EQUIFINALITY, CORPORATE ENTREPRENEURSHIP AND STRATEGY-STRUCTURE- PERFORMANCE RELATIONSHIPS

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INTRODUCTION

Zahra and Covin (1995, p. 46) report that "the current interest in corporate entrepreneurship arises from its potential usefulness as a means for renewing established organizations and increasing their ability to compete in their chosen markets." In addition, a number of researchers support a contention made by Schollhammer, (1982, p. 82) that "corporate entrepreneurship is a key element for gaining competitive advantage and consequently greater financial strength" (Zahra and Covin, 1995; Covin and Slevin, 1991; Peters and Waterman, 1982). Interestingly, however, other researchers argue that corporate entrepreneurship can be risky and may be detrimental to a firm's short-term financial performance (Burgelman and Sayles, 1986; Fast, 1981).

Thus, the preceding statements have created considerable interest in research on corporate entrepreneurship. However, from time to time, researchers in the area of corporate entrepreneurship provide new research directions by suggesting future avenues of research inquiry. One such future area for inquiry has been suggested by Dess, Lumpkin, and McGee (1999) who posit that the relationship among traditional models of business-level strategy, organizational structure, organizational processes and corporate entrepreneurship is not well understood and that future research should explore those relationships. Further, Dess, Lumpkin, and McKee (1999) state that the relationship between corporate entrepreneurship and organizational performance is not "immediately apparent" because Zahra and Covin (1995) report that the benefits of corporate entrepreneurship often take many years to reach fruition.

In order to explore the relationship among strategy-structure-performance and corporate entrepreneurship we used the notion of equifinality and investigated 148 U.S. electrical distribution firms from 1998 to 2002. We identified both entrepreneurial and non-entrepreneurial (conservative)[1] electrical distributors and then examined their strategy-structure-performance relationships..

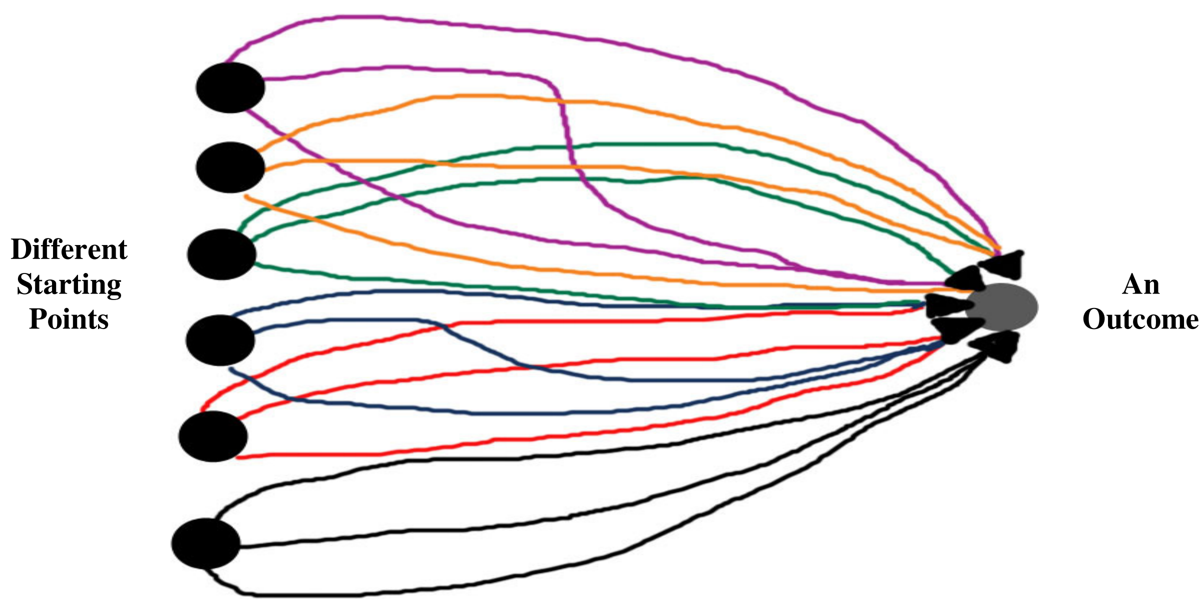
In the following section we discuss theoretical arguments pertaining to the linkage of equifinality with strategy-structure-performance in entrepreneurial and conservative organizations and then apply those arguments to electrical distributors in order to develop specific operational hypotheses.

THEORETICAL APPROACH AND HYPOTHESES

Equifinality

About seventy-five years ago, the biologist Ludwig von Bertalanfy (1930) began a study to investigate the movement of organisms within a biological system. von Bertalanfy (1930) formulated certain concepts concerning the organism as an open system. He also defined the principle of equifinality by stating that "a particular outcome can be reached by different paths from the same starting condition and different starting conditions may also lead to the same outcome" (von Bertalanfy, 1960, p. 29).[2] Figure 1 depicts the concept of equifinality.

Figure 1
An Illustration of Equifinality*



*Von Bertalanfy, L. (1960) General Systems Theory.
New York: George Braziller, Publisher

In the process of using the open systems model to legitimize organizational studies, Katz and Kahn (1966) discussed the properties of open systems and included the notion of equifinality. By 1972, the systems paradigm had peaked

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[1] In an investigation of entrepreneurial and non-entrepreneurial organizations, Miller and Friesen (1982) referred to non-entrepreneurial organizations as "conservative." Thus, we adopted that same convention and use the term conservative to refer to non-entrepreneurial organizations.

and eventually went out of fashion by 1976 (Ashmos and Huber, 1987). However, in the strategic management and strategic marketing literature, many statements have been made that within a certain strategic typology, no one strategy is neither inferior nor superior to that of another strategy (Kald, Nilsson, and Rapp, 2000; Deshpande and Farley, 1998). In fact, Miles and Snow (1978) and Porter (1980) argue that the strategies described in their respective typologies are neither inferior nor superior. Certain researchers have posited that the notion of equifinality may offer insights into that superiority-inferiority argument (Jennings, Rajaratnam, and Lawrence, 2003; Matsuno and Mentzer, 2000; Gresov and Drazin, 1997; Jennings and Seaman, 1994). Also, strategic management research has focused on the notion of equifinality pertaining to strategy, structure, and performance relationships. At first, a conceptual argument developed in the strategic management literature in which it was argued that an optimal strategy-structure match yields a superior performance (Sherma and Vredenburg, 1998; Boeker and Goodstein, 1991; Ford and Baucus, 1987; Van de Ven and Drazin, 1985). In fact, the notion that strategy and structure influences the success of an organization has been expressed rather clearly in Chandler's (1962) study of industrial organizations. The issue in those conceptual arguments was that equifinality, a characteristic of open systems, allows a feasible set of equally effective, internally consistent patterns of strategy and structure. Next, several empirical research studies on equifinality reported that an optimal-strategy-structure match yields a superior performance (Matsuno and Mentzer, 2000; Jennings and Seaman, 1994; Doty, Glick, and Huber,

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[2] von Bertalanfy is considered to be the father of General Systems Theory and a pioneer in the

1993). However, research from the perspective of equifinality has not received much attention from researchers of corporate entrepreneurship. Interestingly, Dess, Lumpkin, and McGee (1999, pp. 88-89) noted the following:

> One might expect that firms seeking to be more entrepreneurial should adopt differentiation strategies rather than cost leadership strategies. However a study by Dess, Lumpkin, and Covin (1997) indicated that cost leadership strategies were associated with higher performance in firms where managers used an entrepreneurial approach to decision making. Further, contrary to their expectations, Zahra and Covin (1993) found that cost leadership was positively associated with new product development.

Following the preceding observation, Dess, *et. al.,* (1999, p.88) posited that “the conceptualization of entrepreneurial strategies may be too narrow.” Thus, we argue that the notion of equifinality may well explain the preceding concern expressed by Dess, *et. al.,*(1999).

Corporate Entrepreneurship

Zahra**,** Jennings, and Kuratko (1999) report that in defining corporate entrepreneurship, most researchers have used either Miller and Friesen’s (1982) measure of corporate entrepreneurship or Covin and Slevin’s (1988) modified version of that instrument. Miller and Friesen’s (1982) conceptualization of corporate entrepreneurship focuses on three related dimensions: proactiveness, innovation, and risk taking. Covin and Slevin (1988) extended Miller’s (1982) instrument to gauge a firm’s disposition towards achieving a competitive advantage and added Khandwalla’s (1997) measure of the proclivity for risks of projects. Covin and Slevin (1988) referred to their measure of corporate entrepreneurship as “entrepreneurial style” and stated that entrepreneurial style is an aggregate measure of three

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development of Complexity Science (Guberman, 2003; Richardson, 2002; Horgan, 1995).

dimensions: the willingness to take business risks, the willingness to be proactive when competing with other firms, and the willingness to innovate, i.e. to favor change and innovation in order to obtain a competitive advantage. Zahra, Jennings, and Kuratko (1999) argue that the consistent use of the two preceding measures of corporate entrepreneurship has created a serious misfit between the construct of corporate entrepreneurship and its measurement, raising a question about the meaning of what has been found and its theoretical and practical importance. Further, Zahra, Jennings, and Kuratko (1999) state that one notable exception to the measurement of corporate entrepreneurship is the research of Jennings and Lumpkin (1989) who utilized the work of Schumpeter (1947), Ansoff (1979) and Hambrick (1983) to define corporate entrepreneurship as the extent to which new products are developed. Jennings and Lumpkin (1989) also used archival data to measure new product additions. For this study we used Miller and Friesen's (1982) measure of corporate entrepreneurship and speculated that our sample of electrical distributors would include both entrepreneurial and conservative (non-entrepreneurial) organizations.

