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Roy B. Johnson
Southern Utah University

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HINDSIGHT BIAS AND THE EVALUATION OF STRATEGIC PERFORMANCE

**ROY B. JOHNSON
SOUTHERN UTAH UNIVERSITY**

ABSTRACT

This article reviews the literature on hindsight bias and applies it to the context of strategic performance evaluation. Hindsight bias, the tendency for people to view an event as more foreseeable after the event than prior to the event, is a well-documented cognitive bias. In evaluating the quality of the processes by which strategic decisions are made, evaluators are aware of the outcomes of these decisions and, therefore, are subject to the distorting effects of hindsight bias. Preventative measures are reviewed and recommendations for further research suggested.

I. INTRODUCTION

Second-guessing the efforts of others is commonplace in our world. It was clearly involved in the workings of the United States 9-11 Commission, which investigated whether mistakes were made which allowed the terrorist tragedy of September 11, 2001 to occur. It is currently happening in relation to the conflicts in Iraq, Afghanistan, and Israel. Opponents of the war claim that its costs were inevitable and not to be avoided. "Liberals' assertion that they 'knew all along' that the war in Iraq would go badly are guilty of the hindsight bias," according to Hal Arkes at Ohio State University (Vedantam, 2006). In hindsight, documents, notices, and messages take on a significance that may not have existed at the time they were generated. After the fact, we believe we would have known more than we really would have; and when we evaluate the prior performances of others, we apply this post hoc standard to their performance. This cognitive tendency is called hindsight bias. While we must judge performance in any evaluation situation, when we misapply the appropriate standards due to this bias, we invalidate our evaluations. Hindsight bias is a threat in any performance evaluation. This paper reviews the literature on strategic performance appraisal and on the existence and effect of hindsight bias, it then develops recommendations which incorporate the implications of this research on the limits of strategic performance appraisal. It is intended as a warning to business strategists and is addressed to them rather than to the narrower audience of decision science researchers.

II. STRATEGIC PERFORMANCE APPRAISAL

Strategic choices are decisions made after the assessment of an organization's goals, external and internal environments, alternative strategies, resources, and policies. Because these assessments relate to generally dynamic uncertainties, strategic choices and the assumptions on which they are based need to be evaluated and adjusted constantly. "In one sense, therefore, establishing a strategy is like aiming at the moving target: You have to be concerned not only with present position but also with the speed and direction of the movement" (Tilles, 1963).

A part of this adjustment process is the evaluation of the quality of the past strategy and the strategic decision-making processes that lead to its formulation. A past performance type of evaluation is distinct from other types of strategy evaluations which relate the appropriateness of past strategy to a present situation. Frigo (2004) notes the necessity for broader evaluation and stresses the importance of strategic performance appraisal as part of a continual process. This strategic performance appraisal process is the subject of this paper.

Most of the literature on strategy evaluation focuses on the strategic fit with the environment, structure and resources, internal consistency, and performance. The focus of these analyses is on adjusting old strategies and adopting new strategies. Though continually mentioned as important, the process by which past strategic performance is appraised is not well covered. The focus of this paper is on the implications of hindsight bias research on these appraisals. It is here assumed that the appraisal process in strategic performance appraisal is of the same nature as the appraisals analyzed in hindsight bias research. This assumption appears on its face to be valid, though more research specific to strategic analysis is warranted.

Essential to an adequate strategic performance evaluation is an understanding of the strategic issues as viewed by the planners at the time the strategy was being formulated (a priori). According to Frigo (2004), "What is needed ... is an ongoing review and assessment of strategic plans in light of what has been accomplished, how and how well it has been accomplished, and, most important, what significant forces of change or assumptions in the original strategic plan need to be reconsidered." (p. 8). The assumptions and predictions upon which strategies are based are essentially probabilistic; that is, trends and developments in the environment are determined with foresight and judged as probable or improbable based upon the information at hand.

Based upon the scenario determined most probable, the most appropriate strategic alternative is chosen. Some slack is introduced to cover alternative

probabilities; however, slack is granted at the expense of efficiency and too much slack leads to the equivalent of no strategy at all. In any event, wholly improbable events are rationally dropped from consideration in the final strategic plan. A person has the ability to consider only a limited number of alternatives and should rationally choose the alternatives to be considered based on their probability of success (see Hambrick and Mason 1984).

