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ORIGINAL PAPER

How would behavioral strategy scholarship lead to prescription?

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Abstract While a substantial literature demonstrates that the assumption of bounded rationality and its related implications help understand strategic behavior, behaviorists have been slow to offer prescriptions. This paper outlines the fundamentals of the behavioral perspective, and lays out an approach to developing prescriptions based on behavioral scholarship. It discusses both what we currently may prescribe, and directions of research that might lead to additional prescriptions.

Keywords Behavioral strategy · Prescriptions · Bounded rationality · Performance and satisficing · Managing change

JEL classification D03 · D78 · D81 · M0

1 Introduction

Strategic management scholars are the general practitioners of a business school. They use many different techniques and perspectives to study diverse types and parts of organizations of various ages in different shades of health. Strategy research has converged around two major questions: Why do firms make the major decisions they do? What accounts for differences in firm performance?

While the questions that define strategic management research are relatively clear, scholars differ on how to address them both theoretically and empirically. At

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best, scholars might agree on some broad approaches to understand firm performance. Two major ones are the resource-based view (RBV) and industrial organization (I/O) economics approaches, which ascribe differences in firm performance either to a valuable, inimitable resource held by the firm or to competitive conditions respectively (Barney 1991; Scherer and Ross 1990). Both approaches share common assumptions regarding human behavior and information processing, in particular, ascribing a kind of optimizing hyper-rationality to organizational decision makers.

The behavioral approach represents a third approach to strategy (Gavetti 2012; Levinthal 2011; Winter 2012). This approach differs fundamentally from the RBV and I/O approaches in assuming that organizational decision makers are, simply put, human. This approach builds on the key idea of bounded rationality, which, in turn, rests on empirical evidence regarding human information processing and decision-making. The behavioral approach draws on many different disciplines and encompasses a very wide variety of perspectives and theories to examine firm behavior and performance at various levels of analysis (Powell et al. 2011).

In this paper, we examine the behavioral approach to strategy. In the sections following this, we define a behavioral approach, examine its underlying assumptions, and reflect on its prescriptions for strategy and research directions that may lead to prescription.

Social scientists often distinguish between prescriptive and descriptive models. Prescriptive or normative models essentially model how the individual or organization should behave given certain assumptions. Descriptive or positive models attempt to explain how individuals and organizations actually behave.

While these seem like clearly differentiated approaches, theories that assume individuals will act the way prescriptive models say they should blur the distinction between positive and normative theory. This is the underlying approach in most conventional economics and much of finance. Traditionally, economists justified this approach with arguments that actors who behave according to the prescriptive models would eliminate who did not. However, recent work shows that this simply is not correct. Often in these environments, theory does not offer plausible mechanisms by which rational actors can identify the boundedly rational, and if the rational cannot identify the boundedly rational, it is hard for rational to exploit the boundedly rational. Furthermore, a behaviorist would argue that this is largely irrelevant since no firm can make uniformly optimal decisions. The behavioral argument, dating back many decades, is essentially that bounded rationality and other factors make it impossible for organizations to act optimally in other than the simplest situations.

Behavioral strategy scholarship has largely ignored issues of prescription. With a few exceptions such as the work of Eisenhardt (1989), behavioral strategy has been more concerned with explaining strategic behavior then prescribing. This may reflect the natural tendency of a theory designed to explain how individuals actually act. Prescription seems self-evident in theories that deal with how individuals should act, even if scholars go further to assume that they actually do act that way. In this paper, we review the fundamentals of a behavioral approach and then move on to suggest some directions for prescription.

2 What is a behavioral approach to strategy?

A number of recently published papers indicate an increasing interest in a behavioral approach to strategy (Gavetti 2012; Levinthal 2011; Powell et al. 2011; Winter 2012). As with any emerging topic, different scholars have proposed different definitions of a behavioral approach. While Levinthal (2011), for example, suggests that a behavioral act of representation underlies all strategic issues, Powell et al. (2011) define behavioral strategy as merging "…cognitive and social psychology with strategic management theory and practice. Behavioral strategy aims to bring realistic assumptions about human cognition, emotions, and social behavior to the strategic management of organizations…" (p. 1371). Gavetti (2012) suggests that behavioral denotes top management mental processes, and that superior performance results from leaders' abilities to overcome behavioral bounds, a position that Winter (2012) criticizes as ignoring the large literature dealing with the influence of organizational behavior on strategy.

A common thread connects all of these and other studies labeled behavioral; a behavioral approach uses theories that conform to what has been demonstrated about human information processing. More specifically, based on empirical data, a behavioral approach assumes boundedly rational decision makers, i.e., decision makers who are constrained in their information processing capacities, and therefore, seek not optimal but good enough decisions (Simon 1947). In addition, these decision makers often face constraints on their time and resources, and differ (and sometimes conflict) with other decision makers in their perceptions of the objectives, the problem, the potential solutions, and the risks associated with different solutions (Cyert and March 1963). Individually and collectively, decision makers may have multiple, sometimes ambiguous, and often implicitly or explicitly conflicting goals or preferences that are not necessarily related to optimizing firms' financial performance.

Since many studies at different levels of levels of analysis make the fundamental assumption of bounded rationality, a behavioral approach to strategy covers a very wide range of studies that examine strategic problems. Work based on Cyert and March's (1963) Behavioral Theory of the Firm (BTOF), for example, emphasizes organization-level phenomena while work based on prospect theory (Kahneman and Tversky 1979; Tversky and Kahneman 1992) often emphasizes individual decision-making. Strategy scholars following a behavioral approach examine any number of topics such as behavioral agency, creativity, decision-making biases, framing, and top management team characteristics—all of which explain firm behavior and outcomes using realistic assumptions about human information processing.