Strategy

A strategy is a plan for interacting with the competitive environment to achieve organizational goals. Generally, organizational science researchers do not consider goals and strategies to be interchangeable. Instead, a goal defines where the organization wants to go, and strategy defines how the organization will get there (Chaffee, 1985; Mintzberg, 1978). Researchers have developed classifications called typologies to provide operational definitions of business-level strategy. Two widely used typologies are Porter's (1980) Generic Strategies and the Miles and Snow (1978) Typology.

Porter's (1980) Generic Strategies: Porter (1980) conceptualized that organizations cope with competitive forces by using certain generic strategic approaches to outperform other firms. Porter (1980) designated these strategic approaches as three generic strategies: (1) overall cost leadership, (2) differentiation, and (3) focus. According to Porter (1980), no organization can successfully perform at an above-average level by trying to be all things to all people. Porter (1980) proposes that management must select a strategy that will allow an organization to attain a competitive advantage. The strategy that management chooses depends on the organization's strengths and its competitor's weaknesses. When an organization sets out to be the low-cost producer in its industry, it is following a cost-leadership strategy. Success with this strategy requires that the organization be the cost leader and not merely one of the contenders for that position. Organizations can achieve a cost advantage by efficiency in operations, economies of scale, technological innovation, low-cost labor, or preferential access to raw materials.

An organization that seeks to be unique in its industry in ways that are widely valued by buyers is following a differentiation strategy. It might emphasize high quality, extraordinary service, innovative design, technological capability, or an unusually positive brand image. The key is that the attribute chosen must be different from those offered by rivals and significant enough to justify a price premium that exceeds the cost of differentiating.

Porter's (1980) first two generic strategies (overall cost leadership and differentiation) seek to achieve a competitive advantage in a broad range of industry segments. The focus strategy aims at either a cost advantage (cost focus) or differentiation advantage (differentiation focus) in a narrow segment. Thus, management will select a segment or group or segments in an industry (such as product variety, type of end buyer, distribution channel, or geographical location of buyers) and tailor a strategy to serve them at the exclusion of others. The goal is to exploit a narrow segment of a market. Research suggests that a focus strategy may be the most potent for a small business firm. This is because a small business does not have the economies of scale or internal resources to successfully pursue one of the other two strategies (Zahra, 1993).

Miles and Snow's (1978) Typology: The Miles and Snow (1978) typology is based on three premises. The first is that over a period of time successful organizations develop a systematic, identifiable approach to environmental adaptation as they focus on three types of problems: (1) an entrepreneurial problem that deals with the definition of market-product domain, (2) an engineering problem involving the organization's technical problem, and (3) an administrative problem arising from structure and process issues. The second premise is that four identifiable strategic orientations exist within an industry: Defenders, Prospectors, Analyzers, and Reactors. According to Miles and Snow (1978), Defenders emphasize a narrow domain by controlling secure niches in their industries. They engage in little or no product/market development and stress efficiency of operations. Prospectors constitute the other end of the continuum; they constantly seek new opportunities and stress product development. Analyzers exhibit characteristics of both Defenders and Prospectors. Finally, Reactors do not follow a conscious strategy and are viewed as a dysfunctional organizational type.

The third premise of the Miles and Snow (1978) typology is that the Defender, Analyzer, and Prospector strategies, if properly implemented, can lead to effective performance. Much depends on the internal consistency among the three elements of the adaptive cycle. Each type emphasizes different functions to produce a set of sustainable, distinctive competencies. The Reactors lack a coherent strategy. Therefore, the Miles and Snow (1978) typology proposes that Defenders, Analyzers, and Prospectors will outperform the non-adaptive Reactors.

A number of researchers state their preference for using Miles and Snow's strategy types because it is the only typology that characterizes an organization as a complete system and it provides a useful format for studying successful implementation of different strategies (Croteau and Bergeron, 2001; Lengnick-Hall, 1992; Conant, Mokwa, and Varadarjan, 1990; Zahra and Pearce, 1990; McDaniel and Kolari, 1987; Hrebiniak and Snow, 1980).

Several researchers report that entrepreneurial and conservative organizations can employ either a prospector or defender strategy (Dess, Lumpkin, and Covin, 1997; Zahra and Covin, 1993; Lengnick-Hall, 1992: Zahra and Pearce, 1990). Thus, we speculate that entrepreneurial and conservative electrical distributors in our study will also employ either a prospector or defender strategy.

Structure

Organizational structure refers to how the various parts of an organization are arranged to achieve consistency and coherence. The seminal work on structure is Weber's (1947) description of the ideal type of *bureaucracy*. Burns and Stalker (1961) discovered a relationship between the external environment and an organization's internal management structure. For example, when the environment was stable, the internal organization was characterized by rules, procedures, and a clear hierarchy of authority. These organizations were formalized and decision-making was centralized. Burns and Stalker (1961) called this a *mechanistic* structure.

In rapidly changing environments, the internal organization was much looser, free flowing, and adaptive. Rules and regulations often were not written down, or if written down, were ignored. The hierarchy of authority was not clear. Decision-making authority was decentralized. Burns and Stalker (1961) used the term *organic* to characterize this type of management structure.

Burns and Stalker (1961) also learned that as environmental uncertainty increases, organizations tend to become more organic, which means decentralizing authority and responsibility to lower levels, encouraging employees to take care of problems by working directly with one another, encouraging teamwork, and taking an informal approach to assigning tasks and responsibility. Thus, the organization becomes more fluid and is able to adapt continually to changes in the external environment (Courtright, Fairhurst, and Rogers, 1989).

Using the work of Kast and Rosenzweig (1973) and Dunn (1971), Chakravarthy (1982) conceptualized that organizations use different strategies to match their structural arrangements and argued that organizations with a prospector strategy will adopt an organic structure while organizations with a defender strategy will adopt a mechanistic structure. Jennings and Seaman

(1994) found support for Chakravarthy's (1982) preceding conceptual argument.

We present the following research hypotheses based upon Chakravarty's (1982) conceptual argument together with the empirical findings of Jennings and Seaman (1994).

H1a: Entrepreneurial electrical distributors with a prospector strategy will have an organic structure.

H1b: Entrepreneurial electrical distributors with a defender strategy will have a mechanistic structure.

H1c: Conservative electrical distributors with a prospector strategy will have an organic structure.

H1d: Conservative electrical distributors with a defender strategy will have a mechanistic structure.

Performance

While organizational performance has been described as the achievement of a firm with respect to some criterion or criteria, certain researchers have argued that organizational performance is a complex and multidimensional phenomenon (Hart and Banbury, 1994; Jennings, and Young, 1990; Dutton and Duncan, 1987; Dess and Robinson, 1984)

Performance Frameworks: A variety of frameworks have been developed to conceptualize organizational performance. Three such frameworks have been widely used and involve (1) the goal approach (Etzioni, 1961) in which performance is viewed as attaining some goal or objective, (2) the systems resource approach (Yuchtman and Seashore, 1967) which is the organization's ability to exploit its environment in the acquisition of scarce and valued resources to sustain its functioning, and (3) the constituency approach (Thompson, 1967) whereby constituents contribute their activities to organizations in return for incentives, the contribution of each in the pursuit of his or her particularistic ends being a contribution to the satisfaction of the ends of others. This approach does not consider organizational success in terms of goals being achieved, but rather through its capacity to survive through being able to gain enough contributions from the members by providing sufficient rewards or incentives.

Other researchers have tended to avoid these perspectives and have used economic dimensions of organizational performance such as rate of return, cash flow, and sales growth (Hambrick, 1981). Also, Hart (1992) built upon the work of Venkatraman and Ramanujam (1986) and argues that performance consists of the three constructs of financial performance, operational performance, and organizational performance. According to Hart (1992) and Venkatraman and Ramanujam (1986) financial performance involves such indicators as return on investment, return on sales, return on equity, earnings per share, and sales growth. Operational performance involves business-level activities such as new product introduction and marketing effectiveness. Organizational performance reflects broad organizational outcomes and capabilities such as employee satisfaction and an organizational focus on quality or adaptability.

Some researchers argue that multiple measures of performance should be utilized while others assert that a single measure will suffice (Hirsch, 1975; Lenz, 1980). Also, Jennings and Seaman (1994) noted that generally it is the researcher who selects the particular performance measure that is being investigated. However, it may be more appropriate to use performance measures that are utilized by managers in the organizations being studied because such measures tend to reflect organizational specific objectives.

For the present study, we surveyed industry executives to determine a performance measure that reflected a financial condition for electrical distribution firms. Based on the responses of those industry executives, two performance ratios, earns and turns, were utilized in the present study. The earns ratio measures profitability by using gross margin divided by net sales and the turns ratio reflects the amount of inventory used by the firm and is defined as net sales divided by inventory. The earns and turns ratios were used for a five year period, 1998 through 2002. Many industry analysts (Bates, 2001) argue that, when used together, the earns and turns ratios provide the “real health” of an electrical distributor.

