



# Here be Dragons: Navigating Uncertainty With Risk Measurement

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## How Important is it to Measure Risk?

We have conducted research with a select group of key executives and risk managers at companies within the Russell 2500™ Index to learn more about their risk management practices and perspectives. A large majority, 84% of them, said it was somewhat important or very important to measure risk — mainly to support decision-making, understand risk appetite, and prioritize resources to the largest risks. However, we were surprised to learn that more than half of those participants said they rely on subjective methods, such as the individual judgment of business leaders (66%) or team-based decision making (50%) to evaluate risk reward/tradeoffs.

While most believe measuring risk is important, it does not seem to be the driving force when decisions are made. This conclusion was echoed when we asked what insurance purchasing process respondents would most like to see improved. The top two responses were: “use of data and related analysis to support purchasing decision framework” and “understanding of the company and persuasive use of data by external providers in developing a marketing approach.” Efforts at measuring risk appear to be falling short in the two key areas of decision making and persuasively communicating risks to markets.

There was also a significant group (16%) who felt that measuring risk was not very or not at all important. There has always been a debate about the importance or value of measuring risk. Some argue that risk is uncertainty and no amount of analysis will change uncertainty into certainty. Others add that risk lies in the future and we cannot know the future. Measuring risk based on historical experience is like driving a car while looking in the rear view mirror. Nassim Taleb added some fuel to this fire with his book, *The Black Swan*, about large events that we cannot anticipate and the magnitude of which cannot be known. All good points.

On some ancient maps, the words “Here be dragons” were written just beyond the edge of the known world as a warning to travelers that they were entering the unknown. For risk managers of all kinds, the dragons are Black Swans. But the existence of Black Swans, or dragons for that matter, doesn’t reduce the value of having a reasonably accurate map of the known world of risk. The existence of the unknowable doesn’t negate the value of what can be estimated and anticipated based on what we do know of the world.

84%

A large majority of study participants said that it is very important or somewhat important to have a well-defined way to measure risk.

We were surprised to learn that more than half of participants rely on subjective methods to evaluate risk reward/tradeoffs:



Individual judgment of business leaders

66%



Team-based decision making

50%

While most study participants believe that measuring risk is important, it doesn’t seem to be the driving force when decisions are made.

This conclusion was echoed when we asked what insurance purchasing process participants would most like to see improved:



Use of data and related analysis to support purchasing decision framework

32%



Understanding of the company and persuasive use of data by external providers in developing a marketing approach

14%

Efforts at measuring risk appear to be falling short in the two key areas of decision making and persuasively communicating risks to markets.

Executives need not lead their organizations staring blankly into the void when there are lights to navigate by. Measuring risk may be more like dead reckoning than high science, but it allows us to make better informed decisions about business practices and strategy.

## Risk Measurement Methods

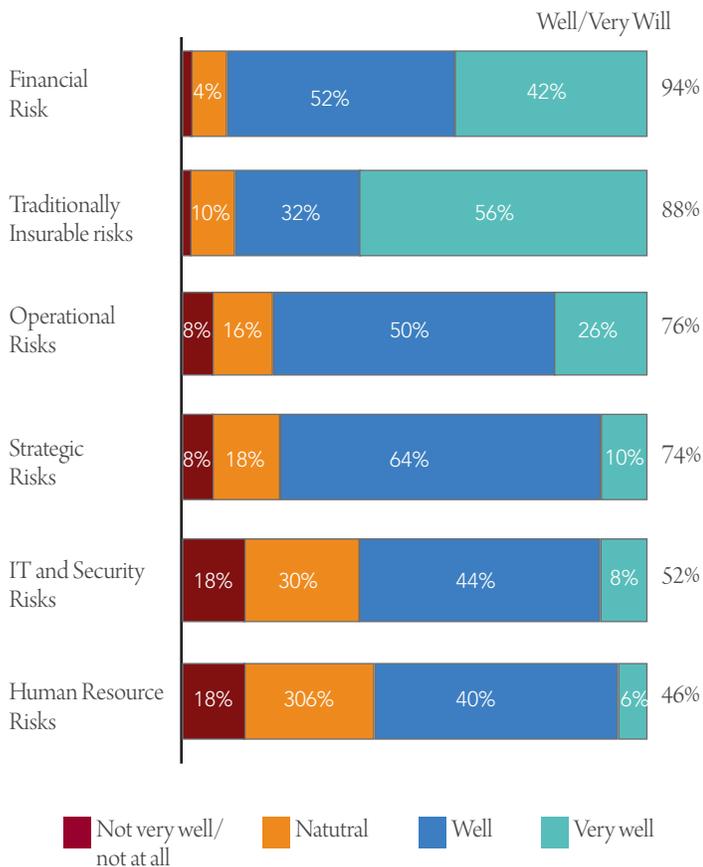
The vast majority of our research group (70%+) use analysis of historical experience or business impact analysis to measure risk. Other methods, such as actuarial forecasting, Monte Carlo simulation, and the Delphi method were used by about a third or fewer of the participants.

