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How rational managers came to be seen as reckless risk takers ... but have been behaving sensibly all along

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> ILLUSTRATION BY IGOR MORSKI

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Three years ago, Deloitte launched *The Persistence Project* to identify the management practices that contribute most to sustained, superior corporate performance. Preliminary results have been published in the *Harvard Business Review* and the *Annals of Applied Statistics*. This article is the second in a series, providing a preview of the project's findings. See www.deloitte.com/us/persistence for more and to join the conversation.

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How rational managers came to be seen as reckless risk takers ...

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In the 1963 madcap comedy film from which this article draws its title, starring Milton Berle, Sid Caesar, Ethel Merman, Phil Silvers, Spencer Tracy, Mickey Rooney and just about everyone else you can think of from that era, the characters pursue increasingly outrageous schemes in order to secure a \$350,000 windfall (about \$3.2 million in today's dollars).

The film is engaging, funny and memorable – it's a staple of pop culture references, cropping up in everything from *Remington Steele* to *The Simpsons*. Its appeal lies not so much in the ridiculousness of the characters – little more than a group of well-intentioned and utterly reasonable passers-by – or their objective, which is reasonable enough. Rather, it lies in how the absurdity of the circumstances creates what appear to be outlandish behaviors, which ultimately redound to the discredit of the hapless participants: By turns, they end up in plane crashes, blowing up gas stations, nearly drowned, and ultimately in the hospital prior to getting shipped off to jail. They are blamed for all manner of unfortunate mishaps when really it was the circumstances that drove the outcomes, and the comedy lies in the unfairness of their punishments.

A similar phenomenon threatens to color risk management, albeit with less than comedic results. Thanks to the Great Recession and the persistently tentative nature of the recovery, the current vogue when it comes to risk is to focus on managers, decision-making processes and company-level attributes such as control mechanisms. The premise seems to be that any putative pathologies that might have contributed to the global meltdown lie at the level of managers and corporate decision-making.

Some of this is certainly appropriate. Unfortunately, a steady, decades-long drip of research that misspecifies the role of individual and group decision-making as a determinant of company-level risk has combined with a recent explosion in behavioral economics to place far too much emphasis on managers. We suggest that much (or most) of what creates the risk we seek to reduce lies with more structural elements, such as a company's age and the industry in which it competes. If we try to manage structural risk largely at the level of individual actors in this much larger drama we are likely not merely to fail to improve matters but, in fact, unwittingly make them worse. Without an appropriate appreciation for the relevant causes of risk, we cannot hope to construct efficient and effective countermeasures.

As part of the attempt to bring more balance to the conversation, it's worth understanding how we ended up focusing on faulty decision-making as the source of unreasonable risk taking and why this emphasis could well be misplaced.

THE BOWMAN PARADOX

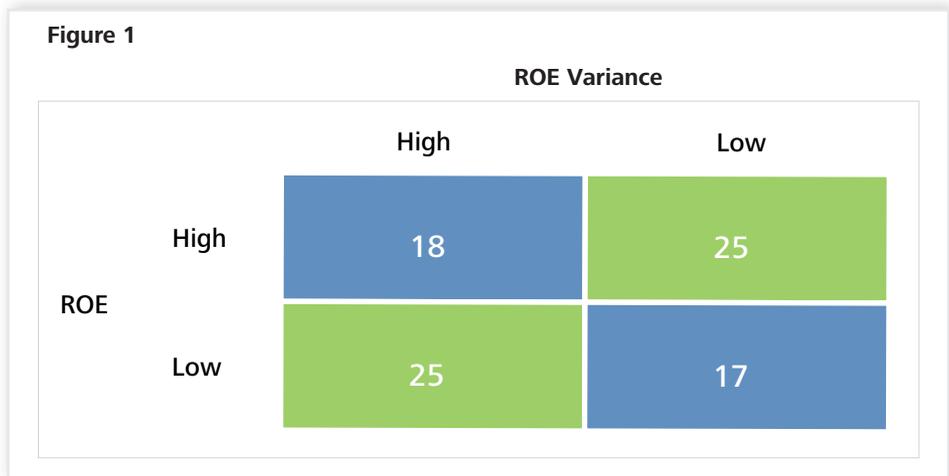
A likely candidate for the initial step toward seeing systemic irrationality in management decision-making is Ed Bowman's research into the relationship between risk and return in the real economy. In the first of two landmark articles appearing in the *Sloan Management Review* in 1980 ("A Risk/Return Paradox for Strategic Management"), Bowman observed that companies with higher return on equity (ROE) had lower volatility in ROE. In other words, higher returns were correlated with lower risk and vice versa.

