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THE RELATIONSHIP BETWEEN CORPORATE ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT

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This study examines the relationship between corporate entrepreneurship intensity and five specific strategic management practices in a sample of 169 U.S. manufacturing firms. The five strategic management practices include: scanning intensity, planning flexibility, planning horizon, locus of planning, and control attributes. The results of the study indicated a positive relationship between corporate entrepreneurship intensity and scanning intensity, planning flexibility, locus of planning, and strategic controls. The fine-grained nature of these results may be of practical use to firms that are trying to become more entrepreneurial and may help researchers better understand the subtleties of the interface between strategic management and corporate entrepreneurship. Copyright © 1999 John Wiley & Sons, Ltd.

INTRODUCTION

Many authors have singled out corporate entrepreneurship as an organizational process that contributes to firm survival and performance (Covin and Slevin, 1989; Drucker, 1985; Lumpkin and Dess, 1996; Miller, 1983; Zahra, 1993). In short, these authors argue that entrepreneurial attitudes and behaviors are necessary for firms of all sizes to prosper and flourish in competitive environments. As a result of these sentiments, a growing body of literature is evolving to help firms understand the organizational processes that facilitate entrepreneurial behavior (Covin and Slevin, 1991a; Guth and Ginsberg, 1990; Miller, 1983; Sathe, 1988; Zahra, 1991). This stream of research is extremely valuable because a firm's ability to increase its entrepreneurial behavior is largely determined by the compatibility of its management practices with its entrepreneurial ambitions (Murray, 1984).

Among the management practices believed to facilitate entrepreneurial behavior are a firm's strategic management practices (e.g., Covin and Slevin, 1991a; Miller, 1983; Murray, 1984; Zahra, 1991). This research is consistent with the general notion that a firm's strategic management practices should be tailored to support its organizational objectives and context (Chakravarthy, 1987; Child, 1972). Unfortunately, no study has focused specifically on the relationship between a firm's strategic management practices and its entrepreneurial intensity. Instead, the studies that have examined the organizational characteristics that facilitate entrepreneurial behavior have looked at a broad array of variables and have not provided extensive insight about the impact of a firm's strategic management practices on its entrepreneurial intensity.

To develop a more comprehensive picture of how a firm's strategic management practices influence its entrepreneurial behavior, we exam-

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ined the relationship between the strategic management practices and corporate entrepreneurship intensity of a sample of 169 U.S. manufacturing firms. We selected five dimensions of the strategic management process to include in the study, including scanning intensity, planning flexibility, planning horizon, locus of planning, and control attributes. The process of selecting the dimensions of strategic management to include in the study struck a balance between completeness and parsimony. In designing the study, we sought to include enough dimensions of strategic management to reflect the overall essence of the strategic management process while keeping the number of dimensions manageable and theoretically relevant. Accordingly, the dimensions of strategic management were selected through a literature review focused on identifying the areas of strategic management most relevant to the pursuit of corporate entrepreneurship. Thus the approach taken in this study was to examine the relationship between each of the dimensions of strategic management included in the study and a firm's corporate entrepreneurship intensity.

This article proceeds in the following manner. First, we provide a review of the corporate entrepreneurship literature. Second, we examine and discuss the relationship between each of the dimensions of strategic management included in the study and corporate entrepreneurship intensity, and we articulate a research hypothesis to summarize each of the individual discussions. Third, we describe the research design and report the results of the hypothesis tests. Finally, we examine the implications of the results for managers and researchers.

CORPORATE ENTREPRENEURSHIP

Contemporary entrepreneurship research originated in the work of economist Joseph Schumpeter (1883–1950). In his writings, Schumpeter argued that the main agents of economic growth are the entrepreneurs who introduce new products, new methods of production, and other innovations that stimulate economic activity (Schumpeter, 1936, 1950). Schumpeter described entrepreneurship as a process of 'creative destruction,' in which the entrepreneur continually displaces or destroys existing products or methods of production with new ones. Schumpeter (1936, 1950) viewed this process favorably, because innovations typically represent an improvement in terms of product or process utility and as a result create greater buyer interest and overall economic activity.

Although Schumpeter's writings focused primarily on the activities of the individual entrepreneur, in many settings entrepreneurship is arguably a firm-level phenomenon (Covin and Slevin, 1991a, 1991b; Miller, 1983; Stevenson and Jarillo, 1990). For example, 3M, one of the world's largest corporations, has a long history of entrepreneurial behavior, transcending the tenures of CEOs and top management teams (Hussey, 1997). Similarly, a recent study of the role of entrepreneurship in reformulating Intel Corporation's corporate strategy suggested that entrepreneurial activities were the outcome of the interaction of individuals and groups at multiple levels within the firm (Burgelman, 1991).

The end result of these and similar observations has been the conceptualization of entrepreneurship as a firm-level phenomenon (e.g., Burgelman, 1983; Covin and Slevin, 1988, 1991a; Miller, 1983; Zahra, 1991, 1993). The main assumption that underlies the notion of corporate entrepreneurship is that it is a behavioral phenomenon and all firms fall along a conceptual continuum that ranges from highly conservative to highly entrepreneurial. Entrepreneurial firms are risk-taking, innovative, and proactive. In contrast, conservative firms are risk-adverse, are less innovative, and adopt a more 'wait and see' posture. The position of a firm on this continuum is referred to as its entrepreneurial intensity.

Against this backdrop, one of the main themes that has emerged in the corporate entrepreneurship literature is that a firm's level of entrepreneurial intensity is influenced by both its external and its internal corporate context (Zahra, 1991). Firms in turbulent vs. stable environments tend to be more innovative, risk-taking, and proactive (Naman and Slevin, 1993). Previous studies have identified attributes of highly entrepreneurial firms that differ from those of firms exhibiting lower levels of entrepreneurial intensity. In the next section of this article, we discuss the relationship between each of the individual dimensions of strategic management included in this study and corporate entrepreneurship intensity.

THE RELATIONSHIP BETWEEN CORPORATE ENTREPRENEURSHIP AND FIVE DIMENSIONS OF STRATEGIC MANAGEMENT

Three variables that underlie a firm's ability to behave in an entrepreneurial manner are consistently mentioned in the literature. These are opportunity recognition (Miller, 1983; Stevenson and Jarrillo-Mossi, 1986; Zahra, 1993), organizational flexibility (Murray, 1984; Naman and Slevin, 1993; Stevenson and Gumpert, 1985), and a firm's ability to measure, encourage, and reward innovative and risk-taking behavior (Sathe, 1988; Zahra, 1993). The strategic management practices included in this study (i.e., scanning intensity, locus of planning, planning flexibility, planning horizon, and control attributes) were selected on the basis of their potential for influencing one or more of these key enablers of firm-level entrepreneurial behavior, and a firm's overall entrepreneurial intensity.

The following is a discussion of each of the strategic management practices included in the study and its effect on firm-level entrepreneurial behavior. A research hypothesis is postulated to summarize each of the discussions. It should be noted that for ease of discussion we refer to the polar ends of the corporate entrepreneurship continuum as 'conservative' (low corporate entrepreneurship intensity) and 'entrepreneurial' (high corporate entrepreneurship intensity).