A review of the literature on corporate entrepreneurship research for the years 1990 through 2002 indicated that sixty-eight articles have been published in peer-reviewed academic journals pertaining to how certain factors affect the performance of entrepreneurial organizations. Twenty-two of the preceding sixty-eight articles were theoretical while the remaining forty-six were empirical studies. None of those sixty-eight articles published from 1990 through 2002 focused on the effects of the strategy-structure match on performance in entrepreneurial organizations (EO) or on the notion of equifinality. Further, none of the preceding studies considered how the various factors that were investigated affect non-entrepreneurial organizations. Table 1 illustrates those studies describing the factors that affect organizational performance in EO.

Table 1

Research Studies On How Certain Factors Affect The Performance Of Entrepreneurial Organizations (EO)

1. *The relationship of the corporate entrepreneurial (CE) construct to performance.* Kemelgor (2002), Brown, Davidsson and Wiklund (2001), Thornton (1999), Lumpkin and Dess (1996), Bruton, et. al. (1996), Granstrand and Alange (1995), Jennings and Young (1990). 2. *The relationship between marketing strategies and performance in (EO).* Matsuno, Mentzer and Ozsomer (2002), Menon (1997). 3. *The relationship between marketing mix and performance in EO.* Barrett (2000). 4. *The relationship between marketing orientation and performance in EO.* Wood, Bhuian and Kiecker (2000), Barrett and Weinstein (1998 and 1997) 5. *The relationship between marketing pioneering and performance in EO.* Simon et. al. (2002), Covin, Slevin and Heeley (2000). 6. *The relationship between business strategies and performance in EO.* Kuratko, Ireland, and Hornsby (2001), Twomey and Harris (2000), Blanchard (1999), Floyd and Wooldridge (1999), Lengnick-Hall (1992), Chittipeddi and Wallett (1991).	7. *The relationship between financial strategies and performance in EO.* Vozikiz, et. al. (1999), Keels, Bruton and Scifres (1998), Pearce, Kramer and Robbins (1997), Park and Kim (1997), Zahra (1995 and 1991), Jennings and Seaman (1990). 8. *Environmental effects on performance in EO.* Hostager, et. al. (1998), Dess, Lumpkin and Covin (1997), Sleven and Covin (1997), Parnell, Wright and Tu (1996), Zahra and Covin (1995), Zahra (1993). 9. *Effect of international environmental hostility on performance in international EO.* Zahra and Garvis (2000). 10. *Technology effects on performance in EO.* West and Meyer (1998), Zahra (1996), Covin and Slevin (1994), David (1994). 11. *Leadership effects on performance in EO.* Floyd and Wooldridge (1994). 12. *Top management effects on performance in EO.* Hitt (1999), Herron (1992), Grinyer and McKierman (1990), Lant and Mezias (1990), Ross (1990).

Table 1 Contd…

13. Effects of the differences in innovative finesse and traditional managerial activities on performance in EO. Brazeal (1996). *14. Innovation effects on performance in EO.* Ahuza and Lampert (2001), Attuahene and Ko (2001), Drazin and Schoonhoven (1996), Baden-Fuller (1995), Guth (1995), Lengnick-Hall (1991). *15. Differences between intrapreneurship and entrepreneurship on performance in EO.* Antoncic and Hisrich (2001), Shrader and Simon (1997), Carrier (1996). *16. Effects of growth strategies on performance in EO* Koen (2000), Kilmer (1990). *17. Effects of strategic management practices on performance in EO.* Barringer and Bluedom (1999). *18. Effects of organization culture on performance in EO.* Choueke and Armstrong (2000). *19. Effects of learning strategies on performance in EO.* Liu, Luo and Shi (2002), Honig (2001). *20. Effects of knowledge and competence development on performance in EO.* Zahra (1999).	*21. Effects of networking optimization on performance in EO.* Birkinshaw (1998). *22. Effects of being a multinational corporation on performance in EO.* Birkinshaw (1999 and 1997). *23. Effects of firm resources and strategic orientation on performance in EO.* Borch (1999). *24. Effects of strategy structure and process on performance in EO.* Dess, Lumpkin and McGee (1999). *25. Effects of ownership and governance on performance in EO.* Zahra, Neubaum and Huse (2000). *26. Effects of post acquisition success on performance in EO.* Thomson and McNamara (2001). *27. Effects of bureaucratic pathologies on performance in EO.* Dixon, Kouzmin, Korac-Kakabadse (1998).

Chakravarthy (1982) also posited that organizations having specific strategy-structure arrangements will have differences in performance because of the notion of inertia. For example, investments in technologies and human skills are costly and may not always be made (Homburg, Krohmer, and Workman, 1999; Hart, 1992; McKelvey and Aldrich, 1983). The availability of organizational slack provides resources for adaptation, innovation, and improved decision making (Singh, 1986; Barney, 1986) while reduced slack, or a scarcity or resources, induces a managerial paralysis causing rigidity which propels the organization to a decreased performance (Varadarajan, Jayachandran, and White, 2001; Priem, Rasheed, and Kotulic, 1995: Bozeman and Slusher, 1979). Jennings and Seaman (1994) report a performance differences among organizations having a prospector strategy-organic structure and also among organizations with a defender strategy-mechanistic structure.

We anticipate, based on Chakravarthy's (1982) conceptualization, the empirical findings of Jennings and Seaman (1994), and our discussion of organizational inertia, that performance differences will occur among entrepreneurial and conservative organizations having similar strategy-structure arrangements as follows:

H2a: Performance differences as measured by an earns and turns ratio will occur among entrepreneurial electrical distributors that have a prospector strategy-organic structure.

H2b: Performance differences as measured by an earns and turns ratio will occur among entrepreneurial electrical distributors that have a defender strategy-mechanistic structure.

H2c: Performance differences as measured by an earns and turns ratio will occur among conservative electrical distributors that have a prospector strategy-organic structure.

H2d: Performance differences as measured by an earns and turns ratio will occur among conservative electrical distributors that have a defender strategy-mechanistic structure.

Strategy-Structure Match

Two sets of pervasive arguments exist among contingency theorists with respect to how fit affects performance. One such argument suggests that a one-best strategy-structure arrangement exists to fit a given industry environment (Lorsch and Morse, 1974; Lawrence and Lorsch, 1969; Hage and Aiken, 1970; Dill, 1958). The other argument is that organizational effectiveness results in fitting certain characteristics to contingencies that reflect the situation of the organization (Galbraith, 1973; Pugh, Hickson, Hinnings, and Turner, 1969; Burns and Stalker, 1961). These contingencies include the environment (Burns and Stalker, 1961), organizational size (Child, 1975), and strategy (Datta, 1991; Seth, 1990; Ansoff, 1988; Chandler, 1962).

Another group of researchers have conceptualized that fit occurs with the organization's external environment as the driving force and that managers seek to align and integrate their internal processes with the organization's external domain (Naman and Slevin, 1993; Covin and Slevin, 1991; Venkatraman and Prescott, 1990; Venkatraman, 1989; Govindarajan, 1988) to maintain or improve effectiveness.

An overriding premise from these perspectives of fit is that certain moderating factors may affect an optimal strategy-structure match and that organizations with a certain strategy-structure configuration may have a higher or lower performance than do other organizations with similar strategy-structure configurations (Dess, Lumpkin, and Covin, 1997; Dess, Rasheed, McLaughlin, Priem, 1995; Langnick-Hall, 1992).

Thus, in considering the moderating effects of an optimal strategy-structure match we anticipate the following hypotheses:

H3a: Entrepreneurial electrical distributors that have the best prospector strategy-organic structure match will have the highest performance as measured by an earns and turns ratio, compared to other entrepreneurial prospector strategy-organic structure electrical distributors.

H3b: Entrepreneurial electrical distributors that have the best defender strategy-mechanistic structure match will have the highest performance as measured by an earns and turns ratio, compared to other entrepreneurial defender strategy-mechanistic structure electrical distributors.

H3c: Conservative electrical distributors that have the best prospector strategy-organic structure match will have the highest performance as measured by an earns and turns ratio, compared to other conservative prospector strategy- organic structure electrical distributors.

H3d: Conservative electrical distributors that have the best defender strategy-mechanistic structure match will have the highest performance as measured by an earns and turns ratio, compared to other conservative defender strategy-mechanistic structure electrical distributors.

Equifinality

In an earlier section we discussed the notion of equifinality from the perspective of strategy management. In that argument, equifinality, a characteristic of open systems, is the notion that allows a feasible set of equally effective internally consistent patterns of strategy and structure (Jennings and Seaman, 1994; Van de Ven and Drazin, 1985). Further, a group of contingency theorists argue that a variety of strategy-structure configurations are possible (Donaldson, 2001; Scott, 1992; Pfeffer, 1997). Our final hypothesis pertains to the issue of equifinality.

H4: Equal levels of performance as measured by an earns and turns ratio will occur among (a) entrepreneurial electrical distributors with a prospector strategy-organic structure having the best strategy-structure match, (b) entrepreneurial electrical distributors with a defender strategy- mechanistic structure having the best strategy-structure match,

(c) conservative electrical distributors with a prospector strategy-organic structure having the best strategy-structure match, and (d) conservative electrical distributors with a defender strategy-mechanistic structure having the best strategy-structure match.

