

MANAGERIAL DETERMINANTS OF DECISION SPEED IN NEW VENTURES

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This study helps to explain why some new ventures make strategic decisions more quickly than others. Drawing on life course theory and human capital theory, I develop a model of how entrepreneurs' individual characteristics affect new venture decision speed. I test the model using survey data from 98 Internet startups and their founder/managers. Results show that firms made faster decisions when they were managed by older entrepreneurs and by those with prior entrepreneurial experience. In addition, exploratory analyses indicating that fast decision-making firms were more likely to close may indicate that prevailing theory in this area is contextually limited. Copyright © 2005 John Wiley & Sons, Ltd.

Past research has indicated that the speed with which strategic decisions are made can affect various organizational outcomes, including performance (Eisenhardt, 1989; Judge and Miller, 1991; Mintzberg, Raisinghani, and Theoret, 1976). Therefore, it is important for researchers to understand the determinants of decision speed as well as its consequences. Most past research has focused on organizational determinants of decision speed, although Wally and Baum (1994) identified some individual-level determinants. In this paper I draw on life course theory and human capital theory to hypothesize some additional individual determinants of decision speed. I then test these hypotheses using a sample of new ventures and their founder-managers, whom I call entrepreneurs. Afterwards, I conduct some post hoc analyses in

which I explore the survival implications of decision speed. The results indicate that individual differences affect decision speed but also raise questions about the value of decision speed in certain contexts.

THE IMPORTANCE OF DECISION SPEED

Decision speed refers to how quickly organizations execute all aspects of the decision-making process, spanning from the initial consideration of alternative courses of action to the time at which a commitment to act is made (Eisenhardt, 1989; Mintzberg *et al.*, 1976). Differences in decision speed are important for several reasons.

In dynamic environments, firms that make faster decisions can exploit opportunities, such as dramatic increases in demand or the application of new technological capabilities, before those opportunities disappear or are exploited by competitors (Stevenson and Gumpert, 1985). Rapid exploitation of such opportunities may give firms first-mover advantages (Makadok, 1998) or a series

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of transient advantages (Garud, Jain, and Phelps, 1998). Decision speed can be especially important to new ventures, which frequently occupy dynamic environments and seek to exploit the nimbleness conferred by their relative smallness (Chen and Hambrick, 1995).

Eisenhardt (1989) proposed that faster decision making contributed directly to firm performance in fast-moving environments. A subsequent, multi-industry study by Judge and Miller (1991) found support for this hypothesis, but only in dynamic environments, while a more recent study by Baum and Wally (2003) found support across a range of environmental contexts. However, in another recent study, Perlow and colleagues contended that decision speed might actually *detract* from firm performance in some cases. In their case study of an Internet firm, they concluded, 'a focus on making fast decisions, while initially a source of competitive advantage, eventually became an internally generated and self-destructive need for speed' characterized by 'a vicious cycle of declining attention to decision content and an increasing number of issues that required decisive action' (Perlow, Okhuysen, and Repenning, 2002: 947). Taken together, these studies underscore the strategic significance of decision speed even while they indicate that its implications for firm performance may be complex and conditional.

Speed can have important strategic implications even when it does not directly affect firm performance. For example, fast decision making can strengthen commitment from potential investors, employees, and other key stakeholders by signaling that the firm is proactive and adaptable and is not likely to be 'paralyzed' by its own analytical processes (Langley, 1995). Relatedly, Pfeffer and Sutton contend that organizations that value 'doing' over 'planning' encourage employees at all levels to exploit their available knowledge by 'establish[ing] a cultural tone that action is valued, and that talk and analysis without action are unacceptable' (Pfeffer and Sutton, 2000: 251). Faster decision making can also enhance organizational learning: by enabling firms to make a greater number of decisions in a given period of time, it gives them a more extensive set of interactions with their environment and, therefore, more experiential data from which to learn (Eisenhardt, 1989; Mosakowski, 1997). Faster decision making may have negative consequences as well, however, causing firms to lose the benefit of information that

is revealed slowly over time (Shankar and Carpenter, 1998).

PAST RESEARCH ON THE DETERMINANTS OF DECISION SPEED

Four major studies have explicitly sought to understand the determinants of decision speed in organizations. In the first of these, Eisenhardt (1989) conducted case studies of eight microcomputer firms and developed a set of propositions linking decision speed with certain management team processes, including the use of real-time information, the consideration of multiple simultaneous alternatives and the use of experienced counselors. Judge and Miller (1991) seized upon two specific determinants proposed by Eisenhardt—the number of alternatives considered and the use of experienced counselors—and examined their effects on decision speed. In a study of 36 organizations in three different industries, they found that considering more alternatives quickened decision speed, regardless of environmental context, but that the use of experienced counselors had different effects on speed in different contexts. Wally and Baum (1994) asked 151 CEOs to respond to a hypothetical acquisition scenario and found that these executives' cognitive ability, use of intuition, tolerance for risk, and propensity to act were all positively related to decision speed, as were organizational centralization and formalization. More recently, Baum and Wally (2003), in a survey of 318 CEOs that again used hypothetical decision scenarios, found that two environmental characteristics—dynamism and munificence—were positively related to decision speed.