We now turn to the key assumptions underlying a behavioral approach that distinguish it from other approaches to strategy.

3 Key assumptions

A behavioral approach makes a number of key assumptions about human information processing and the problems managers face. We identify eight, relating

to bounded rationality, time and resource constraints, multiple goals, perceptions and biases, motivation, learning, groups and teams in organizations, and unknown optimum. We examine each in turn below.

3.1 Bounded rationality

Bounded rationality is the key assumption underlying a behavioral approach. In contrast to the hyper-rational optimizing decision maker (based on economic theory) assumed by the RBV and I/O approaches, a behavioral approach to strategy assumes that organizational decision makers do not have unlimited information processing capacity. Instead, a lack of information processing capacity as well as a fundamental inability to identify all possible courses of action (let alone pick the best one) result in managers "satisficing" or making good enough decisions (Simon 1947).

A significant portion of behavioral work in behavioral theories of strategy deals with specific features of bounded rationality. For example, behavioral agency deals with how incentive systems will influence behavior if managers behave according to the findings from behavioral decision theory. Work on schemas and mental models suggests that managers work within specific sets of beliefs about how the world works and how competition works in their industry. Bounded rationality also explains a number of well-known features of organizations. For example, organizations will use routines to solve problems because routines economize on thought and help coordination.

3.2 Time and resource constraints

While the fundamental constraints of bounded rationality apply to any organization dealing with reasonably complex problems, the ability of individuals to process information depends both on their information processing capacity and external conditions that limit or enhance information processing capabilities. Time, organizational resources (e.g., people and money), information processing technology, availability of data, etc., all influence the exercise of bounded rationality. However, even with advanced information processing capabilities, few if any strategic decisions are optimal in the economic sense.

We should note that bounded rationality is not optimizing within information processing costs. Various authors have pointed out (see Bromiley 2005 for a review) that most information processing cost models often require more of the decision maker than the original decision. Herbert Simon often used a metaphor that optimization means you find the sharpest needle in the hay stack and satisficing means you search until you find a needle sharp enough to sew with. Extending this to optimization with information processing costs means you search until the expected benefits from additional search (a complex function of the probability of finding needles of specific sharpness given the search experience to date and the benefits of needles of different sharpness) fall below the cost of additional search. Obviously, in this case, optimization with information processing costs assumes extremely complex information processing.

3.3 Multiple goals

Organizational decision makers do not have the clear, unambiguous, and above all, consistent goals most economic analyses assume (e.g., maximize firm share price or profits). Instead, the effective goals depend on the interaction of various constituencies that have different values (Cyert and March 1963).

Firms have a wide range of often-conflicting goals. The multiplicity of these goals derives not only from the many goals held by organizational decision makers, as we discussed earlier, but also because firm goals are influenced by external entities or considerations such as the reputation of the firm in the communities in which it operates, government regulations, portrayals of the firm in the media, etc. Thus, for example, shortly after the BP oil spill, the press criticized the BP CEO, Tony Hayward, for saying that he wanted his life back; BP subsequently replaced Hayward.

In a world of rational firms and rational consumers, removing Hayward is inexplicable; as long as he did a good job handling the crisis, surely his public statements should not matter. Who would not expect BP's CEO (and many others) who found themselves working day and night following the oil spill would look forward to a less intense period of work? While one could argue that Hayward hurt BP's image, rational consumers and rational firms should not react to image unrelated to actions. From a behavioral perspective, however, removing a tin-eared CEO during a crisis is perfectly understandable, since the firm's goals include satisfying the expectations of government regulators and a variety of stakeholders both within and outside the firm as well as resuming normal operations as soon as possible.

The organization does not fully resolve goal conflict. Rather, conflict is ongoing. While some conflict derives from the often-discussed agency problem that different individuals have different incentive systems and risk preferences, conflict can derive from the development of organizational allegiances to sub units, functions, etc. Units have multiple goals that are often conflicting, change in priority, and sometimes incompletely identified (e.g., increase—not necessarily maximize—efficiency by some undefined percentage, but do so without laying off the owner's incompetent relatives).

Goals function differently in behavioral theories than they do in optimizing theories. Behaviorally, goals represent multiple hurdles based on aspiration levels. That is, the firm or organization has levels of performance on various dimensions to which it aspires. Success on a dimension means exceeding the aspiration. Management attention focuses on dimensions where the firm falls below the aspiration level. Thus, instead of attempting a grand optimization with respect to a well-defined set of goals, the organization has multiple hurdle-based goals and works on those where it falls short. It looks for options that will get it over the aspiration level, termed satisficing (Cyert and March 1963).

While financial performance is perhaps the most important goal for most firms, firms and firm managers often have other important goals, such as retaining control, keeping their jobs, building the brand equity, etc. While this is particularly obvious in privately held firms where the owners' objectives, which often become

objectives for the firm, often include factors other than simple income (Cyert and March 1963).

