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turbulent environments: Managerial
Orientation and E-Business Advantage

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**The Value of Managerial Beliefs in Turbulent Environments:
Managerial Orientation and E-Business Advantage**

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Abstract and Summary

Purpose

There is a great divide between the degree to which academic research accounts for the role of managerial discretion in firm performance and the weight given by the popular press and financial community to the importance of the management of an organization. In this paper we begin to bridge this gap by quantifying the way managerial beliefs influence the quality of firm performance in a turbulent environment based on e-business.

Design/methodology/approach

An e-business research setting is used that is associated with a situation of environmental turbulence to allow for sufficient variance in managerial beliefs to measure their effect on firm performance. The sample contains 293 firms.

Findings

Aggregate level results indicate that managerial beliefs have a positive and significant effect on firm performance. Four distinctive segments were also found to exist. These segments vary in terms of the strength of the position that a manager holds regarding the value of e-business and firm performance.

Originality/value

In this study we shown that the affect of e-business on firm performance is not structural in the sense that firm performance does not depend on the firm or industry but is reflective of the strength of the beliefs held by managers. This implies that the “black box” approach that is characteristic of much management research may be problematic because it fails to measure the variables that may matter most to performance.

The Value of Managerial Beliefs in Turbulent Environments: Managerial Orientation and E-Business Advantage

It takes little more than a browsing of the management section of the local bookstore—blazoned with titles such as *Inside the Minds: Leading CEOs*, *Jack Welch: Lexicon of Leadership*, *Jesus CEO: Using Ancient Wisdom for Visionary Leadership*, *The Essays of Warren Buffett: Lessons for Corporate America*—or a visit to the local news agent to pick up a recent copy of *Forbes*, *Fortune* or *Business Week* to recognize the importance that publishers and managers place on the philosophies and actions of even some of the least successful or most unlikely of management leaders.¹ And belief in the value of a strong managerial philosophy is not limited to what can be extracted from a reading public. According to Burston-Marsteller and Roper Starch Worldwide, nearly 50 percent of corporate reputation is related to the reputation of that singular individual known as the CEO. Perhaps more relevant is Ang, et.al's (2003) finding that the appointment of “higher quality CEOs” led to immediate stock market reactions and greater long term performance. One such example was the reappointment of Steve Jobs as CEO of Apple Computer. Jobs has been widely praised for his skill in judging the commercial potential of convergent Internet technologies and his return to the company was considered instrumental in its reversal of bad fortunes. More recently, a concern about a recurrence of Job's cancer was enough to send Apple shares plunging 6.5% (Elmer-Dewitt 2008).

An examination of the popular press indicates that what manager believe and the discretion they have in applying those beliefs is perceived to be critical to organizational success. Similarly, a general reading of the qualitative academic management literature (Chamber et al., 1998; Montgomery 2008; Ready and Conger 2008) would support this almost all of our mainline empirical theories ignore executive beliefs and intentions except in the most superficial of ways (Finkelstein and Hambrick 1996).² For example, population ecology and institutional scholars

proclaim that inertial, environmental and organizational constraints limit the options available to managers (Aldrich and Pfeffer 1976; Hannan and Freeman 1977). These theorists emphasize determinism where environments select organizations through resource scarcity and competition. Industrial organization (IO) and resource based theory (RBT) put emphasis on the development of sustainable competitive advantage through historical path dependent developments but even the most recent extensions to this literature are mute on how resource and capabilities interactions occur and the role that managerial disposition plays in driving their performance (Newbert 2007).

Yet, the fact that managers can and often do make belief-driven discretionary strategic choices is hard to dismiss and the paucity of empirical work is not necessarily a result only of a lack of interest in the role of managerial cognitions. Even those that place importance on managerial cognition in the strategy setting (Stubbart 1989; Barr et al., 1992; Cho and Hambrick 2006; Kaplan 2008) are constrained by the fact that managerial beliefs and judgment are difficult to measure and their relevance will vary with the situation, requiring researchers to adjust such judgment for the context in which it is occurring. Scholars instead have tended to skirt around the issue and follow Hambrick and Mason's (1984) suggestion that individual knowledge and beliefs can be captured without opening the "black box" of cognition. The intuition behind this suggestion is that individuals are shaped by their experiences and since these, in turn, are reflected in external characteristics (e.g., age, gender, functional background, etc.) those attributes can be used as proxy measures for individual choice. This line of thinking has led to demographic studies that have determined top managers *do matter* (Hambrick and Mason 1984) and behavioral studies to show that perceptions of usefulness or ease-of-use *do influence* technology acceptance (Goodhue 1995; Davis 1989). Unfortunately, these studies are severely

compromised because they *presume* that strategic outcomes are due to strategic choice and not due to other factors such as luck, path dependence, executive charisma, communication skills, delegation abilities, and so on (Priem and Harrison 1994).

This discussion indicates that although academic thinking recognizes the importance of managerial beliefs and attitudes, it does so grudgingly and only partially because of an inability to measure managerial beliefs and judgment. In addition, many of our theories and their quantitative operationalizations are distinctly stationary theories limited to addressing the slow progression of industry evolution. In reading the popular press one understands quite quickly that the perception is that managers have their greatest value when the environment is less stable and prescriptive rules based on management theory do not apply. We can see this in the words of many recent business leaders:

“There is no training to be a CEO; it’s an extraordinary thing.”

