Environmental Uncertainty, Business Strategy, and Financial

Performance: An Empirical Study of the U.S. Lodging

Industry

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Abstract

A key premise in the normative literature is that an appropriate business strategy will favorably align an organization with its environment (Andrews, 1971; Hofer & Schendel, 1978; Porter, 1980). It is argued that the strategy that will produce the best results is dependent on existing environmental circumstances (Miles & Snow, 1978).

This study investigated the tenet that, for firms in the lodging industry, there exists an optimal pattern or ''fit'' between the environment and the firm's business strategy that separates the more successful operations from the less successful ones.

The findings of this study indicate that a "match" between the state of the environment facing an organization and its business strategy is required for high performance. The results obtained provide an invaluable planning and analysis tool for all levels of management involved in charting a firm's future.

Key Words: Uncertainty, Strategy, Performance, Lodging, Fit.

Environmental Uncertainty, Business Strategy, and Financial Performance: An Empirical Study of the U.S. Lodging Industry

Introduction

Lodging operators today face an increasingly dynamic, complex, and volatile operating environment. The industry, in recent years, has endured a period of environmental uncertainty and less than satisfactory performance. The year 1987 saw the industry enter its sixth year of slow growth. Demand, growing at an annual average rate of 2%, continued to lag behind supply which increased by 2.6%. Occupancy rates continued to decline throughout this period. Given the continuing building boom, an almost static demand, inflationary, regulatory and competitive market pressures, what business strategies are appropriate, i.e., what strategic choices offer the best prospect of favorable financial performance under different environmental conditions? Decision makers in lodging organizations would benefit greatly if they knew what strategies were appropriate in the environment in which they do business.

This study investigates the tenet that, for firms in the lodging industry, there exists an optimal pattern or

"fit"; between the environment and the firm's business strategy that separates the more successful operations from the less successful ones. The research problem was to identify the optimal fit under varying environmental conditions.

Background

The context of this study is the lodging industry which, in recent years, has endured a period of environmental uncertainty and less than satisfactory performance. An analysis of the recent history of the industry follows:

- Industry sales are level with resulting lower margins. Laventhol and Horwath (1987) report: "Profits are being squeezed. Labor costs are rising while productivity is declining. At the same time, a competitive environment and low inflation are preventing hotels from passing on cost increases in the form of even higher room rates."

- Greater emphasis put on price and service. In many of the older established markets, new properties with modern amenities and services are opening with very competitive rates forcing older properties to lower rates or upgrade services to match the new entrants.

There is an increased emphasis on service. Hotels are offering a wide variety of special services to attract the increasingly value-conscious traveler.

- Price competition reflected in couponing, rate wars and special price promotions. The phenomenal growth of the budget sector in the early 70s was direct evidence of the unfulfilled need for basic lodging facilities. Hotels are teaming up with other segments of the travel business to attract customers with joint promotions in the hope of projecting a value-added image.

- Competitor shakeout occurring. This has resulted in a number of lodging operations changing hands or simply going out of business. Many have blamed this on overbuilding. Laventhol and Horwath report… "reinforcement of this [overbuilding] theory is derived from Dodge Construction Reports, which cites that hotel/motel building inventory grew three times the rate of all nonresidential building between 1970 and 1985." However, Gomes (1985), in a history of the industry found that the number of hotel rooms per capita in 1984 was approximately the same as in 1930. Gomes construes the problem not as the number of rooms

but as the number of the wrong rooms, i.e., a shifting of markets and changes in competition.

- Increased product segmentation continues. This has the outward appearance of dividing the overall market pie into finer and more narrowly defined consumer groups. Lodging organizations have tried to define their products to serve the needs of specific markets, each defining its niche in trying to be one thing to one type of customer. The results have been hazy in spite of successful new products such as economy and all-suite properties. According to Laventhol and Horwath,

   The economy and all-suite sectors of the lodging industry are currently experiencing rapid growth. The fast growing economy segment experienced a twelvefold increase since 1970; it now involves 60 chains and comprises about 270,000 rooms, approximately 10 percent of the total room supply. The all-suite segment, the second fastest growing segment, has 750 properties comprising 2 percent of the total room supply.

