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ANTECEDENTS, MODERATORS, AND CONSEQUENCES OF THE EXTENDED CONSTRUCT OF MARKET ORIENTATION

A Dissertation presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Kenichi Matsuno

December 1996

To the Graduate Council:

I am submitting herewith a dissertation written by Kenichi Matsuno entitled "Antecedents, Moderators, and Consequences of the Extended Construct of Market Orientation." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Business Administration.

John T. Mentzer, Major Professor

We have read this dissertation
and recommend its acceptance:

Accepted for the Council:

Associate Vice Chancellor and
Dean of The Graduate School

DEDICATION

This dissertation is dedicated to my parents

Mr. Kaoru Matsuno

and

Mrs. Yoko Matsuno

who have given me invaluable educational opportunities and encouragement.

ACKNOWLEDGEMENTS

There are many people to whom I am grateful for their encouragement and guidance during the entire process of this dissertation research. I have benefited greatly from interacting with the faculty and fellow doctoral students in the Department of Marketing, Logistics and Transportation at the University of Tennessee. I am indebted to my Dissertation Committee, Dr. John T. Mentzer, Dr. Joseph O Rentz, Dr. David W. Schumann and Dr. William E. Cole for their expertise, support, and encouragement. I am particularly grateful to my mentor and role model, Dr. John T. Mentzer who chaired the Dissertation Committee. Without Dr. Mentzer's expertise, insights, experience, guidance, and friendship, I would never have reached for this moment.

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Lastly, the greatest debt is owed to my wife, Yuki, and our son, Taro. Their happy smiles were the best "vitamins."

ABSTRACT

The goal of this dissertation research was to clarify a part of the structural mechanism of markets in relation to the business's market orientation. Although market orientation has attracted renewed research interests, there exists a great amount of confusion as to what it means (construct of market orientation), how it is developed (antecedents of market orientation), and what economic outcomes are associated with it (consequences of market orientation). As market orientation is argued to be a core concept of marketing, such conceptual and structural confusions present a serious impediment for marketing scholars to advance the knowledge of markets. The research problem of this dissertation, therefore, was as follows:

What constitutes a market orientation, how is it developed, and what is its result?

Building on the extant literature and in-depth interviews, the extended market orientation (EMO) was proposed in this dissertation. Incorporating a broader range of market factors than those of existing constructs, the EMO scale was related to internal and external antecedents, and economic performance measures to explain the structural mechanism of the market. Hypotheses were developed on the proposed model, and were tested by extensively applying the structural equation modeling technique.

General findings of the study were:

1) The Extended Market Orientation (EMO) scale has more desirable properties than the existing market orientation scale;

2) The EMO model supports the fundamental economic rationale of being market oriented;

3) The strategy type appears to be an important determinant of the strength of EMO-performance relationship; and

4) The environmental (internal and external) factors do not seem to play significant roles in explaining variation of the EMO in the context of economic performance.

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LIST OF ABBREVIATIONS

AGFI	Adjusted Goodness of Fit Index
CFI	Comparative Fit Index
EMO	Extended Market Orientation
GFI	Goodness of Fit Index
ID	Intelligence Dissemination
IG	Intelligence Generation
MO	Market Orientation
NFI	Normed Fit Index
PGFI	Parsimony Goodness of Fit Index
PNFI	Parsimony Normed Fit Index
RD	Response Design
RESP	Responsiveness
RI	Response Implementation

CHAPTER 1

INTRODUCTION

Understanding the market is a matter of necessity not only for marketers but, more broadly, for business managers (Day 1990). It is understandably so because business managers constantly deal with their markets from day to day. Without understanding the markets, business managers would lose their focus of attention and direction of actions. Managers need to understand the market in which they operate to effectively achieve both their own and their organizations' goals. Alderson (1965) asserted that "a theory of marketing explains how markets work" (p.23). One can make a contribution to the knowledge of marketing by clarifying the mechanism of markets. This dissertation research attempted to contribute to the body of marketing knowledge by empirically investigating the nature and the role of a market orientation for businesses in the marketplace.

THE MARKETING CONCEPT AND A MARKET ORIENTATION

For approximately four decades, both marketing academics and practitioners have used a term called "the marketing concept." Most, if not all, introductory marketing

textbooks spend some space in early chapters defining the marketing concept. Implied in this treatment of the concept is that it is a core idea of both marketing thought and practice. For example, Philip Kotler (1991) stated:

> In essence, the marketing concept is a market-focused, customer-oriented, coordinated marketing effort aimed at generating customer satisfaction as the key to satisfying organizational goals. (p. 17)

Philosophy, focus of attention, means and ends of marketing practitioners are ingrained in this statement. Likewise, McCarthy and Perreault (1993) stated:

> The marketing concept means that an organization aims *all* of its efforts at satisfying its *customers* -- at a profit. (p. 34, italics original)

Despite the legitimacy given in the textbooks, the concept has received a mixture of applause and criticism over the years (e.g., Bell and Emory 1971; Houston 1986; Webster 1981). Acceptance of the concept primarily took the form of a normative statement -- this is, what marketers *should* accept and implement (Felton 1959; Barksdale and Darden 1971; Bell and Emory 1971). On the other hand, the essence of the criticism of the marketing concept has been its ambiguous efficacy -- does implementation of the concept always lead to good business performance? This is an empirical question rather than a philosophical and normative question.

Interestingly, there has been virtually no empirical evidence of the performance-based rationale for business to implement the marketing concept. Only in the last few

years, has some evidence begun to accumulate that implementation of the concept (i.e., being market oriented) makes business sense (Narver and Slater 1990; Jaworski and Kohli 1993; Slater and Narver 1994a). Implications of this body of positive evidence to both marketing practitioners and academics are significant.