Gerald Levin, former CEO, AOL Time Warner

“I am a big believer in forcing change on large institutions for the sake of forcing change. The longer an organization stays intact, the less successful it is.”

Louis Gerstner, Former Chairman and CEO, IBM Corp

“We are asking them to pitch no-hitters every day. The pitcher is becoming more important than the players or time-tested tactics.”

John Challenger, CEO, Challenger, Gray & Christmas

In what follows we will ask the question of what is the value of managerial beliefs in just such a turbulent environment—the implementation of e-business. The upheaval in business practice associated with the advent of the internet has caused not just variance in performance between industries but also variance in performance from similarly situated firms in the same industry whose managers have chosen to take different strategic paths (Ross and Weill 2002). This variance between triumph and disappointment provides a rich setting in which the relative

importance of *content* (the structural characteristics of the industry and their performance consequences) and *process* (the role that managers play in strategic choice) can be evaluated. Competitive market pressures, rapid technological advances, fickle customers and various organizational impediments present enormous difficulties to strategy execution in an environment where the exact extent of the change is ex ante indeterminant (Coltman, et. al 2001). The central claim in this paper is that whenever decision makers face unfamiliar territory—such as is the case with e-business transformation—there is greater opportunity for managerial beliefs to not only be seen as relevant but also to be practically important to performance. Hence, the process of strategic choice that includes *managerial beliefs* and *executive judgment* is critical towards setting the right overall direction for the firm.

Using data from a series of field interviews and a survey of 293 organizations we report the results of a study that captures the heterogeneity in different strategic decisions. The results reveal the different decision maker beliefs that arise when managers interpret and act upon a model of a changing environment and organizational situation. Differences in the way managers gather information; how they perceive the world around them; and whether they are able to change their perspective to reflect the situation at hand are shown to account for significant variance in performance. We show that managerial beliefs do indeed serve as significant determinants of performance and hence should not be ignored when examining changing environments.

Managerial Beliefs and Firm Performance

The ability to make wise decisions and form good judgments are widely considered to be successful organizational attributes in almost every society (Arkes and Hammond 1986; Stubbard 1989). For example, Swanson and Ramiller (1997) claim that the quality of IT

investment is grounded in the minds of participating individuals (managers) through a process of heedful inter-relating. Building on the concept of “sensemaking” (Weick 1993; Weick 1995) argues that the degree of mindful and mindless behavior by participating managers is critical to IT success. In related fields such as supply chain management, similar work has shown that human decision making is critical (McCarter et al. 2005).

However, trying to understand and explain decisions made in organizations by both individuals and teams is a complex problem, made even more difficult by three organizational realities. Firstly, the settings in which strategic choices are made are rarely familiar. Instead, decision-makers face unique situations that involve new combinations of factors, some well known, others less so. Secondly, by virtue of the decision-makers personal characteristics (e.g., their beliefs, perceptions and ideologies), they differ in the degree to which they generate and are aware of the various strategic orientations available to them. Differing capabilities with which to evaluate each scenario mean that some managers can consider alternatives that others cannot. Thirdly, accurate measurement of each organizational setting or individual attribute is made more difficult by the unobservable or intangible nature of decision antecedents. Despite these challenges, several streams of productive social science research have identified various success-related regularities that influence strategic choice.

Influence of Managerial Beliefs

The classical approach to decision theory, is based on assumptions of rationality (Abelson and Levy 1985) where decision makers have access to complete information. Yet, when we think about the type of important strategic decisions made by most corporate executives, the set of alternatives open to them and about which they must know is staggeringly large. Rarely will busy executives have the opportunity to develop a perfect understanding of the decision problem

or consider all possible alternatives and their consequences before the most appropriate course of action is selected. As noted by Ed Liddy, Chairman and CEO of AllState Insurance, “a complex, complicated job has gotten more complex and more complicated.” Not surprisingly, scholars have questioned the simplistic assumptions upon which the classical paradigm is based, as more often than not, it is at odds with observed behavior (see, e.g., Chaffee 1985; Stubbard 1989).

Strategic decision makers therefore, require some type of screening mechanism or heuristic to limit the set of options (Dutton and Jackson 1987). Davis and Devinney (1997) suggest that firms adopt a “belief system” by which key decisions are made. This has the effect of radically reducing the number of alternatives that need to be considered, the range of information that needs to be collected, and to simplify the way in which decision makers go about the selection process. This screening process considers factors that are inside and outside the organization and tells us a lot about how top management teams believe the world works.

The process of making strategic decisions is a critical part of a manager’s belief system and there are two extreme viewpoints on this subject (Davis and Devinney 1997). One is a belief that profitable differences between firms are basically correctable. Implicit in this view is the idea that the problems of poor performers are what might be called inherent operating problems and therefore can be corrected if management is more effective. This is a reasonable and common view of the world and one consistent with Nohria, Joyce and Roberson’s (2003) emphasis on the role of strategy versus implementation; it matters less which strategy is picked by a firm as long as implementation is flawless. Alternatively, performance differences among competitors may be attributable to structural aspects of the industry, effects that will persist indefinitely unless there are significant changes within the industry; for example a major technological change in the way business is conducted. Managers will differ in the details and sophistication with which

they elaborate these two positions.