Past research in this area has emphasized relatively large, established firms in at least moderately stable industries. For example, Wally and Baum (1994) surveyed the CEOs of manufacturing firms that averaged 721 employees and \$81 million in sales. The firms in their second study came from a wider range of industries but appear to have been of similar size. Judge and Miller (1991) did not disclose the size of their firms, but only the 10 biotechnology firms in their sample appear to deviate from this profile. Eisenhardt's microcomputer firms clearly occupied a dynamic environment, but those firms, which averaged 229 employees and \$26 million in sales, were larger than most new ventures. In summary, little attention has been paid

to the determinants of decision speed in small new ventures, and there are no published, quantitative studies of firms of any size that focus on firms in a dynamic environment. It is understandable and perhaps necessary that most organizational theories are developed in large, established firms, but it is important for scholars to periodically test those theories among small new ventures as well. Doing so can help to clarify the contextual boundaries of existing theory, and it also informs our understanding of how new organizations emerge and compete (Aldrich, 2000). Moreover, as I argue in the next section, decision speed is likely to matter most among new ventures in dynamic environments.

Past research in this area has also emphasized firm-level determinants of decision speed, paying less attention to individual determinants. Given the tendency of past studies to focus on larger firms, in which the influence of individual managers may be mitigated by internal organizational dynamics, this emphasis may have been appropriate. However, as I argue in the next section, studies that seek to extend existing theory to new venture contexts must take account of individual differences of founder/managers.

THE IMPORTANCE OF THE PRESENT RESEARCH

Exploring managerial determinants of decision speed in new ventures represents an important extension of prior research for several reasons. First, managers' decision practices are more likely to influence firm performance in such firms. In large firms resources are often devoted to decision processes for non-decisional purposes, such as communication and control (Langley, 1989). Consequently, decision processes in large firms are often disconnected from organizational actions (Brunsson, 1982). In smaller and newer ventures, on the other hand, where managerial interaction is less formalized and there are generally fewer slack resources available (Hambrick and Crozier, 1985), decision making is more likely to be a functional exercise that is genuinely representative of firms' interactions with their environments.

Second, the potential for individual characteristics to influence firm behavior is especially great in new ventures. In large firms, the group dynamics of large top management teams can mitigate the

influence of individual cognitive factors on organizational decision making (Mintzberg *et al.*, 1976), but most new ventures have only one or a few key managers at their core and relatively few levels of internal hierarchy (Mintzberg and Waters, 1982). Moreover, new ventures have fewer precedents and weaker routines in place than do large firms, meaning that new venture managers must rely more heavily on their own cognition in decision situations (Gartner, Bird, and Starr, 1992).

Finally, new ventures frequently arise in environments that are dynamic, high in product differentiability and low in capital intensity, and it is precisely such environments that confer high levels of discretion on new venture managers (Hambrick and Abrahamson, 1995), making both of the preceding arguments more applicable.

THEORY AND HYPOTHESES

Life course theory holds that individuals' behavior is influenced by their position along the trajectory of the human life span (Elder, 1985). Individual age is a commonly used reference point in the study of life course dynamics (Hagestad and Neugarten, 1985). Many past studies in the management literature have implicitly referenced life course theory in theorizing about the effects of age on managerial decisions (e.g., Hambrick and Mason, 1984; Hitt and Tyler, 1991). Taylor (1975) found that older managers sought more information and took longer to make a decision than did younger managers. His study also showed that older managers were less confident and more equivocal about their decisions than younger managers were once they had made them.

I expect that older managers will make slower strategic decisions for several reasons. First, older managers are likely to perceive more risk in strategic decision situations. Research has shown that people perceive financial risks more readily as they age (Sung and Hamma, 1996), perhaps because older people are more likely to have dependants and associated financial obligations, such as mortgages and higher education bills, or because they anticipate needing retirement savings sooner. Older managers are also likely to have accumulated more reputational capital than younger managers and may see themselves as having more to

lose from a failed venture. This heightened perception of risk is likely to lead to more deliberate, careful decision making. Second, a key tenet of life course theory is that human development is influenced by social and historical conditions (Benson, 2001). In recent decades, each successive generation of managers has come of age during a period of technological and industrial change that is considerably more rapid than the change experienced by the preceding generation. This is especially true for entrepreneurs who are currently in their twenties or early thirties, who have watched company life cycles and personal fortunes unfold on an accelerated timeline. The decision speed of these younger managers is likely to reflect this rapid pace, whereas older managers are likely to retain the instincts they developed in earlier eras. Finally, individuals' perceptions of time change as they age, such that the same period of time appears shorter to older managers, for whom a single month or year represents a smaller percentage of a lifetime, than to younger managers (James, 1981; McFadden and Atchley, 2001). Accordingly, older entrepreneurs are likely to spend more time making a decision without even feeling that they have done so.