If the recent findings are valid, developing and continuously enhancing a market orientation would be a path to success in a competitive marketplace. A large amount of both financial and human resources should be allocated to become market oriented. Should the present state of knowledge be unreliable, on the other hand, scarce resources could be economically wasted.

For marketing academics, the performance-based validity of the concept is a critical question to investigate. Our past treatment of the marketing concept and a market orientation has been clear in the normative sense but vague in the descriptive sense. In developing and disseminating the knowledge, we have to be as clear as possible about the distinction between a normative theory and a descriptive scientific theory.

RESEARCH PROBLEM AND GOAL OF THIS DISSERTATION

The goal of this dissertation research was to clarify a part of the structural mechanism of markets in relation to the business's market orientation. Although market orientation has attracted renewed research interests (e.g., Narver and Slater 1990; Kohli and Jaworski 1990; Jaworski and Kohli 1993), there exists a great amount of confusion as

to what it means (construct of market orientation), how it is developed (antecedents of market orientation), and what economic outcomes are associated with it (consequences of market orientation) (Figure 1). As market orientation is argued to be a core concept of marketing (Narver and Slater 1990; Kohli and Jaworski 1990; Hunt and Morgan 1995), such conceptual and structural confusions present a serious impediment for marketing scholars to advance the knowledge of markets. The research problem of this dissertation, therefore, can be stated as follows:

What constitutes a market orientation, how is it developed, and what is its result?

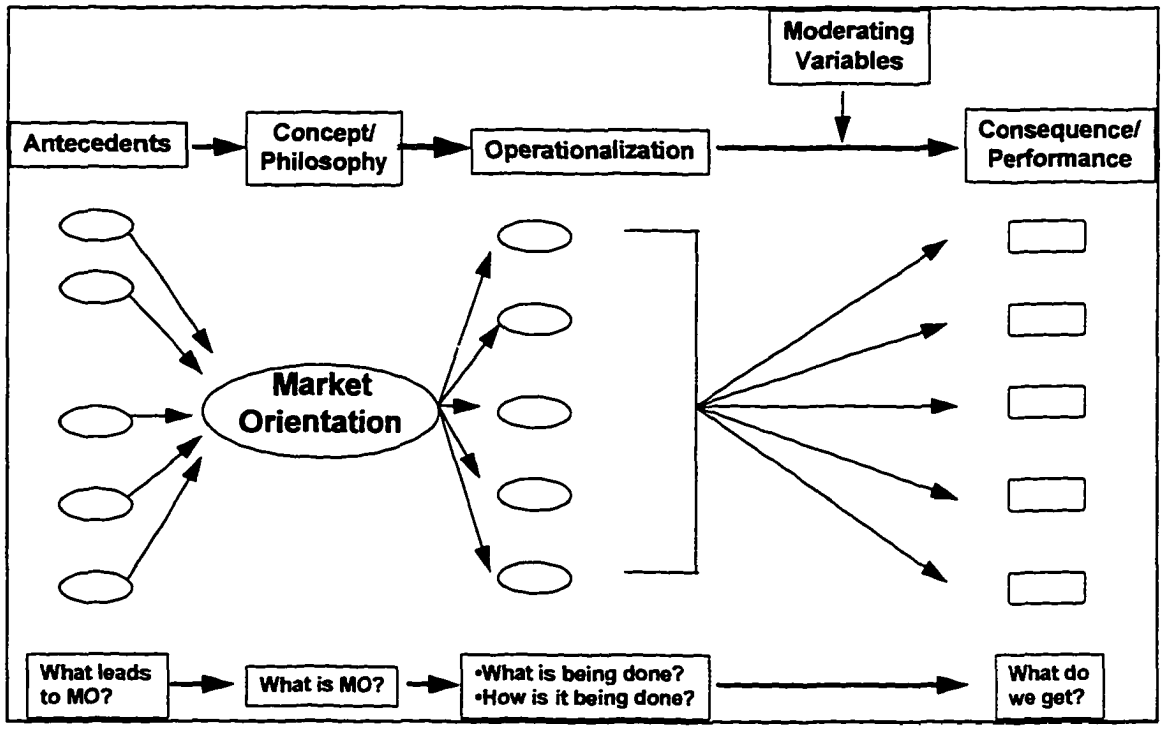

Figure 1 Market Orientation Research Program

THEORETICAL UNDERPINNINGS

AND CONCEPTUAL FRAMEWORK

Eclectic combination of several theoretical paradigms shaped the way the extended model of a market orientation (Figure 2) was constructed. First was the classic "structure-conduct-performance" paradigm (c.f., Thorelli 1977; Vernon 1972). Structure refers to the environmental characteristics which are either internal or external. Business performance is posited as a derivative of the interaction between the firm and external and internal environments in which it operates (Vernon 1972). In the extended model of market orientation, the environmental factors were first treated as antecedents.

Both internal and external antecedent factors were assumed to be fairly stable, or at least perceived as stable over time, and they constitute the ground from which people live, think, and behave. The double arrows represent the intertwined relations but non-distinct boundaries between the two groups of factors (i.e., internal and external environment) (c.f., Starbuck and Hedberg 1977; Thorelli 1977). These antecedents serve as precursors to a market orientation that is operationalized in this dissertation as a set of intelligence-related *behaviors*. Consequences of such behavior, as hypothesized, may take the forms of economic and organizational outcomes.