The Influence of Strategic Judgment

A complementary perspective is the judgment paradigm. Judgment theory (Arkes and Hammond 1986; Priem and Cychota 2000) argues that the decision maker often has to rely on something other than facts and a full understanding of the decision problem. Instead the decision maker must base their decisions on perceptions that form a “cognitive process of last resort: human judgment” (Hammond 1974).

Yet what exactly is meant when we speak of an executive having good or bad judgment? The *New Oxford Dictionary* (1998) defines judging as a *process* involving “the ability to make considered decisions or come to sensible conclusions”. Judgment as an *outcome* is simply “the opinion or conclusion formed” based on refined experience, training and maturity (op. cit.).

An analogy may help to clarify what we mean by “strategic judgment”. When a paramedic is presented with an emergency incident a judgment process ensues. The paramedic first makes a judgment concerning the dangers to herself and crew by entering into any potentially hazardous environment. Having determined that the environment is safe, the paramedic must then make a judgment about what symptoms to look for on the patient, and next determine the presence or absence of these symptoms, or estimate their levels. After that the paramedic processes the particular combination of symptoms and their levels, reaches a diagnosis, and subsequently commences emergency treatment. The paramedic’s skill in making diagnoses—based on training, experience, and personal qualities such as maturity and common sense—represents her personal capacity for sound emergency diagnostic judgment.

The ability to distinguish the significant from the irrelevant, to form objective opinions and to estimate the effect that different variables will have on performance is the essence of good

judgment. Vickers (1995) suggests that unlike classical decision theory that is concerned with complete information, judgment is an activity that is concerned with meaning. Strategic judgment is a managerial skill that comprises three components to determine: (1) the current reality, (2) what ought or ought not be the case, and (3) the best way to reduce any mismatch between what is and ought to be the case. Although these components of judgment are always partly tacit, they can still be described and understood.

Conceptual Model and Measures

To capture the importance of managerial discretion in determining performance, we develop a conceptual model that is grounded in a unifying framework developed by Davis and Devinney (1997) and expanded upon by Devinney, et al. (2000) and Coltman et al. (2007). The model includes the relative magnitude of environmental pressures and organizational constraints and then shows how these conditions combine with the measures of managerial belief systems to influence e-business performance (Figure 1). The logic behind this model follows from the prior discussion and implies that performance outcomes are influenced directly by the environment the beliefs of the managers as the appropriateness of the strategy and the ability of the organization to implement the strategic intent. In addition, there is an indirect moderating effect of the environment and the organization on the beliefs of the managers as to the appropriateness of the strategy. It is our contention that the turbulence associated with implementation of e-business strategy would heighten the importance of the managerial beliefs making it easier to see their importance in the ultimate determination of performance.

Insert Figure 1 Here

Instrument Measurement

Performance is a multidimensional construct and we combine three dimensions of firm

performance—financial, operational and overall effectiveness—into one scale (possessing inter-item consistency measure of 0.82). Empirical research has consistently shown that external pressures are strong drivers for changes in firm performance (see Capon et al. 1996, for an extensive review). In this study, we chose not to replicate these complex measures—based on various competitive, market and technological pressures—since our interest lay only in the aggregation of these external pressures as a way to capture the overall effect on performance. The external pressures construct was measured using a single item—“To what extent are market, technological and environmental pressures moving the firm towards more or less online products and/or services”.

A key feature of established firms is that they have an organizational context that accounts for differences in performance. These readily identifiable organizational conditions are both tangible (e.g., physical IT infrastructure) and intangible (e.g., reflected in human knowledge sets and know-how). IT know-how is measured as an intangible capability based on the level of knowledge about IT systems. Physical IT infrastructure was derived from the number of IT artifacts and their level of usage. E-mail systems, ERP applications, Intranet applications, and Internet applications were measured a single formative index (Coltman, et al. 2008). The reasoning here is that there is no latent construct of ‘IT infrastructure’ rather what we need to measure is an index of the overall level of usage of these artifacts. IT know-how importance was used to operationally capture knowledge about IT systems. Online activity was determined using a 10-point scale measuring the amount of business activity (B2C, B2B, and B2G) conducted electronically. Again, the point of using a formative measure is to obtain an overall index that allows us to compare bricks and mortar activities with e-business activity.

Three separate items were used to measure organizational and technical feasibility: (1)

financial constraints incurred in setting up new e-business operations, (2) the organizational and political constraints incurred in setting up and taking down complex IT systems, and (3) the operational implementation issues incurred in terms of security, reliability and privacy considerations. The Cronbach's alpha for each of these multi-item scales is 0.82, 0.70 and 0.69 respectively.

Managerial beliefs were measured by asking respondents to rate the extent to which they believe that e-business systems will create new operational and strategic benefits. Five items were used to capture beliefs relating to the relationship between e-business and (1) the current competitive standing of the firm, (2) relationships with major customers/partners, (3) the creation of new value for customers/partners, (4) the opportunity to create joint profit with partners, and (5) the long run value of the firm. As these items reflect the construct of overall managerial beliefs with respect to e-business activity, they are combined into a multi-item reflective scale ($\alpha = 0.72$).

Lastly, two dummy coded variables were created to control for these difference in the state of e-business implementation. These differences range from e-business is still at "the pilot program stage" to e-business has been "successfully integrated into core systems." We also control for firm size and industry type using dummy coded variables, however, no statistically significant results were obtained.

