Rose-Colored Risk: Reducing Bias in ERM Risk Assessments

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Tornadoes happen to other people—in areas where there are flat plains and lots of mobile homes. At least that is what many of us thought in Western Massachusetts before June 1, 2011.

Sure, we get violent thunderstorms. If we stopped to think about it, we'd remember that there have been several deadly tornadoes in our part of the state, as recently as 1994. In fact, the National Climatic Data Center reports that from 1953 to 2004, Massachusetts hosted 152 tornadoes, averaging three twisters per year. Our state's statistics are similar to frequencies in Texas and Mississippi. But I certainly never thought it could happen in a city like Springfield, the "City of Homes," or in my hometown of Wilbraham, MA, the headquarters of Friendly's Ice Cream and long-time host of an annual Peach Festival. Neither did my neighbors, some of them getting in the direct path of the funnel clouds to take videos with their cell phones rather than run to their basements.

My disbelief—my self-deception—on this significant risk has a scientific name. It is called optimistic bias. It stands for the general proposition that people, being basically ego-centric, expect things to turn out better for them than their peers. As many studies have shown, people generally believe that bad things happen to other people and expect their own lives to be better than statistical averages. They envision themselves achieving more than others, living longer, surviving disease at higher rates and overestimating their potential for success in business. They believe that the future will be much better than the past and present. They also see natural disasters happening around the country, thinking "of course it happens there, but not here." Each of us sees the world with our own special, rose-colored glasses.

Bias, including optimistic bias, can have a significant impact on enterprise risk management (ERM). During the risk assessment process, evaluating potential frequency or severity of potential loss is often accomplished through a combination of individual interviews, surveys and group meetings. Particularly for areas of risk where there is little concrete statistical or historical data, subjective opinions of managers and staff must fill the gaps. But with human input comes human bias, the unique perspective each individual has of the world.

When gathering risk information for ERM programs, it is important to understand some of the basic pre-set biases in the process, of both (a) the participants/respondents and (b) the interviewer, researcher or study designer, to help minimize and correct for individual variations. In many respects, the ERM process is much like a scientific, sociological or epidemiological study, where qualitative data is gathered to test theories and help predict future events. As such, ERM programs may benefit appreciably from the learnings in other disciplines. This whitepaper explores the major types of participant bias when conducting research and offers tips to reduce the effects of bias. This helps develop a more realistic picture of risk.

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Introduction: Risk Assessment and Perception

To make an effective risk management decision, companies need to know not only what potential harm a situation poses, but also how great a loss may be, and how often it might occur. Opportunities may also be evaluated by looking at the magnitude of potential reward and the percentage chance of success. Gathering and analyzing this information, and ranking risks by their importance or impact, is referred to as "risk assessment."

"Risk perception" is the personal judgment that people make about the characteristics and severity of a risk. As demonstrated in many scientific studies, one individual's view of a risk can vary substantially from another person's, depending on certain factors. For example, people's opinions can vary depending on variables such as the extent to which they are directly affected, if they have voluntarily assumed the risk or had the risk imposed on them, or if they are connected with the cause of the risk. Individual biases, or deviations in perception from actual fact or truth, can lead to either an underestimation or overestimation of projections, small or large, in the risk assessment process.

Several theories have been proposed to explain why different people make different estimates of the seriousness or likelihood of risks.

- Cognitive theories are based on the premise of a difference in that makes us have biases, based on our own personal experiences, histories and belief systems. We logically extrapolate what we know to be true from our experience. If we do not have prior experience with an issue or event, it may be harder to predict future occurrences of that event.
- Psychometric theories hold that people evaluating risks in life are influenced, consciously or unconsciously, primarily by emotions and intuition. All things being equal, the greater people enjoy or perceive a benefit, the greater their tolerance for associated risk. The more a person fears or dreads an activity, the greater their desire to reduce the associated risk.
- An anthropological/sociological view sees risk perceptions as socially constructed by groups, institutions, cultural values and ways of life. Corporate values and community standards can play a large part in influencing individual actions that may be "risky" to the larger group.