Hypothesis 1: New ventures managed by younger entrepreneurs will make faster decisions.

Human capital refers to the intangible assets that individuals possess, such as knowledge, education, or experience (Becker, 1994; Pfeffer, 1996). These assets can facilitate behaviors that are strategically valuable, such as the procurement of resources (Hitt *et al.*, 2001), or others that may be strategically important, such as strategic change (Boeker, 1989). 'General' human capital, such as that represented by an individual's overall educational level, is thought to apply to most areas of life, whereas 'specific' human capital is adapted to a particular domain of socioeconomic activity (Becker, 1994). Domain-relevant experience is a form of specific human capital that is likely to lead to faster decision making by enabling people to gather and process information more efficiently. There are several reasons for this.

First, people with domain-relevant experience are likely to spend less time gathering information in a decision situation, because they will already have a stock of applicable knowledge.

Second, when people with domain-relevant experience do seek information, they are likely to gather it faster, because they will be more familiar with the sources of information available in that domain. Third, people with domain-relevant experience are likely to analyze information more quickly, because they are more likely to possess an organizing framework or 'schema' that facilitates the storage, recall, and interpretation of data (Lord and Maher, 1990).

Prior experience as an entrepreneur is an important form of domain-specific experience, because the strategic challenges faced by new ventures often differ significantly from those faced by larger, more established firms (Gartner *et al.*, 1992). New ventures face special challenges associated with their lack of resources and legitimacy, which collectively constitute a 'liability of newness' (Stinchcombe, 1965). Managers who have faced this set of challenges before will be more conceptually familiar with the kinds of strategic problems that confront new ventures and, therefore, will possess knowledge and schemas that aid in the interpretation and resolution of those problems as they arise again. Moreover, managers with prior entrepreneurial experience are likely to be better acquainted with those aspects of the societal infrastructure that nurture entrepreneurial success. Managers with this knowledge are likely to gather information more efficiently and to rely more heavily on expert advice in decision situations, and both of these factors are likely to quicken decision speed (Eisenhardt, 1989).

There is some empirical evidence to support the above contentions. Stuart and Abetti (1990), for example, found that prior entrepreneurial experience contributes strongly to the overall performance of new ventures. The behavioral processes that mediate this relationship remain unclear, but it is plausible that faster decision making plays a role in at least some cases. This speculation is supported by Cooper, Folta, and Woo's (1995) finding that entrepreneurs with previous experience as entrepreneurs searched less intensively for new information than those with no previous entrepreneurial experience.

Hypothesis 2: New ventures managed by entrepreneurs with prior new venture experience will make faster decisions.

RESEARCH METHOD

I tested these hypotheses using a sample drawn from the 'Silicon Alley' community of Internet-related new ventures in the New York City metropolitan area in 1999. New ventures were defined to be independent firms (i.e., not subsidiaries or divisions) that had been in business 10 years or less and represented the full-time job of at least one person. Past scholars have observed that it is difficult to identify samples of new ventures for research purposes, especially ones that include firms in the earliest years of their existence, because the smallness, youth, and privately held status of such firms, keep them off of the 'radar screens' of most publicly available records (Aldrich, 2000). I chose Silicon Alley as a research context because it was comprised of many small, young firms competing in a highly dynamic environment (PricewaterhouseCoopers, 2000). Studies of firms in a single industry in a single location admittedly represent a tradeoff in the sense that they hinder the generalizability of results, a consideration I return to later. The advantage of such studies is that they restrict uncontrolled variance. This is particularly valuable in survey research, where sample sizes are often smaller than in archival studies. Industry-focused studies can also enhance the reliability of surveys by improving the chances that people will interpret questions similarly.

I selected the sample using local telephone listings, which provide a relatively exhaustive inventory of firms. Because these were Internet-related firms, virtually all of them had websites. I analyzed firm websites in an effort to eliminate inappropriate firms, such as divisions of larger firms or businesses that were geographically distant, part-time or defunct. These analyses yielded an initial sample of 719 firms.

Data collection

The data were collected in three stages of questionnaire surveys. The surveys were made available on paper and online and were conducted in accordance with the 'Total Design Method' of Salant and Dillman (1994). The first stage ('Stage 1') gathered data on the firms and their decisions and was sent to the lead manager of each firm in July 1999. Of the 142 replies, 115 were from independent, full-time enterprises. The second stage of the

survey followed up with the Stage 1 respondents and gathered data on the managers' backgrounds. Responses to this survey were combined with archival data on managers' backgrounds obtained from website biographies. Ultimately, background data were obtained for 98 Stage 1 respondents who were both founders and managers of their firms.

Because the effective response rate was relatively low, the potential for nonresponse bias was explored in two ways. First, analyses of variance conducted using early and late respondents revealed no significant differences between these two groups on any of the variables (Armstrong and Overton, 1977). The second procedure involved comparing respondents with a randomly selected subset (20%) of nonrespondent firms from the original sample. Again, no significant differences were found.