Sample and Empirical Approach

The firms studied represent a cross section of industries distributed across professional business services (39%), government (20%), retail (11%), manufacturing (23%), and agriculture and mining (7%). In total, 293 firms responded to the survey and 48 firms participated in a series of interviews after having completed the surveys. All were in various stages of e-business

implementation and represented novice and experienced firms. Firm size was also well distributed, with 46% small to medium sized firms (less than 500 employees) and 54% large firms (more than 500 employees). The mean and median sizes for the entire sample were 2,480 and 650 employees respectively. Tests of the distribution of returned questionnaires indicate that no industry or size bias existed in the responses received. We apply ordinary least squares multiple regression at the aggregate level and then use latent class modeling to segment our sample further. This approach is particularly useful in situations where heterogeneity is suspected in the data and allows for the decomposition of a sample (Wedel and Kamakura 2000). Latent class approaches estimate multiple models simultaneously while providing posterior probability estimates as to the degree to which each firm is represented by each model. The interviews are used at the conclusion of this analysis to gain more understanding of the motivation and rationalizations that executives use and to examine the extent to which the empirical models align with managerial perceptions of their own reality.

Results

All of model estimates are presented in Table 1. The aggregate OLS results displayed in the first two columns indicate that there is a positive and significant relationship between firm performance and the environmental pressures to “move online” ($\beta=0.092$; $p<0.01$), managerial beliefs ($\beta=0.274$; $p<0.001$), and organizational constraints ($\beta=-0.100$; $p<0.05$) when these are considered as direct effects ignoring moderation. What is interesting is what happens when moderation is included. In the second column, it is revealed that the direct influence of external pressures is not reduced by accounting for moderation but that the value of managerial beliefs is. This hints at the fact that when external pressures and financial costs are high, performance suffers ($\beta=-0.764$; $p<0.05$) but that managerial beliefs are valuable predominantly in

circumstances where financial costs are high ($\beta=0.867$; $p<0.01$). Overall, accounting for the moderation improves both the fit and parsimony of the model and highlights how managerial beliefs operate in this situation: they do not influence performance so much as allowing the organization to overcome internal constraints in the aggregate.

Insert Table 1 Here

One of the major issues with cross sectional studies, particularly in turbulent environments, is that there are likely to be sources of firm heterogeneity that are not captured using single group estimates. To account for this we develop an additional model using latent class modeling techniques (Wedel and Kamakura 2000). Using information criteria as the determinant of the optimal number of segments (see Table 2) reveal that four distinctive segments exist. These segments vary not only in terms of performance but also in terms of the nature of the interactions between the variables of relevance. Because these segments differ in both the level and variance of the individual measures, just comparing coefficients can be misleading as to the importance of a specific variable. Hence, we present the results in terms of “effect size” estimates as a means of capturing the differences between the segments more clearly (Table 3). To also increase their interpretability we have ordered the segments such that the columns show the segments by decreasing performance.

Insert Tables 2 and 3 Here

The aggregate results indicate that strong effect sizes exist on those components revealed as significant in Table 1, column 2. The individual segment models each tell a very different story, providing additional insights that go beyond single group estimates. We will discuss each model shortly and do so in light of our interview data. However, overall, it is clear that environmental/external pressure to move on-line is directly and monotonically related to

performance ($6.82 > 4.13 > 3.46 > -0.24$). When looked at across the segments and in total (the “Overall Impact ...” rows in the “Moderating and Overall Effects (Grouped)” section, the two dominant factors related to performance are External Pressures and Managerial Beliefs. Now to each of these segments, and what they reveal.

In the case of segment 1, the highest performing group, firms are most affected by the pressure to move online and managerial beliefs; where managerial beliefs reflect a perception that the firm ought to move towards an e-business orientation. The total direct effect of each strategic judgment component is 12.80 ($= 6.82 + 3.25 + 1.48 + 1.56 - 0.31$), reflecting the strongest overall direct effect. We can attribute high performance in this segment to strong external pressures for change, high managerial beliefs, and a strong ability to overcome organizational constraints that arise from competing business options. Environmental pressures and managerial beliefs interact to keep both in check through a moderating influence. As captured by a manager from one of these firms,

“Senior managers in our organization are very keen to make e-business work. We think it is very important thing to have alongside our traditional business.”

Firms in segment 4, the second best performing group, face significant pressures to move online and relatively moderate effects across each of the remaining components. Firms in this segment are clearly focussed on existing activities and as such do not spend time arguing about the way in which IT decisions are made. Managerial beliefs are less direct but serve to help mitigate internal constraints, particularly of the financial variety. In summary, these firms are supporters of e-business, but they are also aware of the limits of technology-based solutions and appear to place greater importance on complementary activities and know-how. As expressed by the CEO of a leading utilities firm in this group,

“The success of e-business in our company has been moderate, but it’s early days. We have our website—along with everybody else—and a degree of interaction, but it is all low

level. Looking to the immediate future, to the short-term future, it's going to be different. We have initiatives in place, which will be rolled out in the next 3 months, which will probably catapult us to the leading bunch and within 12 months beyond the leading bunch. So I think looking back it's been fairly moderate in terms of success. Short-term it's going to be great and in the long-term it's going to be revolutionary."