To properly evaluate a past strategy, therefore, one must look at the information that was available to the strategists, assess how they used that information and calculated probabilities, and then determine the reasonableness of the decisions they made based on the information in existence at the time. What one must not do is evaluate these decisions, processes, and strategies based upon hindsight and facts not available to, or properly rejected by, the original strategists. Performance measures, it should be noted are based upon what happened, not what was the most promising and rational course at the time the strategy was developed. For example, in a section on “timing” Pearce and Robinson (1982) note:

Winnebago was the darling of Wall Street in 1970, its stock rising from \$3 to \$44 per share in one year. Winnebago’s 1972 strategic choice, focusing on increasing its large, centralized production facility, was a continuation of the strategy that had successfully differentiated Winnebago in the recreational vehicle industry. The 1973 Arab oil embargo and the subsequent rise in gasoline prices and overall transportation cost brought dismal results for Winnebago. The strategy was good, but the timing proved disastrous. (p. 244).

Unless the oil embargo and its effects could rationally have been predicted, Winnebago’s strategy and its strategic decision-making process may well have been the best possible; however, Winnebago’s performance clearly did not reflect that fact. It is generally assumed that good strategic performance will be reflected in corporate performance, but this is true on average, not necessarily in particular situations. The problem of judging performance based upon existing criteria is further complicated by the difficulty of ascertaining after-the-fact the implications of the decision criteria that were available. This issue is addressed in the next section on hindsight bias.

III. HINDSIGHT BIAS

A number of studies have shown that there is a difference between our predictions of probabilities of future events and our predications of the probabilities of those same events after we have discovered the actual outcome. In other words, hindsight differs from foresight.

Research indicates that “finding out that an outcome has occurred increases its perceived likelihood.” (Fischhoff, 1975). One perceives an event after that event has occurred as having been much more probable than one would have perceived prior to knowing that the event had occurred. In hindsight, a fortune teller has told only the obvious.

Walster (1967) first noted the importance of the bias, but Fischhoff was the first to systematically research this area (e.g., Fischhoff, 1975, 1977). Fischhoff and Beyth (1975) had students predict before the fact what would happen on President Nixon’s trips to Beijing and Moscow. After the trips had been completed and the outcomes made known, the students were asked to note from memory what probabilities they had previously assigned to various outcomes. The remembered probabilities were significantly higher for those events that had occurred and significantly lower for those that had not.

From this beginning, experimenters have studied hindsight bias in a number of different settings using two basic approaches. As Hom and Ciaramitaro (2001) note,

In one method, researchers ask individuals to predict the likelihood of some impending event, such as an election. Then at a later date, they are asked to recall their initial estimates. The participants are compared to themselves, a within-subjects design. In the second method, a group of participants (foresight) is not provided with the answers to certain problems (such as general knowledge questions), but is asked to predict their chances of supplying the correct answer. These predictions are compared to another group who are provided with the correct answers prior to their predictions (hindsight). The latter is asked to predict the probability of a correct answer as if they were unaware of the correct answer. One group is compared to another, a between-subjects design. (p. 494).

Both of these methods have been used to document the pervasive “tendency to view an event as more inevitable and foreseeable after the event has occurred,” (Bryant & Brockway, 1997, p. 225). Researchers using the former method have made use of several major current events to examine this bias. These include President Nixon’s trip to Beijing (Fischhoff & Beyth, 1975), the 1980 U.S. presidential election (Leary, 1982), the Rodney King litigation (Gilbertson, Dietrich, Olson, & Guenther, 1994), the Clarence Thomas confirmation hearings (Dietrich & Olson, 1993), the O.J. Simpson criminal trial (Bryant & Brockway, 1997), Super Bowl Thirty Three (Bonds-Raacke, Fryer, Nicks & Durr, 2001), the impeachment hearings of President Clinton (Bryant & Guilbault, 2002), and even Y2K expectations (Pease, McCabe, Brannon & Tagler, 2003).

In the second method, students have been asked to rate the probabilities of certain outcomes from passages which selectivity included different results, to rate probabilities after having been specifically asked to ignore how events turned out, and to estimate what others would have predicted without outcome knowledge (Fischhoff, 1975). Researchers have used general knowledge questions (e.g., absinthe is a precious stone or absinthe is a liquor) to see if students would overestimate how much they knew prior to receiving correct answers (Fischhoff, 1977; Wood, 1978), and to the believed predictability of scientific results (Slovic and Fischhoff, 1997). Insight problems, using anagrams, have also been used to examine this bias in more detail (Hom & Ciaramitaro, 2001). It was not long before hindsight bias had received enough research attention that Christensen-Szalnaki and Willham (1991) could conduct a meta-analysis of 122 studies, which confirmed the importance, ubiquity, and intransigence of hindsight bias.

This information about hindsight bias has been applied to a number of different contexts including education (Goranson, 1976), auditing (Lowe & Reckers, 2000), legal decisions (Anderson, Jennings, Lowe & Reckers, 1997), clinical psychology cases (Gilibert & Banovic, 2009), police deception (Wasioleski, Whatley, & Murphy, 2009), medical safety (Annunziata, 2009), and business ethics (Sligo & Stirton, 1998).