3.4 Perceptions and biases

Strategic issues do not appear clearly defined with clear specification of the relevant data and obvious indicators of important issues. Instead, organizational decision makers strongly influence the framing and definition of issues. Decision makers often disagree over the causes, severity, or even the existence of problems. What one manager sees as an existential threat may look like an opportunity to another. One decision maker may worry about below-average performance of the firm, while another rejoices that the firm has positive net income. Furthermore, decision makers can display inconsistencies in their perceptions of a problem and in their preferred solutions. A partnership, for example, may be a good way to acquire new competencies until managers think about a loss of control that makes internal development appear more desirable.

The framing of a problem strongly influences decision makers' perceptions of a problem and the solutions they consider (Chattopadhyay et al. 2001). Moreover, differences in the perception of problems are not limited to decision makers within the organization. Even if managers within an organization share a common perception of a problem, external constituents (such as regulators, the media, investors, and customers) may frame the problem very differently. For example, managers in a record company may view online music sharing as theft of company property, while outsiders see sharing as a missed opportunity by a complacent management team clinging on to an outdated business model.

Problem framing depends on not only external agents and factors, but also on decision-makers' own attributes such as their areas of expertise and the cognitive biases they hold. Decision makers, for example, may be subject to escalating commitment, an inability to ignore sunk costs, or simply use heuristics or cognitive shortcuts that may influence their perspectives on organizational problems and solutions (Tversky and Kahneman 1974).

3.5 Motivation

Organizational decision makers respond sensibly not only to organizational control systems and incentives, but also to many social and psychological effects (e.g., pressures for conformity).

Incentives and organizational factors influence how decision makers perceive a problem, identify solutions, and allocate time to address the problem. Strategic problems and solutions do not appear as well defined specific issues. Rather, strategic decisions often involve various and incomparable issues, ambiguous potential actions and implications, and great uncertainty all around.

In such situations, both the formal incentive structure and the organization itself will influence how managers define the issues or problems to address and how they frame those issues. While managers respond to the formal incentives, they also realistically care about other factors influenced by the organization such as how

relevant observers will view their actions, how the actions will influence future promotions, etc.

3.6 Learning

Individuals and organizations often change their behavior or beliefs based on their interpretation of the outcomes of their past actions. We will refer to this change in behavior or beliefs as learning, recognizing that this form of learning does not necessarily assume that what the individual or organization comes to believe, or the way in which the individual or organization comes to act, are in fact correct or functional. Learning may be incomplete or erroneous (March and Olsen 1976). In addition, for many strategic issues opportunities for learning may be rare, and the process itself difficult.

For strategic issues, managers often have far too many variables relative to the sample size. For example, consider the many dimensions on which analysis and choice regarding acquisitions as well as integration of acquisitions can vary relative to the number of acquisitions most decision makers observe. We have few guidelines for learning when the number of variables greatly exceeds the number of observations (March et al. 1991). Furthermore, the data often do not appear in ways that would facilitate learning; firms usually design information systems for ongoing operations rather than historical analysis. Learning often depends on individual perceptions rather than formal analysis. The psychology literature finds people ignore selection issues, ignore underlying probabilities, use how memorable cases are in place of their frequency, and excessively generalize from small samples (Kahneman et al. 1982).

While individual learning may be necessary for organizational learning, it is not sufficient. March and Olsen (1976) document numerous ways individual learning may not translate into organizational learning. Just because someone in the organization knows a better technique to do something does not mean the organization uses that technique.

3.7 Groups and teams in organizations

A group or team of senior managers makes most key organizational decisions. The literature documents numerous ways the decisions of teams fall short of the decisions the best-informed member would make. Teams introduce yet another level of potential influence with phenomena like the popularly-discussed group think (Janis 1982), risky-shift (that groups evidence risk preferences different from all their members, see Wallach and Kogan 1965) and a variety of other effects.

3.8 Optimum is unknown

Economic rationality means that the organization always makes the best of all possible decisions. A parallel concept, equilibrium, is defined as a situation where no actor can make himself or herself better off without collusion.

Far from being able to make such decisions, realistically, no one can ever consistently and repeatedly make the best of all possible decisions. For complex organizations and situations, it is not even clear what an optimum means. Even if an optimum level of performance exists, bounded rationality implies decision makers cannot identify it. Instead, firms compare performance to their past performance and that of other similar firms. There is no reason that the adaptation process at the center of the BTOF would ever reach optimum performance.

3.9 Summary

Behavioral work rests on an assumption of bounded rationality rather than economic rationality and differs substantially in its assumptions from those of rational approaches like the RBV or the I/O perspectives. While rationality in the economically based RBV and I/O perspectives assumes that management has complete knowledge and clarity about the problem, its potential solutions, the outcomes of those solutions (or, in some variants, knowledge subject to a distribution), the behavioral approach recognizes the limitations of human information processing. As such, the behavioral approach uses bounded rationality—constrained by limitations of time, resources, and information processing capacities, seeking not an optimum solution but a good enough solution, and having a relatively short term orientation rather than an unbounded view of the future. The behavioral approach is an adaptive approach to strategy, in contrast to other approaches that allow no room for systematic errors or difficulties in learning in accounting for differences in firm performance.

Bounded rationality closely resembles the meaning of rationality in common usage—a procedure that takes reasonable actions to achieve desired goals, to the extent possible, while recognizing the constraints that individuals and organizations face. The outcome of this procedure is likely not going to be optimal (if we could even identify the optimum), but simply good enough for the present moment and purpose. Instead of optimizing a single performance metric, managers deal with a variety performance dimensions including perceptions of stakeholders, presenting an impression of control by top managers, satisfying political requirements within the organization, and so on.