In segment 2, firms work to different criteria. These firms are driven almost exclusively by the current e-business reality and an ability to overcome operational implementation issues—network performance, information security, brand protection, and customer privacy. These strongly positive effects interact negatively with managerial beliefs (-9.52), organizational constraints (-8.18) and financial barriers (-6.51) to impair performance. Some of these limitations can be seen in the following CEO of a firm in this segment complaining about implementation.

"I'd probably say there were two organisational impediments. One is just having the people to be the change agents. There's the whole question of embracing the change, which is redirecting, refocusing people, etc. But probably the greatest impediment, fundamentally, when you actually get right down into it is the astronomical costs that you can occur, particularly if you want to go direct to customer... I think that of all of the numbers I've seen for our own business and I've seen for other businesses and I've read and I've discussed in forums with people never has anybody said to me that their e-business and e-retail or e-business development was cheaper or cost them what they expected it to cost them."

Finally, performance in segment 3 is lower than any of the others. Although the direct effect of pressure to move online is insignificant (-0.24), managerial beliefs are strong (3.53). The ability to overcome financial constraints is also strong (3.99) and the performance effect has been clearly reduced by the negative effects of organizational constraints (-1.72). Although the current state of implementation is high and managerial beliefs concerning the benefits of e-business are also high, nearly all of the performance effects are driven out by problems of implementation and organizational resistance.

Implications and Discussion

What the above results show is that any complex organizational transformation such as e-business integration, is not one where the best path forward is obvious or even dominant in the sense that one best answer exists. In such an environment the role of the beliefs of the managers and their ability to use those beliefs to mitigate internal inertia and organizational barriers becomes important. This does not imply that external pressures lose their importance or that the managerial beliefs are at odds with the external pressures facing the firm. What it means is that in environments with uncertain linkages between actions and outcomes, opinion matters and whose opinion is being voiced is not irrelevant! As noted by one manager in a large retail chain interviewed for the study:

“Probably the biggest impediment so far has been serious doubts by the Managing Director in particular and other senior managers about the value of e-business. Some of them think this is really a flash in the pan, they spend a lot of money then find out it’s just a passing phase and then why did we bother to spend all that money and waste all that time with it.”

As shown by segment 3, strong beliefs by the managers that e-business is important to their organization was not enough to negate the fact that there was little business pressure to move activities online. This led to investment in areas that were unnecessary and performance scores significantly below average.

Where the role of managerial beliefs becomes less relevant is within environments where there is a dominant mode of operation, where the skill sets are well defined and, as such, the organizational imperative is clearly understood. Segment 4 represents this group. They are sophisticated operators in terms of IT (as indicated by their mean levels of infrastructure and know-how), hence the issues arising with the implementation of e-business are not turbulent in the context within which they find themselves.

What is also important to recognize is that the norm for the firms examined in this study

was to have quite a wide range of both constraints and managerial beliefs. Tables 4 and 5 break the construct data into three groups: managerial beliefs, organizational constraints, and IT constraints. Each was aggregated into three levels. In the case of IT and organizational constraints these were aggregated as none, some constraints and no constraints. In the case of managerial beliefs these were aggregated as having no opinion about e-business, having some opinion (which could be positive or negative) or having a strong positive opinion. Although hardly scientific, these tables show that the most populated cells are those where there is a both opinion and constraints. Hence, a failure to take into account the beliefs of the managers and assume that the internal or external environment of the firm is what is relevant ignores, potentially fatally, a source of valuable information as to why certain firms succeed while others fail.

Insert Tables 4 and 5 Here

These results show that managers hold very different views about the impact of e-business on firm performance, something not unexpected in a turbulent environment where the line connecting managerial decisions and performance is unclear. It is easy to see that the payoff from seeing the world in the right way can be substantial; where the “right way” is defined here as being in line with the realities of the external environment. Equally important is the fact that these beliefs serve as both direct effects and mediators of constraints. Research on turbulent or changing environments, such as might follow in a developing country or entrepreneurial context, will be needlessly ignoring a potentially important determinant of performance by ignoring the direction and strengths of managerial beliefs.

We close by noting that there are numerous opportunities to test the generalizability of these results in different business contexts where high levels of uncertainty exist. Although

much of our strategy and management theorizing discusses the dynamic and recursive interaction between beliefs, actions, constraints and market and competitor reactions little if any of our empirical research takes this into account. The most interesting managerial circumstances are those where managers face overwhelming and often conflicting information with varied opinions within the industry and organization as to what it all means. Such a situation creates apposite conditions for managerial discretion and it is where that discretion can pay off (or cost) the most. Researchers also have access to a suite of measurement techniques that can be used to test the way managers' notice and interpret change and translate their beliefs, perceptions or preferences into strategic choices. We contend that a better understanding of the role of managerial beliefs and judgment will shed new light on a source of valuable information in strategy and management to help explain why certain firms succeed while others fail.