RESEARCH METHODS

We elected to study electrical distribution firms based on Starbuck's (1993) argument that when attempting to understand the dynamics of organizational phenomena and to develop understanding, insight is more likely to result from a study of extreme cases than from traditional firms. Electrical distribution firms represent such extreme cases. For example, an electrical distributor moves goods and services from producers to consumers to overcome major time, place, and possession gaps that separate goods and services from those who would use them. In 2002, total U.S. sales of electrical distribution firms were $67 billion and the total population of U. S. electrical distribution firms in 2002 consisted of 1500 firms. Sales of these firms ranged from US$5 Million to US$9 Billion (NAED, 2002). Further, many electrical distribution firms started as small businesses and evolved to large size firms with multiple operations located in different cities. Also, electrical distributors are both family owned businesses as well as being part of major international conglomerates.

Measuring corporate entrepreneurship

Miller and Friesen's (1982) index was used to measure corporate entrepreneurship. As we discussed in an earlier section, such an index has been widely used and validated. The seven scale items, presented in Appendix 1, were rewritten to confirm to the electrical distribution channel. While Miller and Friesen's original instrument solicited responses using a 7-

point Likert scale, our scale was reduced to a 5-point rating category for questionnaire design consistency and to facilitate participant responses. Aiken (1987) studied the effects on ratings using different scales and found that two-category scales were significantly different from three, four, five, six, or seven category scales, but that no significant difference existed among 3, 4, 5, 6, or 7-point scales. Aiken (1987, p. 54) concludes that "using a small number of categories (but greater than two) is as effective as a larger number of categories." Thus our use of a 5-point Likert scale to measure corporate entrepreneurship is no different from Miller and Friesen's (1982) 7-point Likert scale.

Measuring strategy

Snow and Hrebiniak's (1980) procedure describing the strategy types of the Miles and Snow (1978) typology was used to measure strategy. As described in Appendix 2, study participants were asked to check the type best describing the strategic behavior of their firm. This paragraph approach has been commonly used and validated extensively (Rajagopalan, 1996; James and Hatten, 1995) and is considered more convenient than the lengthy multi-item strategy typologies used by Hambrick (1981). Also, several studies have validated the ability of managers to self-diagnose their firm's strategic orientation using the Miles and Snow strategy typology (Slater and Narver, 1993; Shortell and Zajac, 1990; Conant, Mokwa, and Varadarajan, 1990). Further, an argument has been made that practicing managers have the cognitive ability to identify the type of strategy employed by their firm and that researchers should utilize this knowledge (Dean and Sharfman, 1996; Hunt and Power, 1985; Kiesler and Sproull, 1982; Downey and Ireland, 1979).

Several researchers state that the most appropriate and relevant way in which key issues pertaining to types of strategies employed by firms and the selection of competitive positions can be assessed is to ask the involved managers (Geletkanycz and Black, 2001; Morgan and Piercy, 1998; Day and Nedungadi, 1994).

Measuring structure

In this study, we used Hage's (1965) instrument that measures organic and mechanistic structures. This instrument which is described in Appendix 3, includes two items for each of four variables (formalization, stratification, complexity, and centralization) was rewritten to conform to the electrical distribution channel. Table 2 illustrates how Hage's (1965) four variables relate to organic and mechanistic structures. Study participants were asked to indicate the extent to which these structural variables described their electrical distributorship. Responses were measured using a 5-point Likert scale.

Table 2
Hage's (1965) organizational 'means' variables related to organic and mechanistic structures

Variables	Structural Value	
	Organic	Mechanistic
Formalization		
1. Codified jobs	Low	High
2. Variations within jobs	Low	High
Stratification		
3. Status among jobs	Low	High

4. Mobility Barriers between low and high jobs	Low	High
Complexity		
5. Number of specialties	High	Low
6. Required level of High training	High	Low
Centralization		
7. Number of decision-making jobs	High	Low
8. Number of areas where decisions are made by decision-makers	High	Low

Adapted from J. Hage (1965), 'An axiomatic theory of organization', *Administrative Science Quarterly*,
10: 293, 305.

Measuring performance

The two performance ratios (earns and turns) depicted in Appendix 4 were reported by study participants for the years 1998-2002. Because many of the firms included in our study are privately owned, our performance measures are subjective. In some instances, retrospective interviews with top managers are the only possible source of performance data. While such interviews may provide inaccurate and biased data, Huber and Power (1985) defend this methodology and offer certain prescriptions for improving this research technique. Also, an argument persists that dysfunctional aspects of research may occur with respect to utilizing subjective measures of organizational performance. However, Downey and Ireland (1979, p. 632) provide the following rationale for the use of subjective data:

> An objective-subjective categorization has had, however, at least two dysfunctional effects on organizational research. First, it has tended, *a priori*, to push research away from qualitative data when they might be useful for assessing some performance dimensions. The objective-subjective dilemma has

> equated objectively, and thus scientific inquiry, with quantification. As a result, qualitative assessments have been avoided by researchers because of an understandable desire not appear "unscientific."
>
> Second, the objective-subjective categorization has equated subjective measures with measurement of perceptions. The defining of all measures of perceptions as subjective is based on a confusion over *whose* subjectivity is involved. The objectivity that is desired in scientific inquiry refers to objectivity on the part of the researcher. Subjective behavior on the part of those being studied, however, may well be a legitimate topic for scientific inquiry.

Two empirical research studies (Jennings and Young, 1990; Dess and Robinson, 1984) have found no significant differences between subjective and objective measures.[3]

Sample selection

Using a mailing list provided by the National Association of Electrical Distributors, a random sample of 460 electrical distribution firms were selected from the 2002 total population of 1500 electrical distribution firms. The firms that were selected had 2002 sales ranging from US$ 5 Million to US$ 9 Billion, were both privately and publicly owned, had been in existence for at least ten years, and were located throughout the U.S.

Data collection

A pilot-tested questionnaire, together with a cover letter was sent to the top two senior managers of each electrical distributor in the sample. Each manager was requested to respond to questions pertaining to the entrepreneurial style of their firm (Appendix 1) and their firm's particular strategy and structure (Appendix 2 and 3). Only the most senior manager was asked to respond to the performance question (Appendix 4). The two top managers from 166 electrical distributors provided responses that identified the entrepreneurial style, strategy and structure of their respective firms while the senior most managers from each

of the preceding 166 firms provided performance data. Such a reply from 166 firms is a response rate of 36.1%. However, 148 replies (a response rate of 32.2%) was used for data analysis. Such a usable response rate of 32.2% is considerable to be acceptable for field research in the area of corporate entrepreneurship (Zahra and Covin, 1995). Senior managers of non-responding firms were contacted by e-mail and these managers cited lack of time as the major reason for not responding.

Data analysis

A major objective of our study is to investigate those electrical distributors having either a prospector or defender strategy. Thus, those responding firms that reported employing either an analyzer or reactor strategy were excluded from the study. Accordingly, the 18 electrical distributors (166 less 148) whose responses were received but not used reported employing either an analyzer or reactor strategy. In fact, 16 of those firms reported an analyzer strategy and two indicated a reactor strategy. Also replies from 11 of the 18 unusable responses were from electrical distributors reporting that their firm classification was entrepreneurial and the remaining 9 unusable responses indicated a conservative firm classification.

A frequency table was developed to identify those 148 responding electrical distributors as being either entrepreneurial or conservative. Seventy-two firms reported being entrepreneurial while 76 firms indicated a

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[3] The Jennings and Young, 1990 measure was corporate entrepreneurship while the Dess and Robinson

conservative orientation. Thirty-three of the responding 72 entrepreneurial electrical distributors reported the use of a prospector strategy while the remaining 39 indicated a defender strategy. Twenty-nine of the responding 76 conservative electrical distributors reported employing a prospector strategy while the remaining 47 reported using a defender strategy. Table 3 details the distribution of responding electrical distributors by both organizational (entrepreneurial or conservative) classification and by type of strategy (prospector or defender) and structure (organic or mechanistic) employed.

Table 3
Study Respondents

	Number	**Percent**
Sample Size	460	100.00
Respondents	166	36.10
Usable Responses	148	32.20

Organizational Classification	**Prospector Strategy Organic Structure**	**Defender Strategy Mechanistic Structure**	**Total**
Entrepreneurial	33	39	72
Conservative	29	47	76
Total	62	86	148

Our next approach was separate the responding electrical distributors into the following four categories:

Category 1—entrepreneurial firms having a prospector strategy-organic structure

Category 2—entrepreneurial firms having a defender strategy-mechanistic structure

Category 3—conservative firms having a prospector strategy-organic structure

Category 4—conservative firms having a defender strategy-mechanistic structure

Size effects

(1984) measure was return on assets.

Certain researchers (Robinson, 1982; Lindsay and Rue, 1980) have argued that small-sized firms may exhibit different characteristics than large-sized firms and should be considered as a separate class in data analysis. As organizations increase in size, they emphasize predictability and formalized roles which cause organizational behavior to become rigid, predictable, and inflexible (Quinn and Cameron, 1983; Downs, 1967). Since differences in size can influence a firm's performance, as well as other organizational variables, a covariance analysis (ANCOVA) was used to control for organizational size for each of the four categories of electrical distributors described in the preceding section. F-ratios for differences in performance (earns and turns ratios) means were 47.83 ($p<0.0001$), 43.78 ($p<0.0001$), 222.97 ($p<0.0001$), 273.55 ($p< 0.0001$), respectively. These test statistics suggest that performance mean differences were not simply an artifact of electrical distributor size.