4 Behavioral prescriptions for strategy

The assumptions underlying a behavioral approach shape the kinds of prescriptions that strategy scholars would offer for improving firm actions and performance. A behavioral approach to prescription makes two important different framing decisions than conventional economics or RBV analysis (see Bromiley and Rau 2013).

First, whereas economic analysis generally assumes organizations fully exploit all publicly available knowledge, masses of evidence demonstrate that the use of well-understood techniques can improve the operation of many organizations (see Bromiley and Rau 2013 for a summary of some of the evidence). Whether it is

modern HRM practices, modern operations management and inventory practices, modern planning practices, etc., research shows that the use of many tools taught in most MBA programs explains variation in performance across firms. Consequently, one of the ways behavioral prescription can differ from prescription based on optimizing rational analysis is that the use of well-understood techniques and technologies can be a prescription in behavioral approaches whereas it cannot in rationalistic analyses.

Second, whereas RBV analyses generally say they want to explain the difference between firms with sustained high-performance and other firms, there remains enormous variance in performance in the population that does not have sustained high-performance. Implicitly, RBV analyses assume that the great mass of firms will have similar performance because they primarily have access to the standard information and techniques everyone knows. However, there are few if any industries where the only variance is between a mass of normal firms and a few high performers. Indeed, half the firms would be better off being average.

As noted above, scholarship based on understanding how things operate cannot offer the superficially clear prescriptions offered by how-things-should-operate theories. Most economics-oriented work leads from theories of how firms or individuals should behave. The theories make positive predictions where scholars assume individuals will operate as the theory says they should.

This change has an important implication for research that can lead to prescription. Think about trying to teach people to do something like say play golf. The kind of advice that will help the player will depend substantially on the current ability and situation of the player. Advice that would be useless or even counterproductive for some players may be extremely important for others. Part of the distinction may be a general level of skill or sophistication. Experts often deviate from rules that improve the performance of beginners; an expert who follows such rules may be completely uncompetitive. Part of the distinction will also depend on particular characteristics of the individual. No one would imagine prescribing medicine without first doing a diagnosis, nor would one instruct experienced golfers without first seeing how they currently swing the club.

The difference between economic and behavioral approaches to prescription resembles the distinction between modern medicine and the humor approach to disease. For centuries up until the rise of scientific medicine, many physicians were taught that illness came from an imbalance of humors so cures involved efforts to reestablish the desirable balance. Likewise, in some forms of oriental medicine and philosophy, health comes from a balance of factors (e.g., yin and yang), so again cures came from recreating the appropriate balance. In contrast, modern medicine has no simple, single model of the desirable state of the body. Rather, it recognizes a variety of complex processes. Where undesirable conditions occur, medicine works within the established processes to mitigate or eliminate the condition.

Whereas optimizing work assumes a simple perfect state and tries to return firms to that state, behavioral work has a pattern much more like modern medicine. We should not expect a single unifying principal to explain everything in more than a very superficial way. Rather, effective organizations need a variety of healthy components that interact in a constructive manner. As with medicine, prescription

may derive from research on mitigating specific problems rather than fitting some ideal type image of the firm.

This implies that researchers may want to emphasize firm conditions (conditional or moderating variables in large sample research) as well as general patterns. We may find that general patterns do occur so that across most firms increasing X is associated with subsequent increases in performance. In such cases, we need also to understand why so many firms have not increased X. Some firms may already have done a good job on strategy—telling them to work on it more is pointless. Alternatively, they may have done a poor job on inventory management. In other words, if we wish to take a prescription approach, we need to start with a diagnosis and then attempt to test whether particular behaviors will improve or damage performance.

One condition of importance may be the current performance of the firm. What differentiates good firms from truly exceptional firms may differ substantially from what differentiates poor from good. Marcus (2005), for example, finds truly exceptional firms do not do many of the things that we would normally prescribe for managers. In sports terms, doing the basics well may differentiate between poor and average or good high school players, while it probably does not differentiate between average and exceptional professional players. We are far more likely to be able to understand how to improve from mediocre to decent or good then from good to truly exceptional.

A behavioral approach to prescription differs from optimizing approaches in another important way. A behavioral approach recognizes that how managers perceive their problems strongly influences their behavior. Such differences in perception introduce heterogeneity even in what appear to be similar situations. Furthermore, the behavioral theory itself does not inherently lead to prescriptions. Rather it leads to understanding systems from which one can derive prescriptions. Consequently, it may not lead to very general, simplistic, prescriptions.

We now move to mapping out some areas for prescription. Some of these areas for prescription derive from the logic and fundamental assumptions of behavioral approach. Others derive from empirical evidence directly demonstrating the variation in a given set of behaviors associates with higher performance.

4.1 Strategizing

Bounded rationality, time and resource constraints, and the presence of multiple goals and diverse perceptions, combined with the complexity of making firm decisions, mean that few managers have the luxury of devoting enough time to a rational, optimizing analysis of a strategic problem. Indeed, Rumelt's *Good Strategy Bad Strategy* (Rumelt 2011) is a book length argument that many firms operate with slogans, buzzwords, or goals without well thought out strategies.

Research on the practice of strategic planning went out of fashion in the strategic management scholarly community after several articles failed to find an association between using specific strategic planning techniques and firm performance. While early work found such an association, over time it appeared to disappear. Scholars suggested that as strategic planning became well known, firms that would benefit

from it adopted it and firms that would not benefit from it did not adopt it, consequently making adoption unassociated with performance.