Scanning intensity

Environmental scanning refers to the managerial activity of learning about events and trends in the organization's environment (Hambrick, 1981). The philosophical roots of the scanning concept date back to the ancient Greeks, who believed that success in combat was dependent upon adequate intelligence for the purpose of making good tactical and strategic decisions (Box, 1991). Today scanning is important to managers for more benign, yet similar reasons. Scanning provides managers with information about events and trends in their relevant environments, which facilitates opportunity recognition (Bluedorn *et al*., 1994). In addition, scanning is a method of 'uncertainty absorption,' although the uncertainty absorption component of scanning is a two-edged sword. A belief that scanning reduces all uncertainty can produce a false sense of security in managers that makes it easy for them to miss signals coming from the environment. Thus, scanning can help managers cope with uncertainty, but only if they realize that uncertainty can only be reduced, not eliminated. Managers must remain vigilant, regardless of the degree of rigor in their scanning practices.

A high level of environmental scanning is congruent with the entrepreneurial process (Miller, 1983; Stevenson and Jarrillo-Mossi, 1986; Zahra, 1991). Recall that entrepreneurial firms are innovative, risk-taking, and proactive; and a central theme of the innovation literature is that information gathering and analysis is critical to the development and maintenance of successful innovation strategies (Covin, 1991; Kanter, 1988; Zumd, 1983). In addition, industries that pay a premium for innovative behavior require constant monitoring and analysis to remain understood. Examples of environmental settings, called high-velocity environments (Eisenhardt, 1989), that fit this profile include the electronics, computer software, biotechnology, and health care industries (Covin and Slevin, 1991b; Zahra, 1993). These industries are characterized by products and services that have relatively short life cycles. As a result, firms that compete in these industries must adopt short planning horizons and develop scanning mechanisms that focus on detecting shifts in environmental trends that provide opportunities for new products and services.

Scanning also facilitates the risk-taking and proactiveness dimensions of entrepreneurial behavior. As a means of partial uncertainty absorption, scanning may lower the perception of risk associated with a potential entrepreneurial venture, increasing the likelihood that the firm will engage in the venture. Entrepreneurial managers may also realize that scanning is their bridge to remaining competitive. A firm in a turbulent environment must be continually innovative to remain competitive, which requires extensive scanning to recognize and exploit environmental change. As a result, an intensive scanning regime, complemented by a short planning horizon and a flexible planning system, is a practical approach for entrepreneurial firms.

In contrast, scanning is less likely to be a critical strategic management function for conservative firms. Conservative firms are usually

located in industries that compete in stable environments (Covin, 1991). These environments generate low levels of uncertainty and, consequently, do not require an extensive search process to remain understood (Covin and Slevin, 1989; Miller and Friesen, 1983). Because product and service life cycles are longer in stable vs. turbulent environments, planning horizons can be longer and scanning activities typically focus on subtle shifts in environmental trends, quality improvements, and opportunities to gain market share. In addition, there is a considerable cost of environmental scanning in terms of both managerial time and cash outlays (Jennings and Seaman, 1994). Thus an overemphasis on environmental scanning for conservative firms may be counterproductive. This discussion leads to the following hypothesis:

Hypothesis 1: A positive relationship exists between scanning intensity and corporate entrepreneurship intensity.

Planning flexibility

Planning flexibility refers to the capacity of a firm's strategic plan to change as environmental opportunities/threats emerge. The notion of planning flexibility was first suggested by Kukalis (1989) to investigate how environmental and firm characteristics affect the design of strategic planning systems. Kukalis theorized that firms in complex environmental settings maximize performance by adopting 'flexible' planning systems. Flexible planning systems allow firms to adjust their strategic plans quickly to pursue opportunities and keep up with environmental change (Stevenson and Jarrillo-Mossi, 1986). Kukalis theorized that firms in highly complex environments need flexible planning systems because of the frequency of change in their business environments.

In general, planning flexibility is an organizational design attribute that has not received much research attention, but scholars have noted that planning has a natural tendency to engender inflexibility. Newman (1963: 62) observed that 'The establishment of advanced plans tends to make administration inflexible; the more detailed and widespread the plans, the greater the inflexibility.' Both Newman (1951) and Mintzberg (1994) attribute the inflexibility of planning to psychological factors. Newman argued that once an executive prepares a plan there is a tendency to try to 'make it work' which engenders a resistance to change as a result of an established mindset and a fear of loss of face. Similarly, Mintzberg (1994: 175) argued that 'The more clearly articulated the strategy, the greater the resistance to change—due to the development of both psychological and organizational momentum.'

Despite these observations, a number of theorists have argued that the need for flexibility in all areas of organizational design is increasing due to the increasingly rapid pace of environmental change (Aaker, 1995; Aaker and Mascarenhas, 1984; Bahrami, 1992; Chakravarthy, 1996). Applying this notion to strategic management, Gardner, Rachlin, and Sweeney (1986: 2.22) observed that 'one of the hallmarks of good strategies is the willingness of the drafters to encompass the likelihood of change and consequent uncertainties.' Similarly, Koontz (1958: 55) wrote, 'effective planning requires that the need for flexibility be a major consideration in the selection of plans.'

A concerted effort in the direction of planning flexibility facilitates a high level of corporate entrepreneurship intensity for several reasons. First, a flexible planning system, coupled with intensive environmental scanning, allows a firm's strategic plan to remain 'current' and permits a firm's entrepreneurial initiatives to be planned rather than to take place in an ad hoc manner outside the parameters of a strategic plan. This latter point is important because involvement in entrepreneurial behavior does not imply an abandonment of the rational–deliberate 'scan–formulate–implement–evaluate' approach to planning. What entrepreneurial behavior does imply is that the pace of this process must be accelerated and made more flexible because the essence of entrepreneurship is capitalizing on environmental change (Schumpeter, 1936). Second, although the entrepreneurial process is intended to keep a firm in step with environmental change, entrepreneurial firms are not completely free from inertia. As a result, putting a planning system in place that is flexible and is by design subject to change may remove a potential obstacle to change when it is needed.

In contrast, planning flexibility may undermine the effectiveness of conservative firms. Because conservative firms are not innovative, they typi-

cally seek to obtain a competitive advantage through reliability in executing repetitive transactions and routine activities. In this setting, a flexible planning system runs the risk of disrupting rather than facilitating a firm's business activities. There is a danger that plans may change too frequently, more as an artifact of the planning system rather than as a result of competitive necessity (Amburgey, Kelly, and Barnett, 1993). Therefore we propose the following hypothesis:

Hypothesis 2: A positive relationship exists between planning flexibility and corporate entrepreneurship intensity.