Non-response bias

An analysis of non-response bias (Armstrong and Overton, 1977) was conducted. The procedure requires that responses be numbered sequentially in the order in which they are received. Next, mean scores of the first quartile (which are assumed to be most motivated) are compared to those of the last quartile (assumed to be most similar to non-respondents). No significant difference in means ($p<.05$) were revealed, indicating that there is no evidence of response bias.

RESULTS

Entrepreneurial type, strategy and structure characteristics

As mentioned earlier, respondents were asked to identify their firms as being either entrepreneurial or conservative using the questionnaire described in Appendix 1. Cronbach's (1951) coefficient alpha for our corporate entrepreneurship measure (the seven scale items in Appendix 1) was 0.79—exceeding the value of 0.70 which would indicate construct validity (Van de Ven and Ferry, 1980). Scores on the seven scale items were averaged to produce an overall corporate entrepreneurship index. A high score on the index indicates entrepreneurial activity and vice versa. The 72 entrepreneurial firms had an index of 4.25 while the 76 conservative firms had an index of 1.56. Further, the index scores of the entrepreneurial and conservative firms were significantly different ($t=42.93$, $p<0.0001$). The coefficient alpha for the structural variables of formalization, stratification, complexity, and centralization were 0.89, 0.87, 0.81, and 0.84, respectively. Inter-rater reliabilities for the responses of the two top managers were (1) a range of 0.82 to 0.90 for the eight structural means and (2) 0.88 for organizational strategy. Mean scores, standard deviations, inter-rater reliabilities and alpha coefficients for organizational classification, strategy and structure are presented in Tables 4 and 5.

Table 4

Means [a], standard deviations, and reliabilities for entrepreneurial (EO) organizational type, strategy and structure characteristics.

[a]1 = never; 5 = always. Table 2 details how the structural variables are related to both organic and mechanistic structure while Appendix 3 describes the research questionnaire.

Structural Variables	CO Type and prospector strategy Means	S.D.	CO Type and defender strategy Means	S.D.	Inter-rater reliability	Alpha coefficient
	N = 29		N = 47			
Formalization						0.89
1. Codified jobs	1.82	0.68	3.83	0.64	0.90	
2. Variation within jobs	1.89	0.73	3.91	0.75	0.86	
Stratification						0.87
3. Status among jobs	1.78	0.64	3.64	0.71	0.88	
4. Mobility barriers between low and high jobs	1.92	0.62	3.51	0.68	0.85	
Complexity						0.81
5. Number of specialties	2.88	0.92	1.94	0.81	0.80	
6. Required level of training	3.01	0.97	1.86	0.92	0.82	
Centralization						0.84
7. Number of decision making	3.06	1.01	2.01	0.95	0.82	
8. Number of areas where decisions are made	2.86	0.99	2.26	0.93	0.87	

Strategy Variables	EO Type and prospector strategy Means	S.D.	EO Type and defender strategy Means	S.D.	Inter-rater reliability	Alpha coefficient
	N = 33		N = 39			
Formalization						0.92
1. Codified jobs	3.14	0.71	3.83	0.79	0.88	
2. Variation within jobs	3.28	0.73	3.87	0.82	0.86	
Stratification						0.88
3. Status among jobs	3.34	0.69	3.79	0.86	0.76	
4. Mobility barriers between low and high jobs	3.07	0.75	3.98	0.77	0.74	
Complexity						0.74
5. Number of specialties	2.01	1.13	2.45	0.72	0.78	
6. Required level of training	2.07	1.28	2.32	0.87	0.84	
Centralization						0.85
7. Number of decision making	1.97	1.37	1.87	0.82	0.85	
8. Number of areas where decisions are made	2.12	1.01	2.18	0.81	0.79	

Table 5

Means [a], standard deviations, and reliabilities for Conservative (CO) organizational type, strategy and structure characteristics.

[a]1 = never; 5 = always. Table 2 details how the structural variables are related to both organic and mechanistic structure while Appendix 3 describes the research questionnaire.

The eight structural variables loaded on one factor using a factor analysis with an orthogonal varimax rotation and were highly correlated. Table 6 illustrates the Pearson correlation coefficients for these items.

Table 6
Pearson Correlation Coefficients [a] for Structural Variables.

	V1	V2	V3	V4	V5	V6	V7	V8
V1 – Codified jobs	1.000							
V2 – Variation within jobs	0.774	1.000						
V3 – Status among jobs	0.785	0.825	1.000					
V4 – Mobility barriers among low and high jobs	0.763	0.748	0.782	1.000				
V5 – Number of specialties	-0.739	-0.772	-0.822	0.792	1.000			
V6 - Training	-0.744	-0.753	-0.797	-0.748	0.876	1.000		
V7 – Decision making jobs	-0.786	-0.741	-0.811	-0.821	0.763	0.692	1.000	
V8 – Decision making areas	-0.752	-0.778	-0.782	-0.811	0.792	0.705	0.744	1.000

[a] All correlation coefficients significant at 0.0001 level.

Hypotheses

As indicated in Table 7, all thirteen hypotheses were supported.

Table 7
Hypotheses of investigation and levels of support

Hypotheses		Summary Indication of Support	F Value
1a	Entrepreneurial electrical distributors with a prospector strategy will have an organic structure	Supported	<0.0001
1b	Entrepreneurial electrical distributors with a defender strategy will have a mechanistic structure	Supported	<0.0001
1c	Conservative electrical distributors with a prospector strategy will have an organic structure	Supported	<0.0001
1d	Conservative electrical distributors with a defender strategy will have a mechanistic structure	Supported	<0.0001
2a	Performance differences will occur among entrepreneurial electrical distributors having a prospector strategy-organic structure	Supported	<0.0001
2b	Performance differences will occur among entrepreneurial electrical distributors having a defender strategy-mechanistic structure	Supported	<0.0001
2c	Performance differences will occur among conservative electrical distributors having a prospector strategy-organic structure	Supported	<0.0001
2d	Performance differences will occur among conservative electrical distributors having a defender strategy-mechanistic structure	Supported	<0.0001

3a	Entrepreneurial electrical distributors with the best prospector strategy-organic structure	Supported	0.05
	when compared to other entrepreneurial electrical distributors having a prospector strategy-organic structure	Supported	0.05
3b	Entrepreneurial electrical distributors with the best defender strategy-mechanistic structure match will have the best performance when compared to other entrepreneurial electrical distributors having a defender strategy-mechanistic structure	Supported	0.05
3c	Conservative electrical distributors with the best prospector strategy-organic structure match will have the best performance when compared to other conservative electrical distributors having a prospector strategy-organic structure	Supported	0.05
3d	Conservative electrical distributors with the best defender strategy-mechanistic structure match will have the best performance when compared to other conservative electrical distributors having a defender strategy-mechanistic structure	Supported	0.05
4.	Equal performance will occur among (a) entrepreneurial electrical distributors having the best prospector strategy-organic structure match, (b) entrepreneurial electrical distributors having the best defender strategy – mechanistic structure match (conservative) electrical distributors having the best prospector strategy-organic structure match,(d) conservative electrical distributors having the best defender strategy-mechanistic structure match.	Supported for performance measures of 'turns', earns, and earns times turns	'earns' p = 0.859 turns p = 0.884 earns x turns p = 0.971

Hypotheses 1a and 1b

We predicted in the first two hypotheses that entrepreneurial electrical distributors with a prospector strategy will have an organic structure and that entrepreneurial electrical distributors with a defender strategy will have a mechanistic structure. Statistical analyses (chi-square value of 148.37, $p<0.0001$ and a t test; $t= 4.11$, $p<0.0001$) provide support for both hypotheses.

Hypotheses 1c and 1d

We predicted in these two hypotheses that conservative electrical distributors with a prospector strategy will have an organic structure and that conservative electrical distributors with a defender strategy will have a mechanistic structure. Both hypotheses were supported (chi-square value of 135.24, $p<0.0001$ and a t test; $t= 3.89$, $p<0.0001$).

Hypotheses 2a, 2b, 2c, and 2d

In these four hypotheses we speculated that performance differences would occur among (1) entrepreneurial electrical distributors with a prospector strategy-organic structure, (2) entrepreneurial electrical distributors with a defender strategy-mechanistic structure, (3) conservative electrical distributors with a prospector strategy-organic structure and (4) conservative electrical distributors with a defender strategy-mechanistic structure. Earlier, we explained that during data analyses, the responding electrical distributors had been formed into the following four categories:

Category 1—entrepreneurial firms having a prospector strategy-organic structure

Category 2—entrepreneurial firms having a defender strategy-mechanistic structure

Category 3—conservative firms having a prospector strategy-organic structure

Category 4—conservative firms having a defender strategy-mechanistic structure

Our approach in investigating hypotheses 2a, 2b, 2c, and 2d was to cluster the responding electrical distributors by category using a cluster technique described by Kerlinger (1973) and Osgood, Suci, and Tannenbaum (1957). As depicted in Figures 2 and 3, three clusters were generated from each of the preceding four categories.