Most of us see this immediately as a puzzle worthy of our attention. After all, with our finance hat on, it is immediately obvious that risk and return should be *positively* correlated: more of one means more of the other. The argument for such a correspondence goes something like this. When evaluating an investment opportunity, the investor (at least implicitly, but often explicitly) projects a range of possible outcomes for the investment. Investments with extremely positive and extremely negative possibilities are said to be high risk; those opportunities that investors expect to have a narrower range are said to carry less risk. Weighting each possible outcome by its associated estimated probability yields an expected value

for that investment. Risk neutral investors are indifferent among investments with the same expected values. But most investors are risk averse and will typically pay less for an investment with higher risk, all else equal. The discount to the expected value that is applied to riskier assets can be thought of as the “risk premium” that investors command for accepting that risk.

Note that risk is prospective—forward-looking and unavoidably based on subjective assessments of the probability of future outcomes—while results (the returns to the investment) are retrospective and much more nearly in the realm of facts. Consequently, testing the risk/return hypothesis is very difficult since we can’t observe the market’s assessment of the risk associated with a given investment. As a convenient proxy, researchers use the historical volatility in the price of an asset. From more volatile prices we can infer that it was difficult to estimate correctly the future value of an asset, which resulted in subsequent price corrections. Absent any good reason to think the future is getting more predictable, we can reasonably conclude that the asset is relatively risky.

Bowman used this proxy for risk to examine the relationship between risk and return over a nine-year period for over 1,500 companies in 85 different industries. Dividing ROE and volatility in ROE for his population at the median for each measure, Bowman summarized his findings in a simple 2x2 matrix:



The green-shaded cells are the most heavily populated, indicating that very often – that is, in 50 of the 85 industries Bowman studied, or almost 60 percent of the time – higher returns carried lower risk and lower returns carried higher risk, a trend quite contrary to what one would expect based on the behavior of financial markets.

MANAGERS ARE PEOPLE TOO

To explain his findings, Bowman did what has become commonplace among management theorists of late: he invoked psychology rather than economics. Drawing on the now-famous work of Kahneman and Tversky, Bowman suggested that “prospect theory” is at work.¹ Technically, this manifests itself as *risk aversion* in the face of possible gains and *risk seeking* when faced with possible losses. For Bowman, this phenomenon led him to hypothesize that companies that are doing well will systematically avoid risky investments even if they have high expected values (since a poor outcome would spoil their strong track record), while poorly performing companies would systematically seek out risky investments in the hope of reversing their misfortunes (since a good outcome could get them out of the hole).

Bowman tested this hypothesis with an examination of annual reports, looking for indications that companies had become risk seeking in response to poor past results. Focusing on such proxies for risk-seeking behavior as occurrences of the word “new” in the annual reports, Bowman found that the more poorly performing companies seemed typically to make more frequent and aggressive claims about changes to their behavior.

At one level, this is comforting; a company that is performing poorly *should* probably change its behavior. But this sort of explanation constituted a break with tradition on at least two fronts. First, it changes the causality of risky behavior and performance. In the standard formulation, managers consider investment propositions and then make their decisions. Then the results come in. In other words, the risk is assessed first, and the decisions made on the basis of that assessment determine the subsequent returns. The performance of the company up to that point is simply not part of the equation, and under these conditions risk aversion can assert itself.

However, when historical performance matters, actors are conditioned for risk-averse or risk-seeking behavior; managers hoping to preserve a strong track record become conservative, while those hoping to improve their lots materially swing for the fence.

Now, if managers of strong-performing and poorly performing companies see the same opportunities as having *similar* risk profiles but choose differently because of their circumstances, we still have arguably rational, deliberate decision-making. Companies doing well have relatively more to lose with higher-risk behavior—beyond just economic considerations, they have reputations at stake—while those doing poorly have relatively more to gain. These asymmetries in payoffs might well explain different attitudes toward risk. At least, though, the assessment of risk remains objective and unpolluted by the idiosyncrasies of the actors.

But this isn't where the field has gone, and herein lies its second departure from economic orthodoxy. The claim is that managers *perceive* the risks differently because of their circumstances and as a *consequence* of those *perceptions* choose differently. In other words, decisions aren't rational and objective after all because managers' assessments (it is claimed) of the risks inherent in a project are not purely



Managers' perceptions of risk are a consequence of a complex and insensible interplay between the project's characteristics and the decision-maker's recent past. This constitutes a break with the purely rational economic theory of the day by opening the door to implicit and unrecognized biases in decision-making.

a function of the characteristics of the project. Rather, managers' perceptions of risk are a consequence of a complex and insensible interplay between the project's characteristics and the decision-maker's recent past. This constitutes a break with the purely rational economic theory of the day by opening the door to implicit and unrecognized biases in decision-making.