Planning horizon

A firm's planning horizon refers to the length of the future time period that decision-makers consider in planning (Das, 1987). For most firms, this period corresponds to the length of time necessary to execute the firm's routine strategies (Camillus, 1982). According to Rhyne (1985), the planning horizon for individual firms can vary from less than one year to more than fifteen years. The rationale for a given planning horizon is that it should be long enough to permit planning for expected changes in strategy and yet be short enough to make reasonably detailed plans available (Das, 1991). Clearly, within this broad framework firms will have a portfolio of planning horizons that are necessitated by the need to manage both short-term and long-term strategies simultaneously (Capon, Farley, and Hulbert, 1987; Judge and Spitzfaden, 1995).

A relatively 'short' average planning horizon (less than 5 years) may be optimal for entrepreneurial firms. These firms typically compete in turbulent environments that are characterized by short product and service life cycles. As a result, the paramount concern of an entrepreneurial firm is product and service innovation, which typically must be accomplished in the short term rather than the long term to maintain a sustainable competitive advantage. A short planning horizon, coupled with intensive environmental scanning and a high degree of organizational and planning flexibility, provides an entrepreneurial firm with the capacity to quickly recognize environmental change and develop appropriate product and service innovations.

The adoption of a relatively long planning horizon is not tenable for entrepreneurial firms. A reliance on a long-term planning horizon may engender a reluctance to deviate from a long-term view of the future despite short-term environmental change, which runs counter to the proactive nature of the entrepreneurial process. In addition, entrepreneurial firms operating in turbulent environments must survive the short term to get to the long term. As a result, a reliance on long-term planning would not be practical.

Conversely, a relatively 'long' planning horizon (more than 5 years) may be optimal for conservative firms. Conservative firms are not predisposed to continually look for opportunities to introduce new products or services as a result of environmental change. As a result, these firms tend to operate in stable, predictable environments (Covin, 1991; Covin and Slevin, 1991a). In these environmental settings, competitive advantage is usually derived from reliability in production and brand awareness rather than speed of new product introduction. Firms achieve reliability of production in part through long-term planning and forecasting, which are compatible with a relatively long-term planning horizon. This discussion leads to the following hypothesis:

Hypothesis 3 A negative relationship exists between planning horizon length (short-term vs. long-term) and corporate entrepreneurship intensity.

Locus of planning

The term locus of planning refers to the depth of employee involvement in a firm's strategic planning activities. Organizations can be characterized as having either a shallow or a deep locus of planning. A deep locus of planning denotes a high level of employee involvement in the planning process, including employees from virtually all hierarchical levels within the firm. Conversely, a shallow locus of planning denotes a fairly exclusive planning process, typically involving only the top managers of a firm. A deep locus of planning is akin to the Japanese style of planning, which is team oriented and places a heavy emphasis on employee participation (Reid, 1989). Although the Japanese style of planning has deep roots in the Japanese culture, it has served as a model for American firms that have

tried to make their planning systems more participative.

There are several reasons to believe that a deep locus of planning facilitates a high level of corporate entrepreneurship intensity. First, a high level of employee involvement in planning brings the people 'closest to the customer' into the planning process. This characteristic of employee participation in planning may facilitate opportunity recognition, which is central to the entrepreneurial process (Schumpeter, 1936). Moreover, a deep locus of planning legitimizes the active participation of middle and lower-level managers in the planning process. Doing so avoids the potential of good ideas being overlooked simply because managers at these levels are not involved in the planning process (Burgelman, 1988).

The second reason that a deep locus of planning facilitates the entrepreneurial process is that it maximizes the diversity of viewpoints that a firm considers in formulating its strategic plan. The diversity of viewpoints considered is necessarily limited when planning is restricted to a firm's top managers, not only by the small number of people involved but also by the homogeneous nature of many top management teams (Lant, Milliken, and Batra, 1992). This latter issue can constrain entrepreneurial activity, as evidenced by the results of several studies that have found a negative relationship between top management team homogeneity and an openness to innovation and change (Bantel and Jackson, 1989; Judge and Zeithaml, 1992). In many instances this problem can be overcome by involving a deeper and more diverse mix of employees in the strategic planning process (Dutton and Duncan, 1987).

Conservative firms have less to gain from a high level of employee participation in planning. Although strategic planning may be just as complex in a conservative firm as it is in an entrepreneurial firm, it does not emphasize opportunity recognition and the pursuit of new ideas to the same extent. As a result, deep participation in planning, which is expensive in terms of managerial time and energy, may not be necessary. In addition, there are pitfalls associated with a high degree of employee participation in planning that conservative firms can avoid. For example, a deep locus of planning may necessitate providing a large number of employees with access to proprietary information and other sensitive data. This access increases the likelihood of a breach of confidentiality, which may damage a firm's competitive stature. This discussion supports the following hypothesis:

> *Hypothesis 4: A positive relationship exists between a deep locus of planning (i.e., high level of employee involvement) and corporate entrepreneurship intensity.*

Control attributes

The purpose of a control system is to make sure that business strategies meet predetermined goals and objectives (Lorange, Morton, and Ghoshal, 1986). In the context of this study, this means that the control systems of entrepreneurial firms must stimulate innovation, proactiveness, and risk-taking. Two forms of control are particularly relevant to a discussion of corporate entrepreneurship. These are strategic controls and financial controls (Hitt, Hoskisson, and Ireland, 1990). In most firms, both forms of control are present (Hoskisson and Hitt, 1988). Financial controls base performance on objective financial criteria such as net income, return on equity, and return on sales (Hitt *et al.*, 1990). In contrast, strategic controls base performance on strategically relevant criteria as opposed to objective financial information (Gupta, 1987; Hoskisson and Hitt, 1988). Examples of strategic control measures include customer satisfaction criteria, new patent registrations, success in meeting target dates for new product or process introductions, and the achievement of quality control standards.

Because strategic controls and financial controls can both be present simultaneously in a firm, they do not represent opposite ends of a conceptual continuum; therefore, we articulate separate hypotheses to summarize our discussion of the relationship between each form of control and corporate entrepreneurship intensity.

Strategic controls

An emphasis on strategic controls is consistent with the entrepreneurial process. Strategic controls are capable of rewarding creativity and the pursuit of opportunity through innovation. These characteristics of strategic controls are important to sustain the innovation process because long time-lags frequently intervene between innovative

initiatives and their eventual pay-off (Drucker, 1985; Kanter, 1989). A well-designed strategic control system is capable of rewarding firm employees for incremental but substantive progress on product or process innovations that take a long time to reach market (Goold and Campbell, 1987; Hoskisson, Hitt, and Hill, 1991). Conversely, for conservative firms, strategic controls are less important. Conservative firms do not gain their competitive advantage by pursuing opportunities through innovation. There are costs involved in maintaining strategic controls in terms of managerial time and effort (Goold and Quinn, 1990; Hayes and Abernathy, 1980), which conservative firms can avoid. As a result of this discussion we hypothesize:

Hypothesis 5a: A positive relationship exists between the degree of emphasis on strategic controls and corporate entrepreneurship intensity.