Endnotes

- ¹ Hughes, J.A., (2002) *Inside the Minds: Leading CEOs* New York, Aspatore Books. Krames, J.A., (2001) *The Jack Welch: Lexicon of Leadership*, New York, McGraw-Hill Professional. Jones, L.B., (1995) *Jesus CEO: Using Ancient Wisdom for Visionary Leadership* New York, Hyperion. Cunningham, L.E., (2008) *The Essays of Warren Buffett: Lessons for Corporate America*.
- ² In this paper the term “managerial beliefs” represents an aggregate of interrelated information about the perceived value of e-business. More generally, this would be characterized as the strength of a manager’s belief that a specific strategic orientation was correct and likely to be effective. This operationalization is grounded in the doctrines of cognitive science and is similar to the way mental representations (Cottingham 1986), mental models (Barr et al., 1992) and mental maps (Weick 1995) have been used to provide reasons for intentional strategic choices and action. Having reasons also implies that choices can be made in contrast to determinism (Stubbart 1989) and “managerial discretion” refers to the extent that managers can exercise choice in their firm.

References

- Abelson, R.P., and Levy, A. (1985), "Decision Making and Decision Theory." in Lindzey, G. and Aronson, E. Eds. *The Handbook of Psychology*. New York: Random House, 231–309.
- Aldrich, H.E., and Pfeffer, J. (1976), "Environments of Organizations." *Annual Review of Sociology* 2: 121–140.
- Ang, J., Lauterbach, B., and Yu, J. (2003), "Efficient Labor and Capital Markets: Evidence from CEO Appointments." *Financial Management* 32(2):27–52.
- Arkes, H.R., and Hammond, K.R. Eds. (1986), *Judgment and Decision Making: An Interdisciplinary Reader*. Cambridge: Cambridge University Press.
- Barney, J. (1991), "Firm Resources and Sustained Competitive Advantage." *Journal of Management* 17(1): 99–120.
- Barr, P.S., Stimpert, J.L., and Huff, A.S. (1992), "Cognitive Change, Strategic Action, and Organizational Renewal" *Strategic Management Journal* 13(Special Issue):15–36.
- Brehmer, B. (1986), "The Role of Judgment in Small Group Conflict and Decision Making." in Arkes, H.R., and Hammond, K.R. Eds. *Judgment and Decision Making: An Interdisciplinary Reader*. Cambridge: Cambridge University Press, 293–310.
- Capon, N., Parley, J., and Hoenig, S. (1996), *Toward an Integrative Explanation of Corporate Financial Performance*. Boston: Kluwer.
- Chaffee, E.E. (1985), "Three Models of Strategy." *The Academy of Management Review* 10(1): 89–99.
- Chambers, E.G., Foulon, M., Handfield-Jones, H., Hankin, S.M., and Michaels, E.G. III, (1998), "The War for Talent." *McKinsey Quarterly* 3(8): 44–57.
- Cho, T.S., and Hambrick, D.C. (2006), "Attention as the Mediator Between Top Management Team Characteristics and Strategic Change." *Organization Science* 17(4): 453–469.
- Coltman, T., Devinney, T.M., Latukefu, A., and Midgley, D. (2001), "E-Business: Evolution, Revolution, or Hype?" *California Management Review* 44(1): 57–86.
- Coltman, T., Devinney, T.M., Midgley, D.F., and Venaik, S. (2008), "Formative or Reflective Scales: Two Applications of Erroneous Measurement." *Journal of Business Research* (in press 10.1016/j.jbusres.2008.01.013).
- Coltman, T., Devinney, T.M., and Midgley, D.F. (2007) "E-Business Strategy and Firm Performance: A Latent Class Assessment of the Drivers and Impediments to Success" *Journal of Information Technology* 22(2): 87–101.
- Cottingham, J.C. (1986), *Descartes*. Oxford: Blackwell.
- Davis, F.D. (1989), "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology." *MIS Quarterly* 13(3): 319–339.
- Davis, J., and Devinney, T.M. (1997), *The Essence of Corporate Strategy: Theory for Modern Decision Making*. Sydney: Allen & Unwin.

- Devinney, T.M., Midgley, D.F., and Venaik, S. (2000), "The Organizational Imperative and the Optimal Performance of the Global Firm: Formalizing and Extending the Integration-Responsiveness Framework." *Organization Science* 11(6): 674-695.
- Dutton, J.E., and Jackson, S.E. (1987), "Categorizing Strategic Issues: Links to Organizational Action." *The Academy of Management Review* 12(1): 76-90.
- Elmer-Dewitt, P. (2008), "Why Does Steve Jobs Look So Thin?" *Fortune*, <http://apple20.blogs.fortune.cnn.com/2008/06/13/steve-jobs-life-after-the-whipple/> (last accessed, 30 July 2008).
- Finkelstein, S., and Hambrick, D.C. (1996), *Strategic Leadership: Top Executives and Their Effects on Organizations*. St Paul: Printwise.
- Ford, E.W., Duncan, J.W., et al. (2003), "Mitigating Risks, Visible Hands, Inevitable Disasters, and Soft Variables: Management Research That Matters to Managers." *Academy of Management Executive* 17(1): 46-54.
- Goodhue, D.L. (1995), "Understanding User Evaluations of Information Systems." *Management Science*, 41(12): 1827-1844.
- Hambrick, D.C., and Mason, P.A. (1984), "Upper Echelons: The Corporation as a Reflection of Its Top Managers." *Academy of Management Review* 9(2): 193-206.
- Hannan, M., and Freeman, J. (1977), "The Population Ecology of Organizations." *American Journal of Sociology* 82(3): 929-964.
- Hatten, K. J. Schendel, D. E. et al. (1978), "A Strategic Model of the U.S. Brewing Industry: 1952 - 1971." *Academy of Management Journal* 21(4): 592-610.
- Kaplan, S., (2008), "Cognition, Capabilities and Incentives: Assessing Firm Response to the Fiber-Optic Revolution." *Academy of Management Journal* 51(4): 672-695.
- Lewin, A.Y., Long, C.P., and Carroll, T.N. (1999), "The Coevolution of New Organizational Forms." *Organization Science* 10(5): 535-555.
- Lewin, A.Y., and Volberda, H. (1999), "Prolegomena and Coevolution: A Framework for Research on Strategy and New Organizational Forms." *Organization Science* 10(5): 519-534.
- McCarter, M.W., Fawcett, S.E., et al. (2005), "The Effect of People on the Supply Chain World: Some Overlooked Issues." *Human Systems Management* 24(3): 197-208.
- Montgomery, C.A. (2008), "Putting Leadership Back Into Strategy." *Harvard Business Review* 86(1): 54-60.
- Newbert, S.L. (2007), "Empirical Research on the Resource-based View of the Firm: An Assessment and Suggestions for Future Research," *Strategic Management Journal*. 28(2): 127-143.
- Nohria, N., Joyce, W., and Roberson, B. (2003), "What Really Works?" *Harvard Business Review*. 81(7): 42-52.
- Porter, M. (1985), *Competitive Advantage: Creating and Sustaining Superior Performance*. New York: Free Press.