Figure 2
Clusters of Entrepreneurial (EOs)
Electrical Distributors

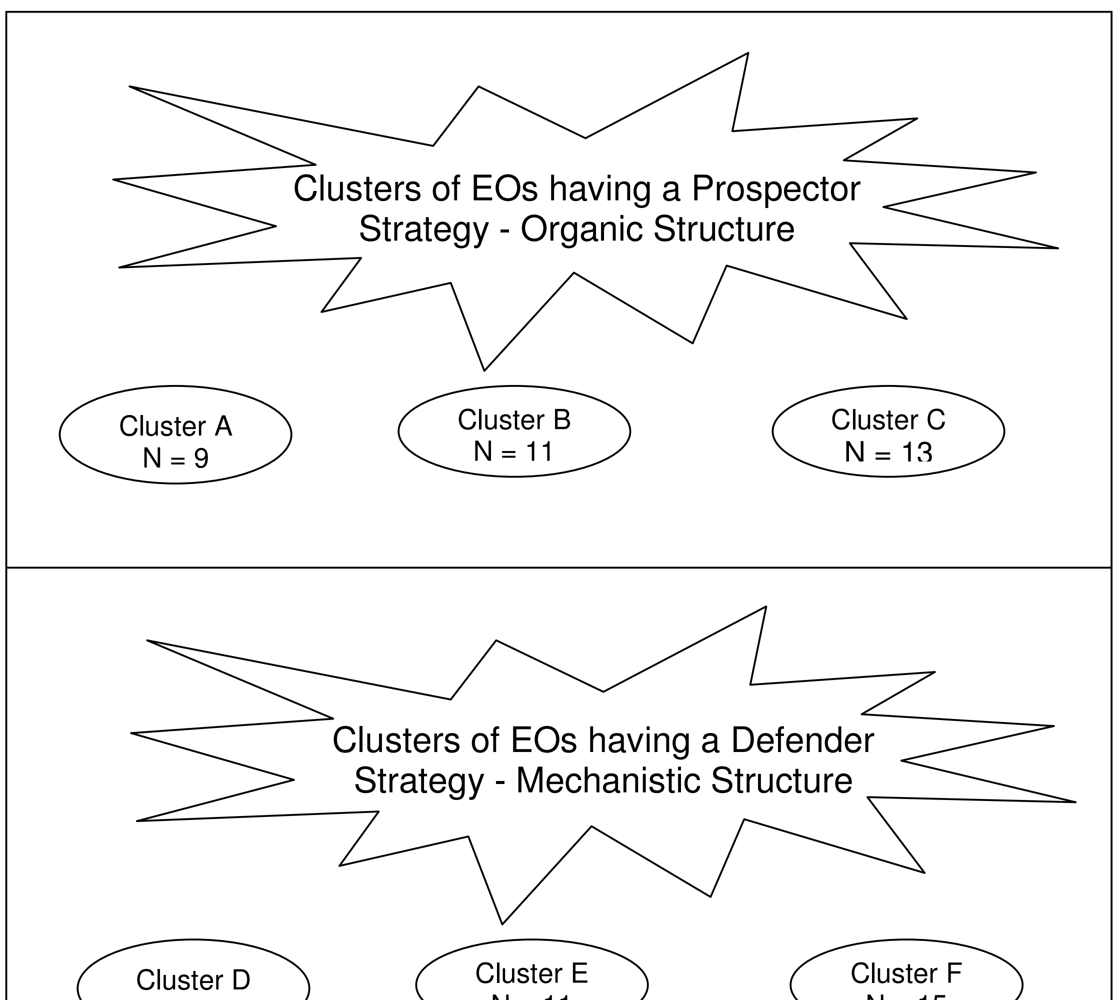
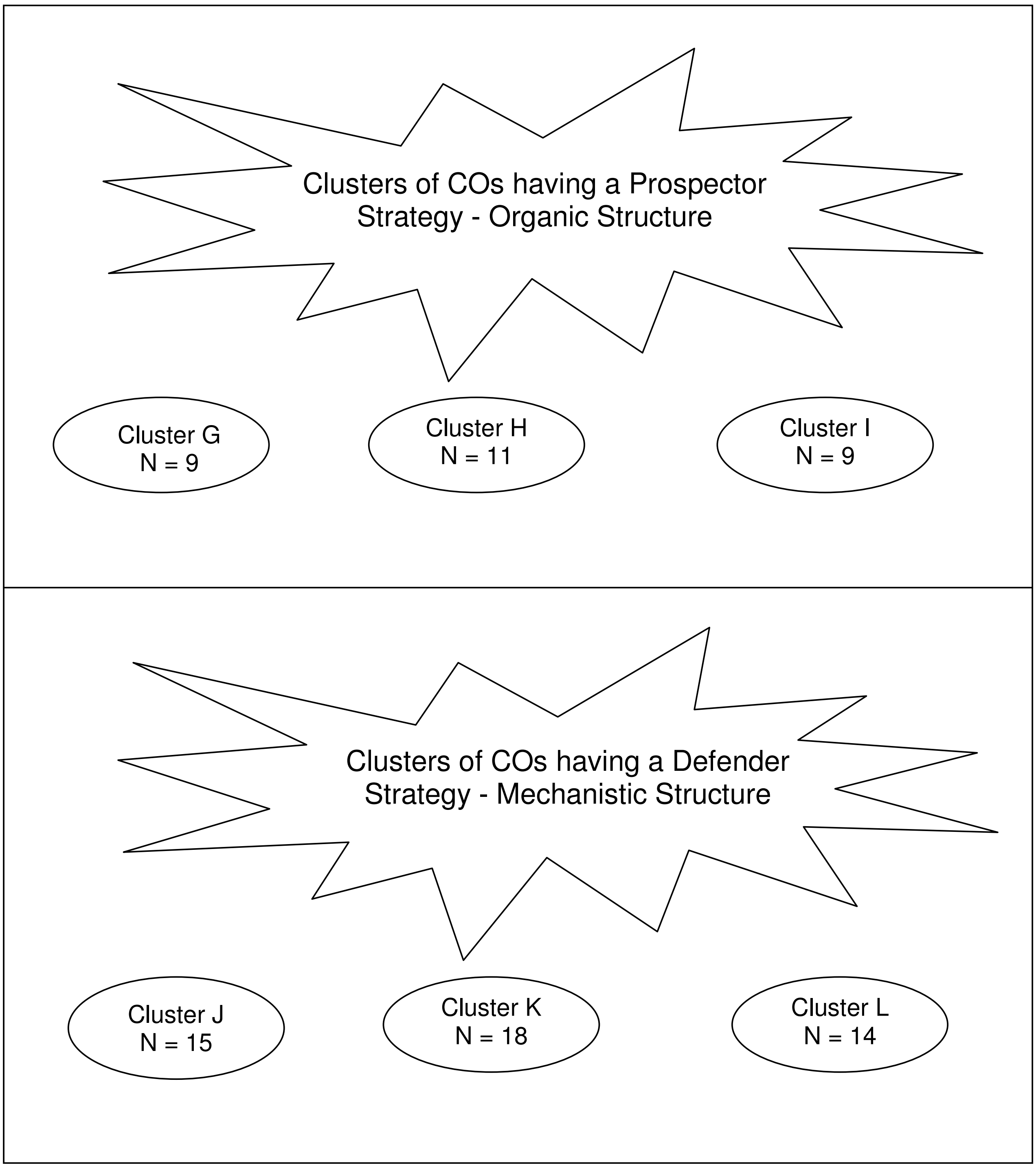


Figure 3
Clusters of Conservative (COs)
Electrical Distributors



As illustrated in Figure 2, the previously confirmed 33 entrepreneurial electrical distributors having a prospector strategy-organic structure were separated into three clusters of 9, 11 and 13 electrical distributors, respectively. The 39 previously confirmed entrepreneurial electrical distributors having a defender strategy-mechanistic structure were separated into clusters of 13, 11 and 15 electrical distributors, respectively.

Also, as illustrated in Figure 3, the previously confirmed 29 conservative electrical distributors having a prospector strategy-organic structure were separated into three clusters of 9, 11 and 9 electrical distributors, respectively. The 47 previously confirmed conservative electrical distributors having a defender strategy-mechanistic structure were separated into clusters of 15, 18 and 14 electrical distributors, respectively.

Statistical means and standard deviations of the structural variables for each cluster, together with performance data are described in Table 8 for those responding entrepreneurial electrical distributors and in Table 9 for those responding conservative electrical distributors. The reader will note that Tables 8 and 9 contains the three performance measures of earns, turns, and earns times turns. Survey respondents reported their earns and turns for each of the five years 1998 through 2002 and we then multiplied the respective earns and turns to generate an earns times turns measure for each of the five years 1998 through 2002.

Table 8
Means [a] Standard deviations and performance data [b] for cluster groups of entrepreneurial electrical distributors.

Entrepreneurial Type – Prospector Strategy

	Organic Structure		Performance		
	Mean	**S.D.**	**Earns**	**Turns**	**Earns times Turns**
Cluster A (N = 9)	2.90	0.49	27.07	3.25	87.12
Cluster B (N = 11)	1.47	0.14	33.84	4.08	139.29
Cluster C (N = 13)	2.81	0.24	28.89	3.05	87.59

Entrepreneurial Type – Defender Strategy

	Mechanistic Structure		Performance		
	Mean	**S.D.**	**Earns**	**Turns**	**Earns times Turns**
Cluster D (N = 13)	3.88	0.30	37.37	4.05	136.06
Cluster E (N = 11)	3.21	0.22	28.22	3.19	89.10
Cluster F (N = 15)	3.09	0.14	29.32	3.04	88.66

[a] Because all eight structural variables are highly correlated, an average value was used.
[b] All performance measures are averages for the years 1998 – 2002.
The Earns value is expressed as a percentage while the Turns value is expressed as a whole number.

