Insights Between Environmental Scanning Activities and Porter's Generic Strategies: An Empirical Analysis

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This study explored the relationships between the environmental scanning activities of chief executives from a single industry and their organizations' strategies, on the premise that executives employing different types of Porter's generic business-level strategies would use different scanning activities. There were differences in the strategy-scanning linkages. Specifically there are indications that firms with a differentiation strategy tend to employ a scanning activity that places more importance on evaluating opportunities and customer attitudes. Firms with a cost leadership strategy tend to use a scanning activity that evaluates competitive threats and tracks the policies and tactics of competitors.

Environmental scanning has been described as an important process of strategic management because scanning is the first link in the chain of perceptions and actions that permit an organization to adapt to its environment (Hambrick, 1981). For over 10 years researchers have been interested in how executives "scan" their organizations' environment and then use the obtained information to gain a competitive advantage. Although numerous studies have been conducted on the environmental scanning practices of executives, very little is known about the relationship between an organization's strategy and its environmental scanning activities (Daft, Sormunen, & Parks, 1988). For example, it is not clear whether two firms in the same industry, but with different competitive strategies, employ similar or different scanning behaviors.

The purpose of this article is to empirically determine the relationship between environmental scanning activities and the type of generic business-level strategies used by certain organizations. The first section presents a theoretical background

detailing the relationship between top management's strategic behavior and environmental scanning activities. Also included in this first section is (a) a review of research studies that have investigated how environmental scanning has been related to an organizations' strategy and (b) a description of generic business-level strategy. The second section develops the research hypotheses, the third details the research design, and the fourth describes the results. Finally, the article concludes with a discussion section.

Theoretical Background

Strategic Behavior and Environment Scanning

An emerging theoretical perspective in strategic management is that different organizations generally pursue different strategies because the implementation of different strategies requires differing skills, values, and knowledge on the part of chief executives (Hambrick & Mason, 1984; Szilagyi & Schweiger, 1984). Several studies have suggested that the beliefs and expectations of managers are formalized based on their definitions of what phenomena are considered to be relevant, important, and desirable. Managers then develop strategies based on their perceptions "to deal" with these situations (Goleman, 1985; Starbuck, 1983). Furthermore, a prevailing notion in the strategic management literature is that managers "enact" their environments: that is, a manager's belief about what is relevant defines what parts of the organization's environment are noticed (Weick, 1979).

Research has demonstrated that different attributes exist between managers practicing a differentiation strategy and those employing a cost leadership strategy. For example, managers pursuing strategies of differentiation tended to have greater risk-taking propensities, greater tolerances for ambiguity, and to be more internal in their locus of control relative to their counterparts pursuing strategies of cost leadership (Miller & Toulouse, 1986).

These findings suggest that a manager pursuing a differentiation strategy (showing a preference for superior product or service attributes) will have beliefs about what is important that are different from a manager with a cost leadership strategy (emphasizing an intention to be the lowest cost provider of the product or service). Building on this background, we assert that strategy type and scanning mechanisms are linked because different strategies imply different scanning approaches and managers with certain scanning skills may choose strategies that maximize those skills.

Environmental Scanning Studies and Organizational Strategy

Since Aguilar's (1967) conceptualization, a number of studies have investigated various aspects of environmental scanning. As illustrated in Table 1, most of these studies have focused on either (a) how the scanning activity is performed or (b) the relationship between environmental scanning and certain variables such as hierarchical level, specialty level, and personality dimensions of executives; environmental complexity and rate of change; evaluation of information sources; establishing organizational strategy; and information processing rather than exploring the relationship between type of strategy and environmental scanning.

Table 1
Aspects of Previous Environmental Scanning Research

I. How the scanning activity is performed	II. Relationship between environmental scanning and other variables

Aguilar, 1967
Keegan, 1968; 1974
Kefalas & Schoderbak, 1973
Fahey & King, 1977
Neubauer & Solomon, 1977
Kast, 1980
Thomas, 1980
Fahey, King, & Narayanan, 1981
Nanus, 1982
Boulton, Lindsay, Franklin, & Rue, 1982
Dersmith & Covaleski, 1983
Wilson, 1983
Jain, 1984
McCann, 1985
	A. Hierarchical level, Functional area (specialty) and personality *dimensions of executives*
	    Kefalas, 1975
	    Hambrick, 1979; 1982
	B. Environmental complexity *and rate of change*
	    Jurkovich, 1974
	    Thomas, 1974
	    Tung, 1979
	C. Evaluation of *information sources*
	    Culnan, 1983
	    Daft, Sormunen, & Parks, 1988
	D. Establishing organizational *strategy*
	    Abernathy & Townsend, 1975
	    Kotler, 1982
	    Hambrick, 1982
	E. Information *processing*
	    Allison, 1971
	    Miller, 1987
	    Miller, 1989

Only one study (Hambrick, 1982) has empirically tested the relationship between environment scanning activities of upper-level executives and their organizational strategies on the premise that executives would scan to reinforce their organization's particular basis for competing. Using the Miles and Snow (1978) strategy typology, Hambrick failed to find a relationship between executives' scanning activities and their organization's strategies.

