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The default heuristic in strategic decision making: When is it optimal to choose the default without investing in information search?☆

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ABSTRACT

Many studies have shown that decision makers have a tendency to choose the default or standard action among several possible actions. The article develops a model to explore under what conditions it is optimal for a firm facing a strategic decision problem to choose the default action without investing in obtaining more information that allows a more accurate decision. The model shows that the strategy to follow the default without additional information ("the default heuristic") is more likely to be optimal when the cost of obtaining information is higher, and when the variation in possible outcomes is lower. The model also analyzes the optimal level of information search, showing that if the firm chooses to obtain information at all, it will invest in more accurate information when the cost of obtaining information is lower and when the variation in possible outcomes is lower.

Introduction

One of the important tasks of business managers is to make strategic decisions about the direction the firm should take. Managers make strategic decisions in many different areas, such as competitive strategy, mergers and acquisitions, research and development, marketing, advertising, financing the firm's activities, and more. The quality of these decisions can have a huge impact on the firm's profitability and even survival chances. Better understanding of how and why managers make these strategic decisions is therefore an important research area with significant practical importance.

In some situations, the managers face several options, one of which is the standard course of action, and others are less standard. For example, the standard action can be to continue doing what the firm did recently, or to do what other firms in the industry are doing. Sometimes, on the other hand, changing the strategy might be perceived as the standard action, for example if the previous strategy yielded bad results.

In principle, when a decision maker faces several possible actions, only the outcomes of these actions should matter, and not the name of an action or whether it is considered the standard action or not. However, research shows that the evaluation of an outcome depends on how the outcome is achieved. Kahneman and Tversky (1982) found that people feel a stronger emotional reaction to bad outcomes that result from action compared to similar outcomes that result from inaction. Others have later documented similar results (e.g., Kordes-de Vaal, 1996; Kruger, Wirtz, & Miller, 2005; Landman, 1987; Patt & Zeckhauser, 2000; Ritov & Baron, 1990, 1992, 1995). The literature (for a review see Anderson, 2003) includes various terms to describe this phenomenon, such as emotional amplification, the inaction effect, the omission bias and the action bias.

Kahneman and Miller (1986) suggested that the affective response to an event is enhanced if its causes are abnormal, which in turn can be the reason for the above phenomenon. Retaining the status-quo, or inaction, is usually more common than acting and changing the status-quo, and consequently people usually feel worse about bad outcomes that result from action than from similar outcomes that result from inaction. Several studies confirm this idea and show that people tend to judge acts that are harmful (relative to the alternative) as worse than omissions that are equally or even more harmful (for a review, see Baron, 1994).

According to this idea, the bias in favor of inaction depends on inaction being the norm. In cases where action is more standard, decision makers should be biased in favor of action because then inaction that results in bad outcomes causes stronger bad feelings than action with similar results. Ritov and Baron (1994) confirm this idea and show that when action is more expected than inaction, adverse outcomes of inaction are judged as worse than identical outcomes of action. Bar-Eli, Azar, Ritov, Keidar-Levin, and Schein (2007) and Azar and Bar-Eli (2008) provide another demonstration of this idea, in the

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context of goalkeeper behavior during penalty kicks in soccer. Even though statistical analysis of penalty kicks shows that the goalkeeper's probability to stop the kick is maximized when he stays at the goal's center, in 94% of the penalty kicks they analyze, the goalkeeper dived right or left. The authors explain that because diving is the norm, a goalkeeper feels worse when missing the ball if he does not dive than if he dives, leading goalkeepers to almost always dive. The authors find support for this explanation also from questionnaires filled in by 32 elite goalkeepers. Bar-Eli, Azar, and Lurie (2009) reconsider the behavior of goalkeepers during penalty kicks, and also consider the actions of the kickers. Kickers are found to shoot to the upper third of the goal only in 13% of penalty kicks, although the goalkeeper's chances to stop such a kick are almost zero, and with proper training this might be the action that will maximize the chances to score. The authors suggest that the potential explanation for the seemingly non-optimal behavior is not that the players do not learn how to maximize the chances to score (or stop the ball in the case of goalkeepers). Instead, kickers may perceive missing the goal frame as a worse outcome than shooting a kick that the goalkeeper stops, and therefore avoid high kicks with larger chances to miss. Goalkeepers may want to appear as trying hard and being professional by diving to the side, even though staying in the center yields higher chances to stop the ball. Another interesting study in sports is reported by Raab, Gula, and Gigerenzer (2012), who study the "hot hand" in volleyball. The "hot hand" is a belief that a player who made two or three successful shots is more likely to make the next shot than a player after two or three misses. The authors suggest that although the "hot hand" belief is usually considered a cognitive fallacy, they find evidence for "hot hand" in volleyball, and argue that coaches and playmakers are able to detect and use "hot hand" for their advantage.