Table 9

Means [a] Standard deviations and performance data [b] for cluster groups of Conservative electrical distributors.

Conservative Type – Prospector Strategy

	Organic Structure		Performance		
	Mean	**S.D.**	**Earns**	**Turns**	**Earns times Turns**
Cluster G (N = 9)	2.89	0.42	27.33	3.81	105.12
Cluster H (N = 11)	2.54	0.18	28.76	3.14	89.85
Cluster I (N = 9)	1.56	0.21	32.80	4.05	133.66

Conservative Type – Defender Strategy

	Mechanistic Structure		Performance		
	Mean	**S.D.**	**Earns**	**Turns**	**Earns times Turns**
Cluster J (N = 15)	4.24	0.19	34.12	4.09	140.58
Cluster K (N = 18)	3.21	0.25	29.70	3.04	90.17
Cluster L (N = 14)	3.14	0.17	29.27	3.14	91.20

Conservative Type – Prospector Strategy

	Organic Structure		Performance		
	Mean	**S.D.**	**Earns**	**Turns**	**Earns times Turns**
Cluster G (N = 9)	2.89	0.42	27.33	3.81	105.12
Cluster H (N = 11)	2.54	0.18	28.76	3.14	89.85
Cluster I (N = 9)	1.56	0.21	32.80	4.05	133.66

Conservative Type – Defender Strategy

	Mechanistic Structure		Performance		
	Mean	**S.D.**	**Earns**	**Turns**	**Earns times Turns**
Cluster J (N = 15)	4.24	0.19	34.12	4.09	140.58
Cluster K (N = 18)	3.21	0.25	29.70	3.04	90.17
Cluster L (N = 14)	3.14	0.17	29.27	3.14	91.20

[a] Because all eight structural variables are highly correlated, an average value was used.
[b] All performance measures are averages for the years 1998 – 2002.The Earns value is expressed as a percentage while the Turns value is expressed as a whole number.

ANOVA tests indicated that the average structure means of the three clusters

in each of the four categories were significantly different (F=74.542, p<0.0001 for entrepreneurial electrical distributors with a prospector strategy-organic structure; F=79.387, p<0.0001 for entrepreneurial electrical distributors with a defender strategy-mechanistic structure; F=95.187, p<0.0001 for conservative electrical distributors with a prospector strategy-organic structure; F=153.361, p<0.0001 for conservative electrical distributors with a defender strategy-mechanistic structure).

Because the three performance measures of earns, turns, and earns times turns, were not highly correlated, they were treated independently for computational purposes. An ANOVA test indicated that performance was significantly different for the strategy-structure clusters in each of the four categories. Thus hypotheses 2a, 2b, 2 c, and 2d are supported. The ANOVA result for the performance measures of earns, turns, and earns times turns for entrepreneurial electrical distributors with a prospector strategy-organic structure are: (F= 7.332, p= 0.003; F= 18.134, p< 0.0001; F= 29.203, p< 0.0001), respectively. The ANOVA result for the performance measures of earns, turns, and earns times turns for entrepreneurial electrical distributors with a defender strategy-mechanistic structure are: (F= 6.418, p= 0.004; F= 27.698, p< 0.0001; F= 40.727, p< 0.0001), respectively.

The ANOVA result for the performance measures of earns, turns, and earns times turns for conservative electrical distributors with a prospector strategy-organic structure are: (F= 6.527, p= 0.005; F= 2.995, p< 0.0001; F= 61.294, p< 0.0001), respectively. The ANOVA result for the performance measures of earns, turns, and earns times turns for conservative electrical distributors with a defender strategy-mechanistic structure are: (F= 8.797, p= 0.001; F= 39.809, p< 0.0001; F= 63.531, p< 0.0001), respectively.

Hypotheses 3a, 3b, 3c, and 3d

To investigate the strategy-structure-performance relationship, we used the work of Hage (1965) in which he argued that his (Hage's) structural variables that are described in Table 2 provide a continuum for measuring the degree of an organization's organic or mechanistic structure. For example, organizations with low structural means are more organic while those with a high structural mean are mechanistic. Using Hage's (1965) argument, for those entrepreneurial electrical distributors depicted in Table 8, Cluster B would have the best strategy-structure match in their category because they have the best type of organic structure (their corresponding structural means were lower than those of Clusters A and C). Similarly, from Table 8, Cluster D would have the best strategy-structure match in their category because they have the best type of mechanistic structure (their corresponding structural means were higher than those of Clusters E and F). Continuing with Hage's (1965) argument, for those conservative electrical distributors depicted in Table 9, Cluster I would have the best strategy-structure match in their category because they have the best type of organic structure (their corresponding structural means were lower than those of Clusters G and H). Similarly, from Table 9, Cluster J would have the best strategy-structure match in their category because they have the best type of mechanistic structure (their corresponding structural means were higher than those of Clusters K and L).

In summary, we find that from Category 1 (entrepreneurial electrical distributors with a prospector strategy-organic structure) those electrical distributors in Cluster B have the best strategy-structure match. Also, those electrical distributors with the best strategy-structure match from Category 2 (entrepreneurial electrical distributors with a defender strategy-mechanistic structure), Category 3 (conservative electrical distributors with a prospector strategy-organic structure) and Category 4 (conservative electrical distributors with a defender strategy-mechanistic structure) are Clusters D, I and J, respectively.

For Hypotheses 3a, 3b, 3c, and 3d to be supported, those clusters in each category with the best strategy-structure match would have a higher performance. Tables 10 and 11 presents an analysis of variance results of performance measures by the clusters in each category together with the results of Scheffe's multiple range test at the 0.05 significance level for performance differences.

Table 10
Analysis of Variance results of performance measures by cluster of ENTREPRENUERIAL Electrical Distributors.

Prospector Strategy – Organic Structure

Performance Measure	**F**	**Scheffe (0.05) Multiple Comparison**
Earns	7.332*	Cluster B
Turns	18.134**	Cluster B
Earns times turns	29.203**	Cluster B

* P < 0.003
** P < 0.0001
Cluster B significantly different from clusters A and C for performance of Earns, Turns and Earns times Turns at 0.05 significance level.

Performance Measure	**F**	**Scheffe (0.05) Multiple Comparison**
Earns	6.527*	Cluster I
Turns	2.995**	Cluster I
Earns times turns	61.294**	Cluster I

Defender Strategy – Mechanistic Structure

Performance Measure	**F**	**Scheffe (0.05) Multiple Comparison**
Earns	6.418*	Cluster D
Turns	27.698**	Cluster D
Earns times turns	40.727**	Cluster D

* P < 0.004
** P < 0.0001
Cluster D significantly different from clusters E and F for performance of Earns, Turns and Earns times Turns at 0.05 significance level.

Table 11
Analysis of Variance results of performance measures by clusters of CONSERVATIVE Electrical Distributors.

Prospector Strategy – Organic Structure

* P < 0.005
** P < 0.0001
Cluster I significantly different from clusters G and H for performance measures of Earns, Turns and Earns times Turns at 0.05 significance level.

Defender Strategy – Mechanistic Structure

Performance Measure	F	Scheffe (0.05) Multiple Comparison
Earns	8.797*	Cluster J
Turns	39.809**	Cluster J
Earns times turns	63.531**	Cluster J

* P < 0.001
** P < 0.0001
Cluster J significantly different from clusters K and L for performance measures of Earns, Turns and Earns times Turns at 0.05 significance level.

For those electrical distributors in Category 1, Cluster B was significantly different from Clusters A and C for the performance measures of earns, turns, and earns times turns which provides support for Hypothesis 3a. In Category 2, the performance measures of earns, turns, and earns times turns for Cluster D was significantly different from Clusters E and F which provides support for Hypothesis 3b. In Category 3, the performance measures of earns, turns, and earns times turns for Cluster I was significantly different from Clusters G and H which provides support for Hypothesis 3c. In Category 4, the performance measures of earns, turns, and earns times turns for Cluster J was significantly different from Clusters K and L which provides support for Hypothesis 3d.

Hypothesis 4

The final hypothesis stated that electrical distributors in each of the four categories with the best strategy-structure match would have equal performances. For hypothesis 4 to be supported, electrical distributors in Clusters B, D, I and J would have the same performance. Figure 4 illustrates these four clusters.

Figure 4
Clusters of Electrical Distributors with
Superior Strategy - Structure - Performance

Cluster B from Figure 1 N = 11 Entrepreneurial Organization Prospector Strategy- Organic Structure	Cluster D from Figure 1 N = 13 Entrepreneurial Organization Defender Strategy- Mechanistic Structure	Cluster I from Figure 2 N = 9 Conservative Organization Prospector Strategy- Organic Structure	Cluster J from Figure 2 N = 15 Conservative Organization Defender Strategy- Mechanistic Structure

An ANOVA analysis of the three performance measures for the four clusters depicted in Figure 3 indicated that no significant differences existed for the performance measures of earns, turns, earns times turns (F= 0.217, p=0.859; F= 0.079, p=0.884; F=0.253, p=0.971), respectively. Thus, Hypothesis 4 is supported.