Financial controls

Financial controls are congruent with the distinctive competencies of most conservative firms. Financial controls are clear and unambiguous, which introduces a high degree of discipline into the control process. Financial controls also provide an opportunity for the parties involved to agree on objective performance standards well in advance of any performance evaluation. These factors may be particularly beneficial to conservative firms, which are firms that do not have as salient a need to encourage creativity and innovation as entrepreneurial firms. This discussion leads to the following hypothesis:

Hypothesis 5b: A negative relationship exists between the degree of emphasis on financial controls and corporate entrepreneurship intensity.

RESEARCH DESIGN

Sample and data collection

The sample of firms that participated in the study included 169 manufacturing firms located in the midwestern and southern regions of the United States. We employed two criteria to determine the specific population from which we drew our sample: (1) to ensure a least a minimal degree of homogeneity among the respondents, we restricted the firms included in the sample to manufacturing firms (SIC codes 2000–4000); and (2) to reduce the confounding effects of diversification, we limited the firms in the sample to those that generate at least 70 percent of their sales from a single industry. The 70 percent figure was based upon Rumelt's (1974) definition of a single or dominant firm.

We collected data from two sources: a self-report mail survey and the Compustat Annual Data Tape. We obtained measures of corporate entrepreneurship, the five dimensions of strategic management included in the study, and two control variables (i.e., environmental turbulence and environmental complexity) from the self-report survey. We collected firm demographic and financial data from the Compustat Annual Data Tape. The administration of the mail survey was preceded by a pilot study, involving the CEOs of 30 midwestern manufacturing firms. The purpose of the pilot study was to assess the face validity and the reliability of the psychometric measures included in the survey. As a result of the feedback obtained, we refined several of the measures and made them more theoretically meaningful.

We administered the self-report survey following a modified Dillman (1978) procedure. Following the completion of the pilot study, we prepared and mailed a revised survey instrument to a member of the top management team in each of 501 midwestern and southern manufacturing firms. Two weeks later we sent a second copy of the survey to the nonrespondents. A total of 169 firms returned usable surveys, resulting in a response rate of 34 percent, which compares favorably to similar studies (e.g., Covin and Slevin, 1988; Naman and Slevin, 1993; Zahra, 1991). The firms that responded to the survey represented a broad cross-section of manufacturing firms, ranging in size from 50 employees to 280,000. The mean number of employees for the responding firms was 4720.

We conducted three tests to check for bias in the self-report survey data, including interrater reliability, common method variance, and nonresponse bias. Bias in self-report data is a threat to validity. First, following the data collection effort described above, we sent an identical copy of the survey to a second top manager in each

of the 169 responding firms. A total of 57 firms returned the second survey. We used these data to conduct a check of interrater reliability for the 57 firms that provided two surveys. The results were supportive of good interrater reliability. For each variable except planning horizon, the responses across the matched pair of raters differed by an average of less than 1 scale point on a 7-point Likert scale. For planning horizon, the responses across the matched pair of reviewers differed by an average of 1.44 scale points on a 7-point Likert scale.

We used Harman's one-factor test to check for the presence of common method variance, as suggested by Podsakoff and Organ (1986). To test for this potential threat to validity, we entered the variables in the study into a factor analysis. We then examined the results of the unrotated factor analysis to determine the number of factors that were necessary to account for the variance in the variables. The basic assumption of this procedure is that if a substantial amount of common method variance in the data exists, either a single factor will emerge or one 'general' factor will account for the majority of the covariance among the variables. Harman's one-factor test for common method variance in this study yielded 13 factors with eigenvalues greater than one, and no single factor was dominant. These results suggest that common method variance is not a significant problem in our data.

Finally, to assess the presence of nonresponse bias in our data, we compared the firms that responded to our survey against those that did not on three characteristics: firm sales, number of employees, and 1994 return on assets (ROA). There was no significant difference between responding and nonresponding firms on firm sales and ROA. The respondent firms were larger than the nonrespondents in terms of number of employees (the respondent firms averaged 4720 employees while the nonrespondents averaged 3960, $p < 0.01$). Although this difference is statistically significant, we do not feel it has any practical significance.

Measures

The survey instrument included psychometric scales designed to measure corporate entrepreneurship intensity, the dimensions of strategic management included in the study, and two control variables: environmental complexity and environmental turbulence. Each of the multi-item measures were based on 7-point Likert scales. A copy of these measures, with the exception of the control variables, is included in the Appendix.

Corporate entrepreneurship

We used a nine-item scale to measure a firm's level of corporate entrepreneurship intensity (alpha = 0.87). The scale was developed and validated by Covin and Slevin (1986) based on previous scale development work by Khandwalla (1977) and Miller and Friesen (1982). The scale contains items that measure a firm's tendency toward innovation, risk-taking, and proactiveness, which are the subdimensions of corporate entrepreneurship (Miller, 1983). The mean score, calculated as the average of the nine items, assesses a firm's position on a conservative–entrepreneurial continuum. The higher the score, the more the firm demonstrates an entrepreneurial orientation.

Scanning intensity

We developed a 12-item scale specifically for this study to measure scanning intensity (alpha = 0.83). In this study, we conceptualized scanning as the extent of effort dedicated towards environmental scanning and the comprehensiveness of the environmental scanning process. A separate six-item scale measured each of these subdimensions of scanning. The first set of six items was a modified version of Miller and Friesen's (1982) Effort Dedicated Towards Scanning scale. The second set of six items measured scanning comprehensiveness. These items asked the respondent to assess how thoroughly his or her firm scans elements of the firm's task and societal environments. The mean score, averaged across the 12 items, assesses a firm's degree of scanning intensity.

Planning flexibility

For this study, we developed a nine-item scale to measure planning flexibility (alpha = 0.80). The scale is straightforward and asked the respondents to assess how difficult it is for their firms to change their strategic plans to adjust for each of nine theoretically relevant environmental con-

tingencies. The mean score on the scale, averaged across the nine items, assesses a firm's level of planning flexibility.

Planning horizon

We developed a four-item multipart scale specifically for this study to measure planning horizon (alpha = 0.90). The scale asked the respondent to assess the degree of emphasis his or her firm places on business strategies or firm investments for each of the following predetermined time periods: less than 1 year; 1–3 years; 3–5 years; and more than 5 years. In addition, the respondent was asked to make this assessment for each of the following hierarchical levels in his or her firm: board of directors, top management, middle management, and lower-level management.

Only a portion of the data captured by this scale was actually of interest in this study. We used the other items to sensitize the respondents to the various time horizons that may exist in a firm. We were interested in the amount of emphasis placed on planning horizons of more than 5 years, averaged across the four hierarchical levels. The 5-year plateau is arbitrary but has been used as a heuristic in past management studies as a conceptual dividing line between a 'long' (more than 5 years) and a 'short' (less than 5 years) planning horizon (e.g., Kukalis, 1989; Lindsay and Rue, 1980; Rhyne, 1986).

Locus of planning

We developed specifically for this study a five-item multipart Likert scale to measure locus of planning (alpha = 0.89). The scale measures the extent to which employees from different hierarchical levels in a firm are involved in their firm's strategic planning process. The following hierarchical levels in a firm were included: top management, middle management, lower-level management, and rank-and-file employees. The scale items, including goal formation, environmental scanning, strategy formulation, strategy implementation, and evaluation and control, represent the basic steps in the strategic management process (Schendel and Hofer, 1979). We determined locus of planning by averaging the scores for middle management, lower-level management, and rank-and-file employees across the five steps in the strategic management process.