- Distribution methods undergo change. This area is characterized by two kinds of developments. The first is the rapid growth of lodging organizations through

franchising. Second, more and more lodging establishments are affiliating themselves with a regional or national referral/reservation network. A need to benefit from large referral systems offered by large organizations is being considered essential to the survival of many lodging units. This is especially true for the small independent/roadside motel owners.

- Intensified international competition. Laventhol and Horwath reports that, "According to a study by Hotels and Restaurants International, the number of rooms affiliated with the top 20 multinational chains increased from 576,000 to 1.43 million between 1970 and 1985." There are an ever increasing number of foreign international chains with operations in the U.S. Some of these are Four Seasons (Canada), Trusthouse Forte (U.K.), and Meridien and Accor (France). In addition to the pressures brought to bear as part of industry maturity, many other pressures from the business environment are posing challenges to operators and managers. These include changes relating to supply (labor) and government (legislation).
- Changes relating to supply. The lodging industry, along with the rest of the hospitality travel and tourism industries, employs one out of every 15

Americans. By 1995, it is expected that this figure will rise to one in five according to industry pundits. Yet, one of the most crucial problems facing the industry through the year 2000 is the growing shortage of qualified individuals to fill job vacancies. The 16-to-24-age group, the major age group for workers entering the industry, is expected to decline 26 percent from today's levels by the year 2000. For the same period, employment needs, are expected to increase by 25 to 39 percent (Jankura, 1987).

- Changes in tax legislation. A major reduction in industry tax benefits caused by Congressional legislation in 1986 has slowed the construction of new hotels and motels. Laventhol and Horwath report:

  The Tax Reform Act of 1986 will decrease the attractiveness of investing in new hotel projects. The elimination of the investment tax credit and lengthening of the depreciation period for buildings will significantly increase operating and capital expenses. As a result, break even occupancies may increase from approximately 60 percent (currently) to 70 percent.

The events and factors described above leave little doubt that the lodging operator is facing an increasingly dynamic, complex, and illiberal environment (Slattery & Olsen,1984). The decision maker has to contend not only with the rapid changes in the way of doing business, but with an increasing array of interrelationships between the factors to be considered in the decision process.

Research Methodology

This study investigates the relationship between environmental uncertainty, business strategy, and performance in the lodging industry.

Key Variables

Environmental Uncertainty. Organizations function in an environment that is determined by the nature of their physical, social and economic exchange relationships. Duncan (1972) defined an organization's environment as... "the totality of physical and social factors that are taken directly into consideration (emphasis added) in the decision making behavior of individuals in the organization (4)."

Business Strategy. Strategy has been defined as a "pattern"; of major or minor decisions about a firm's domain (Mintzberg, 1978; Miles & Snow, 1978). Business

strategy focuses on how an organization competes within a particular product/market segment (Hofer & Schendel,1978). Because an individual business unit (IBU), such as a specific hotel, operates within a particular task environment, the IBU is the unit of analysis in this research.

Although no generally accepted typology of business-level strategy exists (Walker & Reukert, 1987), Miles and Snow (1978) and Porter (1980) have attempted to develop such a typology.

In Porter's classification scheme, an organization can choose among three alternative strategies: (1) cost leadership where the organization strives to maintain a cost advantage over its rivals; (2) differentiation where the organization attempts to create a product or service that is perceived as being unique; and (3) focus where an organization concentrates on a particular segment or product/service offering.

The Miles and Snow typology offers a useful framework for classifying the different capabilities displayed by organizations within the same industry (Snow & Hrebiniak, 1980). The typology is based on an organization's orientation toward product/market development and consists of the following four strategy types:

- Defenders: These organizations emphasize efficiency. Their competencies extend to production, applied engineering and financial control.

- Prospectors: Prospector organizations emphasize innovation through product and market effectiveness. Their competencies relate mainly to product research and development, market research and basic engineering.

- Analyzers: These organizations blend aspects of both defenders and prospectors. They imitate successful product innovations of prospectors (to avoid large investment and risk) and adapt them to efficient production using technology, and market them heavily. Competencies they have extend to production, applied engineering and marketing.