However, most of the studies dealt with the formalities of planning rather than the substance and quality of strategic analysis. Many of the organizations that Rumelt (2011) says don't have strategies probably had plans that extended beyond 1 year, what many would refer to as strategic plans. The US Defense Department distinguishes between what it terms planning, which involves detailed thinking about threats and the organization's capabilities relative to those threats, and programming which involves a multiyear analysis of steps to implement the plan. What passes as strategic planning in many companies is really programming—a focus on production capacity, pricing, etc. rather than more fundamental competitive issues.

This line of argument leads to two conclusions. First, scholars should think more deeply about how to characterize and study strategizing. While research on strategic decision-making processes touches on the issue, it often deals more with specific substantive choices rather than the determination of general strategy. A renewed empirical effort to understand the dimensions of effective strategizing may be justified. Scholars may have misled themselves by projecting their understanding or beliefs about how organizations should be onto their studies and consequently missing some fundamental differences in firm practices. For example, some managers and consultants will say that a strategic planning exercise is valuable because it forces managers to spend at least some of their time considering the strategic issues facing their firm whereas their natural habit is to focus on the tactical issues.

Given what we know about the tendency of organizations to focus on tangible short-term goals, and to focus efforts for improvement on areas where the organization misses a specific aspiration level, we think it is fair as an initial proposition to argue that firms should force themselves to engage intermittently in serious strategic analysis. Again, given what we know about organizational routines and processes, firms must take care that these analyses not become routine rituals. Managers are comfortable dealing with tangible problems and financial projections. Given half a chance, they will transform strategic analysis into programming.

4.2 Management technology

Bounded rationality arises due to limitations on the ability to process information and deliberate. Conlisk (1996) distinguishes between the two as follows (p. 690):

> "When I walked into a post while watching a bird, my family called it a dumb move. Among economists, however, I could have claimed that given the spatial distribution of lampposts, the expected utility of bird watching exceeded the expected utility of a collision. Ex ante, the post probably was not there, and it is entirely rational to collide with an ex post. This example illustrates the confounding of rationality issues with information issues. Am I dumb enough to walk into a post or merely a rational victim of imperfect information?"

Whether we are talking about managing accounting data, managing inventories, marketing research, or whatever, the plummeting costs of storing and processing data both reduce the costs of information and make economically feasible previously infeasible analysis.

However, empirical research demonstrates that we should not assume that analysis serves strictly an instrumental approach to improve economic performance. Substantial literatures demonstrate that at least in some cases managers use analysis to project an aura of rationality that justifies preconceived positions or biases (Weick 1969). Both internal and external stakeholders expect a rationalistic analysis, but sophisticated managers often know the rationalistic appearance is just appearance. Sophisticated managers can often manipulate analyses to support or attack specific positions. Thus, analysis often serves political or individual internal aims while it purports to serve efficiency.

Even where the analysis tries to attack the right problem, the provision of information does not inherently improve the quality of deliberation. As Simon (1997) points out, the problem is often not one of information, but of overload. The scarce resource is often attention, not information.

However, we already have substantial evidence that appropriate use of management technologies positively influences performance (Bloom and van Reenen 2006; Bloom et al. 2007, 2012). Whether it is in advanced control systems, inventory management, or a variety of other areas, substantial, empirical evidence demonstrates that firms that use advanced management techniques on average do better than those that do not.

However, economists, not strategy researchers, have done most of these large sample studies demonstrating the use of standard techniques positively influences performance. Consequently, the studies ask slightly different questions and frame their analyses slightly differently than strategy scholars might. For example, economists worry more about the general pattern (e.g., that using information technology positively influences firm performance), than with the diagnostic approach (e.g., which firms would benefit most from increased use of information technology, and what kinds of information technology help most).

4.3 Managing the boundaries of the firm

Research into the boundaries of the firm in strategy rests heavily on two traditions—transaction cost economics (TCE) and the resource based view. Let us consider each, and how a full behavioral approach might change their prescriptions.

The TCE approach (Williamson 1981) argues that the presence of (1) efficient operations requiring investments that have substantially lower investment outside a given bilateral relation between firms than in that relation, (2) inability to write contracts that anticipate all eventualities, and (3) willingness of individuals to misrepresent or deviate from the spirit of agreements, will result in the two firms joining into a single firm. The underlying problem is that the party who needs to make investments that only have value in a given relation will not do so if the other party might demand revision of the contract after the first party has invested. That is, firms merge to control potential cheating.

A behavioral approach suggests a slight variation to the predictions of TCE, which is, after all, based on an assumption of bounded rationality. While a behavioral approach would agree that firm boundaries should reflect configurations that reduce transactions costs, it would also suggest that, given the difficulties involved in learning within and across organizations, the adoption of these configurations would be stochastic and take place over time. Armour and Teece's (1978) classic study, for example, examines the widespread adoption of the multi-divisional form in the 1950s. The adoption of this form was neither universal nor instantaneous. Many firms adopted M-form structures, but did so over many decades. Further, many other firms did not adopt the form at all.

A behavioral approach might also consider several other deviations from classical TCE. First, following Simon (1997), it is possible that we benefit by bringing two organizations together not by controlling cheating but rather by increasing identification with the joint mission. TCE assumes that the organizational structure serves strictly to control misbehavior but this mechanism has not been compared to other explanations such as organizational identification.