Moderating the relationship between the conduct (or behavior) and outcome are the several factors that have been considered to influence business performance. Among those factors are strategy types, supply-side factors, demand-side factors, and organizational structure. Those moderators were assumed to be transient and less stable

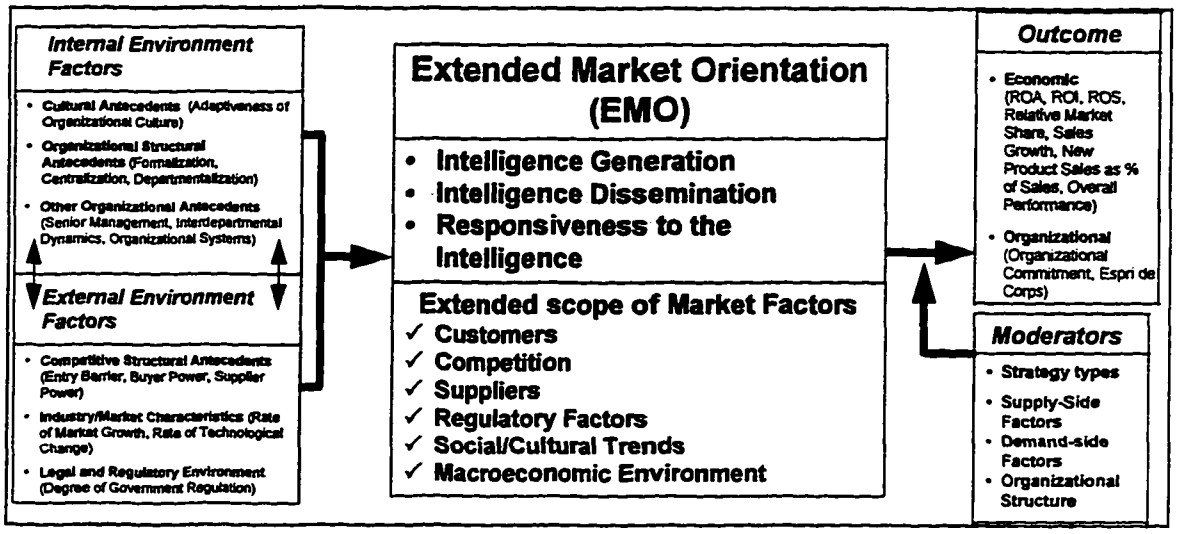

Figure 2 Extended Market Orientation Conceptual Model

than environmental antecedents. By definition, the observational time frame of moderators should be more recent than the antecedents' *and*, ideally, before the outcome.

In this dissertation, operationalization of the market orientation construct significantly benefited from the so-called stakeholder concept and constituency-based theory (Anderson 1982; Connolly, Conlon, and Deutsch 1980; Sturdivant 1977). Anderson (1982) discussed firms' multiple constituencies, stakeholders and publics. From a resource dependence perspective (Pfeffer and Salancik 1978; Pfeffer 1978), he argued that organizations maintain themselves by negotiating resource exchanges with external interest groups. Indeed the marketing discipline has been quite consistent with constituency-based theory.

For example, Kotler (1972) views the organization as a resource conversion machine which takes resources in from nine publics: three input publics (supporters, employees, suppliers), two output publics (agents, consumers), and four sanctioning publics (government, competitors, special publics, and general publics) (p. 51). Zeithaml and Zeithaml (1984) argued for a proactive orientation of marketing by acting to the elements of external environment. The importance of managing an organization's dependence on multiple stakeholders, therefore, cannot be ignored.

These perspectives strongly suggest we include multiple stakeholders in the domain of a market orientation. The relevant environment, in which a management operates and adapts, consists of those key constituencies. The construct of a market orientation should, therefore, capture this boundary role of marketing. Thus, by incorporating more than just customers and competitors in the domain of organizational intelligence-related activities, the extended construct of a market orientation (EMO) was constructed for this dissertation.

Despite the fact that the structure-conduct-performance paradigm and constituency-based theory strongly support the conceptualization of EMO, past researchers conceptualized and examined market orientation with a limited scope of domains. Two of the most notable constructs of market orientation (c.f., Kohli and Jaworski 1990; Narver and Slater 1990) capture only customers and competitors as focal subjects for understanding the market environment. The danger of narrowly conceptualizing a market orientation is to provide managers with a simplistic view of the

complex market systems. Such a view, and the construct that is based on this view, does not account for much variance in market performance because marketing's role in organizations is critical in interpreting the market environment.

Based on the conceptual and operational differences between EMO and the existing constructs, this dissertation argues that EMO is better able to explain the variations in firm's market performance than those existing constructs.

Although the *breadths* of the past market orientation constructs were limited and incomplete, it should be acknowledged that the EMO construct has particularly benefitted from Kohli and Jaworski's construct dimensions. With regard to its dimensions, the EMO adopts the three intelligence-related dimensions of Kohli and Jaworski's (1990) construct. This operationalization is argued to be more parsimonious and capable of capturing a broad range of environmental elements than the competing dimensions proposed by Narver and Slater (1990).

RESEARCH QUESTIONS

With the goal and research problem stated above in mind, the following research questions, suggested by the substantive literature and the conceptual framework outlined above, were explored:

1. What are the internal and external antecedents of a market orientation?
2. Is there any relationship between a business organization's market orientation and its economic performance?

3. Does the organization's strategy play a moderating role on the relationship between market orientation and economic performance?

In order to address these research questions, the construct of market orientation was explicated based on the review of the extant body of literature and depth interviews. The newly explicated construct of market orientation (an extended construct of market orientation or EMO) was empirically evaluated for its validity. Both internal and external factors to the organization were explored and empirically tested for their potential antecedent roles to a market orientation. Particular attention was given to economic outcomes, among various potential consequences of a market orientation.

RESEARCH METHODOLOGY

As Chapter 2 will demonstrate, the past empirical research on market orientation exhibits somewhat inconsistent and perplexing results as to the issues of antecedents, construct, and consequences. This dissertation attempted to clarify those inconsistencies by testing an extended model of market orientation phenomenon from the antecedents to consequences. A substantial part of the past empirical investigation was replicated and, furthermore, extended in a comprehensive model. Unexplored issues in the past were also addressed within such a framework.

To address the research question and problems stated above, this study employed a survey method, which accommodates the needs of: 1) covering a broad range of issues, and 2) extensively analyzing and testing the hypotheses through statistical techniques

(Marshall and Rossman 1989). A survey research design has also advantage in collecting perceptual data from a large population (Marshall and Rossman 1989).