Miller (1989) touched on the relationship between strategy and scanning activity by investigating the relationship between an information-processing dimension and Porter's (1980) generic business strategies. Miller's (1989) information-processing construct was multi-dimensional and included analysis, formal planning, providing explicit attention to strategy, and systematic environmental scanning. For his environmental scanning dimension, Miller investigated the *amount* of environmental scanning activity rather than the *type* of scanning activity. In essence, our study—by determining the type of generic business-level strategy used by a firm together with its environmental scanning activity—extends Miller's (1989) study.

Using a conceptual approach, Hrebiniak and Joyce (1985) argued that (a) organizations employing either a defender or low-cost strategy would use environmental scanning activities that seek immediate solutions for lowering costs or improving profits and (b) organizations using either a prospector or differentiation strategy would employ environmental scanning activities in a nondirected manner, looking for opportunities rather than searching for immediate solutions to cost or efficiency problems.

Generic Business-Level Strategy

Although a number of typologies have been developed to categorize business-

level strategies, Porter's (1980) generic strategies of overall cost leadership, differentiation, and focus have become a dominant paradigm in the strategic management literature (Hill, 1988; Miller, 1988; White, 1986) and have been well described by others.[1]

Hypotheses

Despite the lack of empirical studies regarding the relationship between environmental scanning and organizational strategy, a number of theoretical perspectives have been offered. For example, the suggestion has been made that organizations with a proactive strategy would scan markets for opportunities, whereas organizations with a reactive strategy would scan their external environment looking for problems (Ansoff, 1975) and that in certain organizations, strategy-making is dominated by an active search for opportunities, whereas problems are secondary (Mintzberg, 1973). Also, the previously mentioned argument of Hrebiniak and Joyce (1985) suggests that different strategies involve different scanning approaches. One empirical study found support for the hypothesis that a differentiation strategy involved a systematic scanning activity that could alert the organization to both market opportunities and ideas for innovation (Miller, 1989).

Based on these arguments the following hypothesis is offered:

> H1: Organizations with a differentiation strategy will tend to engage in environmental scanning activities that provide information regarding opportunities.

Content differences may exist between the environmental scanning activities of organizations with a differentiation strategy compared to those having a cost leadership strategy. For example it has been suggested that (a) a cost leadership strategy *may* involve scanning for more efficient methods of production as well as for competitors' innovations (Miller, 1989); (b) the environmental scanning activities of some organizations will involve searching for opportunities, whereas other organizations will scan for threats (Snyder, 1981); (c) organizations with a reactive strategy would scan their external environments looking for problems (Ansoff, 1975); and (d) organizations employing a low cost strategy would use environmental scanning activities directed towards solving specific problems regarding product cost (Hrebiniak & Joyce, 1985).

It seems from these perspectives that organizations having a low cost strategy and organizations having a differentiation strategy scan their environments differently. Accordingly, the following hypothesis was formulated:

> H2: Organizations with a cost leadership strategy will tend to engage in environmental scanning activities that provide information regarding threats.

Research Method

Industry Selection

The Texas Savings and Loan (S&L) industry was chosen because regulatory

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[1]See Miller (1989) for an expanded description of Porter's generic business-level strategies.

changes have created the opportunity for S&Ls to use either a differentiation or cost leadership strategy. The entire S&L industry was deregulated in 1980 and given "new powers" (Public Law 96-221 and Public Law 97-320). These new powers created over 100 new ways for S&Ls to transact business (Eisenbeiss, 1983). Before 1980, S&Ls could only finance residential mortgages and make certain equipment loans. The two new acts allowed S&Ls to offer most types of commercial loans, consumer loans, credit cards, and to make loans to state and local governments. Negotiable orders of withdrawal (NOW accounts) in which customers could write checks withdrawing money from interest-bearing accounts were also allowed.

Although studying only one industry may affect the generalizability of results, various researchers have argued the rationale for conducting single industry studies (Chakravarthy, 1986; Hirsch, 1975; Porter, 1980) to reduce the problems of industry confounds. For example, Porter (1980) has noted that industry structure constrains a firm's strategy.