Participants felt most confident in their ability to measure financial risks, traditionally insurable risks, and operational risks. They had the least confidence in their ability to measure

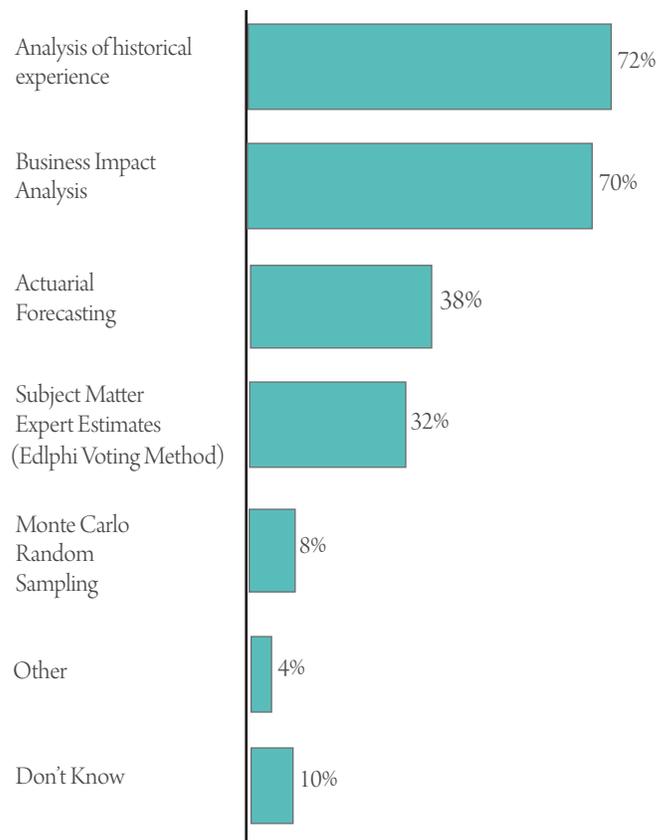
IT, security, and human resource risks. This makes sense as there are markets for financial and insurable risks that collect a tremendous volume of data, and there are many well-established methods of analysis that are tested against real world outcomes on a regular basis. Operations have been studied since the early days of W. Edwards Deming and Peter Drucker through today's Lean Six Sigma, and there are many established methods of analysis that relate to risk.

The real surprise was the high degree of confidence shown in the ability to measure strategic risks, which was rated almost equal to measuring operational risk. Our experience consulting with clients on their Enterprise Risk Management (ERM) practices suggests that many companies struggle to measure strategic risks, or conclude that they cannot be measured effectively, and categorize them subjectively as low, medium, or high on some scale.

### Ability to Quantify Specific Risks



### Methods of Quantifying Risk Impact and Likelihood of Occurrence



The potential impact and likelihood of strategic risks can usually be estimated reasonably, although it may require different methods than financial, insurable, or operational risks, where stochastic methods are often applicable.