Contexts of hindsight experience have also been examined. Disappointment (Pezzo & Beckstead, 2008), surprise (Mueller & Stahlberg, 2007; Nestler & Egloff, 2009) and effort (Wallace, Chang, Carroll, & Grace, 2009) have all been shown to have some impact on the strength of the bias. According to Roese and Vohs (2010) visual information also strengthens the bias.

Hindsight bias research has been applied to business in forecasts of financial variables and to new business ventures. Biais and Weber (2009) in two studies, the first with students and the second with bankers, examined how accurately the subjects recalled their forecasts of price levels a week in the future. In both cases, they exhibited clear hindsight bias. As Goodwin (2010) summarizes, “they thought they had been much more certain about the future prices than their original prediction intervals had suggested.” He finds it especially troubling that experience made no difference in the bias, both students and working bankers made similar mistakes. In another study, Cassar and Craig (2009) studied new ventures. Those whose ventures failed significantly under recalled the probabilities they had assigned to the success of the ventures at the start (actually probabilities they had assigned were 80% while recalled probabilities averaged only 50%).

Only one study has applied hindsight bias directly to strategic management (Bukszar & Connolly, 1988). The authors found evidence of hindsight bias in two complementary studies of MBA students. Randomly selected groups of students were given three different versions of a strategy case to analyze as an assignment for the next class. The cases differed only in the outcome information included in the case; one version provided no outcome information; one version had a negative outcome and one had a positive outcome. The students filled out questionnaires evaluating the quality of the decisions made. In the second study, a similar method was used, but only the highoutcome and low-outcome versions of the case were used. The students were unable to ignore outcome information in spite of being specifically warned to do so. “Those told of favorable outcomes rated the initial decision as less risky and more attractive.... Those told of unfavorable outcomes rated the decision process as poor....” (p. 673).

Clearly, more work needs to be done exploring hindsight bias specifically in strategic management. While there is no reason to suppose that the results in other domains do not apply to strategic business situations, this has not been empirically shown. Characteristics unique to strategic decisions should be reviewed; research with professional strategic planners should be conducted. Do professional strategic decision makers compensate in some way for these biases? Much could be learned both about strategic appraisal and hindsight bias itself by examining these issues in a strategic business setting. A paper describing the research to be done in this area, including research techniques appropriate to a strategic business setting, research propositions and hypotheses, and an outline of how to conduct the research, would be a welcome addition to the literature.

IV. HINDSIGHT AND STRATEGY EVALUATION: INTEGRATION AND RECOMMENDATIONS

Hindsight bias has implications for our ability to learn from past strategies. Hindsight bias not only clouds people’s perceptions of what the probabilities of events actually are but also what their own previous conceptions of what those events were.

Fischhoff and Beyth (1975) give the example of a decision-maker who originally attributed a 30% likelihood to an even, but, “looking backward, he ‘remembers’ attributing a greater likelihood to the event before its occurrence than he actually did.” Therefore, “he might decide that next time he’ll be doubly ready for any 50% likely event, which would leave him unprepared for the occurrence of similarly likely event.” (p. 15). Goitein (1984) states that, “This conclusion would help guarantee future unpleasant outcomes: not having detected his mistake, the decision maker cannot learn from it.” (p. 411).

Hindsight bias can also hinder our ability to evaluate the strategic decisionmaking performance and strategies of others. “The effect of the hindsight bias is to make the organization members uncharitable second-guessers of administrators’ decisions” (Goitein, 1984). Therefore, after the occurrence of an improbable or unforeseeable event, what may have been a very good strategy in view of the facts available at the time may be unjustly criticized and a good decision-maker may be unfairly punished. “When second-guessed by a hindsightful observer,” Fischhoff (1975, p. 298) notes, “his misfortune appears to have been incompetence, folly, or worse.” On the other hand, when luck causes a poorly conceived strategy (based on a priori information and of odds) to work out well, that strategy and the processes used to arrive at it will be improperly commended and a poor decision maker will be unjustly rewarded.

A reaction to this type of judgment might explain some of the findings of the literature on attribution theory (e.g., Staw, McKechnie, & Puffer, 1983). For example, Bowman (1976) found that the corporate annual reports of less successful companies had more complaints about the weather and other external justifications, while high performing companies credited internal causes for their successes. Another explanation might be that, in at least some instances, these companies had been affected by forces that were so improbable it was good strategy not to plan on their occurrence. In their annual reports, these companies were simply trying to counteract hindsight bias of their shareholders. How to make distinctions between true a priori situations and simple excuses is beyond the scope of this paper, but these findings are consistent with the hypothesis of hindsight bias in the evaluation of past strategies.