If following the standard action and finding out later that this was a mistake causes less regret than taking a less standard action that turns out to be mistaken, as the literature suggests, then people will usually adopt the standard action. This is what the studies mentioned above indeed show. If the decision maker has to choose between a default action and another one, the default is likely to be the standard action, and the decision maker will be biased in favor of choosing the default action. This observation is also the reason that in medical decision making, Johnson, Steffel, and Goldstein (2005) suggest that wise selection of default options can improve health-related choices by patients. In particular, this is recommended when one treatment seems to be the better one for most patients, and yet one wants to allow patients to possibly choose the alternative treatment. Various studies document the tendency of people to choose the default option, and consequently the importance of what the default option is. For example, Johnson and Goldstein (2003) show the importance of defaults in organ donation decisions, whereas Carroll, Choi, Laibson, Madrian, and Metrick (2009) document the significance of default options in the context of saving for retirement.

A clear advantage of choosing the default action automatically is that it saves the scarce resources – time, energy, money, etc. – that are needed to obtain fuller information on all the alternatives and then to choose based on much information. The stronger bad feelings that people experience when a bad outcome results from a non-standard action, which can lead to choosing the standard or default action most of the time, might be a useful heuristic that results in a higher utility, on average, compared to the alternative to obtain costly information and try to make a more informed decision. That is, maybe the tendency to choose the default or standard action is a "default heuristic" that serves a similar role to that of other heuristics, in allowing us to make fast and frugal decisions. As Gigerenzer and Todd (1999, p. 14) explain, "Fast and frugal heuristics employ a minimum of time, knowledge, and computation to make adaptive choices in real environments." Many studies show that such heuristics are often useful in various contexts (e.g., Gigerenzer, 2001; Gigerenzer & Selten, 2001; Gigerenzer & Todd, 1999). Fast and frugal rules can have accuracy that resembles that of complex statistical models, but require less information and computational power (Martignon & Laskey, 1999). The question then is under what conditions following the default action is a beneficial fast and frugal heuristic.

The rest of this article analyzes a model that is developed to explore this and related questions. In the model a firm has to make a strategic decision when its choices are either a default action or an alternative one. The consequences of the default action are known, but those of the alternative action are not. However, investing in costly information search can provide some knowledge about the outcomes expected from the alternative action. The analysis explores under what conditions following the "default heuristic" and adopting the default action without further information search is superior to obtaining costly information and trying to make a more accurate decision based on this additional information.

The model

A firm faces a strategic decision problem for which two alternative actions exist. For example, this decision can be whether to open a new factory, whether to acquire another firm, or whether to open a subsidiary in a certain country. One action, denoted by D, is the standard or default action and its outcome is known with certainty. For simplicity and without loss of generality let us normalize the profit that this action yields to zero. The alternative action, denoted by A, is on average just as good and also gives an expected profit of zero (if either action had a higher expected profit, then a risk-neutral firm would always choose it and no further analysis would be necessary). However, this second action does not always give the same profit, but rather yields a profit that has a uniform distribution with endpoints at $-Z$ and Z. Let us denote the realization of this profit by Y.

Initially the firm does not know the value of Y. However, the firm can incur a cost to find out more about the value of Y. This cost captures the costs associated with employees who search for more information about the alternative action and its possible consequences, hiring consulting firms, conducting relevant market research, etc. The more the firm invests in gathering such information, the more accurately it knows the value of Y. Following the search for such additional information, the firm receives a signal about the value of Y, denoted by S, where S has a uniform distribution with endpoints $Y - E$ and $Y + E$. The variable E is the largest dollar mistake the signal received may have in comparison with the correct value of Y, and therefore E captures the accuracy of the signal that the firm receives, where the assumption is that $0 \le E \le Z$. Notice that even in the case of $E = Z$, the signal is still informative. For example, a positive signal still indicates that a positive value of Y is more likely than a negative value of Y. The discussion above implies that the more the firm invests in obtaining information about the expected consequences of action A, the lower the value of E. In particular, the cost of obtaining information that yields a signal with an accuracy up to E is given by $Bc(E)$, where B is strictly positive and serves as a parameter that measures how costly it is to obtain information in general. $c(E)$ is also strictly positive and is a function that captures the relationship between the accuracy of information and the costs of obtaining it. Notice that $c(E)$ is a decreasing function, because more accurate information, which costs more, is equivalent to a lower value of E. Mathematically, this means $c'(E) < 0$. Let us also assume that $c''(E) > 0$. This means that as E increases, the cost function becomes less steep (because $c(E)$ is a decreasing function, $c''(E) > 0$ means that its slope decreases in absolute value). This captures the idea that obtaining information that improves accuracy becomes more expensive as accuracy increases further. For example, at the beginning it may suffice to employ regular workers who look for information on the Internet, whereas for higher levels of accuracy the firm needs to hire consulting firms or experts, pay for proprietary data, conduct costly market research, etc. That is, the assumption $c''(E) > 0$ corresponds to increasing marginal costs of obtaining information. For simplicity let us assume