Second, following Bromiley and Cummings (1995), individuals may not behave in the amoral way that TCE assumes for a variety of reasons. Williamson (1981) argues that because you cannot reliably identify trustworthy individuals or firms, you have to treat all as untrustworthy. However, the degree of faith one puts in an individual or firm, the degree of trust, should vary with the relation and the experience on interactions between parties. For example, Toyota suppliers may have sufficient experience with the company that they are willing to invest in specific assets that only have value in business with Toyota, confident that Toyota will treat them fairly if they perform to standard.

Third, while TCE assumes bounded rationality in some areas, it assumes that firms know the optimal organizational structure. Obviously, understandings about effective organizational structures have changed over time. We should expect that organizational structures and understanding about organizational structures change over time and propagate through the economy like many other innovations.

Fourth, we should expect that psychological and within—company political issues influence diversification decisions. Consider the case of a large bank that wished to wind down its investment banking arm in the wake of the financial crisis (The Economist 2012). However, winding down the unit would result in substantial, immediate losses. The bank therefore continued to grow its investment banking business hoping that the unit would eventually be large enough to compete effectively in the market. This action of the bank is predictable from a behavioral strategy perspective, though not from an economic rationality perspective. Many managers prefer to make decisions that postpone losses and offer some possibility of avoiding loss (but with an increased chance of major loses later) over decisions that result in a certain, immediate loss. Framing the problem differently (e.g., limiting the potential for greater losses in the future or highlighting the opportunity cost of the funds invested) could allow firm managers and owners to consider alternative solutions and make better decisions regarding the boundaries of the firm.

Finally, some factors strictly related to the activity of merging companies may inhibit the creation of the organizational structures predicted by TCE. For example,

self-serving biases where people systematically overvalue their contribution may lead to a bargaining impasse as both parties think they deserve more than the other party sees as legitimate (Babcock and Loewenstein 1997; Foss 2001). Whereas TCE would see changes that merge companies and changes that split companies into separate parts as symmetric, bounded rationality, combined with individual biases and perceptions, can complicate efforts to downsize organizations by promoting inertia and haggling in an effort to preserve endowments (Foss 2001).

Some studies have begun to integrate these factors. Dosi and Marengo (2007), for example, propose that a firm's degree of diversification can be understood in terms of learning, path dependence, technological opportunities, selection environments, and firm endowments of complementary assets. They propose that "rapid learning, rich technological opportunities, and tight path dependencies will correspond to (nearly) single-product, fast-growing firms. Conversely, within a context of rapid learning, converging technological trajectories, and tight selection, one can expect to see coherent diversifiers. Moreover, the interpretation suggests that unrelated diversification is likely to be viable only under conditions of weak market selection." (p. 498).

4.4 The Roles of the board

Economic approaches to corporate boards generally rest on agency theory which assumes a risk-neutral principal (owner, stockholder, board or senior management) who cannot tell if the risk-averse agent (board, top management or lower management) acts fully in the principal's interest. Assuming a risk neutral principal and risk-averse agent results in part of the problem being how to induce the agent to take as much risk as the principal would want. Implicitly, the role of the board is to design incentive structures such that the agent will want to act in the principal's interest, and to pressure the agent to do so by monitoring. A behavioral approach leads to several additional roles for boards.

First, because board members often have extensive experience, their advice and criticism to top management top management teams may improve decision-making. Given their outsider status, board members may bring a diversity of perspectives and present valuable advice to top management teams. Empirically, a substantial literature in strategy demonstrates that boards which provide advice and control appear to improve firm performance over boards that just control (Carpenter et al. 2004; Westphal 1999).

Second, particularly for smaller firms, boards can provide access to various important resources including potential employees, lenders and investors, and contacts with customers and suppliers (Hillman et al. 2009; Pfeffer and Salancik 1978). In addition to simply connecting management with those that control these other resources, board members lend some of their legitimacy to the firm. Having high status individuals on the board lends a start-up legitimacy which can help with external relations.

In addition to recognizing additional roles for boards, strategy research can help find ways for boards to be more effective. A substantial literature has tried to find government structures that contribute to corporate performance, although the

empirical evidence seems to suggests that the formal structure is not that important. In contrast, work on within-board processes offer a number of findings on effective ways to structure processes and effective interaction between boards and top managers (Rau 2005).

4.5 Managerial motivation

Most economic analyses assume that the primary motivational effects on individuals come from direct incentives. Such analyses also often assume that the content on which those direct incentives is based is reasonably aligned with the principal's interests. We talk about motivation rather than incentives in recognizing that managers respond not just to their formal incentive structure, but rather to a more general set of pressures. Work in this area leads in two directions—the incentive and the organizational.

The impact of an incentive structure on behavior depends on framing. Following the behavioral agency logic (Wiseman and Gomez-Mejia 1998), managers will respond differently to incentives depending on how they frame those incentives relative to their current wealth. In general, the behavioral agency arguments suggest that managers incorporate some estimate of the outcome of their incentives into their perceptions of their current wealth. Thus, they would consider part of the value of an in-the-money option as current wealth. They then evaluate actions based on their impact up or down on this current wealth with risk aversion for decisions with mainly positive outcomes and risk seeking for decisions with mainly negative outcomes.