- Reactors: Reactor organizations have no clearly defined competencies, pattern or focus. In fact, this strategy is unstable not viable in the long run.

As Walker and Reukert (1987) note, Porter's (1980) typology is based upon the competitive actions an organization might take, while the foundation for the Miles and Snow (1978) classification scheme is related to the intensity of product/market development. Since the latter

is better suited to the overall aims of this study, we employ it.

Financial Performance

The end result of an appropriate coalignment among a hotel's particular task environment and its business strategy should be reflected in greater organizational performance. After all, performance improvement is at the heart of strategic management (Venkatraman & Ramanujam, 1986).

Business performance, which reflects the perspective of strategic management, is a subset of the overall concept of organizational effectiveness (Venkatraman & Ramanujam, 1986). Organizational effectiveness depends on the ability of the organization to adapt to its environment, which is in turn influenced primarily by the strategic management of the organization (Herbert & Deresky, 1987). Profitability is a primary criterion for measuring effectiveness in business organizations (Tosi & Slocum, 1984).

In using financial information for the comparative analysis of different hotels, there are two basic differences among operations that prevent utilizing absolute figures such as sales and profits on their own. One is the difference in the number of rooms among hotels.

A large property may generate high dollar revenues simply because of its size. A second difference is in the rack rate (published room tariff) of different lodging operations. Thus, effective measures of financial performance must adjust for these two basic differences.

A measure that enables comparison of the financial performance of different lodging units, in spite of differences on account of number of rooms and rack rate, is the IBFC ratio. The IBFC ratio is a measure of profitability and is calculated as:

$$PROF = \frac{\text{Income Before Fixed Charges}}{\text{Total sales}}$$

In this ratio,

> Income before fixed charges is defined as total departmental revenue from all sources (rooms, food & beverage, minor departments, rentals, telephone and other income) LESS all departmental and undistributed operating expenses. This is income from all operations before deducting rent, property taxes, property insurance, interest, depreciation, income tax and reserve for replacement (Laventhol & Horwath, 1987: 68).

The IBFC ratio takes into account all discretionary resource allocation expense items under the control of a typical hotel manager. In the typical income statement, all items before fixed charges are, as the definition suggests, operating expenses; those that follow are fixed charges beyond the management's strategic planning control. Thus IBFC is not contaminated by the variations due to unique financial structure of the hotel (interest expense) or the nature of the property ownership (owned, leased, etc.).

Research Questions. Two fundamental propositions underlying this research effort are that (1) perceived environmental uncertainty can be logically decomposed and measured and (2) strategic content is contingent upon the degree of volatility encountered in the firm's task environment. From these two propositions, the hypotheses to be tested are based in these fundamental research questions:

- Is there an observable relationship between choice of a strategy and financial performance in lodging operations?

- Given the continuing building boom, an almost static demand, inflationary, regulatory and competitive market pressures, what business strategies are

appropriate, i.e., what strategic choices offer the best prospect of favorable financial performance under different environmental conditions?

The research model presented in Figure 1 reflects the relationship at the unit level between an environmental state and strategy type that this research tested within the context of the lodging industry environment.

Research Hypotheses

Based on the questions posed above, the following research hypotheses, stated in the null form, were developed for empirical testing:

1. No difference will be found in the performance of hotels classified according to their strategy type.
2. In stable environments, there will be no difference in performance between hotels employing different strategies.
3. In volatile environments, there will be no difference in performance between hotels employing different strategies.

In order for us to reject these null hypotheses we will have to show that organizations do in fact have to "match"; their strategy to their environment to perform

better. We expected here that, for hotels facing a relatively stable environment, higher performance will be associated with hotels employing a defender-type strategy. Similarly, for hotels facing a relatively volatile environment, higher performance is expected to be associated with hotels employing a prospector-type strategy (Ginn & McDaniel, 1987).

Research Design

To test these hypotheses, a cross-sectional field study of general managers of lodging establishments was designed. The following sections describe the sample and the instruments used to measure the constructs of interest.

[figure 1.]

Sample

The hotels invited to participate in this study were selected from a national database of 25,711 lodging establishments in the United States maintained by the public accounting firm of Laventhol and Horwath. Of the total database, 2000 units with 150 rooms and more were randomly selected to be included in the study.