The third stage of the survey gathered data from the colleagues of a subset of the Stage 1 respondents for the purpose of corroborating the firm-level data (as in Blum, Fields, and Goodman, 1994). Twelve Stage 1 respondents agreed to provide the names of colleagues for this survey, and 10 of those 12 responded, providing colleague responses for 13 percent of the firms in the final sample. The colleagues' responses were used to calculate intra-class correlation coefficients (Shrout and Fleiss, 1979). In addition, firm size, age, and individual background data were confirmed using data reported on the firms' websites whenever these were available.

Measures

Decision speed was measured by asking respondents to identify and briefly describe the most significant strategic decision made by their firm in the last 2 years, as in Judge and Miller (1991). Respondents reported the month and year of two events: (1) when the firm began to actively consider alternative courses of action associated with the decision; and (2) when a commitment to a specific choice was made. Consistent with prior research (Eisenhardt, 1989; Mintzberg *et al.*, 1976), decision duration was defined to be the number of months during which the decision was considered. The intra-class correlation between the decision durations reported by the lead managers and those of their colleagues was 0.71 ($p < 0.05$). The duration measure was logged in order to normalize its distribution and then multiplied by (-1)

in order to provide an intuitive measure of speed, for which higher values represented faster decisions.

Entrepreneurs were asked to report their age and the number of times they had previously been involved in founding or managing a new venture. Because the task-relevant human capital conferred by an initial new venture experience is likely to be considerably greater than the impact of each subsequent experience (e.g., the difference between a fourth and fifth time), prior experience was coded as a dummy variable for which '0' represented no prior new venture experiences and '1' represented one or more such experiences (Bruderl, Preisendorfer, and Ziegler, 1992).

Consistent with work by Wally and Baum (1994) and Hambrick and Finkelstein (1987), data on firm size and age, decision centralization, decision type, and line of business were gathered for use as control variables. Firm size was measured as the number of full-time employees (Brush, 1992). Firm age was measured as the number of months that had elapsed between the month the organization became a full-time occupation for at least one person and the month designated as the beginning of the firm's decision process. Decision centralization was measured as the number of additional persons from within the firm who were involved in making the previously identified decision. This figure was multiplied by (-1) to provide a more intuitive measure of centralization for which higher values represented more centralized situations (i.e., fewer involved persons). Decision type was coded into 'product/market' decisions, which involved determining or modifying what the firm sells and/or to whom and which accounted for the majority of the decisions made, and 'other' decisions, which generally involved the acquisition of resources, such as financing or labor. I also sought to control for differences among firms' primary business activities. Following a categorization scheme developed by Barua *et al.* (1999) in a widely recognized study of the Internet economy, I classified the firms into three lines of business. The line of business designations ('applications,' 'intermediary,' and 'commerce') are described in the Appendix.

I inductively derived the decision type categories and coded the decisions and firms with the help of a doctoral candidate. A comparison of our independent codings yielded a high degree of inter-rater

reliability in both cases (0.90 and 0.93, respectively). The vast majority of firms in the sample were either applications firms or intermediary firms. Because there were only five e-commerce firms, *t*-tests involving the line-of-business category compared applications firms with intermediary firms. Because applications firms accounted for more than half of the sample, I conducted additional analyses in which this category was subdivided into firms emphasizing software vs. design, but these analyses did not materially alter the results. I also conducted analyses using normalizing transformations of firm size, which exhibited a leftward skew, and centralization, which exhibited a rightward skew. But these transformations did not materially affect the results, so results are reported using the untransformed variables.

RESULTS AND DISCUSSION

Descriptive statistics and correlations are presented in Table 1. Chi-squared analyses and *t*-tests involving the dichotomous variables are presented in Tables 1 and 2. Table 3 presents the hierarchical regression analyses designed to test the hypotheses.

Hypothesis 1 proposed that younger managers would make faster decisions. Table 3 shows, in fact, a strong *reverse* relationship: the positive main effect indicates that *older* managers make faster decisions ($p < 0.01$). Hypothesis 2 proposed that firms managed by entrepreneurs with prior new venture experience would make faster decisions, and this hypothesis was supported ($p < 0.01$). Age and prior venture experience combine to explain an additional 15 percent of the variance.

One possible explanation for the demonstrated effect of age is that older managers, being closer to traditional retirement thresholds, may feel as though their 'career clock' is ticking more rapidly and that they need to work more expeditiously with the time that they have. Also, because older managers are more likely to have left senior positions in other careers, they may have greater opportunity costs than younger managers, whose alternative employment options may be less appealing. Alternatively, older managers' decision processes may simply have become more efficient and routinized over time.