Creating a series of scenarios for strategic risks based on low (best case), medium (most likely), and high (worst case) outcomes can enable better business impact analysis and quantification. Research on the impacts of similar risk events to peer companies can also add useful data where the risks in question have never historically occurred to the company evaluating them.

The Delphi method can be very effective where limited or no data is available. Engaging a group of subject matter experts (usually eight to 12) to develop and discuss scenarios, then anonymously vote on the potential impact and likelihood, can produce quite effective estimates. The group can discuss outliers in the voting and revote to reach consensus. Some people cast a skeptical eye at such methods, but The RAND Corporation studied this method for the military decades ago and concluded that, when applied properly, it had a high degree of credibility, even when compared with traditional stochastic methods.

The metric most often (70%) used by study participants to evaluate risk impacts and effectiveness of controls is impact to earnings/cash flow. Companies with mature ERM practices where strategic and other uninsurable risks have been identified and quantified can compare Monte Carlo simulation models of their internal data to peer data on cash-flow volatility. Cash-flow volatility is often the result of strategic and other uninsurable risks, and we have found reasonable alignment of high confidence interval estimates of potential loss between such peer analysis and a company's internal ERM data. Using both methods together is a form of dead reckoning that gives us greater confidence that our estimates are directionally correct.

## Evaluating Risk-Reward Tradeoffs

Having a reasonable estimate of the likelihood and potential impact of existing strategic and other uninsurable risks is important, as these risks consume some portion of an organization's risk-bearing capacity. Understanding how much is consumed by uninsurable risks, and how much capacity is remaining to support taking other risks, for which there are risk

finance options available, enables management to make better judgments about how to value risk and reward tradeoffs.

Using a company's risk-bearing capacity to support taking risk means limiting the ways in which that capital can be used. It must remain reasonably liquid in the event that a loss is experienced. By measuring the internal rate of return such capital could achieve, if invested into the business versus more liquid investments, it is possible to calculate a minimum threshold of return needed to justify the use of available risk-bearing capacity.

Given this minimum rate of return, the intrinsic value of each risk — a company's internal cost to retain or self-insure the risk at breakeven over time — can then be calculated. This is the sum of the expected (average) cost of a loss or losses to be retained, a risk charge based on the difference between the expected value of losses and a high confidence interval outcome (~95%), a charge for the risk-bearing capacity ("surplus" capital) needed to support taking the risk, and any other expenses associated with retaining it. All of these elements are derived from the risk measurement process.

### Formula

$$\begin{aligned} \text{Intrinsic risk value} &= \text{Expected losses} \\ &+ \text{Risk charge} \\ &+ \text{Surplus charge} \\ &+ \text{Other expense} \end{aligned}$$

With the intrinsic value established for each risk, companies can evaluate the full range of risk solutions available to them. If a solution that is less costly than the intrinsic risk value is found, it would add economic value to the business to implement it versus retaining the risk. If all the solutions are more expensive than the intrinsic value, and the company has risk-bearing capacity to assume the risk, doing so will be the most cost-effective solution.

Once this framework is established, risk measurement and the analytical processes that support it can play a powerful role in both the marketing of risks and evaluating risk-reward tradeoffs in the decision-making process.

## Summary

While no amount of quantification or analysis can transform uncertainty into certainty, the vast majority of business people agree that measuring risk can play an important role in support of decisions involving risk/reward tradeoffs, understanding financial capacity and tolerance for risk, and prioritizing resources to the risks of greatest concern. There may be dragons, or Black Swans, marking the edges of the measurable universe, but measurement enables us to navigate the risk universe by a form of dead reckoning that can provide estimates of exposure to risk that are directionally helpful to leaders making decisions about business practices and strategy. Our opportunity going forward is to make more creative and better use of the many analytical methods available to support the decision-making process and more effective marketing of risks to the insurance and futures markets.

### How Can We Help?

For information regarding this topic, please contact your USI Consultant, or Richard Michel 470-875-0399 | [richard.michel@usi.com](mailto:richard.michel@usi.com)

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