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Following extensive pretesting by knowledgeable experts and practicing hotel managers (to ensure content validity of the measures used in this study), the questionnaire was sent to general managers of sampled establishments. One week later, a reminder postcard was sent to stimulate response. Finally, follow-up telephone calls were made to those respondents who had provided all but the information on performance. One-hundred-seventy-six usable questionnaires were obtained. This 8.8% response compares favorably to that obtained by other researchers surveying lodging industry executives (Schaffer, 1986; Ashley & Olsen, 1986; Evans & Dev, 1987; Laventhol & Horwath, 1987).

General characteristics of the responding organizations were examined to determine the effects of response bias. Their diversity in terms of their geographic region, size, affiliation with national lodging organizations, location within a geographic market, operating arrangement, extent of perceived environmental uncertainty, selection of business strategy, and financial performance prevented any one type of lodging establishment to dominate the sample; thus, the degree of generalizability from this sample is believed to be quite high (Miller, Kets de Vries & Toulouse, 1982).

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Instrumentation and Scaling

The questionnaire used to measure perceived environmental uncertainty was adapted from the one used by Miles and Snow (1978:200) in their study of food processing and electronics industries. Specifically, items were adapted to reflect the task environment factors faced by the lodging industry in particular, and the service industry in general.

General managers' perceptions of the variability or volatility in the environment facing their hotels were obtained on 6-point semantic differentials ranging from stable to volatile. These differentials were based on 20 items descriptive of the components of an organization's task environment (i.e., suppliers, competitors, customers, and regulatory groups). The general managers' responses to these 20 items were averaged to obtain the perceived environmental uncertainty score for each hotel. These scores were then split into their upper quartile, middle half, and lower quartile to categorize hotels as operating in volatile, moderate, and stable environments.

No universally accepted operational measures for the business strategy construct exist. However, Snow and Hrebiniak (1980), and Schaffer (1986) have developed and

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empirically tested operationalizations of the Miles and Snow (1978) typology of business strategy. The Snow and Hrebiniak (1980) self-typing operationalization was used in this study. From four different business strategy descriptions, general managers were asked to pick the one which most closely characterized their hotel. Each one of these corresponds to1 of the 4 Miles and Snow (1978) types: Prospector, Defender, Analyzer and Reactor.

Profitability measures of hotel financial performance were included in the questionnaire. Raw data on total sales and income before fixed charges was collected for the year 1987.

Validity and Reliability Issues

Coleman and Gaetan (1985), using the perceived environmental volatility measure employed in this study, have demonstrated its internal consistency and have further reported significant Pearson product-moment correlations ($p < .05$) among all six major components of the instrument. In this study, coefficient alpha, a measure of internal consistency, was computed to be 0.84 which surpasses Nunnally's (1978) suggested guideline. Thus, the perceived environmental volatility measure used here appears to be reliable.

Previous researchers, notably Snow and Hrebiniak (1980), and Ginn and McDaniel, have provided evidence of the validity of the self-type business strategy questionnaire used in this study. Thus the use of this operationalization in this study appears justified.

Given the relative objectivity of the financial performance measure, validity questions center on its content validity. This operationalization is universally accepted and uniformly used within the lodging industry (Geller, 1985). In addition, they are highly relevant in relation to the other variables examined in this study. For these reasons, the financial performance measure appears to be a valid operationalization of its construct.

Results

Hypothesis 1

The first hypothesis examines the contention that all strategies are equally effective and do not account for any difference in the performance of organizations. To test this hypothesis, a one-way analysis of variance test was conducted using the profit ratio (PROF) as the dependent variable. Table 1 presents the results of the analysis.

The result indicates that there is no statistically significant relationship between the hotels' strategy and performance measured in terms of profit. In view of this, we accept the null hypothesis that employing different strategies can result in equal performance. This result seems to support the previous finding on this subject (Schaffer, 1986). From the multiple range test presented in the table above, the defender, analyzer and prospector strategies perform equally well. Based on the performance mean scores presented in the table, however, the reactor strategy had the lowest ratio of profit (IBFC) to total sales compared to the other strategy types. This is consistent with earlier findings (Miles & Snow, 1978).