POST HOC ANALYSIS: THE SURVIVAL IMPLICATIONS OF DECISION SPEED

In summer 2003, approximately 4 years after the initial survey, I followed up on the firms in the sample to see whether their decision-making practices had affected their survival. First, I tried to contact each firm by phone or e-mail to confirm its status. When I could not reach a firm, I used online databases, such as Lexis/Nexis, to search for articles or press releases revealing its fate. Using these methods, I ascertained the status of all 98 firms. Of these, 16 had been acquired, 44 had closed, and the remaining 38 were still in business. I used these data to conduct *t*-tests, which I present in the right-hand column of Table 2, and logistic regression analyses, which I present in the right-hand columns of Table 3.

Studies by Eisenhardt (1989), Judge and Miller (1991), and Baum and Wally (2003) support the proposition that fast decision making enhances the performance of firms in dynamic environments. Contrary to what this proposition would suggest, however, I found that the relationship between

decision speed and firm closure was strongly *positive* ($p < 0.05$). In other words, firms that had made faster decisions were more likely to have closed 4 years later.

On one hand, this result would seem to support the view of Perlow and colleagues (2002): that fast decision making can lead firms to a 'speed trap' that is ultimately detrimental to firm performance. This interpretation is plausible, at least for firms in the Internet sector, which provided the context for their study and for mine. The glorification of speed within the industry culture of Internet firms is well documented (e.g., Lewis, 1999), so it is not difficult to imagine that firms that followed these cultural norms to their logical extremes ultimately found themselves penalized for making decisions too quickly. In fact, the average decision speed in Silicon Alley (mean = 4.6 months) proved to be shorter than in either the microcomputer sample studied by Eisenhardt (mean = 7.7 months) or the biotechnology sample studied by Judge and Miller (mean = 18.7 months), so it may be that Internet firms tended to push decision speed to such a point that its performance implications were reversed.

Table 1. Descriptive statistics, correlations and chi-squared statistics

	Mean	S.D.	Min.	Max.	1	2	3	4	5	6	7	8	9
1. Decision speed ^a	4.57	5.13	1	23									
2. Firm age (in months)	24.24	20.68	0	75	-0.08								
3. Firm size (# of employees)	8.43	15.39	1	100	-0.17†	0.24*							
4. Decision centralization	-1.68	1.55	0	-6	0.13	-0.23*	-0.53**						
5. ENT's age (in years)	36.10	7.67	22	66	0.19*	0.19*	0.06	0.02					
6. Decision type (1 = PM)	0.57	0.50	0	1									
7. ENT: Prior venture (1 = Yes)	0.61	0.49	0	1						0.32			
8. Firm: Line of business (1 = APP)	0.72	0.45	0	1						0.28	0.28		
9. Firm: Line of business (1 = INT)	0.22	0.42	0	1						0.01	0.54	NMF	
10. Firm closure (1 = closed)	0.45	0.50	0	1						0.21	3.26†	3.30†	3.28†

N = 98. † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$

^a Analyses conducted using transformed values. Descriptive statistics shown on an untransformed basis (i.e., decision duration in months).

Abbreviations: ENT, entrepreneur; P/M, product/market decision; APP, applications firms; INT, intermediary firms; NMF, not meaningful

Table 2. Comparisons of means

Variable	Means for: Decision type			Means for: Prior new venture experience			Means for: Firm line of business			Means for: Firm closure		
	P/M	Other	<i>t</i>	Yes	No	<i>t</i>	APP	INT	<i>t</i>	Closed	Not closed	<i>t</i>
<i>N</i>	55	43		60	38		71	22		44	54	
Firm age ^a	23.80	23.80	0	21.38	26.68	1.27	24.62	22.96	-0.35	25.80	23.40	-0.59
Firm size ^a	6.78	9.80	1.12	7.92	8.17	0.08	6.52	12.15	1.72†	5.30	10.67	1.90†
Centralization	-1.48	-1.91	1.81	-1.63	-1.71	-0.27	-1.68	-1.56	0.39	-1.88	-1.49	1.30
Entrepreneur's age ^a	36.75	35.57	-0.76	36.13	35.75	-0.24	36.20	36.32	0.06	36.18	36.10	-0.05
Decision speed	-0.44	-0.54	-1.90†	-0.42	-0.62	-2.50*	-0.49	-0.58	-1.03	-0.39	-0.59	-2.73**

N = 98† *p* < 0.10; * *p* < 0.05; ** *p* < 0.01

Abbreviations: P/M, product/market decision; APP, applications firms; INT, intermediary firms

^a Scales of variables: firm age in months; firm size in number of employees; entrepreneur's age in yearsTable 3. Results of regression analyses^a