- Priem R., and Cacyota, C. (2000), "On Strategic Judgement." in Hitt, M.A., Freeman, R.E., and Harrison, J.S., Eds. *Handbook of Strategic Management*. Oxford: Blackwell, 493–519.
- Douglas, A.R., Jay, A.C. (2008), "Enabling Bold Visions" *MIT Sloan Management Review* 49(2): 70–76.
- Ross, J.W., and Weill, P. (2002), "Six Decisions Your IT People Shouldn't Make." *Harvard Business Review* 80(11): 84–96.
- Stevens, A. (1997), "Deja Blue." *Industry Week* 246(21): 82–88.
- Stubbart, C.I. (1989), "Managerial Cognition: A Missing Link in Strategic Management Research." *The Journal of Management Studies* 26(4): 325–359.
- Swanson, E.B., and Ramiller, N.C. (1997), "The Organizing Vision in Information Systems Innovation." *Organization Science* 8(5): 458–474.
- Teece, D.J., Pisano, G. and Shuen, A. (1997), "Dynamic Capabilities and Strategic Management." *Strategic Management Journal* 18(7): 509–533.
- Vickers, S.G. (1995), *The Art of Judgment*. London: Sage Publications.
- Weick, K.E. (1993), "The Collapse of Sensemaking in Organizations: The Mann Gulch Disaster." *Admin Science Quarterly* 38(4): 628–652.
- Weick, K.E. 1995, *Sensemaking in Organizations*. London: Sage Publications
- Weill, P. and Vitale, M.R. (2001), *Place to Space: Migrating to eBusiness Models*. Cambridge MA: Harvard Business School Press.
- Zajac, E.J., Kraatz, M.S., and Bresser, R.K.F. (2000), "Modeling the Dynamics of Strategic Fit: A Normative Approach to Strategic Change." *Strategic Management Journal* 21(4): 429–453.
- Wedel, M., and Kamakura, W. (2000), *Market Segmentation*. London: Kluwer.

Table 1: Coefficient Estimates: OLS and Latent Class Models

	OLS Estimates		Latent Class Estimates			
			Segment 1	Segment 2	Segment 3	Segment 4
External Pressures to Move Online	0.092* (1.676)	0.620** (2.253)	1.70*** (10.21)	0.88*** (3.53)	-0.06 (-0.44)	1.04*** (9.53)
Organizational Conditions						
IT Know-How	0.142** (2.620)	0.152*** (2.808)	0.02 (1.36)	-0.04 (-1.48)	-0.03 (1.65)	0.17*** (9.42)
IT Infrastructure	0.094* (1.853)	0.147*** (2.795)	0.08*** (4.18)	0.14*** (5.15)	0.11*** (4.27)	0.01 (0.28)
Online Activity	0.172*** (3.207)	0.141** (0.433)	0.01 (0.79)	0.20*** (20.67)	-0.01 (-1.49)	-0.04*** (-3.51)
Managerial Beliefs	0.274*** (4.755)	0.141 (0.433)	0.95*** (4.92)	-2.85*** (-9.66)	1.03*** (4.60)	0.35** (2.57)
Feasibility Constraints						
Organizational	-0.100* (-1.874)	0.204 (0.647)	0.49*** (4.97)	-2.54*** (-12.94)	-0.54*** (-4.00)	0.51*** (5.92)
Financial	0.036 (0.657)	0.012 (0.032)	0.49*** (3.65)	-1.86*** (-10.31)	1.26*** (6.94)	-0.47*** (-3.61)
Operational Implementation Issues (OII)	0.023 (0.418)	0.071 (0.171)	-0.12 (-0.67)	4.95*** (15.92)	-0.75*** (-3.55)	0.25 (1.75)
State of Implementation	0.107* (1.948)	0.090* (1.694)	0.02*** (8.97)	0.08*** (-3.20)	0.23*** (8.68)	-0.02 (-1.38)
Mediating Effects						
External Pressures * Managerial Beliefs		-0.180 (-0.501)	-0.20*** (-6.05)	-0.37*** (6.60)	-0.04 (-1.16)	-0.16*** (-6.45)
External Pressures * Org. Constraints		-0.493 (-1.355)	-0.08* (-2.18)	0.41*** (7.76)	0.36*** (8.86)	-0.22*** (-9.17)
External Pressures * Financial Costs		-0.764* (-1.887)	-0.12*** (-3.73)	-0.05 (1.43)	-0.47*** (-9.98)	-0.05* (-1.97)
External Pressures * OII		0.404 (0.837)	-0.07** (-2.64)	-0.98*** (-13.44)	0.25*** (5.19)	0.17*** (5.41)
Managerial Beliefs * Org. Constraints		0.109 (0.334)	0.05 (1.69)	0.30*** (7.98)	-0.27*** (-8.32)	0.05* (2.05)
Managerial Beliefs * Financial Costs		0.867** (2.420)	-0.03 (-0.91)	0.45*** (11.96)	0.20*** (4.79)	0.26*** (9.02)
Managerial Beliefs * OII		-0.540 (-1.440)	0.10 (2.86)	-0.27*** (-6.09)	-0.07 (-1.70)	-0.27*** (-7.79)
Group Size (N) (percent)	293 (100%)	293 (100%)	88 (30%)	52 (17%)	65 (22%)	88 (30%)
R ²	0.281	0.309		0.900		