Specifically for this dissertation, as several measures were developed by previous researchers for survey design, replication and extension of the past studies was an important aspect of this dissertation. Developing and testing a new set of variables were also necessary to examine the validity of the proposed EMO model relative to those of past studies. Furthermore, many of the variables in the model of an extended market orientation could not be subjected to an experimental manipulation. All these reasons supported the choice of a survey research design for this dissertation.

This dissertation consists of five chapters, including this first one. The construction of the model and research hypotheses are provided in Chapter 2. Measures and validation procedures for the components in the model, and statistical techniques for the hypotheses testing are presented in detail in Chapter 3. In Chapter 4, data analyses and the results of hypotheses testing are discussed. In Chapter 5, conclusions of this study and both theoretical and managerial implications are provided.

SIGNIFICANCE AND POTENTIAL CONTRIBUTIONS

In the following two sections, potential managerial and theoretical contributions of this dissertation are discussed.

Managerial Significance and Contributions

As briefly discussed earlier, some preliminary evidence supports being market oriented. It is only preliminary because the past studies lacked uniformity in their operationalizations of the construct of market orientation, suffered a problem of performance measures, and incorporated only a limited scope of environmental elements. Because of its performance implication, understanding the structural mechanism of market orientation -- relationships between the antecedents, the construct, and consequences -- is managerially important. Whether or not a market orientation can help businesses to perform well in the market is an issue that has significant managerial relevance.

The results of this study will provide insights into what needs to be done to increase the organization's level of market orientation, what economic consequences are expected from increasing the level of market orientation, and how business strategy influences the relationship between a market orientation and economic performance.

Theoretical Significance and Contributions

The marketing concept and its implementation have been accepted as a normative prescription in the marketing discipline for over four decades. Having been a normative theory, the concepts' scientific status is not established yet. Shedding light on the market orientation phenomenon and developing a descriptive theory around the phenomenon is a matter of great theoretical interest. This dissertation attempts to contribute to this end by

testing the research questions identified earlier. It involves extensive replication and exploration. In the end, the author hopes to clarify a part of the structural relationships between the components in the extended model of market orientation.

Another potential theoretical contribution of the study falls in the area of prediction of marketing events. Alderson (1965) maintains "theory emerges only when an attempt is made to predict the outcome of marketing activities" (p. 23). By testing some of the relationships in the extended model of market orientation, we would add evidence to predict certain events more reliably. Of particular contribution would be the prediction of economic performance based on the extended construct of market orientation (EMO). The construct is purported to capture a wide range of environmental elements in relation to businesses' intelligence-related activities and responses. The extension is an attempt to reflect marketing's boundary roles that have been well accepted for the last several decades. The potential contribution of such treatment is better explanatory power of economic performance variance than the existing market orientation constructs.

LIMITATIONS

There are several important limitations inherent in this study.

Scope of the Study

The scope of the phenomena investigated in this dissertation is limited. First, although the market orientation construct is more broadly defined in this dissertation than any existing studies, how much more broadly it should be defined is a matter of careful decision and is dependent on the focus of the study. The breadth of environmental elements and stakeholders in this study was a result of such decisions. Second, economic performance of the business is chosen to be the measure of business performance, which, in a more general sense, may include such non-economic aspects as employee and/or customer satisfaction. Those non-economic performance measures should be explored in future studies.

All in all, the author has no intention to claim that the extended conceptual model of market orientation (Figure 2) is a complete model of a market orientation. Built on the accumulated body of knowledge, it is a step forward in our understanding of a market orientation. Furthermore, this dissertation investigates only a part of this model. Those parts that are not dealt with in this study should be examined in the future. The model should be continuously expanded, modified, improved, and tested.

Methodological Limitations

In this study, a survey method was used for the data collection. While the advantages are abundant, some of the liabilities of survey methodology should be noted. First, the quality of the data is heavily dependent upon respondents' honesty and

cooperation. Even with such cooperation, response bias is always a potential and difficult to detect. It is hoped that the author's honest and diligent attempts would contribute to reducing such bias. Second, the depth and breadth of investigation are traded off due to the physical limitations, such as the length of the questionnaire. The balance of these two is ultimately a matter of subjective judgment. Here, the researcher's bias has an opportunity to slip in. By opening up the discussion to a wide range of colleagues, the chance of such bias should at least be reduced.

The sample consisted of marketing executives of business units in manufacturing companies. The service sector, which continues to increase in importance in the national economy, was not considered for this study. Past empirical studies on market orientation were based on samples of manufacturers. As replication of the past studies was an important objective in this dissertation, it was decided to limit the sample frame to manufacaturing companies in the United States. Only the marketing executives were sought for their responses. Because of their professional and educational backgrounds, and focus of attention -- which may well be different from other functional executives -- their responses should be interpreted with caution.

The statistical technique extensively used for hypotheses testing in this dissertation was structural equation modeling. Although the technique's advantages are abundant (refer to Chapter 3), some of its major limitations should be acknowledged. First, although the model of extended market orientation is built on theory-based inference of causality between variables, structural equation modeling is by no means a

technique that is capable of testing causal relationships between the variables. An "argument" for causality should be made based on stringent experimental control of the variables. Data for this dissertation were collected through self-administered surveys, where the author had little control over both experimental and extraneous variables. Second, as with any other statistical techniques, validity of the estimated parameters in the model can only be as good as the validity of the measures.

ORGANIZATION OF THE DISSERTATION

This chapter offered an overview of this dissertation. The substantive research problem was introduced, research questions were explicated, and the conceptual model for this study was introduced. The research methodology to answer the research questions was discussed. Potential significance and contributions for both business practice and academic research were discussed. Limitations of the study were also noted.