Independent variables	DV = decision speed		DV = firm closure	
	Controls	Full model	Controls	Full model
Constant	-0.38* (0.18)	-0.92** (0.24)	-0.63 (0.99)	-0.70 (1.73)
Firm age (in months)	0.00 (0.00)	0.00 (0.00)	0.02 (0.01)	0.02† (0.01)
Firm size (# of employees)	0.00 (0.00)	0.00 (0.00)	-0.08* (0.04)	-0.08* (0.03)
Product/market decision (1 = yes)	0.15* (0.08)	0.14* (0.08)	-0.28 (0.46)	-0.41 (0.50)
Applications firm (1 = yes)	-0.12 (0.17)	-0.12 (0.16)	0.17 (0.98)	0.12 (1.07)
Intermediary firm (1 = yes)	-0.22 (0.19)	-0.19 (0.18)	-0.95 (1.13)	-0.87 (1.22)
Decision centralization	0.02 (0.03)	0.02 (0.03)	-0.45* (0.20)	-0.55* (0.22)
Entrepreneur's age (in years)		0.02** (0.01)		-0.01 (0.04)
Entrepreneur: prior venture (1 = yes)		0.23** (0.08)		0.92† (0.52)
Decision speed				1.58* (0.73)
<i>R</i> ² (Pseudo <i>R</i> ² for logistic regression)	0.11	0.26	0.16	0.24
Adjusted <i>R</i> ²	0.05	0.20		
<i>F</i>	1.83†	4.01**		
χ^2			17.10**	27.08**
-2 log likelihood			117.73	107.75

N = 98. † *p* < 0.10; * *p* < 0.05; ** *p* < 0.01^a OLS regression where DV = speed, binary logistic regression where DV = firm closure (1 = closed). Unstandardized coefficients shown over standard errors, in parentheses.

This reversal might reflect a situation in which speed-related advantages, such as those that might accrue to being the first to adopt a new technology or quickly signing a major strategic alliance partner, were simply overwhelmed by the problems that strategic analysis is intended to mitigate, such as technology implementation snags or irreconcilable alliance conflicts. A pattern of very fast decision making could permit such problems to accumulate and exacerbate one another. Thus, the experiences of these Internet firms may reveal that

there are limits to the value of fast decision making, no matter how intense environmental imperatives for speed are perceived to be.

On the other hand, two cautionary factors must be considered in interpreting this result. First, survival data are inherently right-censored, in that firms that are alive may yet fail. These data are further censored in that firms acquired before 2003 might have failed had they continued on a stand-alone basis. (Decision speed was unrelated to acquisition.) Nevertheless, 4 years provides a

reasonable amount of time for a venture to fail, especially in this case, where the 4-year span includes more than 2 years of time following the dramatic drop in demand for Internet-related services that occurred in 2000.

The second factor is that firm closure may not necessarily reflect business failure as that is conventionally understood. Some closures may reflect voluntary exit on the part of entrepreneurs whose businesses have not technically failed. Entrepreneurs sometimes choose to close their businesses because performance, while not poor enough to force closure, falls below their own aspiration levels, or because of personal reasons unrelated to performance (DeTienne, Shepherd, and DeCastro, 2002). Other closure-related results support this possibility. For example, firms run by experienced entrepreneurs were also more likely to close ($p < 0.10$). Rather than interpret this to mean that serial entrepreneurs perform more poorly, I think it is more correct to infer that serial entrepreneurs are inclined to exit more readily when faced with a dramatic drop in environmental munificence, as they were here. Similarly, entrepreneurs who make faster decisions may not necessarily be suffering from having made less effective decisions but rather manifesting a general sense of impatience and making the decision to close their firms more quickly than others in the sample.

Because I was unable to contact many of the entrepreneurs whose businesses had closed, I cannot say with certainty which of these interpretations of firm closure is more correct. But the anecdotal evidence provided by those whom I could contact suggests that both interpretations are at least partly true. Several entrepreneurs whose firms' decision speed ranked in the top quartile provided feedback that clearly indicated they had been driven out of business: 'There is no industry any more,' one complained, 'at least not in New York.' On the other hand, another entrepreneur in this quartile explained that she had closed her small Web design shop because she discovered that a different, part-time venture in which she was involved was showing more promise: 'The new business has become very successful ... and is now essentially full-time,' she explained, while 'the old one is essentially defunct.' Meanwhile, feedback from some of the firms that had not closed underscored that survival should not be equated with unambiguous success. 'We are still soldiering on,' one survivor wrote, 'albeit with great difficulty.'

CONCLUSION

This study expands our knowledge of the individual-level determinants of decision speed beyond the purely cognitive factors identified by Wally and Baum (1994), and it strengthens the theoretical bases of work in this area by explaining the demonstrated effects with reference to life course theory and human capital theory, two well-developed theories that were previously unintegrated with this literature. In addition, this study is the first to connect individual managerial characteristics with a measure of speed that is based on firms' actual strategic decisions, as opposed to measures registered in a scenario-based exercise.

The study's focus on small new ventures represents both a strength and a limitation. It is a strength in that it helps to extend research on decision speed to an important context that had not previously been explored in a large-scale study. Moreover, owing to the high level of managerial discretion that exists in small new ventures, the context is one in which it is all the more reasonable to expect that individual managerial characteristics will influence firm decision behavior. The study's focus is also a limitation, however, in that it yields findings that may be context-specific. Of course, the construct of prior new venture experience is itself specific to the entrepreneurial context. However, the theoretical rationale for this finding, which is rooted in human capital theory, may extend to other contexts as well. For example, publicly traded firms may make faster decisions when they are managed by individuals who have previously managed other publicly traded firms. The effects of managerial age may also hold in other contexts: the effects of a shorter time horizon, greater opportunity costs, and more routinized processing are likely to be present among large firm CEOs as well. However, as with other individual determinants, the greater internal complexity of larger firms may make the effects of managerial age less robust. Future research linking managerial characteristics with actual decision processes in large firms is needed in order to fully assess the generalizability of these results.

