew



i. See work of Daniel Kahnemann and Amos Tversky where this effect is referred to as loss aversion. For example, Kahneman, D. & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica* 47, 263-291.

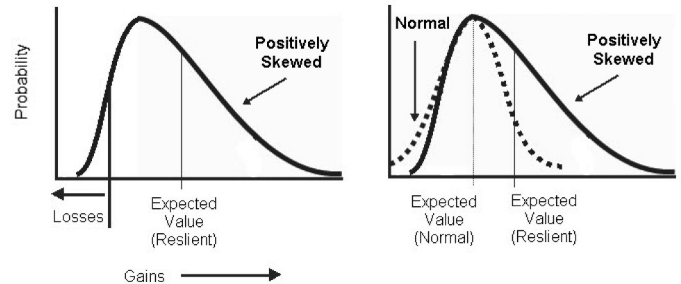
ii. Slovic, Paul & Weber, Elke, Perception of Risk Posed by Extreme Events, prepared for discussion at "Risk Management Strategies in an Uncertain World," April 12-13, 2002.

iii. Ibid

iv. See Beinhocker, E., *The Origin of Wealth*, Harvard Business School Press, 2007, as an excellent source for the discussion of complexity economics as a source of value.

As is shown in Figure 4, a positively skewed distribution increases our value, reduces our need for expensive capital and makes us a more attractive counterparty all kinds of economic exchanges - employment, sales, partnerships, contracts and more.

Figure 4 - Positive Skew and Higher Value



Rather than spending most of our time modeling expected distributions, we need to allocate at least equal and perhaps far greater resources to changing the shape of those distributions more to our liking...and correspondingly, more to the liking of those in our organization's social network.

That's how we get positive amplification of our work and how risk management becomes more valuable.

ABOUT THE AUTHOR



David R. Koenig is the Chief Executive Officer of The Governance Fund Advisors, LLC and Chief Investment Officer of Ram Investment Advisors, LLC. He works to discover hidden value in companies based on their corporate governance.

Mr. Koenig is the author of *Governance Reimagined: Organizational Design, Risk and Value Creation*, to be published by John Wiley & Sons in May 2012.