Bowman's conjecture seems to have been the snowball that started the avalanche. Today it is difficult to enter the business section of any bookstore without being told that managers are people too, so they are subject to all the same cognitive failings. Biases for authority, bandwagons and confirmation are just the a, b and c of a long list of psychological foibles that plague us. Read too much of this literature and you'll end up wondering how any of us managed not to eat rat poison for breakfast – never mind make a complex decision in the ambiguous context of a corporation.

PROGRESS THROUGH REGRESSION

Many have suggested that we can mitigate the impact of these biases through careful attention to how they affect us and, as a result, improve the quality of our decision-making. And who can be against improvement? The issue is not whether managers can improve their decision-making by identifying and counteracting decision-making biases but rather how much time and attention they should devote to this alleged problem.

And this takes us back to Bowman's initial findings. Bowman's research remains one of the few large-scale empirical investigations linking corporate-level decision-making biases with corporate-level performance outcomes. The substance of behavioral economics draws largely on psychology and social psychology experiments that use undergraduate students as subjects and payoffs measured in the tens of dollars, at most. Generalizing from these settings to managerial decision-making is certainly defensible, but it would help if we had more to go on than mere assertion.

Our claim is decidedly not that Bowman's paradox doesn't exist; our data strongly support the existence of the phenomenon Bowman was the first to identify. Rather, we are questioning what has become the standard explanation.

With so much potentially at stake, perhaps there is merit in revisiting Bowman's conclusions.

Bowman's analysis is based almost entirely on raw performance measures. That is, he works with the reported ROE of the companies in his sample and does not strip out the impact of many other factors that might affect performance or variability in performance (although subsequent researchers have controlled for company revenue). As a consequence, it is not immediately clear whether his findings speak to the behaviors of managers—as they have consistently been interpreted to—or to other determinants of company performance.

For example, companies of different ages might exhibit different variability in performance over their life spans simply as a result of random fluctuations. Consequently, looking at a nine-year window means combining, say, years 7 through 16 for a company that ultimately survived for 40 years with the entire nine years of some other company's existence. And the mix of such companies might reasonably be expected to vary by industry (e.g., high tech, which has a relatively high rate

of entry and exit compared to commodity chemicals) and time period (say, recessionary versus expansionary economies). If these or other structural factors that can affect company performance quite independently of managerial decisions are driving the Bowman Paradox then much of the emphasis on correcting biases in decision-making might well be misplaced.

As part of the Persistence Project, we have developed a database of all U.S.-based companies traded on U.S. exchanges between 1966 and 2008. Looking at return on assets (ROA) we are able to replicate Bowman's initial findings across our entire database. Specifically, we define each age cohort (2 through 43 years of age) as those companies with only 2, 3, 4 ... 43 years of data. This way, we are examining each company's entire life span and so assessing its overall volatility (i.e., riskiness) more accurately. We then calculate the average ROA for each company in the cohort—again, over its entire life span—and average those results to get the average ROA for the cohort. This avoids the problem of inadvertently cherry-picking periods in a company's life span that appear to have high or low variance or performance but are not representative of the company's overall profile.