This study also contributes some exploratory analyses to the ongoing discussion of the performance implications of decision speed. Specifically, it offers one of the few large-scale studies of the effects of decision speed, and the only such study that focuses exclusively on firms in

a dynamic environment. Through its attention to Internet firms, the study provides at least partial support to insights previously derived by Perlow and colleagues (2002) in their case study of an Internet startup. These data suggest that prevailing theory in this area, which holds that fast decisions help firms in dynamic environments, may not always be true and that in certain contexts (e.g., among Internet firms), the reverse may be true.

From a practical standpoint, this study is useful to entrepreneurs and others who work with them, including investors and employees, because it provides cues to decision behavior that can be gleaned from a basic familiarity with an individual's professional profile and, unlike the determinants previously identified by Wally and Baum (1994), do not require psychometric tests to be revealed. Clearly, people would be ill advised to use these cues as simple screening criteria in evaluating entrepreneurs or managers. However, when considered in conjunction with other relevant information, these cues can aid in understanding how individuals are likely to impact the strategic behavior of the firms they manage, and people in possession of such an understanding will be better equipped to interpret, counsel, and influence the strategic behavior of individuals and firms.

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REFERENCES

- Aldrich H. 2000. *Organizations Evolving*. Sage: London.
- Armstrong J, Overton T. 1977. Estimating nonresponse bias in mail surveys. *Journal of Marketing Research* **14**: 396–402.
- Barua A, Pinnell J, Shutter J, Whinston A. 1999. *Measuring the Internet Economy: An Exploratory Study*. Center for Research on Electronic Commerce at the University of Texas at Austin: Austin, TX.
- Baum J, Wally S. 2003. Strategic decision speed and firm performance. *Strategic Management Journal* **24**(11): 1107–1129.
- Becker G. 1994. *Human Capital* (3rd edn). University of Chicago Press: Chicago, IL.
- Benson M. 2001. *Crime and the Life Course*. Roxbury: Los Angeles, CA.
- Blum T, Fields D, Goodman J. 1994. Organization-level determinants of women in management. *Academy of Management Journal* **37**: 241–268.
- Boeker W. 1989. Strategic change: the effects of founding and history. *Academy of Management Journal* **32**: 489–515.
- Bruderl J, Preisendorfer P, Ziegler R. 1992. Survival chances of newly founded business organizations. *American Sociological Review* **57**: 227–242.
- Brunsson N. 1982. The irrationality of action and action rationality: decisions, ideologies and organizational actions. *Journal of Management Studies* **19**: 29–44.
- Brush C. 1992. Marketplace information scanning activities of new manufacturing ventures. *Journal of Small Business Management* **30**: 41–54.
- Chen M, Hambrick D. 1995. Speed, stealth and selective attack: How small firms differ. *Academy of Management Journal* **38**: 453–483.
- Cooper A, Folta T, Woo C. 1995. Entrepreneurial information search. *Journal of Business Venturing* **10**: 107–120.
- DeTienne D, Shepherd D, DeCastro J. 2002. The fallacy of 'only the strong survive': a social cognitive perspective on the persistence of underperforming firms. *Frontiers of Entrepreneurship Research* **22**: 646–656.
- Eisenhardt K. 1989. Making fast strategic decisions in high-velocity environments. *Academy of Management Journal* **32**: 543–576.
- Elder G. 1985. *Perspectives on the Life Course*. Cornell University Press: Ithaca, NY.
- Gartner W, Bird B, Starr J. 1992. Acting as if: differentiating entrepreneurial from organizational behavior. *Entrepreneurship: Theory and Practice* **16**: 13–31.
- Garud R, Jain S, Phelps C. 1998. Organizational linkages and product transience: new strategic imperatives in network fields. In *Advances in Strategic Management*, Vol. 15, Baum J (ed). JAI Press: Greenwich, CT; 205–237.
- Hagestad G, Neugarten B. 1985. Age and the life course. In *Handbook of Aging and the Social Sciences*, Binstock R, Shanas E (eds). Van Nostrand Reinhold: New York; 46–61.
- Hambrick D, Abrahamson E. 1995. Assessing managerial discretion across industries: a multimethod approach. *Academy of Management Journal* **38**: 1427–1441.
- Hambrick D, Crozier L. 1985. Stumblers and stars in the management of rapid growth. *Journal of Business Venturing* **1**: 31–45.
- Hambrick D, Finkelstein S. 1987. Managerial discretion: a bridge between polar views on organizations. In *Research in Organizational Behavior*, Vol. 9, Cummings L, Staw B (eds). JAI Press: Greenwich, CT; 369–406.
- Hambrick D, Mason B. 1984. Upper echelons: the organization as a reflection of its top managers. *Academy of Management Review* **9**: 193–206.
- Hitt M, Bierman L, Shimizu K, Kochhar R. 2001. Direct and moderating effects of human capital on strategy