The issue addressed in this paper is the existence and effect of hindsight bias in the review of past strategies. Such a bias would lead evaluations to assume that what did happen in the environment should have been foreseen with greater probability than was actually the case (e.g., the world oil crisis). Hindsight bias would also lead to judging strategies based solely on performance, without regard to justification on facts available at the time.

Originally, both motivational and cognitive explanations were given to explain hindsight bias. The motivational account suggests that people wish to present themselves in a favorable light and make an impression on others and, therefore, exaggerate their ability to predict an outcome. The cognitive approach suggests that there is something innate in human information processing that brings this bias about. The bulk of the research has supported the cognitive explanation (e.g., Christensen-Szalanski & Willham, 1991). More current research is now focusing on the mechanisms governing the cognitive bias. Dehn and Erdfelder (1998), for example,

examined whether the bias is based in the recollection or the reconstruction of the original knowledge. In recollection the bias is based on distortions in the memory of original predictions. In the reconstruction mechanism, “the original knowledge may be affected because the outcome information serves as a biasing ‘anchor’ in the reconstruction process” (p. 136). Unfortunately, the author’s results were “inconclusive” in distinguishing which underlying process was at work. More detailed research of these processes needs to be done to pave the way for better recommendations aimed at the prevention of this bias.

In light of this information, what can managers do to ward off the effects of this bias? Unfortunately, efforts to remove this bias have not proven very successful. As Dehn and Erdfelder (1998) note, “In addition to the stability across domains and participant groups, the observed bias toward the actual outcome turned out to be very resistant against attempts of elimination.” (p. 135). It is clear from several studies, for example, that warning people to ignore or not be influenced by the outcomes, or instructing them to put themselves in the position of the a priori decision maker, has little or no impact. In his early review of debiasing efforts, Fischhoff (1982) concluded that, “there is little experimental evidence that hindsight bias is reduced by the sort of intense involvement with a topic that comes with a professional education.” (p. 430). Bukszar and Connolly (1988) found that group discussion did not overcome the effect and that, “the availability of detailed factual materials appears to do little to constrain the accounts generated” (p. 637).

Anderson et al. (1997) tested two debiasing methods in a study of judges’ evaluations of auditor decisions. The first method focused on alternate outcomes, in the hope that this would reduce bias by weakening the actual outcome’s role as a biasing cognitive anchor. The second method focused not on outcomes but on alternate stakeholders. The theory is that “Redefining the auditors’ responsibility as one that includes a responsibility to a variety of stakeholders and by doing so, redirecting the attention of judges to other stakeholders... may assist judges in understanding the auditors’ decision-making process” (p. 24). The authors found that the alternate outcomes method was “not effective in mitigating the bias,” but that, “the mitigation method that redirected attention away from the plaintiff (to other stakeholders),” was effective (p. 30). It is unclear how these results apply to strategic evaluation, since the stakeholder approach does not apply in this context in the same way it does to judges. Once again, however, evidence is introduced that giving alternative approaches is not effective in reducing hindsight bias.

What these studies are telling us is that hindsight bias is incredibly robust and not easily defeated. Until further research reveals new techniques, we know of no foolproof ways to prevent this bias. Annunziata (2009) says that, “We should perhaps

accept that there is little we can do about hindsight bias, subject as it is to the intractable human psyche.” (p. 82). In the context of strategic performance appraisal, what is needed is a clear awareness of the existence of the bias. A second level of appraisal might focus on evaluating the processes of the first appraisal group, rather than the performance data itself. This group could specifically seek to adjust for cognitive biases like hindsight bias and attempt to ameliorate performance effects. This is not a final solution, but until we have a better understanding of this bias, it may be the best we can do. While, “Researchers continue to investigate other possible remedies..., Hindsight bias is a stubborn quality of human judgment and difficult to eliminate.” (Goodwin, 2010, p. 7).

There is also a need for further research in strategic contexts and with professional strategic planners. It has been suggested that detailed experience may ameliorate the effects of this bias (Bukhszar & Connolly, 1988); but this proposition has not yet been empirically tested. As Anderson et al. (1997) note, “the effectiveness of de-biasing methods may be dependent on the recipient subject group” (p. 30). The results of empirical strategic studies would be of great interest in either showing the dangers of hindsight bias in practical application or in contributing to the literature on de-biasing methods. While designing a research agenda is not the purpose of the current paper, which is to bring to the attention of strategists the literature on hindsight bias, such further work is highly recommended. Until we know more, awareness and caution are our best defenses.

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