Any or all of these risk perception paradigms may show in the ERM analysis process. Certain bias mitigation techniques have been developed in response to each pattern.

Risk Goggles: The Optimism Bias

As noted above, social science and neuroscience suggest that people are more optimistic than realistic. On average, we expect things to turn out better than they do. Overly positive assumptions can sometimes lead to poor planning and even disastrous results, but can also spur action in risky situations for high reward. Social progress is built on the optimism of those who fought wars, discovered new lands, built new machines and overlooked or accepted personal risk, forging into the unknown to a better life.

In analytical studies, the magnitude of this optimistic bias can make the responder perceive a risk or occurrence to be more or less frequent, or more or less severe. Optimistic participants might not, for example, fully appreciate the impact of new law and regulation, accurately evaluate the financial impact of a breach of controls, or plan to launch the development of a new product without considering the "downsides" adequately.

Research has uncovered several factors that increase or decrease the probability that individuals will misjudge some aspects of risk:

Accessibility/Ability to Imagine. Events that can be more easily brought to mind, or recreated mentally, are judged to be more likely than events that aren't easily imagined. Further, studies show that the more concrete an event is, the easier it is to imagine, and this often results in a higher degree of perceived future risk.

Now that we've lived through an F3 tornado event, the residents of my neighborhood realize that tornadoes DO happen here, and are likely to predict (or fear) more in the future than they would have before. They also truly see the magnitude of damage in their own back yards. With this stronger, personal frame of reference, they will have an easier time imagining, if such an event takes place again, how bad it might be. In some instances, they may even over-estimate the risk or degree of potential loss, more than what a statistical norm or average would dictate the risk should be, in light of their own fears or anxieties after this one disaster.

Controllability. Optimism bias tends to be magnified when the risky event is regarded as controllable—that is, when the event might be prevented through controls, safety measures or one's own hard work or creativity. Despite statistics, individuals tend to feel they are less susceptible to events they think can control, such as heart disease, car accidents or job lay-offs. Conversely, people feel they are more susceptible to events they do not feel they can control, such as being affected by natural disaster.

This is important to remember for ERM, where if respondents feel they have a degree of control over a future project, plan or product launch, their perceptions of any loss could be falsely diminished or their chances of success inflated. More controls around a risk may also lull some stakeholders into a false sense of comfort about the risk, creating a reaction of surprise or defensiveness when results are not as expected.

Further, if an individual knows that there are system controls for a problem or safety measures that cover a part of the loss exposure, they may be more likely to take riskier personal actions, feeling they are in a safer environment. For example, people may drive faster in SUVs, thinking they are safer in a larger car, but in fact are actually raising their net chance of a rollover. Similarly, managers may rely too much on system controls to avoid a regulatory breach and fail to adequately train staff to comply adequately with laws, increasing the potential for a human error that is not going to be covered by any IT solution.

Confirmation. People naturally tend to notice and look for things that confirm their beliefs, and to ignore or undervalue the relevance of what contradicts their understanding. People may buy stock because they hear good news about a company and believe that their purchase was valid. Any information contrary to that decision may be ignored—falling prices, poor company results, adverse news items etc. In a business setting, managers implementing new product plans may focus or rely on sales data, customer feedback responses or competitor news that supports their product or plan, potentially skewing the success of the launch. They may also disregard key risks not conforming to their vision.

Short/Long Term & Frequency. Many scientific and sociological studies have shown that people express a greater concern for problems that appear to possess an immediate or direct impact on daily life than for long-term problems that may affect them. They have even less regard for actions impacting future generations. People often do not change their behavior to decrease destructive habits, even when experts give clear evidence of potential negative results.