Table 2: Measures of Model Fit and Parsimony by Latent Class Segment

	Number of Segments				
	1	2	3	4	5
Likelihood	-224.7	-211.8	-201.6	-169.9	-139.7
AIC	475.4	471.3	467.2	424.4	431.8
CAIC	522.9	577.1	637.9	633.4	673.9
Entropy	1.000	0.289	0.359	0.717	0.660
R ²	0.13	0.41	0.78	0.90	0.95
DF	11	23	35	47	59

Note: **Bold** items indicate either minimum (AIC, CAIC) or maximum (Entropy) measures.

Table 3: Effect Size Estimates*

	Segment (ordered by Performance)				Single Group Estimates
	1	4	2	3	
External Pressure to Move Online	6.82	4.13	3.46	-0.24	2.48
Organizational Conditions					
IT Know-How	0.07	0.60	-0.14	-0.11	0.55
IT Infrastructure	0.31	0.04	0.53	0.44	0.58
Online Activity	0.04	-0.15	0.85	-0.03	0.54
Managerial Beliefs	3.25	1.20	-9.52	3.53	0.48
Feasibility Constraints					
Organizational	1.48	1.52	-8.18	-1.72	0.63
Financial	1.56	-1.48	-6.51	3.99	0.04
Operational Implementation Issues (OII)	-0.36	0.67	15.30	-2.13	0.20
State of Implementation	0.05	-0.05	0.21	0.61	0.63
Moderating Effects (Individual Effects)					
External Pressure*Managerial Beliefs	-2.78	-2.22	-4.90	-0.56	0.23
External Pressure*Organizational Constraints	-0.97	-2.61	5.15	4.68	-2.49
External Pressure*Financial Costs	-1.53	-0.63	-0.69	-6.06	-6.06
External Pressure*OII	-0.84	1.82	-11.90	2.90	-9.84
Managerial Beliefs*Organizational Constraints	0.52	0.51	3.26	-2.98	4.67
Managerial Beliefs*Financial Costs	-0.33	2.82	5.27	2.20	1.14
Managerial Beliefs*OII	1.03	-2.53	-2.82	-0.69	9.56
Moderating and Overall Effects (Grouped)					
Moderating Effects of External Pressure [§]	-3.35	-1.42	-7.44	1.52	-11.23
Moderating Effects of Managerial Beliefs [§]	1.22	0.79	5.70	-1.48	5.33
Overall Impact of External Pressure [†]	3.47	2.70	-3.98	1.28	-8.75
Overall Impact of Managerial Beliefs [†]	4.47	2.00	-3.82	2.06	5.81
Overall Impact of Organizational Constraints [⌘]	1.03	-0.58	0.23	-0.02	-4.29
Overall Impact of Financial Constraints [⌘]	-0.30	0.71	-1.93	0.13	-0.24
Overall Impact of OII [⌘]	-0.17	-0.04	0.57	0.08	-0.50
<i>Estimated Mean Performance of Group</i>	<i>3.21</i>	<i>2.90</i>	<i>2.60</i>	<i>2.39</i>	<i>2.86</i>

* Effect sizes based on significant effects (from Table 1) are shown in **bold**

§ Excluding the joint effect of external pressures and managerial beliefs

† Excluding the joint effect of external pressures and managerial beliefs, but including the direct effect of the variable in question

⌘ Including the joint effects of external pressures and managerial beliefs

Table 4: Environmental Pressures and Managerial Beliefs

		Environmental Pressures		
		None	Some	Strong
Managerial Belief	None	1%	4%	6%
	Some	1%	7%	38%
	Strong	1%	4%	38%

Table 5: Organizational Constraints and Managerial Beliefs

		Organizational Constraints		
		None	Some	Strong
Managerial Belief	None	4%	2%	5%
	Some	20%	13%	13%
	Strong	18%	10%	14%

Figure 1: Model and Measures