Sample

Because the hypotheses to be tested required organizations that could be characterized as having a cost leadership or a differentiation strategy, the sample selection required a two-part process to validate the characterization of the participating organizations in either one or the other strategy. The first part of the process required the use of an expert panel and the second involved self-report by participating executives.

A panel consisting of five academicians selected on the basis of their knowledge of the Texas S&L industry was used to develop a normative identification of the generic strategies of cost leadership and differentiation. Each panel member was asked to review Porter's (1980) chapter on "generic competitive strategies" and then match Texas S&Ls to a particular generic strategy. The focus generic strategy was not used because of possible misinterpretations. For example, Porter (1980: 38-39) stated that differentiation and low cost strategies are aimed at achieving their objectives industry wide, whereas a focus strategy is built around serving only a particular segment of the industry. Furthermore, according to Porter, even though the focus strategy does not achieve low cost or differentiation from the industry as a whole, it does achieve one or both of these vis-a-vis its narrow market target. We were concerned that the expert panel would not recognize an emphasis on industry segments, which is the essence of a focus strategy. Panel members did their classifications alone. No attempts were made to resolve any classification differences. The expert panel's classification included only those S&Ls in which a complete consensus existed.

Using the 1983 total population of 270 Texas S&Ls, the expert panel identified 50 S&Ls as having a differentiation strategy and 72 having a cost leadership strategy. Twenty-eight S&Ls were then randomly chosen from each of the two groups for the research. Total assets of the 56 sampled S&Ls ranged from 10.2 million dollars to 4.1 billion dollars with a mean of 292.9 million dollars. The S&Ls were located in both metropolitan and rural areas of the state.

Data Collection

A pilot-tested questionnaire was used to collect responses from survey participants. Pilot testing involved a meeting with the chief executive officer (CEO) of four S&Ls. Meetings were held independently at each S&L's main office. The CEOs read the questionnaire and marked their responses in the presence of the researcher. No changes resulting from the pilot study were necessary. The four respondents from the pilot test were not included in the actual research sample. Although the expert panel considered only the strategies of differentiation and cost leadership, all *three* generic strategies were presented to the study participants. The rationale for including all three strategy types was the possibility that a participating top manager may have employed a focus generic strategy.

The questionnaire, together with a cover letter requesting a telephone interview, was sent to the CEO of each S&L in the sample. These CEOs were contacted by telephone to determine if they would participate, and a telephone interview was arranged. During the telephone interview, the CEOs were asked to respond to the previously mailed questionnaire, and the interviewer marked responses on an identical questionnaire. Lenz (1980) tested this combination of questionnaire and telephone interview and reported that it was superior to a mailed questionnaire because the respondent could ask questions or clarify responses. Participants were first asked to answer questions regarding environmental scanning and then asked to describe their strategic behavior. Only one executive from each organization was interviewed. Our approach of questioning only one informant per organization has been defended by Huber and Power (1985). For example, using only one informant can reduce costs both in terms of time and money. Furthermore, CEOs, vice-presidents, and divisional managers have important information regarding organizational situations. Huber and Power (1985) stressed, however, that researchers can take certain steps to reduce inaccuracies where the data may be incomplete, biased, or imprecise. These steps, which were implemented in our study, include considering how the framing of questions will affect the informant's responses, and using pretested questions with follow-up probes to ensure that the original question was understood and the answer complete.

Telephone interviews were obtained from 49 of the 56 CEOs who received questionnaires. Twenty-four CEOs from the expert panel's differentiation strategy S&Ls and 25 low cost strategy S&Ls responded. During the telephone interview, five of the responding CEOs indicated that their S&L employed a focus generic strategy. These five responses (three from the expert panel's differentiation strategy group and two from the expert panel's cost leadership group) were excluded from the data analysis. To be included in the final sample S&Ls had to be classified the same way by (a) itself, through the survey, and (b) the expert panel. In summary, usable responses were obtained from 21 S&Ls reporting a differentiation strategy and 23 cost leadership strategy S&Ls for a response rate of 78.6%. Total assets of the 21 responding differentiation strategy S&Ls ranged from 14 million dollars to 4.1 billion dollars (M = 333.7 million dollars, SD = 873.3 million dollars). Total assets of the 23 responding cost leadership strategy

S&Ls ranged from 10.2 million dollars to 797.1 million dollars (M = 125.9 million dollars, SD = 174.4 million dollars).