- and performance in professional service firms: a resource-based perspective. *Academy of Management Journal* **44**: 13–28.
- Hitt M, Tyler B. 1991. Strategic decision models: integrating different perspectives. *Strategic Management Journal* **12**(5): 327–351.
- James W. 1981. [1890] *Principles of Psychology*. Harvard University Press: Cambridge, MA.
- Judge W, Miller A. 1991. Antecedents and outcomes of decision speed in different environmental contexts. *Academy of Management Journal* **34**: 449–463.
- Langley A. 1989. In search of rationality: the purposes behind the use of formal analysis in organizations. *Administrative Science Quarterly* **34**: 598–631.
- Langley A. 1995. Between ‘paralysis by analysis’ and ‘extinction by instinct’. *Sloan Management Review* **36**: 63–76.
- Lewis M. 1999. *The New New Thing*. Norton: New York.
- Lord R, Maher K. 1990. Alternative information-processing models and their implications for theory, research and practice. *Academy of Management Review* **15**: 9–28.
- Makadok R. 1998. Can first-mover and early-mover advantages be sustained in an industry with low barriers to entry/imitation? *Strategic Management Journal* **19**(7): 683–696.
- McFadden S, Atchley R. 2001. *Aging and the Meaning of Time*. Springer: New York.
- Mintzberg H, Waters J. 1982. Tracking strategy in an entrepreneurial firm. *Academy of Management Journal* **25**: 465–499.
- Mintzberg H, Raisinghani D, Theoret A. 1976. The structure of ‘unstructured’ decision processes. *Administrative Science Quarterly* **21**: 246–275.
- Mosakowski E. 1997. Strategy making under causal ambiguity: conceptual issues and empirical evidence. *Organization Science* **8**: 414–442.
- Perlow L, Okhuysen G, Repenning N. 2002. The speed trap: exploring the relationship between decision making and temporal context. *Academy of Management Journal* **45**: 931–955.
- Pfeffer J. 1996. *Competitive Advantage through People*. Harvard Business School Press: Boston, MA.
- Pfeffer J, Sutton R. 2000. *The Knowing–Doing Gap*. Harvard Business School Press: Boston, MA.
- PricewaterhouseCoopers. 2000. *New York New Media Industry Survey*. PricewaterhouseCoopers: New York.
- Salant P, Dillman D. 1994. *How to Conduct Your Own Survey*. Wiley: New York.
- Shankar V, Carpenter G. 1998. Late mover advantage: how innovative late entrants outsell pioneers. *Journal of Marketing Research* **35**: 54–70.
- Shrout P, Fleiss J. 1979. Intraclass correlations: uses in assessing rater reliability. *Psychological Bulletin* **86**: 420–428.
- Stevenson H, Gumpert D. 1985. The heart of entrepreneurship. *Harvard Business Review* **63**(2): 85–94.
- Stinchcombe A. 1965. Social structure and organizations. In *Handbook of Organizations*, March J (ed). Rand McNally: Chicago, IL; 142–193.
- Stuart R, Abetti P. 1990. Impact of entrepreneurial and management experience on early performance. *Journal of Business Venturing* **5**: 151–162.
- Sung J, Hamma S. 1996. Factors related to household risk tolerance: an ordered probit analysis. *Consumer Interests Annual* **42**: 227–229.
- Taylor R. 1975. Age and experience as determinants of managerial information processing and decision making performance. *Academy of Management Journal* **18**: 74–81.
- Wally S, Baum J. 1994. Personal and structural determinants of the pace of strategic decision making. *Academy of Management Journal* **37**: 932–956.

APPENDIX: LINE OF BUSINESS CATEGORIES AND DEFINITIONS

Line of business category	Definition <i>'Firms in this category ...'</i>	Subcategories and representative firms ^a
Applications	Build upon an IP network infrastructure and technologically facilitate the conduct of business activities online	<ul style="list-style-type: none"> • Internet consultants (e.g., Razorfish) • Developers of Internet applications (e.g., Netscape) • Website design firms (e.g., Organic Online)
Intermediary	Facilitate the meeting and interaction of buyers and sellers online	<ul style="list-style-type: none"> • Online communities (e.g., iVillage) • Portals (e.g., Yahoo!)
Commerce	Sell products and services to businesses or consumers directly over the Internet	<ul style="list-style-type: none"> • Internet ad brokers (e.g., Doubleclick) • Internet retailers (e.g., Amazon.com) • Fee- or subscription-based companies (e.g., WSJ.com)

^a The representative firms shown here are prominent firms in these subcategories that are listed to help illustrate the types of activities referred to. They are not necessarily included in the sample.

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