Chapter 2 provides a review of marketing, management, and economics literature relevant to the research problem and questions. The body of literature, as a whole, provided a rationale for the scope and the conceptual framework of this study. The research hypotheses pertaining to the conceptual model are developed and provided.

Chapter 3 discusses the research methodology that will be used to test the research hypotheses. Research design, operationalization of construct, instrument development and pretest, data collection method, and data analysis techniques are described.

Chapter 4 describes the results of statistical hypotheses testing. Analyses of reliability and validity of measures with the final data are also provided. Chapter 5 presents conclusions and implications of the results of the hypotheses testing. It also discusses the study's contributions and limitations. Suggestions for future research are also considered.

CHAPTER 2

LITERATURE REVIEW

INTRODUCTION

The marketing concept can be described as a time-honored philosophy of marketing dating back to the 1950s (c.f., McKitterick 1957; Felton 1959; King 1965; Barksdale and Darden 1971; Bell and Emory 1971). In recent years, however, it has been observed that there is a strong renewed interest among both practitioners and academics in search of effective strategies in increasingly competitive business environments (e.g., Houston 1986; Webster 1988; Deshpande and Webster 1989; Day 1994). However, the concept had been largely a normative philosophy until recently, and there was virtually no empirical evidence of the performance-based rationale for business to implement it (Narver and Slater 1990; Jaworski and Kohli 1993). In the last few years, some evidence has accumulated that a market orientation (i.e., implementation of the marketing concept) makes business sense (Narver and Slater 1990; Kohli and Jaworski 1993; Day 1994). The evidence has important ramifications to the business because developing and continuously enhancing a market orientation could be a path to success in the marketplace. Given this background, there are several objectives for this chapter:

1. To provide definitions and properties of the marketing concept and its evolutional concept (market orientation) with a historical perspective,

2. To identify some of the important debates relating to the conceptualizations found in the past market orientation literature,

3. To identify and critically evaluate the antecedents, outcomes, and moderating factors that have been either suggested or empirically tested in the past studies,

4. To provide an extended model of the market orientation - performance relationship, and

5. To present a set of specific research hypotheses pertaining to the extended model of the market orientation - performance relationship for this dissertation.

First, an organizing framework for the literature is introduced. Then, a historical perspective of the marketing concept and market orientation is provided. The body of literature is reviewed by focusing on the definitions and operationalizations of the two concepts. It is followed by the discussion of the conceptual debates in relation to the definitions of the marketing concept and market orientation. The definition of a market orientation for this dissertation will also be developed.

THE ORGANIZING FRAMEWORK OF THE LITERATURE

The stream of the marketing concept and market orientation research can be seen as a research program that consists of interrelated areas of study -- the studies relating to: 1) the conceptual issues of the phenomena, 2) the antecedents of the phenomena, 3) the consequences of the phenomena, and 4) the moderating factors on the relationship

between the phenomena and the consequences. Figure 1 presents such a view of the research stream.

First, market orientation has been studied as a philosophical or conceptual issue. Some of the topics explored have been: definition of the concept, evolutional history of the concept, and significance of the concept to both marketing and general management. "What is a market orientation?" is the primary focus of this group of studies. Relating to the conceptual research is the stream of antecedents research. Market orientation antecedents research has focused on some of the determinants of a market orientation ("What leads to a market orientation?"). The antecedents have been investigated either from the definitions of market orientation ("antecedents by definition") or from some other concepts related to a market orientation. Empirical testing of the antecedent status of a concept or variable is the prime interest in this set of studies.

Given that a market orientation is a managerial concept or philosophy, the concept should have certain bearings on managerial actions to improve the practice and performance of businesses -- for-profit or not-for-profit. Operationalization of the concept in practical managerial terms is required for it to be useful. "Practically, what needs to be done to operationalize the concept?" is the research question. The question is necessarily driven by the definition of market orientation -- the conceptual and philosophical domain. The essence of the concept is operationalized at a practical level for both academic research and managerial practice. For the researchers, the operationalization is a necessary step to empirically test the hypotheses relating to the

concept. On the other hand, the operationalization gives practitioners a certain direction as to what needs to be done.

Consequence or outcome is always a concern for organizations with specific missions, goals, and objectives. Consequence is an expected result of the implementation of a set of certain activities, and it has to be consistent with the organization's missions and goals. For traditional for-profit business organizations, it can be economic (e.g., profit, increase in shareholders' value) and social (e.g., being a good corporate citizen). For the non-profit organizations, it may be the satisfaction of served clients, social approval and public service, goodwill, and so forth. The concept or philosophy is only meaningful for the organization to the extent that it leads to a specific consequence sought through its operationalization and implementation. The consequence research is, therefore, concerned with the question "what do we get by executing the activities?" and "to what extent the actions help us to attain the goals and objectives?"

The last area of research, moderating-variable research, is related to both operationalization and consequences. The moderating variables are those that interact with the construct's variables and influence the magnitude of the outcome or consequence. As organizations are inescapably connected to the conditions of the environment (Pfeffer and Salancik 1978), environmental factors are often the focus of moderator research. The research question of this stream is "what moderating effects, if any, exist on the relationship between the construct and its consequences and to what extent?"

In sum, the way the areas of research is organized here is based on the view that a certain phenomenon occurs as a causal result of a variety of phenomena -- sequential relationships among the antecedents, the core phenomenon, and the consequences. In addition, the relationship between the market orientation and its consequences is influenced by a different set of factors -- moderators. This is the framework of the present literature review. Existing studies are reviewed for each component (i.e., research area). The conceptual/philosophical domain comes first, followed by the operationalization, antecedents, consequence, and, finally, moderating variable research.