Control attributes

Control attributes included separate scales for strategic controls and financial controls. We modified a three-item scale used by Johnson, Hoskisson, and Hitt (1993) to measure strategic controls (alpha = 0.64). Similarly, we modified a three-item scale used by Hitt *et al*. (1996) to measure financial controls (alpha = 0.77). For each scale the mean score, calculated as the average of the three items, assessed a firm's emphasis on the respective type of control.

Control variables

We included five control variables in the data analysis, including two measures of the external environment (turbulence and complexity), two measures of financial stability (debt level and current ratio), and firm size. We used a nine-item scale to measure environmental turbulence (alpha = 0.67). The scale was based on similar turbulence scales used by Naman and Slevin (1993), Miller and Friesen (1982), and Khandwalla (1977). Similarly, we used a five-item, 7-point Likert scale to measure environmental complexity (alpha = 0.73). We developed the environmental complexity scale specifically for this study and it is consistent with Aldrich's (1979) conceptualization of the complexity construct. We obtained archival data pertaining to debt level, current ratio, and firm size from the 1994 Compustat Annual Data Tape.

Data reliability and validity

In evaluating the quality of the psychometric properties of the measures we obtained from the self-report survey, we focused on two properties: reliability and validity.

Reliability

As reported in the previous section, we calculated Cronbach's coefficient alpha to evaluate the reliability of the measures. An alpha level of 0.70 or above is generally considered to be acceptable (Cronbach, 1951). All the measures in the survey exceeded this minimum threshold with the exception of strategic controls (alpha = 0.64) and environmental turbulence (alpha = 0.67). Although the alpha levels for these variables were

disappointing, they did not preclude these variables from further analysis. However, they do suggest caution when interpreting results involving these scales.

Validity

Reliability is a form of validity, which we discussed above. Other assessments of validity include theoretical and observational meaningfulness, discriminant validity, and convergent validity (Binning and Barrett, 1989; Venkatraman and Grant, 1986). The following is a discussion of each of these forms of validity as they relate to the variables in our study.

Theoretical and observational meaningfulness. At a basic level, validity is established by developing measures from well-grounded theory. Although entrepreneurship is an old topic, the resurgence of interest in entrepreneurship is a fairly recent phenomenon (Wortman, 1987). Thus, although the corporate entrepreneurship construct measure has good reliability and has performed well in previous studies, it is based on a stream of literature that is still developing. As a result, the theoretical validity of the corporate entrepreneurship construct is still in its formative stage.

In regard to the measures of strategic management included in the study, strong literature bases exist to support the theoretical validity of scanning intensity, control attributes, and planning horizon. Less mature streams of literature support planning flexibility and locus of planning.

Discriminant validity. Discriminant validity shows that a measure is distinct and is empirically different from other measures. We employed exploratory factor analysis to assess the discriminant validity of the variables in this study. Specifically, we conducted a principal components analysis with varimax rotation, constraining the number of factors to seven. The results of this factor analysis are shown in Table 1, and they support the discriminant validity of the measures used in this study.

As shown in Table 1, all the variables in the study loaded cleanly on separate factors. With only three exceptions, the scale items had factors loadings in excess of 0.40, a common threshold for acceptance. We retained these three items for conceptual reasons. The first two items were Scanning 1a and Scanning 1d, with factor loadings of 0.39 and 0.35 respectively. These items did not load higher on any other factors, and are both part of the Miller and Friesen (1982) Effort Dedicated Towards Scanning scale. The third item that did not reach the 0.40 minimum was Strategic Controls 1c. This item had a factor loading of 0.20 on the strategic controls factor. We retained it to keep the three-item strategic controls scale intact, thereby maintaining consistency with its use in other studies.

For ease of presentation, Table 1 shows only the factor score coefficients greater than or equal to 0.40 and the three additional coefficients retained for conceptual reasons.

Convergent validity. Convergent validity is an assessment of the consistency in measurement across multiple ways of measuring the same variable. The corporate entrepreneurship construct was measured by two different scales in separate portions of the self-report survey. The first scale was the nine-item corporate entrepreneurship scale described earlier. The second scale was a simple one-item, 7-point Likert scale that assessed the respondent's position on the conservative–entrepreneurial continuum. The correlation between these two measures was $r = 0.62$ ($p < 0.0001$), demonstrating good convergent validity across separate measures of this construct.

Overall, the tests reported above, along with the tests designed to check for bias in the self-report survey results, indicate that the measures in this study have good reliability and validity. The most serious area of concern pertains to the planning horizon construct, which may have only moderate validity in this study as evidenced by the relatively low interrater reliability.

Data analysis and hypothesis test results

Data analysis

The respondents ($N = 169$) to the mail survey represented a broad cross-section of the manufacturing sector in the United States. The largest number of respondents ($N = 36$) came from SIC 35, Machinery, Except Electrical. A total of 17 of the 20 SIC codes in the manufacturing sector were represented in the sample, improving the study's generalizability.

Table 1. Results of the principal-components analysis with varimax rotation

Item name	Factor 1 Entrepreneurship	Factor 2 Scanning intensity	Factor 3 Locus of planning	Factor 4 Planning flexibility	Factor 5 Planning horizon	Factor 6 Financial controls	Factor 7 Strategic controls
Entrepreneurship 1a	0.58						
Entrepreneurship 1b	0.73						
Entrepreneurship 1c	0.83						
Entrepreneurship 2a	0.56						
Entrepreneurship 2b	0.66						
Entrepreneurship 3a	0.62						
Entrepreneurship 3b	0.75						
Entrepreneurship 3c	0.61						
Entrepreneurship 4a	0.80						
Scanning 1a		0.39					
Scanning 1b		0.67					
Scanning 1c		0.58					
Scanning 1d		0.35					
Scanning 1e		0.55					
Scanning 1f		0.66					
Scanning 2a		0.41					
Scanning 2b		0.62					
Scanning 2c		0.44					
Scanning 2d		0.65					
Scanning 2e		0.68					
Scanning 2f		0.66					
Planning flexibility 1a				0.63			
Planning flexibility 1b				0.62			
Planning flexibility 1c				0.64			
Planning flexibility 1d				0.50			
Planning flexibility 1e				0.70			
Planning flexibility 1f				0.41			
Planning flexibility 1g				0.51			
Planning flexibility 1h				0.61			
Planning flexibility 1i				0.54			

Table 1. Continued

Item name	Factor 1 Entrepreneurship	Factor 2 Scanning intensity	Factor 3 Locus of planning	Factor 4 Planning flexibility	Factor 5 Planning horizon	Factor 6 Financial controls	Factor 7 Strategic controls
Planning horizon 1a					0.69		
Planning horizon 1b					0.78		
Planning horizon 1c					0.85		
Planning horizon 1d					0.70		
Locus of planning 1a			0.69				
Locus of planning 1b			0.78				
Locus of planning 1c			0.76				
Locus of planning 1d			0.78				
Locus of planning 1e			0.81				
Strategic controls 1a							0.76
Strategic controls 1b							0.77
Strategic controls 1c							0.20
Financial controls 1a						0.69	
Financial controls 1b						0.85	
Financial controls 1c						0.68	
Eigenvalue	8.93	4.77	2.91	2.39	2.18	2.05	1.67

Note: All factor loadings < 0.40 were excluded from the table except the three underlined loadings. The names of the items correspond to the way they are labeled on their measurement scales, as shown in the Appendix.