DISCUSSION

The major purpose of this study was to investigate the relationship among corporate entrepreneurship and traditional models of strategy, structure and performance. Our study indicates that both entrepreneurial and conservative electrical distributors with an optimum strategy-structure match tend to have a higher performance than those entrepreneurial and conservative electrical distributors without an optimum strategy-structure match. For example, in our study, entrepreneurial and conservative electrical distributors with either the best prospector strategy-organic structure match or the best defender strategy-mechanistic structure match tended to have a higher performance than those entrepreneurial or conservative electrical distributors whose strategy and structure was not optimally matched. These findings suggest that a higher performance is determined by an organization's strategy-structure match and not whether the organization is either entrepreneurial or conservative or what specific type of strategy-structure arrangement is employed. These findings support arguments from strategic management researchers regarding strategy, structure, and performance. This argument is that managers cope with changes in their organization's external environment through the choice of an appropriate strategy and the design of a matching structure (Nadler, 2001; Miller, 1986, Ansoff, 1979; Andrews, 1971). Furthermore, both strategic management and corporate entrepreneurship researchers argue that a misalignment between strategy and structure affects performance (Dess, Lumpkin, and Covin, 1997; Dess, Rasheed, McLaughlin, Priem, 1995; Miller, 1986; Child 1975, Chandler, 1962).

The findings of this study also indicate that (a) entrepreneurial electrical distributors having the best prospector strategy-organic structure match, (b) entrepreneurial electrical distributors having the best defender strategy-mechanistic structure match, (c) conservative electrical distributors having the best prospector strategy-organic structure match and (d) conservative electrical distributors having the best defender strategy-mechanistic structure match have equal performance. This finding tends to support (1) the notion of equifinality which allows a feasible set of equally, effective, internally consistent patterns of strategy and structure and (2) the argument made against the early contingency theorists that there is no best single strategy or structure to fit a given industry environment.

Building on the work of Miller (1994) and Anderson and Zeithaml (1984), Covin, Slevin, and Heeley (1999, p. 179) argue that “hostile environments pose constant threats to the viability of business operations…one common through incompetently tested prescription for managing in hostile environments is the adoption of aggressive, proactive, or more generally entrepreneurial postures.” Thus, an important element in our study is the condition of the external environment facing those electrical distributors during the time period (1998-2002) of our study. Was that external environment facing those electrical distributors hostile, benign, or munificent? Covin, Slevin, and Heeley (1999, p. 195) offer the following definition for environmental hostility: “generally a decline in the average profitability of the industry over the latest three-year period would be associated with a level of environmental hostility.” While the intent of our study was not to examine environmental conditions, we were able to calculate profitability trends for the last three years. For the past three years (2000-2002) the earns, turns, and earns times earns ratios declined 21.6 percent, 14.3 percent, and 33.1 percent, respectively for the 72 entrepreneurial electrical distributors included in our study. For the 76 conservative electrical distributors included in our study, the earns, turns, and earns times turns ratios declined 20.3 percent, 15.1 percent, and 32.7 percent, respectively. Industry statistics for the last three years (2000-2002) indicated that the earns, turns, and earns times turns ratios for all reporting electrical distributors (N=1237) declined 22.3 percent, 14.8 percent, and 34.6 percent, respectively while their net profit before tax declined 42.6 percent for that same time period (NAED, 2002). Thus, based on Covin, Slevin, and Heeley's (1999) definition of environmental hostility, it appears that our study occurred during a period of environmental hostility. This determination is significant, because our study suggests that during a hostile environment the major driving factor towards achieving high performance is the extent of a firm's strategy-structure match. Also, firms do not have to rely on having an entrepreneurial posture when facing a hostile environment.

This study presents several areas for future research. For example, researchers might wish to examine the relationship among corporate entrepreneurship, strategy, structure, and performance in different industry settings. Also, another area for future research involves conducting longitudinal analyses of the evolution of strategies, structures, and environments to establish just how the strategy-structure match becomes optimum.

The findings of this study also have important implications for practicing managers. Conservative electrical distributors with an optimum strategy-structure match performed just as well as entrepreneurial electrical distributors with an optimum strategy-structure match. This finding suggests that top managers, even in the face of a hostile environment, can defend an existing approach for competing, so long as their strategy-structure alignment is done consistently well. Further, these findings suggest that the conventional wisdom regarding the importance of "transforming and restructuring" which pervades both popular and academic publications may have certain exceptions. For example, as stated earlier, the notion of equifinality suggests that that a variety of approaches can yield success while conventional wisdom seems to recommend the one best way. Managers must minimize misfits between their strategy-structure match as they prepare their organizations to deal with organizational changes. In essence, managers may have to fine tune the structure of their organization in the face of environmental change. We hope that this study will provide fertile ground for future research.

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APPENDIX 1: RESEARCH QUESTIONNAIRE USED TO MEASURE CORPORATE ENTREPRENEURSHIP

Response ranged from 1= strongly disagree; to 5= strongly agree.

(1) strongly disagree, (2) disagree, (3) neither agree nor disagree, (4) agree, and (5) strongly agree. Specific questions were:

1. Our distributorship has made many dramatic changes in the mix of its products and services over the past five years.

2. Our distributorship has emphasized making major innovations in its products and services over the past five ears.

3. Over the past five years, this distributorship has shown a strong proclivity for high-risk projects (with chances of very high return).

4. Our distributorship has introduced many new products or services over the past five years.

5. This distributorship has emphasized taking bold, wide-ranging actions in positioning itself and its products and services over the past five years.

6. This distributorship has shown a strong commitment to research and development, technical leadership, and innovation.

7. This distributorship has followed strategies that allow it to exploit opportunities in its external environment.

Source: Adapted from Danny Miller and P. H. Friesen (1982). Innovation in conservative and entrepreneurial firms: Two models of strategic momentum, Strategic Management Journal, 3:1-25.

APPENDIX 2: RESEARCH QUESTIONNAIRE USED TO MEASURE ORGANIZATIONAL STRATEGY

Listed below are four primary strategies utilized by electrical distribution firms. Each of these strategies is neither better nor worse than another. CIRCLE THE ONE that best describes your distributor’s strategy:

1. This type of distributorship attempts to locate and maintain a secure niche in a relatively stable product or service area. The distributorship tends to offer a more limited range or products than its competitors, and it tries to protect its domain by offering higher quality, superior service, lower prices and so forth. Often this type of firm is not at the forefront of developments in the industry—it tends to ignore industry changes that have no direct influence on current areas of operation and concentrates instead on doing the best job possible in a limited area.

2. This type of distributorship typically operates within a broad product-market domain that undergoes periodic redefinition. The distributorship values being "first in" in new product/service and market areas even if not all of these efforts prove to be highly profitable. The distributorship responds rapidly to early signals concerning areas of opportunity, and these responses often lead to a new round of competitive actions. However, this type of distributorship may not maintain market strength in all of the areas it enters.

3. This type of distributorship attempts to maintain a stable, limited line of products/services, while at the same time moving out quickly to follow a carefully selected set of the more promising new developments in the industry. The distributorship is seldom "first in" with new products/services. However, by carefully monitoring the actions of major competitors in areas compatible with its stable product/service-market base, the distributorship can frequently be "second in" with more cost-efficient products/services.

4. This type of distributorship does not appear to have a consistent product- market orientation. The distributorship is usually not as aggressive in maintaining established products/services and markets as some of its competitors, not is it willing to take as many risks as other competitors. Rather, the distributorship responds in those areas where it is forced to, by environmental pressures.

Source: Adapted from C.C. Snow and L.G. Hrebiniak (1980). Strategy, distinctive competence and organizational performance, Administrative Science Quarterly, 25: 317-336.

Appendix 3: RESEARCH QUESTIONNAIRE USED TO MEASURE ORGANIZATIONAL STRUCTURE

Response ranged from 1= never; to 5=always as follows:

(1) never, (2) rarely, (3) occasionally, (4) frequency, and (5) always. Specific questions were:

1. Codified job descriptions are used by our distributorship.

2. Ranges of variation are allowed within jobs in our distributorship.

3. Differences exist in income and prestige among jobs in our distributorship.

4. Rate of mobility between low and high-ranking jobs is a barrier in achieving particular status levels.

5. Specialists (lawyers, economists, information systems experts, CPAs, human relations experts, and logisticians) are employed by your distributorship to either make (or assist) decisions.

6. The level of training required for your lowest level manager and each succeeding level varies considerably.

7. A proportion of jobs are used to participate in making decisions.

8. Decision- makers are involved in making decisions at most levels of our distributorship.

Source: Adapted from J. Hage (1965). An axiomatic theory of organization, Administrative Science Quarterly, 10: 289-320.

APPENDIX 4: PERFORMANCE MEASURES

Performance measures are defined as follows:

1. Earns Ratio= $\frac{\text{gross margin}}{\text{net sales}}$

2. Turns Ratio = $\frac{\text{net sales}}{\text{inventory}}$

Response to performance measures:

Year	Earns Ratio	Turns Ratio
1998	________	________
1999	________	________
2000	________	________
2001	________	________
2002	________	_________