Measurements

Environmental scanning activities. The two dimensions of interest regarding environmental scanning involved "opportunities" and "threats." Two questions were used to tap each of these two theoretical dimensions. For example, one question involved the formalized evaluation of opportunities for new acquisitions, investments, and markets to determine the scanning behavior of searching for opportunities. A question to determine the scanning behavior of searching for threats was the formalized evaluation of threats from competitors and regulatory changes. (A copy of the full survey instrument is available from the first author.) Although each of the two single-item scales used to measure the theoretical dimensions of "opportunities" and "threats" could have been combined into a multiple-item scale, we used a single-item scale for specificity. We developed the questions for this study based on the theoretical underpinnings that certain organizations scan their environments looking for opportunities whereas others scan looking for threats (Ansoff, 1975: Hrebiniak & Joyce, 1985; Mintzberg, 1973; Snyder, 1981).

Porter's generic strategies. As stated earlier, though this study was designed to investigate the scanning activities of only two of Porter's generic strategies (differentiation and cost leadership), all *three* types were presented to the study participants. The three strategic types were described in sentence form (relative to the S&L industry) and study participants were asked to check the type that best described the strategic behavior of their S&Ls. As an example, the following sentences were used to describe the differentiation generic strategy: "Our association attempts to be unique through superior image, quality, or service. We attempt to maximize profits by our uniqueness." (A copy of the full survey instrument is available from the first author.)

Although this paper treated Porter's generic strategies as being mutually exclusive, some researchers (Gilbert & Strebel, 1986; Hall, 1980; Hill, 1988) argue that the generic strategies of differentiation and cost leadership are not mutually exclusive. These researchers stated that a combination of differentiation and low cost strategy may be necessary for firms to establish a sustainable competitive advantage. Other researchers (Hambrick, 1983; Miller, 1989; Miller & Friesen, 1986) have concluded that differentiation and low cost strategies are really dimensions along which firms can score high or low. Murray (1988) developed a contingency approach indicating that Porter's generic strategies are not mutually exclusive and that each strategy may be "linked to a variety of strategic means."

Arguments have been offered to the contrary. For example, Dess and Davis (1984), together with White (1986) reported that Porter's generic strategies are mutually exclusive. We chose not to deal with this issue and controlled for this possibility by selecting only those firms that could be characterized as either a cost leader or a differentiator.

Controlling for Size and Performance Effects

The effects of size and performance were controlled in this study because several researchers have argued that small-sized firms may exhibit different organizational characteristics from large-size counterparts and that differences in size can influence a firm's performance (Lindsay & Rue, 1980; Robinson, 1982). With respect to size, no empirical studies have indicated a relationship between organizational size and environmental scanning activity. In considering performance effects, Daft, et al., (1988) reported that chief executive scanning in higher-performing firms was characterized by more frequent scanning in and by careful tailoring of scanning to perceived strategic uncertainty compared to chief executives in lower-performing firms. Chief executives of successful firms were found to have scanned multiple environmental sectors and these executives did not form their impressions based strictly on narrow task environment data.

In this study, organizational size was measured in terms of each S&L's total assets and performance was measured in terms of return on total assets for the period 1980-1984. Return on assets was selected because it meets the following criteria: (a) it is a rational and well accepted measure, (b) it is readily available and obtainable for firms in our study, and (c) it is easily quantifiable.

Data Analysis

A correlational analysis (Pearson correlation coefficient) was used to assess the relationship between the four environmental scanning activities, return on assets (performance) and total assets (size). A MANOVA/MANCOVA was employed to determine if the S&Ls categorized as having different generic strategies differed on the importance placed on the four environmental scanning activities. Because environmental scanning activities may be related to organizational size and performance, a MANCOVA was used to control for their effects.

In addition to the simple correlations of the covariates of size and performance with the environmental scanning activities, we are also interested in the interactions of both covariates simultaneously as they might influence (or mask) the relationship of the environmental scanning activities to the generic strategy categorization. The MANCOVA removes the covariate's influence. However, it should be of interest whether or not the covariates were related (vis-a-vis just removing their influence). That relationship is the purpose of the MANOVA (without the covariates). Had they shown significance, their effect could be evaluated on a substantive basis.

Results

Return on assets (performance) and total assets (size) were not significantly correlated ($p = .614$). Nor were size and performance related to any of the four environmental scanning activities. However, all four environmental scanning activities were significantly correlated to each other.