The means, standard deviations, Pearson product–moment correlations, and coefficient alphas (where applicable) for the variables included in the study are shown in Table 2. The range of responses on all of the variables was broad, avoiding a restriction of range problem in the data. The correlation matrix shows statistically significant correlations in the direction expected between corporate entrepreneurship and four of the six dimensions of strategic management included in the study. Corporate entrepreneurship correlated positively with scanning intensity ($p < 0.05$), planning flexibility ($p < 0.01$), locus of planning ($p < 0.05$), and strategic controls ($p < 0.01$). There was not a significant correlation between corporate entrepreneurship and either planning horizon or financial controls.

As the correlation matrix indicates, the intercorrelations among the dimensions of strategic management included in the study were generally low, thereby minimizing the problem of multicollinearity. A high level of multicollinearity can result in unstable regression coefficients in linear regression models (Pedhazur, 1982).

Results of the tests of the hypotheses

To test the hypotheses, we used hierarchical regression analysis. For each hypothesis, this approach allowed us to regress corporate entrepreneurship against a set of control variables and then add the respective dimension of strategic management into the equation and test whether the incremental change in R^2 resulting from the addition of the strategic management variable was statistically significant (Pedhazur, 1982). The control variables included environmental turbulence, environmental complexity, firm size, debt level, and current ratio. Previous studies have found that environmental turbulence (Naman and Slevin, 1993) and environmental complexity (Zahra, 1991) are positively related to corporate entrepreneurship. Firm size, debt level (long-term debt divided by firm sales), and the current ratio (current assets divided by current liability) are demographic and financial measures that have been found to influence elements of entrepreneurial behavior (Hitt *et al.*, 1996). We expected negative relationships between corporate entrepreneurship and firm size and debt level; we expected a positive relationship between corporate entrepreneurship and the current ratio.

For each hypothesis we completed a separate hierarchical regression as shown in Table 3. Each hierarchical regression involved two steps. In step one, we regressed corporate entrepreneurship intensity on the control variables. In step two, we regressed corporate entrepreneurship intensity on the control variables and the dimension of strategic management associated with the hypothesis. The *F*-test that constituted the test of the hypothesis was based on the statistical significance of the change in R^2 between the restricted model (control variables only) and the full model (control variables plus the dimension of strategic management associated with the hypothesis).

Table 3 reports the results of the hypothesis tests. Hypothesis 1 was supported ($p < 0.05$). For the firms in our sample, there is a positive relationship between scanning intensity and corporate entrepreneurship intensity. Hypothesis 2 was also supported ($p < 0.001$), indicating a positive relationship between planning flexibility and corporate entrepreneurship intensity. Hypothesis 3, which postulated a negative relationship between a planning horizon of more than 5 years and corporate entrepreneurship intensity, was not supported. Recall that the planning horizon measure had poor interrater reliability. Thus, the failure of this hypothesis may be due to a bias in the data or a misapplication of the theoretical arguments. Hypothesis 4 was supported, demonstrating a positive relationship between a broad locus of planning and corporate entrepreneurship intensity ($p < 0.01$). Support was also found for Hypothesis 5a, which postulated a positive relationship between an emphasis on strategic controls and corporate entrepreneurship intensity ($p < 0.001$). Hypothesis 5b was not supported. This hypothesis postulated a negative relationship between an emphasis on financial controls and corporate entrepreneurship intensity. Overall, four of the six hypotheses were supported.

DISCUSSION OF THE RESULTS AND CONCLUSION

The results of this study suggest that a firm's entrepreneurial intensity is influenced by the nature of its strategic management practices. This conclusion is not surprising, because a firm's strategic management practices are intended to shape and mold its behavior. For firms that are

Table 2. Pearson product–moment correlation matrix including corporate entrepreneurship, dimensions of strategic management included in the study, and control variables. *N* ranges from 148 to 167

Variable name	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11
1. Corporate entrepreneurship	4.48	1.05	(0.87)										
2. Scanning intensity	4.92	0.83	0.16*	(0.83)									
3. Planning flexibility	4.82	0.85	0.34**	0.11	(0.80)								
4. Planning horizon	2.32	1.27	0.13	0.30**	0.25**	(0.90)							
5. Locus of planning	4.11	0.96	0.19*	0.48**	0.25**	0.31**	(0.89)						
6. Strategic controls	5.57	0.92	0.29**	0.33**	0.29**	0.31**	0.33**	(0.64)					
7. Financial controls	5.41	1.04	0.04	0.32**	0.11	0.24**	0.19*	0.33**	(0.77)				
8. Environmental turbulence	3.88	0.80	0.09	0.14+	–0.13	0.12	0.08	–0.11	–0.08	(0.67)			
9. Environmental complexity	3.79	1.12	0.10	0.10	–0.04	0.15+	0.10	–0.05	0.00	0.25**	(0.73)		
10. Firm size	3.67	1.91	–0.21**	0.15*	–0.10	0.22**	–0.02	–0.07	0.28**	0.04	–0.03		
11. Debt level	2.75	2.13	–0.05	–0.11	0.10	–0.10	–0.03	0.04	–0.11	–0.02	–0.09	–0.46**	
12. Current ratio	3.01	3.19	–0.04	–0.06	–0.03	–0.06	–0.01	–0.00	–0.20**	–0.09	–0.00	–0.39**	0.74**

+$p < 0.10$; *$p < 0.05$; **$p < 0.01$

Coefficient alphas are on the diagonal where applicable. Variables 1–9 were measured on 7-point Likert scales (1 low–7 high).

Firm size is the log of the total number of employees. Debt level is long-term debt/firm sales. Current ratio is current assets/current liabilities.