Both distant and infrequent events are more abstract, harder to picture, and out of context, so they are harder to worry about and harder to quantify in a meaningful way. Risk perception can thus be manipulated, in part, by framing questions within the short or long term, or in terms of relative frequency. Consider which statement conveys greater risk: "100 people die from heart disease every day" or "36,500 people die from heart disease every year." Although the risk mentioned in both statements is the same, in most cases the first statement would garner more attention than the second and be assigned a higher risk priority.

Magnitude/Severity. On the flip side, optimism bias tends to diminish when the risky event is perceived as very serious, with significant financial or physical consequences. In medical studies, people may rank their risk of death from heart attack as more likely than from heart disease, even though the true probability of the latter is greater. Companies hearing about a judgment in a lawsuit involving one unfair claim practice may take inordinate care to ensure compliance with that regulatory standard at the expense of compliance with other laws that may ultimately be, in a series of cumulative small breaches, more significant to the company.

Personal Ego & Cultural Factors. Self-esteem tends to magnify the effects of positive thinking. An association between self-esteem and optimism bias can be especially pronounced when the person believes they can control or prevent part of the risk. Too often, "experts" can be overconfident in their own opinions and may rely more on their own personal experiences than seek out sufficient external, objective data. They may also fail to disclose the range of caveats and contingencies that could change their measurements or future results.

Researcher or Experimenter Bias

Research bias, also called experimenter bias, occurs where the person performing a study influences the results, consciously or not. Sometimes a researcher will be looking for data to support a certain outcome and is not as careful as needed to get unbiased data. Other deviations can result from problems with the study, survey or questionnaire framework itself. In addition to participant or respondent bias, potential bias from the ERM interviewer should be factored into the risk identification and analysis process and the digesting of results. Some research bias is inevitable, and the interviewer should be able show that they understand this and have tried their best to lessen the impact or account for it in the statistics and analysis. In addition to errors created by more technical reasons, such as faulty data or calculation methods, interviewer bias can include:

Sampling. This kind of bias occurs when the process of selecting participants and/or questions for the study actually introduces an inherent bias into the inquiry. There are two types of sampling bias. Omission bias could arise in ERM interviews if certain groups (employees classes or departments) are left out of the sample. Conversely, inclusive bias occurs when participants are selected on a non-random basis or are heavily weighted to one group. This type of bias is often a result of convenience where, for example, managers are chosen to be the only participants in a risk study and not any of the staff "on the floor," who may have a very different perspective of daily and long-term risks. These biases are often unavoidable, but should be acknowledged and steps should be taken to secure input from a variety of other sources.

Response Bias & the Hawthorne Effect. Response bias is a type of research bias where the subject consciously, or subconsciously, gives feedback that they think the interviewer wants to hear. The subject may also be aware of the expected findings so there is a chance that they adapt their answers to suit what the study seeks to prove.

A related concept is known as "The Hawthorne Effect." This is a well-documented phenomenon that affects many experiments in social sciences. It is the process where participants change their behavior simply because they know they are being studied. It is named from experiments performed between 1924 and 1932 at the Hawthorne Works near Chicago. The company had commissioned studies to determine whether light levels within their building affected the productivity of the workers. The researchers found that the light level made no difference in productivity, as the workers' output increased whenever the amount of light was switched from a low level to a high level, or vice versa. The key was that they knew their responses to light changes were being monitored and thus were overly sensitive to the variable in the study. This result was validated in several subsequent experiments and is likely to be found as a significant component in future ERM projects.

Interviewer and Reporting Bias. Interviewer bias is common in situations where data is collected through face-to-face interactions. Here, the person leading the discussion may give subtle clues with body language or tone of voice that unconsciously influences the interviewee into giving answers skewed towards the interviewer's own opinions, prejudices and values.

Another type of design bias occurs after the research is finished and the results are being discussed. Reporting bias affects the way results are disseminated to their intended audience. Sometimes when researchers aggregate data, they fail to note anomalies or release results with a too-favorable slant toward the researcher's hypothesis. This type of bias is quite common, because research with conclusive findings, whether positive or negative, tends to be written up in scholarly journals or reported in the press much more often than research where no meaningful results are ultimately found. For ERM, however, any unpopular or negative feedback in the risk analysis process is just as important to the statistics as favorable answers.