However, the effective incentive structure is probably more complex than behavioral agency suggests. First, much of the agency literature assumes managers do not believe that they can manipulate stock prices. This derives largely from efficient capital markets theory. However, if managers believe that they can manipulate the stock market based on announcements of potential activities, misrepresentation of financial statements, etc., then incentives may have a very different impact on behavior than anticipated. Second, the agency theory incentives literature often underestimates the difficulty of designing effective incentive structures. In some cases, one part of the job is measurable, so incentives deal with the measurable part and encourage attention to that part of the job and discourage attention to the rest of it. Alternatively, an individual may have little influence on the firm's stock price, so incentives based on stock price may have little influence on the individual's action.

While the strategy research literature has emphasized direct incentives, even in jobs where incentives can be based on precise measures of output (e.g., the number of forms filled at the end of a day, number of widgets produced in one hour), organizations still employ supervision and monitoring (Foss 2001). Rational analyses would suggest that this additional layer of hierarchy is redundant if one can precisely and appropriately measure output and therefore create good incentives. A behavioral approach, however, suggests that supervision may compensate for a lack of self discipline, especially when the job is boring or repetitive (Rabin 1998). This lack of self-discipline raises an important difficulty in analyzing incentive

structures. Even if the individual knows the appropriate actions given the incentive structure, if those actions result in delayed rewards, the individual may over discount future rewards, termed in the behavioral decisions theory literature hyperbolic discounting (Loewenstein and Prelec 1992). Sufficiently bored or alienated employees may act in ways that even the employee would see as reducing compensation. While individuals will often respond sensibly to incentives, at times they will make decisions that seem against their self-interest.

4.6 Human relations management (HRM)

Human relations management (HRM) involves two fundamental activities—recruitment/selection and management of the HR function (planning staffing, compensation and benefits, etc.).

Combs et al. (2006) meta-analysis of high performance work practices finds that firms that apply common (and common sense) practices, such as providing employees with procedures for airing grievances, perform better than companies that do not. In short, use of conventional HR practices partially explains variation among firms.

Returning to the issue of why not all firms do these things if they generally benefit firms, if the system is complex and the feedback noisy, managers may have difficulty reliably tying practices to performance. In selection, the wide variety of hiring processes and characteristics of candidates coupled with the delayed and sometimes ambiguous actual performance of those hired makes reliable inference about good hiring rules problematic. Hiring managers may have difficulty reliably identifying and enunciating the candidate attributes that associate with later performance. Candidates may not clearly present their capabilities, overstate what they can deliver, or have an incentive to hide shortcomings. The search process itself is often sequential and influenced by random factors; a better candidate for a position may appear after the position has been filled. A behavioral approach suggests that organizations can do things like reduce information costs by widely advertising their positions, capture learning in rules or standard operating procedures, and use groups to make hiring decisions (to increase deliberation and overcome individual biases) to mitigate these kinds of staffing related issues.

From a strategic management standpoint, we would expect the impact of these practices varies somewhat with the company's strategy and business. For example, organizations that seek growth or want rapid performance improvements may need to hire individuals who will increase the organization's diversity in opinions, ideas, and attitudes toward risk taking. However, the impact of these personnel decisions will also depend on other organizational features such as slack (e.g., free time, extra resources) to pursue innovative projects and the way the organization deals with creativity and mistakes.

Here, as well as elsewhere, firms face problems with mixed and inconsistent goals. While management may claim to want risk takers, most really want people who take risks that turn out successfully. The structure of most performance and promotion systems militates against risk-taking. An employee who takes the risk that turns out well may get a promotion, but if it turns out badly may get fired and

even become unemployable in the industry. We need to recognize the distinction between intended or stated objectives of the incentive system and the actual incentive structure operating in the organization.

4.7 Measurement of performance and satisficing

Goals in behavioral theories and empirical work operate quite differently than they do in optimizing work. Economic approaches assume the organization attempts to maximize something like profitability or stockholder returns. Behavioral approaches observe that most organizations have a plethora of goals across a wide range of dimensions. A normal budget process will have goals for sales, cost of goods sold, selling expenses, production costs (broken down into components), etc. Empirically, firms pay attention to areas in which performance or expected performance falls below a target or aspiration level. When it does, they seek solutions that will raise performance above that aspiration level, termed satisficing (Cyert and March 1963).

A behavioral approach therefore suggests that firms seeking to improve their performance should begin by examining the criteria on which they judge performance, and their benchmarks for performance. Benchmarks present problems both of being too high or being too low. Using excessively high benchmarks may lead to low morale as employees have little motivation to try to reach goals they know they cannot reach. On the other hand, low benchmarks may lead to complacency and offer little incentive to change. Much of the recent work has been at the individual or small group level rather than at the organizational level (see Hong et al. 2012 for a review).

Benchmarks often come out of processes involving interactions between those evaluated and their superiors. For example, budget targets often come from discussion of the appropriate targets between the manager involved and superiors. In general, employees have an incentive to set benchmarks as low as possible to make them easier to achieve. Excessively low benchmarks can lead to organizational inefficiency. Superiors want higher benchmarks in hopes that higher benchmarks will motivate employees to greater performance. Excessively high benchmarks in one area can mislead planning in other areas that depend on the first area's figures. It can also reduce motivation and increase alienation when employees see themselves as being punished for not achieving the impossible.

After a benchmark has been set and agreed on, the problem of post-program evaluation remains. In general, some individuals have vested interests in almost any evaluation coming out in a particular way. Managers who made a decision or implemented a program to improve performance want a favorable program evaluation, while those who opposed the decision want a negative evaluation. Managers may change the emphasis on various performance metrics to classify actions as successful post hoc (Bromiley and Schomaker 2004). Not only can this result in employees devoting time to political activity, it also increases the difficulty of organizational learning if the measure of performance is not legitimate.