An interesting question is whether or not the four environmental scanning activities used in this study are independent. They are not. We do not believe that it is required that the environmental scanning activities be mutually exclusive. We would intuitively expect *any* set of environmental scanning activities to correlate

Table 2
Pearson Correlation Coefficients

	V1	V2	V3	V4	Size	Perf
V1	1.000					
V2	-.3662	1.00				
	(.010)ᵃ					
V3	.6357	-.5060	1.000			
	(.000)	(.000)				
V4	-.5834	.6897	-.8025	1.000		
	(.000)	(.000)	(.000)			
Size	.1113	.1389	.0381	.0425	1.000	
	(.447)	(.341)	(.795)	(.772)		
Perf	-.0037	-.0030	-.1138	-.0024	-.0739	1.000
	(.980)	(.984)	(.436)	(.984)	(.614)	

ᵃNumbers in parentheses are significance levels.
V1 = Formalized evaluation of customer attitudes.
V2 = Explicitly tracking policies and tactics of competitors.
V3 = Formalized evaluation of opportunities for new acquisitions, investments, and markets
V4 = Formalized evaluation of threats from competitors and regulatory changes.
Size = Total Assets
Perf = Return on Assets

to some degree as an organization may pursue multiple activities. The pertinent question is not if a "cost leadership" organization places the same degree of importance on all the environmental scanning activities (i.e., high correlation) that a "differentiation" organization would, but if there is a difference between a "cost leadership" and a "differentiation" organization on these environmental scanning activities. This argument is supported by Hambrick and Mason's (1984) statement that a manager's "field of vision" in the environmental scanning process is limited because the manager "selectively perceives" only some of the phenomena included in the field of vision. The correlation matrix is presented in Table 2.

The univariate analysis illustrated in Table 3 indicates a significant difference between all environmental scanning activities across the organizational types. Based on the mean importance, those S&Ls with a *Differentiation* strategy place more importance on "evaluation of opportunities" and "evaluation of customers' attitudes." Those S&Ls with a *Cost Leadership* strategy place more importance on "evaluation of threats from competitors and regulators" and "tracking policies and tactics of competitors." Thus, there appears to be a rather distinct difference in orientation with respect to environmental scanning based on generic strategy.

Support was found for both hypotheses: that organizations with a differentiation strategy tend to scan for opportunities and organizations with a cost leadership strategy tend to scan for threats.

Discussion

The present study indicates that S&Ls with a differentiation business-level strategy are more attuned to opportunities for growth and customer needs. S&Ls having a cost leadership business-level strategy monitor *competitors* and regulators and are probably more "reactive" than "proactive." These present findings suggest that executive scanning "behaviors" *are* linked to their organizations'

Table 3
Comparison of Porter's Generic Strategy Groups
on Environmental Scanning Activity

Environmental Scanning Activity	Cannonical Loadings	F-Test Significance Level	Generic Strategy Groups: Means[a]	
			Low Cost Strategy	Differentiation Strategy
A. Searching for opportunities				
Formalized evaluation of opportunities for new acquisitions, investment, and markets	.710	.000	2.42	4.18
Formalized evaluation of customer attitudes	.506	.006	3.08	4.00
B. Searching for threats				
Formalized evaluation of threats from competitors and regulatory changes	-.709	.000	3.66	1.72
Explicitly tracking policies and tactics of competitors	-.465	.011	3.92	2.82
Multivariate Analysis of Variance		.003		
Multivariate Analysis of Covariance with company size and performance as Covariates		.001		

[a]Based on a five-point scale from Not Important (1) to Very Important (5).

strategy and are supported by Miller's (1989) findings. Although this study suggests that causation runs from strategy to scanning techniques, our data does not allow us to assert whether causation runs from strategy to scanning techniques or from scanning techniques to strategy, or both. Determining causality between scanning and strategy is an area for future research.

Hambrick (1982: 168) reports that his negative findings regarding the relationship between environmental scanning activities of upper-level executives and their organizations' strategies suggest "that executives do not attempt to reinforce their organization's strategies through their scanning behaviors." There are several reasons why the findings of the present study differ from those of Hambrick (1982). Perhaps, one reason may be the product-market scope of firms in the two samples. It seems that the close linkage between competitive strategy and environmental scanning in this study may be due to the narrow product-market scope of the respondent firms and a more direct involvement of the top managers in their business. Another reason is that Hambrick used the Miles and Snow (1978) typology to describe organizational strategy.

Another area for future research is the linkage between scanning, environment, and strategic adjustments. Do organizations having a cost leadership strategy miss opportunities in other issues that could provide input for incremental adjustments in strategy? Do organizations with a differentiation strategy fail to identify competitive threats? What type of organizational configurations would allow firms to pursue more than one generic strategy simultaneously?

In conclusion, this study provides some empirical insights regarding how top managers' environmental scanning activities are related to Porter's generic busi-

ness-level strategies. Because of the wide acceptance of the cost leadership and differentiation generic strategy by academics, an understanding of the association between environmental scanning and these strategies can contribute to both theory and practice. We hope that this study will provide fertile ground for future research.

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