CONCEPTUAL AND PHILOSOPHICAL RESEARCH OF THE MARKETING CONCEPT AND MARKET ORIENTATION

According to King (1965), the marketing concept began to be accepted in 1950s, following the production orientation era (1900-1930) and sales orientation era (1930-1950). The concept is distinct from the sales and production orientations by marketing management's interests in profits and return on investment, not sales volume from pushing the products through the market. Awareness of the customer throughout the process of planning, organizing, and executing marketing activities is the central pillar of the concept. King defined the marketing concept as "a managerial philosophy concerned with mobilization, utilization, and control of total corporate effort for the purpose of helping consumers solve selected problems in ways compatible with planned enhancement of the profit position of the firm" (p. 85). He argued that integrating

marketing functions and activities to other facets of the organization is necessary in implementing the concept. A particular emphasis was given to "a continuing acute awareness of developments in consumer, competitive, industry, and general economic areas, in so far as such developments are related to the firm's market offering-marketplace demand balance." (p. 91) Based on this emphasis and the definition given, it is suggested that the function of marketing in the organization is a boundary role that relates internal management processes to the external environment.

Although Felton (1959) did not provide any formal definition of the marketing concept in his article, he stressed "the proper state of mind" that "insists on the integration and coordination of all of the marketing functions which, in turn, are melded with all other corporate functions, for the basic objective of producing maximum long-range corporate profits" (p. 55). The integration and coordination of marketing activities with a long-term profit focus are purported as key dimensions of the marketing concept.

Barksdale and Darden (1971) acknowledged the three fundamentals of the marketing concept: 1) integrated marketing function in the corporation, 2) the consumer as the focal point for all business activity, and 3) profit as the criterion for evaluating marketing activities. McNamara (1972) also defined the marketing concept as a business philosophy that has to be first adopted before being implemented. Consistent with King's definition of the concept, McNamara presented three pillars of the marketing concept: 1) a company-wide acceptance of the needs for a customer orientation, 2) profit orientation,

and 3) recognition of the important role of marketing in the corporation in communicating market needs.

Bell and Emory (1971) concur, however, they argue for a guideline of priority among the three principles (customer orientation, functional integration, profit orientation). Bell and Emory see a conflict at times, especially between a customer orientation and profit orientation, and argue that the customer orientation should come *before* the profit orientation. For the authors, the marketing concept had never been a philosophical or moral concept but an operational and utilitarian concept that guides managers to look to the market for profitable business. It was argued that the consumers' welfare is not guaranteed as far as the profit orientation is an integral part of the marketing concept. They propose profits as a consequence of, and secondary to, satisfying the market's needs.

The desirability of the marketing concept was still an issue as of 1981. Webster (1981) reports corporate executives' concern about the marketing concept. Those executives interviewed by Webster indicated that the acceptance of the marketing concept as a management philosophy is incomplete, particularly in smaller, more technologically oriented industrial firms. In those firms, Webster reported, "getting the marketing concept understood and accepted is still the biggest challenge, despite the fact that the concept is now more than a quarter-century old" (p. 14). McGee and Spiro (1988) provide their own distinction between the marketing *concept* and marketing *philosophy*. They argued that the term 'marketing concept' is misleading, and proposed to use the term

in reference to specific marketing techniques such as the marketing mix. They proposed to use the term 'marketing philosophy' referring to a philosophical foundation of marketing, "an umbrella that governs the business life." Although this differentiation is an interesting proposition, it is certainly confusing and inconsistent with the rest of the literature. The literature agreed in terms of terminology that the marketing concept had been accepted as a philosophy and no specific technology had been referred to the concept.

Houston (1986) suggests that part of the reason for the difficulty of accepting the concept is misunderstanding and misuse of the concept over the years. He argued that the marketing concept has suffered in two ways: 1) it has been proclaimed as the optimal management philosophy when it is not necessarily so in all instances, and 2) poor marketing practice in the name of the marketing concept (p.81). Houston stated several authors truncate the three principles to one principle (customer orientation), and readers are misled that the marketing concept is 'equal to' the customer orientation. He provided his elaborated version of the marketing concept:

> "The marketing concept is a managerial prescription relating to attainment of an entity's goals. For certain well-defined but restrictive market conditions and for exchange determined goals which are not product related, the marketing concept is a prescription showing how an entity can achieve these goals most efficiently. The marketing concept states that an entity achieves its own exchange determined goals most efficiently through a thorough understanding of potential exchange partners and their needs and wants, through a thorough understanding of the costs associated with satisfying those needs and wants, and then designing, producing, and offering products in light of this understanding." (p. 85)

He called for our attention to the fact that "the marketing concept requires an understanding of the market and does not suggest that products be designed to satisfy the market's demand. Satisfaction of the market's demand is important to the extent that doing so yields profits" (p. 85).

On the basis of the literature, it appears that the seemingly confusing interpretations of the marketing concept can be classified into three categories: those with more profit orientation emphasis (e.g., Houston 1986), those with more customer orientation emphasis (e.g., Bell and Emory 1971), and authentic or balanced conceptualization (e.g., King 1965, McNamara 1972). One thing that is noticeable so far is that there has been little discussion of competitive aspects of the market in the process of satisfying customer needs. Logically, if individual firms strive to meet customer needs in the marketplace for profit or market share, competition should occur among the corporations to better serve the customers. Competition can then be seen as a natural process for serving customers. Day and Wensley (1983) point out the lack of consideration in the marketing concept literature of competitive factors in the marketplace. In their article, the authors call the marketing concept and consumer satisfaction along with the four Ps to these ends the "accepted paradigm of marketing" (p. 81), and the paradigm with dominant orientation toward customers has deflected the marketers' attention from the pursuit of long-run competitive advantage. They cautioned that this accepted marketing concept alone is naive and simplistic (p.81). As an alternative paradigm, the authors introduced an integrative conceptualization of a

customer orientation and a competitor orientation. In this view, a customer orientation should be put into the context of competition, because customers do not always know what their needs are, marketing research is not always capable of disclosing the customer needs, and even satisfied customers look for a better alternative for next purchase. In other words, the marketing concept alone provides a static view of the marketplace where customers know what they want and business is capable of knowing that and responding to it. In reality, they argue, customer needs are dynamic because of the competitive nature of the supplier firms striving for a better value for the customers. Day and Wensley see that the new paradigm is based on the marketplace, or market, that involves the marketing firm, competition, and customers.