Table 3. Results of the hypothesis tests using hierarchical regression

Restricted model Control variables regressed against corporate entrepreneurship		Full models Control variables plus individual dimensions of strategic management regressed against corporate entrepreneurship					
		Hypothesis 1 Scanning intensity	Hypothesis 2 Planning flexibility	Hypothesis 3 Planning horizon	Hypothesis 4 Locus of planning	Hypothesis 5a Strategic controls	Hypothesis 5b Financial controls
Control variables							
Environmental turbulence	0.05	0.01	0.11	0.06	0.00	0.09	0.07
Environmental complexity	0.16^{+}	0.15^{+}	0.12	0.14	0.13	0.15^{+}	0.19*
Firm size	–0.23*	–0.26**	–0.20*	–0.21*	–0.17^{+}	–0.21*	–0.25**
Debt level	–0.02	0.04	–0.09	0.04	0.06	–0.02	0.06
Current ratio	–0.12	–0.16	–0.05	–0.16	–0.16	–0.11	–0.17
Strategic management dimensions							
Environmental scanning		0.21*					
Planning flexibility			0.32***				
Planning horizon				0.15			
Locus of planning					0.26**		
Strategic controls						0.30***	
Financial controls							0.16
F-ratio	2.03^{+}	2.55*	3.98***	1.90^{+}	2.52*	3.98***	2.54*
R^2	0.08	0.12	0.17	0.10	0.12	0.17	0.12
F-ratio testing the Δ in R^2 between the full and partial model		4.95*	12.78***	2.20	5.89*	12.77***	5.00*

$^{+}p < 0.10$; $*p < 0.05$; $**p < 0.01$; $***p < 0.001$

The *F*-ratio testing the change in R^2 between the full and partial models assesses the significance of each of the dimensions of strategic management beyond the contribution of the control variables.

Regression coefficients shown are standardized coefficients.

attempting to become more entrepreneurial, however, the value-added contribution of this paper lies in providing a sharper picture of exactly how five specific strategic management practices influence a firm's entrepreneurial intensity. This type of fine-grained information is of practical use to managers and helps researchers better understand the subtleties of the strategic management corporate entrepreneurship interface.

This study produced several normative implications. It is clear from the results that scanning intensity is an important correlate of entrepreneurial behavior. This result is consistent with similar findings reported by Miller (1983) and Zahra (1993). What is particularly instructive about this result is that the pursuit of entrepreneurship requires an increase in the intensity of some management practices, such as scanning intensity. Opportunity recognition, which is a precursor to entrepreneurial behavior, is often associated with a flash of genius, but in reality is probably more often than not the end result of a laborious process of environmental scanning and industry awareness. As a result, the fundamental practice of scanning the environment to recognize opportunities and threats should be a principal concern of entrepreneurially minded firms.

The results of the study also depict a strong relationship between planning flexibility and corporate entrepreneurship intensity. Recall that planning flexibility refers to the ease with which a firm can change its strategic plan in response to environmental change. In practice, planning flexibility may be difficult to achieve. Many firms expend enormous effort and cost in developing sophisticated short-term and long-term plans. As a result, in some instances the extent of this effort may actually work against a firm by engendering a hesitancy on the part of managers to deviate from plans for fear that the deviations will be interpreted as flaws in the initial planning process. In addition, as noted by Stevenson and Jarrillo-Mossi (1986: 14), the sentiment that 'good plans do not need to be changed' also hinders the recognition that planning flexibility is necessary. The implication of the results in this area is that entrepreneurially minded firms should work hard to institutionalize flexibility in their planning systems. The manner in which this is accomplished is a potentially fruitful topic for future research.

As reported earlier, we did not find a relationship between the length of a firm's planning horizon and corporate entrepreneurship intensity. The lack of results may be due to the poor reliability of our planning horizon measure. A contributing factor to the poor reliability of the measure may have been the fact that the respondent was asked to assess the planning horizon for four different hierarchical levels in his or her firm, which may have required the respondent to speculate too far beyond his or her personal experience. In addition, dichotomizing a firm's planning horizon as either short (less than 5 years) or long (more than 5 years) may be too simplistic. Capon *et al.* (1987) found that more than 80 percent of the firms in their sample of 258 manufacturers produced plans with more than one planning horizon (typically one short and one long), and some firms produced plans with up to three. The manner in which entrepreneurial firms conceptualize the future and manage their planning horizons is not well understood. An entrepreneurial firm faces the dual challenge of remaining responsive to current environmental trends, which suggests the adoption of a short-term planning horizon, while at the same time remaining visionary, which suggests the adoption of a longer-term perspective. The manner in which entrepreneurial firms resolve this tension represents potentially interesting research.

The positive relationship between locus of planning and corporate entrepreneurship intensity indicates that a high level of employee involvement in planning facilitates firm-level entrepreneurial behavior. This result is supportive of the general notion that employee participation at all levels is an essential key to the entrepreneurial process (e.g., Burgelman, 1984). The result is also consistent with Sathe's (1988) observation that if entrepreneurship is to flourish in an organization, lower-level managers need to be free to identify and pursue promising opportunities. The positive relationship between strategic controls and corporate entrepreneurship intensity is also consistent with the literature (e.g., Sathe, 1988). This result reaffirms the notion that control systems capable of rewarding creativity and the pursuit of opportunity through innovation are an essential part of the entrepreneurial process.

Along with the normative implications discussed above, an important contribution of this study is the development of the psychometric

scales used to measure the dimensions of strategic management included in the study. Two of the scales—planning flexibility and locus of planning—are unique to this study and demonstrated good reliability and preliminary evidence of validity. Future researchers may benefit by using these scales in replication studies or to study additional aspects of the interface between strategic management and corporate entrepreneurship.

This study has limitations. We confined our analysis to the study of five specific strategic management practices and corporate entrepreneurship intensity. Obviously, strategic management is a much broader multidimensional construct, and other dimensions of the strategic management process may influence a firm's entrepreneurial behavior. In addition, the study was limited to manufacturing firms. The extent to which the precursors to entrepreneurial behavior differ between manufacturing firms and service firms has not been tested. The strength of our study is that our methodology provided a reasonably fine-grained examination of the influence of each of the strategic management practices included in the study on corporate entrepreneurship intensity.

In conclusion, the compelling theme that emerges from this study is that a firm's strategic management practices influence its entrepreneurial intensity. This study moves the literature forward by examining in a more detailed manner than previously attempted the specific nature of the relationship between five specific strategic management practices and corporate entrepreneurship intensity.

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APPENDIX: MEASUREMENT SCALES USED IN THE SELF-REPORT MAIL SURVEY

The Corporate Entrepreneurship Scale (coefficient alpha = 0.87)

The following statements are meant to identify the *collective management style* of your firm's key decision-makers.
Please indicate which response *most closely matches* the management style of your businesses key managers.

1. In general, the top managers of my firm favor . . .

a.	A strong emphasis on the marketing of tried and true products and services	1 2 3 4 5 6 7	A strong emphasis on R&D, technological leadership, and innovation
b.	Low-risk projects with normal and certain rates of return	1 2 3 4 5 6 7	High-risk projects with changes of very high returns
c.	A cautious, 'wait and see' posture in order to minimize the probability of making costly decisions when faced with uncertainty	1 2 3 4 5 6 7	A bold, aggressive posture in order to maximize the probability of exploiting potential when faced with uncertainty

2. How many new lines of products or services has your firm marketed in the past 5 years?

a.	No new lines of products or services	1 2 3 4 5 6 7	Many new lines of products or services
b.	Changes in product or service lines have been mostly of a minor nature	1 2 3 4 5 6 7	Changes in product or service lines have usually been quite dramatic

3. In dealing with its competitors, my firm . . .

a.	Typically responds to actions which competitors initiate	1 2 3 4 5 6 7	Typically initiates actions to which competitors then respond
b.	Is very seldom the first firm to introduce new products/services, operating technologies, etc.	1 2 3 4 5 6 7	Is very often the first firm to introduce new products/services operating technologies, etc.
c.	Typically seeks to avoid competitive clashes, preferring a 'live-and-let-live' posture	1 2 3 4 5 6 7	Typically adopts a very competitive, 'undo-the-competitor' posture

4. In general, the top managers of my firm believe that . . .

a.	Owing to the nature of the environment, it is best to	1 2 3 4 5 6 7	Owing to the nature of the environment, bold, wide-

explore gradually via cautious behavior	ranging acts are necessary to achieve the firm's objectives

Sources: Items 1a, 2a, and 2b measure innovation; Items 1b, 1c, and 4a measure risk-taking; Items 3a, 3b, and 3c measure proactiveness. Items are based on Khandwalla (1977); Miller and Friesen (1982); Covin and Slevin (1988).