4.8 Managing change in organizations

While economic analyses assume that firms constantly strive to maintain and create sources of competitive advantage, by acquiring or developing unique resources or capabilities, locking in customers through new product offerings, and preventing imitation by competitors, this misses part of the story. A behavioral approach, in contrast, allows for inertia (Fredrickson and Iaquinto 1989). Due to bounded rationality and differences in perceptions among senior managers as well as the difficulty in identifying an optimum level of performance, organizations may not recognize the need to develop new sources of competitive advantage. The stochastic and error prone path of learning, both at the individual and organizational levels, combined with a need to balance multiple goals, may further lead to a slow pace of change across industries and within organizations.

A behavioral approach offers many different prescriptions for creating and managing change in organizations. We examine these below.

Creating opportunities for change The importance of learning both at the individual and organizational levels in a behavioral approach suggests that organizational change can occur best when organizations create and encourage opportunities for learning. This would include undertaking experiments that deviate in various ways with careful feedback (see, Taguchi et al. 1987). In addition, having enough slack in the organization to let manages think creatively and having an organizational climate that encourages learning should both encourage change.

Triggering change A behavioral approach suggests that triggering change in organizations requires managing managerial aspirations. Changing the composition of the peer group of firms that the focal firm uses as a benchmark for assessing its own performance, for example, might result in increased managerial effort toward increasing firm performance. A behavioral approach, however, would warn that driving change by raising aspirations needs careful management. Individuals adjust their preferences to match their situations; managers who cannot reach their targets may re-adjust their aspirations downward. A sustained change effort would therefore require a permanent change in aspirations, perhaps through some form of public commitment or publicly announced goals.

Moreover, the success of any change effort directed at improving firm performance can be enhanced using techniques that actively take advantage of managers' perceptions and biases. Prospect theory would suggest that framing the status quo as a situation that could lead to a loss could trigger more risk taking than presenting the current situation as leading to a gain. Likewise, some research finds that asking people to engage in upward counterfactual thinking after a failure motivates people to take positive action to meet their goals (Milesi and Catellani 2011).

A behavioral approach also highlights that change may have negative outcomes. Senior managers may undertake change not because it necessarily improves firm performance, but because their peers are undertaking similar changes and they fear being left behind. The literature on bandwagons and fads illustrates this phenomenon (Abrahamson 1991).

Managing change A behavioral approach identifies organizational routines and standard operating procedures as critical ways of managing change. Routines and procedures in organizations are an outgrowth of bounded rationality in individuals; just as individuals use heuristics or rules of thumb to make good enough decisions, organizations use routines as ways of capturing and standardizing decision procedures that have worked in the past. Recent research on routines indicates that routines are not just control systems to ensure uniformity; they are also a source of incremental change, evolving as organizational participants use and make minute changes to the routine with each iteration (Feldman and Pentland 2003). Senior managers can therefore manipulate the practice of a routine to ensure the occurrence of planned change within organizations.

Change outcomes and time frames Since a behavioral approach links change with organizational learning, it predicts that, given the difficulties associated with learning, change efforts may only show lasting results after significant periods. The rate of change itself is constrained by bounded rationality and the associated delays in recognizing and acting on opportunities (Conlisk 1996).

In contrast to the dynamic capabilities view which largely leaves the creation of desirable change a black box (Arend and Bromiley 2009), useful understanding of organizational change needs to have several features. First, it needs to recognize the complexities noted above among starting change, managing change, etc. Second, it needs to leave room for the possibility that effective change and change processes depend on the firm characteristics. Third, it needs to leave room for the possibility that change has negative outcomes on average.

At the same time, a behavioral approach also predicts some change will be dysfunctional. As mentioned earlier, undertaking change for the sake of change, or changing course too quickly in response to the results of past change efforts may be as harmful as not changing when needed.

5 An agenda for the future

Can a behavioral approach offer prescriptions for strategic management? As we have discussed in the previous sections, a behavioral approach adopts a realistic view of managerial information processing and decision-making. As such, strategy research that uses a behavioral approach focuses on explaining firm actions and performance, but at multiple levels of analysis (individual, group, firm, and industry) with recognition of the limitations of human rationality and information processing. These studies would necessarily draw on other fields and areas of study that deal with cognition and decision-making.

Due to its focus on explaining behavior rather than prescribing, and its lack of easy generalities for prescription, behavioral research in strategic management has been slow to develop its prescriptive implications. However, as we have noted above, many areas have sufficient development to offer recommendations for practice. While these do not have the apparent simplicity of "get resources" or "find a good industry," they may be more relevant and useful than such homilies.

We suspect a serious interest in prescription may result in modest changes in behavioral strategy research. Researchers have largely abandoned the evaluation of specific practices and tools, yet such evaluation has promise for prescription. Researchers have emphasized general results playing down the moderating effects that would help us diagnose which behaviors have greatest benefit when.

A behavioral approach has a potential to transform strategy prescriptions. Strategy scholarship that uses realistic assumptions regarding managers' information processing implies recognizing managers' perceptions of reality. Basing studies on these realistic assumptions, in turn, suggests that practitioners should find results from strategy studies using a behavioral approach both useful and applicable to their situations, bringing strategy scholarship more in line with scholarship from other management disciplines.

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