Interestingly enough, another term began to be used interchangeably with the marketing concept in the late 1980s, that is, "market orientation." In his rediscovery article, Webster (1988) uses 'market orientation' and 'marketing concept' interchangeably. He describes the difficulties that managers have experienced in implementing the marketing concept, and provides the barriers for developing a 'market orientation' (p.29). Those barriers include: 1) an incomplete understanding of the marketing concept itself, 2) the inherent conflict between short-term and long-term sales and profit goals, 3) an over-emphasis on short-term, financially-oriented measures of management performance, and 4) top management's own values and priorities concerning the relative importance of customers and the firm's other constituencies. Webster particularly emphasizes the relationship between customer orientation and profit orientation of the marketing concept.

He sees profitability as an important challenge to the corporation and is an indication of its capability. In other words, customer needs must be balanced against what the firm can do well and what is consistent with its profit structure and strategies. His interpretation of both the marketing concept and market orientation is more like a strategic direction that balances customer needs and profitability, and this view incorporates a dynamic view of the market, customers, strategies, and the firm. Customers are considered the core of the market, and they are posited as the focal point of evaluation of present and future strategies and competition. Webster's interchangeable use is based on this rediscovered view -- a somewhat different and broader conceptualization of the market, customers, and marketing functions from the authentic three-component interpretation of the marketing concept.

By integrating the economic forces of market demand and supply and the marketing functions in meeting customers needs, Dickson (1992) linked the marketing concept to the *invisible hand* -- competition -- that guides and forces the business to be a market oriented, innovative, low cost provider of products and services. It was suggested that a market orientation is a part of the laws of economic optimization. Building on modern interpretations of Adam Smith, he sees the *invisible hand* leading to the simultaneous achievement of both consumers' welfare and the business' interest. Dickson states "the marketing concept frequently takes on the characteristics of a moral maxim that serves to dignify and legitimate the marketing profession and discipline. Theoretically, the marketing concept is much more than that; morally, it is much less"

(p.78). Implementation of the marketing concept, therefore, is not only a necessary but also a natural response of the business in the marketplace.

Meanwhile, Shapiro (1988) appears to dismiss the confusing interpretations of the marketing concept and market orientation as a semantic issue. He sees more problems in actual implementation, whatever the definition would be. He puts more emphasis on the internal process of implementation of the marketing concept -- organizing to be market-oriented. In particular, Shapiro argues for the importance of interfunctional coordination and organizationwide commitment to the execution of a market orientation. The major problem, from his perspective, lies in involving different functions of the organization in managing the market.

OPERATIONALIZATIONS OF THE MARKETING CONCEPT AND MARKET ORIENTATION

In their consumerist approach to the marketing concept, Bell and Emory (1971) provide three elements of the marketing concept:

1. Consumer concern,
2. Integrated operations, and,
3. Profit reward.

In their approach, consumer concern is the most important element to the marketing concept. Integrated operation refers to a view that the entire organization is an integrated system with consumer and social problems taking precedence over operational

considerations in all functional areas. It is a means to address the consumer welfare from both societal ('consumers as a group') and individual ('consumers as individuals') perspectives. Thus, profit is seen as a reward and residual that results from efficiently operating and supplying consumer satisfaction in the market. This priority of the three elements makes Bell and Emory's operationalization unique among others. The article is perhaps one of the most "liberal" and populist views of the marketing concept in its operationalized form. Although many authors take a position to 'balance' customer and business interests, which at times presents a conflict, the authors clearly state that the customer interest comes first.

King (1965) offered eight specific guidelines to implement the marketing concept organization-wide (pp. 85-86). Organizational implementation of the marketing concept involves:

1. Companywide managerial awareness and appreciation of the consumer's role as it is related to the firm's existence, growth, and stability,

2. Active companywide managerial awareness of and concern with interdepartmental implications of decisions and actions of an individual department,

3. Active companywide managerial concern with innovation of products and services designed to solve selected consumer problems,

4. General managerial concern with the effect of new product and service introduction on the firm's profit position, both present and future, and recognition of the potential rewards which may accrue from new product planning, including profits and profit stability,

5. General managerial appreciation of the role of marketing intelligence and other fact finding and reporting units within, and adjacent to, the firm in translating the general statements presented above into detailed statements of profitable market potentials, targets, and action,

6. Companywide managerial effort, based on participation and interaction of company officers, in establishing corporate and departmental objectives, which are understood by, and acceptable to, these officers, and which are consistent with enhancement of the firm's profit position,

7. Formal short- and long-range planning of corporate goals, strategies, and tactics, resulting in defined and coordinated effort of the firm's functional areas, and,

8. Creation, expansion, termination, or restructuring of any corporate functions as deemed necessary in mobilizing, utilizing, and controlling total corporate effort toward the solution of selected consumer problems in ways compatible with enhancement of the firm's profit position. (p.p. 85-86)

Most of the items can be categorized in one of the three principles of the marketing concept. Importantly, however, additional emphases have been given to: 1) innovation and new product/service development to satisfy customers' unmet needs, and 2) strategic implications of the marketing concept.

It is noteworthy that King, in the same article, called for research to investigate: 1) whether the marketing concept is actually implemented by individual firms, 2) the degree to which the concept is successfully implemented, and 3) whether implementation has enabled the firm to better achieve specific goals. The first two are calling for research on operationalization of the concept. The last one is about the consequence of the marketing concept, which will be discussed in the consequence research section later. Barksdale and Darden (1971) also addressed the concern of those who question whether

the concept actually works as it promises, and the authors reported that practitioners were dissatisfied with the marketing concept for its lack of a day-to-day marketing decision criterion.