Although the above tests were statistically insignificant, the pattern emerging from the analysis deserves examination. If we look at the scores on income before fixed charges as a ratio to total sales (mean = 34%), defenders (40%) outperformed analyzers (38%) who, in turn, outperformed prospectors (30%).

[table 1]

Hypothesis 2 and 3

Stated in the null form, hypotheses two and three examine the contention that employing different strategies in organizations that face different environmental states is not related to performance. In other words, a "match" or interaction between environment and strategy does not have to occur for organizations to perform better. In the alternate form, hypotheses two and three address the environment, strategy and performance relationship theorized by the researchers identified above (Miles & Snow, 1978; Ginn & McDaniel, 1987).

To test hypotheses two and three, we ran a two-way analysis of variance. Table 2 presents the result of the analysis.

[table 2]

The result of the analysis presented here indicates that there is a statistically significant effect of the hotels' strategy x environment combination on performance measured in terms of profit. This is evident from the significance of the interaction term. In view of this, we

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reject the null hypothesis that there is no performance implication when environment and strategy are matched.

The cell means presented in Table 2 provide information on exactly how environment and strategy are matched in relation to performance. In order to test hypotheses two and three, we conducted Duncan's multiple range tests separately for the mean scores corresponding to the three strategy types in both stable and volatile environments.

With regard to hypothesis two, of all the strategies matched with a stable environment, defenders outperformed analyzers. The performance of prospectors did not differ significantly from the other two strategy types. In view of this we reject the hypothesis that all strategies are equally effective in a stable environment. This finding did support the general contention in the literature that organizations following defender strategy thrive in a stable environment (Ginn & McDaniel, 1987). What was surprising, however, is that the analyzers, not the prospectors.

With regard to hypothesis three, the result differs somewhat from the findings reported in the literature. The analyzer strategy outperformed both prospectors and

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defenders in a volatile environment. Prospectors and defenders performed equally well. In view of this we reject the hypothesis that all strategies perform equally in a volatile environment. We did not, as expected, find high performance when prospectors matched with a volatile environment.

Discussion

This section will discuss the results of the analysis drawn from the hypothesis tests. Discussion will be presented in the order of the hypotheses as listed above.

Everything else remaining the same, firms espousing certain strategy types do no better than others. This result came as no surprise. Prior research on this subject supports this result (Schaffer, 1986). It is generally assumed that strategy, only when combined with another variable, such as environment or structure, will result in high performance. Notwithstanding the above, there are some interesting theoretical and normative contributions offered by the above findings. Based on the performance mean scores, we find that reactors underscored all other strategy types. This is consistent with the theoretical underpinnings on which this study is based (Miles & Snow, 1978).

The above finding clearly supports the theoretical development in the strategic management area and the contention of research scholars who suggest that all strategies can be equally effective (Miles & Snow, 1978; Porter, 1980). In apparent support of the contingency school of thought, there are other variables that interact with strategy to render it appropriate. This conclusion is in apparent contradiction of the natural selection school of thought (Aldrich, 1979). The premise that an organization is at the mercy of its environment is not supported here. In fact, in our analysis, environment uncertainty explained an insignificant amount of variance in performance. It was the strategy x environment interaction term that, in the two-way analysis of variance model, had the greatest explanatory power.

The second set of results showed a statistically significant effect of the hotels' strategy x environment interaction on performance measured in terms of profit. This result is clearly the most significant contribution of this study and its most important finding. It validates the contingency approach on which this study is based: organizations need to "match" their environments and strategies for high performance.

The actual matches reflected in high performance varied, once again, depending on the state of the environment. Of all the strategies matched with a stable environment, defenders outperformed analyzers. This finding supports the general contention in the literature that organizations following a defender strategy thrive in a stable environment (Ginn & McDaniel,1987). Asecond finding, not quite expected, related to strategies in volatile environments. The analyzer strategy outperformed the other strategy types matched with a volatile environment. Figure 2 presents the result of the analysis.