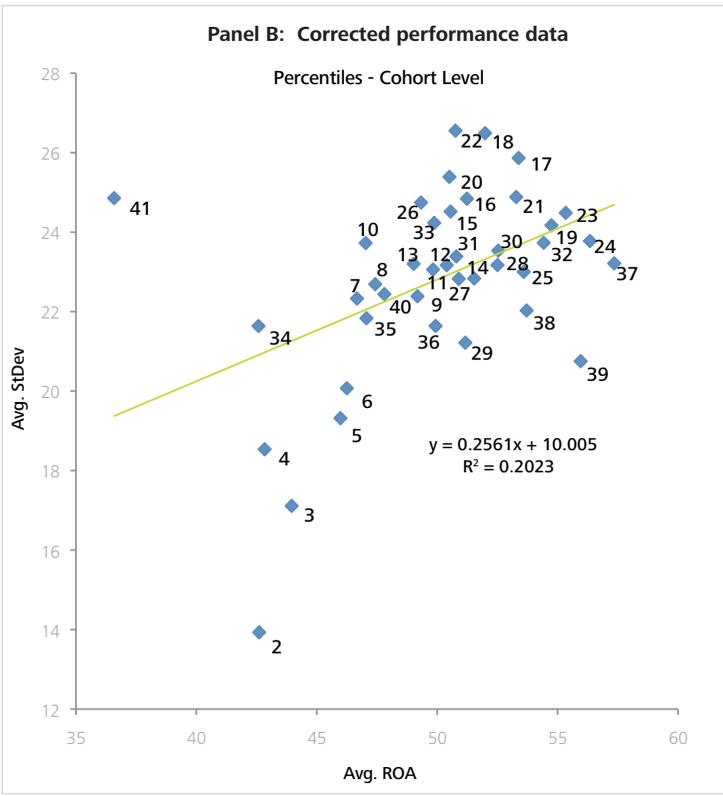
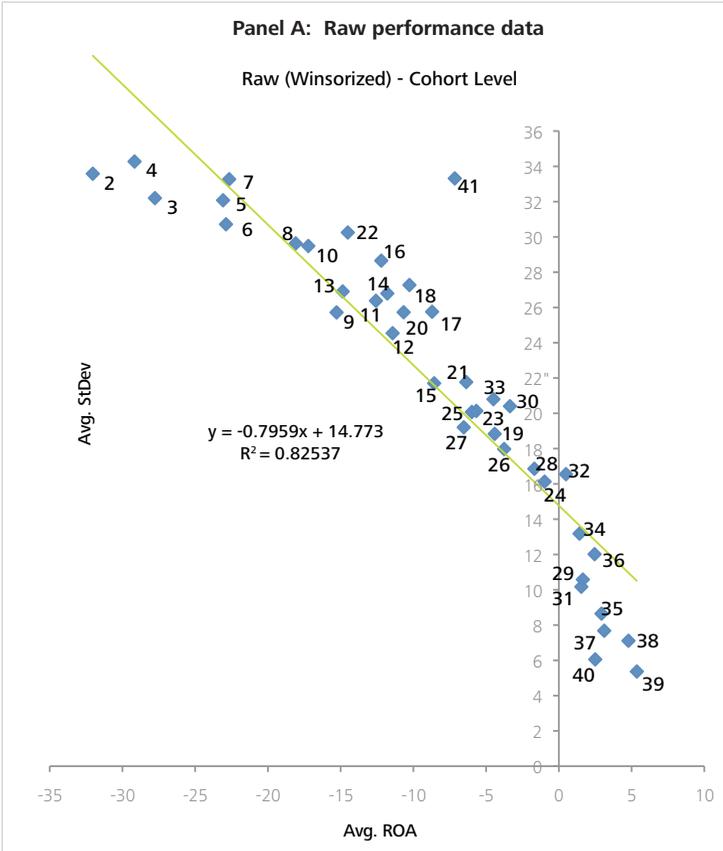
We then take the average of the companies' standard deviations in ROA to determine the cohort's average variability, Bowman's proxy for risk. When we plot those cohorts, we see a strong negative correlation between performance and variability: Cohorts with better performance have lower variability, and vice versa.

By replicating Bowman's results, we have some confidence that any subsequent differences are not merely a consequence of choosing different time periods, analytical methods or performance measures. Using a method detailed in our monograph "A Random Search for Excellence" (www.deloitte.com/persistence) we have corrected each company's performance for the impact of a number of factors: industry, industry concentration, year, company size, company market share, age and leverage. This allowed us to give each company a percentile ranking in each year of its life that was determined largely by "company effects" – that is, the impact of management decisions on company performance.

The relationship between this corrected percentile measure of performance and its volatility over time reveals a very different relationship between risk and return. Specifically, we see now precisely the kind of positive correlation predicted by classical economic theory, which posits risk aversion and rational decision-making. (See figure 2 next page)

In both panels we have plotted the average ROA for each cohort on the horizontal axis, the average variability in ROA for each cohort on the vertical axis, and indicated each cohort by labeling the data points. In the multivariate regression, however, age cohort and average ROA are both predictor variables. Whether

Figure 2. Performance Data



using raw or corrected performance data, age turns out not to be statistically significant, while lifetime performance is significantly and materially associated with lifetime volatility.

BARKING UP THE WRONG TREE?

The relationship between risk and return in operating companies (rather than as a feature of financial markets) is a complex and nuanced one. No one study should be taken as definitive – a view that Bowman himself, who passed away in 1998, would no doubt endorse.

Consequently, it is perhaps too hasty to lay as much emphasis as we have on the alleged decision-making pathologies of managers when there is relatively little evidence that they actually suffer from these failings. Managers don't stop being people when they get to work, whatever Dilbert might have to say on the subject. But this analysis suggests that, in the aggregate at least, when making decisions in the corporate context, the outcomes are more squarely in line with the assumptions of *homo economicus* than *homo sapiens*.

Our claim is decidedly *not* that Bowman's paradox doesn't exist; our data strongly support the existence of the phenomenon Bowman was the first to identify. Rather, we are questioning what has become the standard explanation. For when looking at performance as determined largely by management choices, we see precisely the risk averse profile that we desire. The implication of our findings is that risk management efforts should focus at least as much on the structural attributes that drive an overall outcome that remains a true puzzle.

The seemingly risk-seeking performance of companies is not mostly—and maybe even not at all—a consequence of the mad men and women at the helm, but instead a function of the “mad, mad, mad, mad world” in which we all must live.

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Endnotes

1. Kahneman, Daniel, and Amos Tversky (1979) “Prospect Theory: An Analysis of Decision under Risk”, *Econometrica*, XLVII (1979), 263-291.