Reducing Bias in Risk Assessment

Eliminating bias in a research project can be difficult, but you can minimize its impact by recognizing and dealing with it head-on. Recommendations to avoid bias, culled from studies in other analytical or scientific disciplines, are particularly suited for the ERM risk analysis process. Here are a few to note:

- *Avoid fundamental interview and survey design problems* by understanding the limitations of the sample group chosen to respond, and allow the research participants enough time to complete questionnaires. Filling out a survey during a coffee break may not give the full results intended. Realize that some bias will exist due to the sampling group not being truly representative of the whole company and strive to elicit feedback in as many departments or through as many levels of staff as practical, with a combination of data-gathering techniques. One size does not fit all in risk identification, nor should the assessment of severity and frequency be left to only a small segment of the affected population.

- *Use a variety of questioning techniques*. With surveys and questionnaires, ensure that questions are not leading and include at least a few samples of anonymous questionnaires that can be answered anonymously by participants, which may lead to more candid disclosures. For face-to-face meetings, set up as many individual interviews as practical in addition to larger group meetings to take advantage of the unique dynamics of different kinds of personal interactions. Tools such as survey touch-pads can be helpful to elicit sensitive feedback in group settings.

- *Avoid individual hesitancy*. The project interviewer or moderator should be as neutral as possible and should try to create a culture of openness. Acknowledge that there will inevitably be "mistakes" made in the assessment process, rather than suggesting that there is only one right answer. Also, place interviewees at several points with various interviewers and/or different groups of people, if time permits. In group meetings, allocate time to ensure that all participants have equal say and avoid allowing dominant team members to take over. In the ERM process the best predictor of emerging risks or hidden patterns and trends will be on the shop floor, not necessarily in executive row, and care must be taken not to defer too much to senior management's outlook on a given risk.

- *Give concrete background examples* of losses, past successes or failures, claims or risks, whenever possible in the process. Use case studies and provide detailed statistics about the frequency of risk (shown in at least two formats, highlighting either frequency or magnitude) to enable respondents to picture the risk. This should help participants extrapolate their experiences and thoughts more fully.

- *Recognize overstatements* and super-positive responses that may naturally come from participant ego or self-confidence. Seek out and document the caveats and conditions under which risk assessment assumptions are made and take a conscious, conservative view with regard to future business plan projections when discussing ERM.

- *Have participants check ego at the door*. In order to further curb optimism bias, some researchers suggest that participants should discuss what their most important values are before responding to a survey. In the corporate context, this could mean that ERM interviews or surveys first start with a restatement of corporate values, ethics statements or company goals to highlight the need for ERM to be a collective, collaborative process.

- *Continue to collect and research* as much quantitative data as possible regarding a loss, risk or project. While personal opinion of frequency and magnitude of potential loss is helpful, and may be the most readily available source of input into ERM risk assessments, the more data, the more sustainable and valid the results. Sources of loss statistics abound. Also cross-check data or responses from participants with other facts, to ensure that memories have not formed a different picture of what historical facts were, and do feedback loops, seeking post-event debriefings of what went well and what did not for future analysis. ERM software that can archive and analyze historical data can be an important tool for improving risk assessments over time.

As Ann Landers one said, "Rose-colored glasses are never made in bifocals. Nobody wants to read the small print in dreams." Too often an optimistic view of the world can lead one to overlook small yet significant details, the small print of risk that might affect perceptions of risk likelihood and magnitude. Whatever the truth is, it is likely going to be found between two or more individual points of view. ERM practitioners must appreciate that all human input in a risk study is subject to bias of several kinds, with varying degree, and adopt appropriate mitigation strategies to ensure a clear, sharp view of the future.

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