This finding clearly supports the contingency school of thought (Burns & Stalker, 1961; Thompson, 1967; Lawrence & Lorsch, 1967; Miles & Snow, 1978; Ginn & McDaniel, 1987). As Child (1972) elaborated, the organization, through the discretionary power of its dominant coalition, can exercise strategic choice and influence performance. It is implied here that there is, in fact, scope for intervention in an organization's destiny through the active involvement of the top management team. It is clear that the two basic tenets of the contingency school-there is no best way, and that one way will not work equally well in all situations-have been substantiated.

[figure 2]

It was mentioned when introducing this study that certain strategies will produce better results than others under varying environmental conditions. Thus, strategy was viewed as an adaptive mechanism to be utilized for achieving optimal performance. Perhaps, more important, it was argued that the strategy that will produce the best results is dependent on existing environmental circumstances. This premise has been generally substantiated.

Implications for the Lodging Manager

There are some tentative normative implications that can be drawn from these findings. One is that those organizations that ignore their environment, such as reactors, pay a price in terms of inefficiency and face possible extinction. The need for hotels to operate in a proactive mode through a strategic orientation is important for success.

Another implication deals with the tradeoff business organizations often make between growth and return, market share versus return on investment or, in this case, revenue

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and profit. It is suggested that there is a reciprocal causal linkage between the strategic choice facing a hotel and its performance correlates. Following a circular argument, if a hotel follows a prospector strategy it will need to invest a fair amount of its resources in research and development, which is a necessary prerequisite to innovation. While this may result in new products and markets being tapped, profitability is not going to be a short term result. Conversely, a hotel that seeks to better its bottom line will need to take the kinds of management actions that help ensure efficiency and the cutting of "fat." These actions then put the hotel in a defender mode of operation. This is not to say that prospector firms cannot be profitable or defender firms cannot grow. In the short term, the organization needs to decide on a plan of action that is based firmly in the outcome (performance) it is aiming toward. If the hotel can be efficient and innovate at the same time, this is obviously the ideal solution.

Finally, an important implication can be drawn from the finding relating to the environment x strategy connection. Organizations need to effect a match between their environment, strategy, and performance goals. For organizations seeking profitability in a stable

environment, the defender strategy is the appropriate one. In a volatile environment, an analyzer strategy is the appropriate choice for those organizations stressing profitability. The latter finding is perhaps related to the issue of service technology. It is not unlikely that service firms are able to be efficient in terms of their core technology while being innovative in the input and output stages of the service delivery system. In the case of hotels, while the back-of-the-house operations are often amenable to systems and controls, the guest contact areas are more suitable for innovative and, consequently, personalized service.

Limitations

As with any study, this one has a number of features which limit the generalizability of the empirical findings. Future researchers are urged to overcome these limitations. First, the sample was composed of larger hotels (i.e., those properties with over 150 rooms); smaller properties should be included in subsequent studies. Relatedly, future research should control for the service level of the hotel. A valid classification scheme is needed to study the effect of this disaggregation (e.g., luxury, economy, etc.). Second, the self-typing method has a number of weaknesses.

Third, only one measure of performance-income before fixed charges-was examined. Other dimensions of performance (e.g., effectiveness and adaptability) remain to be investigated.

Conclusion

As we said at the outset, strategic choice can be viewed as being dependent on and a determinant of the organization's environment. On the one hand, the choice of strategy places the organization in an environmental space. The choice is determined by the control or power the organization can exercise over the elements of the environment (e.g., suppliers, customers, etc.). On the other hand, the nature of environmental influences determine the most appropriate niche for the organization given its capabilities. Finally, once the strategic choice has been made, internal adjustments to conform to strategic imperatives are required to enable the firm to improve performance.

In introducing the setting for this study, we explained how the lodging operator is facing an increasingly dynamic, complex, and illiberal environment (Slattery & Olsen, 1984). We also stated that the decision maker in organizations today has to contend with the rapid

changes in the way of doing business in addition to an
increasing array of interrelationships between the factors
to be considered in the decision process. Given the
findings of this study, the task of the decision maker in
lodging organizations can be now directed to effecting a
coalignment based on the most effective matches found
between strategy and the environmental state. This presents
a powerful normative guideline for lodging organizations
vying for competitive advantage.