The Scanning Intensity Scale (coefficient alpha = 0.83)

1. Rate the extent to which the following scanning devices are used by your firm to gather information about its business environment.

		Not ever used						Used frequently
a.	Routine gathering of opinions from clients	1	2	3	4	5	6	7
b.	Explicit tracking of the policies and tactics of competitors	1	2	3	4	5	6	7
c.	Forecasting sales, customer preferences, technology, etc.	1	2	3	4	5	6	7
d.	Special marketing research studies	1	2	3	4	5	6	7
e.	Trade magazines, government publications, news media	1	2	3	4	5	6	7
f.	Gathering of information from suppliers and other channel members	1	2	3	4	5	6	7

Sources: The items above measure effort devoted towards scanning. Items 1–4 are from Miller and Friesen (1982). Items 5–6 are original.

2. How often do you collect information to remain abreast of changes in each of the following areas?

		Never						Frequently
a.	Economic trends	1	2	3	4	5	6	7
b.	Technological trends	1	2	3	4	5	6	7
c.	Demographic trends	1	2	3	4	5	6	7
d.	Customer needs and preferences	1	2	3	4	5	6	7
e.	Competitor strategies	1	2	3	4	5	6	7
f.	Supplier strategies	1	2	3	4	5	6	7

Sources: The items above measure scanning comprehensiveness. All items are original.

The Planning Flexibility Scale (coefficient alpha = 0.80)

1. How difficult is it for your firm to change its strategic plan to adjust to each of the following contingencies/possibilities?

		Very difficult						Not at all difficult
a.	The emergence of a new technology	1	2	3	4	5	6	7
b.	Shifts in economic conditions	1	2	3	4	5	6	7
c.	The market entry of new competition	1	2	3	4	5	6	7
d.	Changes in government regulations	1	2	3	4	5	6	7
e.	Shifts in customer needs and preferences	1	2	3	4	5	6	7
f.	Modifications in supplier strategies	1	2	3	4	5	6	7
g.	The emergence of an unexpected opportunity	1	2	3	4	5	6	7

h.	The emergence of an unexpected threat	1	2	3	4	5	6	7
i	Political developments that affect your industry	1	2	3	4	5	6	7

Sources: All items are original.

The Planning Horizon Scale (coefficient alpha = 0.90)

1. Recall that a planning horizon is the length of the future time period that decision-makers consider in planning. At each of the following hierarchical levels in your firm, what degree of emphasis is placed on managing business strategies and firm investments that have the following planning horizons?

	Very little emphasis						Considerable emphasis
a. Board of Directors							
Length of planning horizon of business strategy or firm investment							
Less than 1 year	1	2	3	4	5	6	7
1 to 3 years	1	2	3	4	5	6	7
3 to 5 years	1	2	3	4	5	6	7
More than 5 years	1	2	3	4	5	6	7
b. Top management							
Less than 1 year	1	2	3	4	5	6	7
1 to 3 years	1	2	3	4	5	6	7
3 to 5 years	1	2	3	4	5	6	7
More than 5 years	1	2	3	4	5	6	7
c. Middle management							
Less than 1 year	1	2	3	4	5	6	7
1 to 3 years	1	2	3	4	5	6	7
3 to 5 years	1	2	3	4	5	6	7
More than 5 years	1	2	3	4	5	6	7
d. Lower-level Management							
Less than 1 year	1	2	3	4	5	6	7
1 to 3 years	1	2	3	4	5	6	7
3 to 5 years	1	2	3	4	5	6	7
More than 5 years	1	2	3	4	5	6	7

Sources: All items are original.

The Locus of Planning Scale (coefficient alpha = 0.89)

1. Strategic management can be broken down into the five phases shown below. To what extent is each of the following categories of employees involved in each of these phases of the strategic management process in your firm?

		No Involvement						Substantial Involvement
a.	Goal Formation							
	Top Management	1	2	3	4	5	6	7
	Middle Management	1	2	3	4	5	6	7
	Lower-level Management	1	2	3	4	5	6	7
	Rank-and-file Employees	1	2	3	4	5	6	7
b.	Scanning the Business Environment							
	Top Management	1	2	3	4	5	6	7
	Middle Management	1	2	3	4	5	6	7
	Lower-level Management	1	2	3	4	5	6	7
	Rank-and-file Employees	1	2	3	4	5	6	7
c.	Strategy Formulation							
	Top Management	1	2	3	4	5	6	7
	Middle Management	1	2	3	4	5	6	7
	Lower-level Management	1	2	3	4	5	6	7
	Rank-and-file Employees	1	2	3	4	5	6	7
d.	Strategy Implementation							
	Top Management	1	2	3	4	5	6	7
	Middle Management	1	2	3	4	5	6	7
	Lower-level Management	1	2	3	4	5	6	7
	Rank-and-file Employees	1	2	3	4	5	6	7
e.	Evaluation and control							
	Top Management	1	2	3	4	5	6	7
	Middle Management	1	2	3	4	5	6	7
	Lower-level Management	1	2	3	4	5	6	7
	Rank-and-file Employees	1	2	3	4	5	6	7

Sources: All items are original.

The Strategic Controls Scale (coefficient alpha = 0.64)

1. How important is each of the following in making sure that your firm's employees and business strategies meet predetermined objectives?

		Unimportant						Important
a.	Face-to-face meetings between top managers and business unit or functional area personnel	1	2	3	4	5	6	7
b.	Informal face-to-face meetings between top managers and business unit or functional area personnel	1	2	3	4	5	6	7
c.	Measuring performance against subjective stra-	1	2	3	4	5	6	7

tegic criteria such as improvements in customer satisfaction or progress on product innovations

Sources: Items 1–2 are from Johnson *et al*. (1993). Item 3 is original.

The Financial Controls Scale (alpha = 0.77)

1. How important are each of the following factors in evaluating the performance of business unit/or functional area personnel?

		Unimportant						Important
a.	Objective strategic criteria such as return on assets	1	2	3	4	5	6	7
b.	Return on investment	1	2	3	4	5	6	7
c.	Cash-flow	1	2	3	4	5	6	7

Sources: All items are modified from Hitt *et al*. (1996).