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Table 1. One-way Analysis of Variation: Four Strategy Types and Profit.

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: INCOME BEFORE FIXED CHARGES/SALES

SOURCE	DF	SUM OF SQUARES	MEAN SQUARES	F VALUE
STRATEGY	3	0.48771420	0.16257140	2.23
ERROR	176	12.84499025	0.07298290	PR> F
TOTAL	179	13.33270445		0.0867

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: PROFIT
ALPHA = 0.05 DF = 176 MSE = 0.07298290

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

| DUNCAN GROUPING	MEAN	N	STRATEGY
A	0.40159	42	DEFENDER
A	0.38060	45	ANALYZER
A ..	0.29565	87	PROSPECTOR
A	0.22222	6	REACTOR

Table 2. Two-way Analysis of Variance: Environment, Strategy and Profit.

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: INCOME BEFORE FIXED CHARGES/SALES

SOURCE	DF	TYPE III SS	F VALUE	PR > F
STRATEGY	2	0.20180505	1.41	0.2460
ENVIRONMENT	2	0.06599956	0.46	0.6305
STRATEGY X ENVIRONMENT	4	0.93396748	3.27	0.0130

CELL MEANS COMPARED

STRATEGY	ENVIRONMENT	N	PROF	RANK
Analyzer	Stable	9	0.19771242	9
Analyzer	Mid-range	20	0.31738095	4
Analyzer	Volatile	16	0.56250000	1
Prospector	Stable	26	0.30496964	5
Prospector	Mid-range	36	0.29643427	6
Prospector	Volatile	23	0.28381643	7
Defender	Stable	18	0.45370370	2
Defender	Mid-range	18	0.38888889	3
Defender	Volatile	6	0.28333333	8

Figure 1. A Basic Model for Organization-Environment
Research.
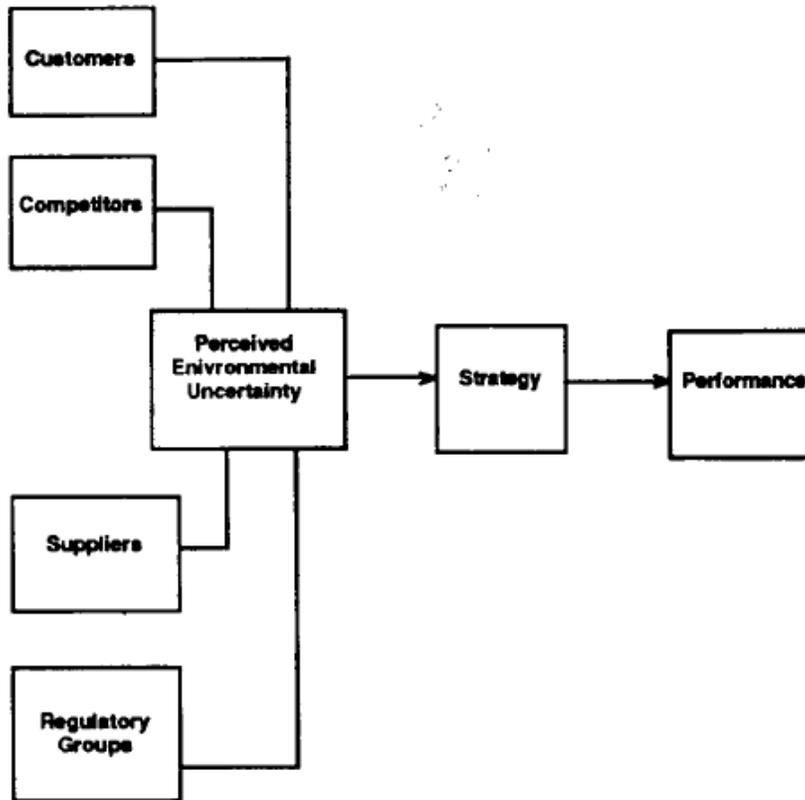
Figure 2. A Suggested Environment, Strategy, and

Performance Link.

ENVIRONMENTAL UNCERTAINTY

	Stable	Volatile
High	Defenders	Analyzers
Low	Analyzers	Defenders

PROFIT