Responding to the call by King, McNamara (1972) empirically investigated *adoption* and *implementation* of the concept. Criteria were defined for both adoption and implementation. The degree of acceptance (i.e., adoption and implementation) of the concept was studied across different sizes of the corporations and kinds of markets served (consumer and industrial). McNamara provided five criteria for the degree of marketing concept implementation:

1. Organizational status of the top marketing executive,
2. Integration of the marketing department(s) at the home office and product division levels,
3. Coordination of the marketing department(s) with other major departments at the home office and product division levels,
4. Coordination of activities within the marketing department(s) at the home office and product division levels, and,
5. Scope of the in-house marketing research function.

Although little is disclosed about specific measurement items, these criteria focus on the descriptive state of internal implementation. Status of the marketing department within the organization, integration and coordination of the marketing department, and the breadth of the marketing research function were used as surrogates of the degree of actual

implementation. It can also be said that the dimensions reflect a structural view of the implementation of the marketing concept.

Lawton and Parasuraman (1980) were concerned with the impact of the marketing concept on the new product planning process. In their study, the extent of adoption of the marketing concept was operationalized by four dimensions:

1. Knowledge of the behavior and needs of the customers,
2. Coordination among different functional departments to satisfy the customers,
3. Participation of the top marketing executive in top corporate management decision-making, and,
4. The percentage of management-level personnel with marketing experience (education or work experience).

One notable difference between McNamara's dimensions and Lawton and Parasuraman's is that "knowledge" of the customer is incorporated in the latter study. Because "the scope of the in-house marketing research function" in McNamara (1972) only refers to the breadth of research subjects the in-house research function covers, it may not capture: 1) the *actual amount* of information obtained by the organization through the research function, and 2) the extent to which out-sourced research is utilized. The difference is an important one in operationalizing the marketing concept, because the concept assumes knowledge of customer needs is obtained and incorporated into the organization's marketing activities.

Following King's approach to the marketing concept, Kohli and Jaworski (1990) defined the organization's market orientation as implementation of the marketing concept. Market orientation, rather than mark*eting* orientation, was preferred and used by the authors because its implementation is posited as corporate wide involvement in managing of the market. Consistent with the marketing concept and parallel to McNamara (1972) and Lawton and Parasuraman's (1980) operationalization, their conceptualization has a particular emphasis on the firm's activities in dealing with information pertaining to customer needs and the environment (i.e., market) that affects them. Specifically, a market orientation is conceived and operationalized as a process of: 1) market intelligence generation, 2) dissemination, and 3) responsiveness to such intelligence across departments. It can be reasonably said that the Webster (1988) and Shapiro (1988) articles are the precursors of this integrative view of marketing functions and the market. Kohli and Jaworski provide a useful distinction and interpretation of the marketing concept and a market orientation from a behavioral process (implementation) perspective. By focusing on the key activities of the organization (intelligence-based activities), this parsimonious construct seems to be capable of tapping the various key aspects of the market -- the organization, competition, customers, laws and regulations, and macro economic forces. Following this article, the same authors and a colleague identified a three-factor structure in their 20-item market orientation scale - MARKOR (Jaworski and Kohli 1993; Kohli, Jaworski, and Kumar 1993):

1. Intelligence generation,

2. Intelligence dissemination, and,

3. Response -- design and implementation.

An equally influential, but different, conceptualization and operationalization was offered by Narver and Slater (1990), who defined market orientation as "the organization *culture* that most effectively and efficiently creates the necessary behaviors for the creation of superior value" (p. 21; emphasis added). They constructed a market orientation concept from four dimensions: 1) customer orientation, 2) competitor orientation, 3) interfunctional coordination, and, 4) long-term profit focus. Here, the market is seen as a composite of competitors, the firm, and customers. Sellers compete for buyers through internal management and coordination with a strategy. This composite view of the market is also a functional perspective of the market, where key factors inter-play, function, and result in the organization's profit. Whether these four factors simply represent the operationalization of a market orientation concept is a good conceptual, as well as empirical, question. Strictly from a conceptual point of view, it seems reasonable that the authors' construct describes how organizations conceptualize their activities in the market. It is not clear, however, whether it directly corresponds to the construct of a market orientation as defined by the authors -- market orientation as culture. It also does not explicitly address other market factors suggested in the literature (e.g., legal and regulatory environment, macro economic environment) that may influence competition and customers. If the marketing concept is an integral part of market

economies, as Dickson (1992) suggested, not incorporating important elements other than the customers and the competition seems to be a weakness of the construct and its scale.

OPERATIONALIZATION AND RECONCILIATION OF TWO CONCEPTUALIZATIONS

The literature review so far suggests that the two models of market orientation are conceptually different. One focuses on information-related *activities* within an organization (Kohli and Jaworski 1990; Jaworski and Kohli 1993), and the other (Narver and Slater 1990) describes how the marketing concept (a philosophy) works by balancing the two stakeholder groups (the customers and the competition) in the market. One way to reconcile these two is to understand how the phenomenon, a market orientation, is purported by the authors to occur (See Table 1[1]).

Narver and Slater were very clear about the definition of the phenomenon as organizational culture (p.21). Referring to their definition, they clearly conceived such culture as *an antecedent to the market-oriented behavior*. It is well recognized that corporate culture provides environmental ground in which certain kinds of behavior take place (c.f., Ouchi 1979; Kotter and Heskett 1992; Deshpande and Webster 1989), and organizational culture as an antecedent is a reasonable proposition. However, Narver and Slater operationalized "the culture" in terms of behavior (p.24). The authors did not operationalize culture as antecedent, and their market orientation scale, composed of the

[1] All the Tables in this dissertation are provided in Appendix I.

four factors, was used as an independent variable that leads to business performance variables. However, several other authors (e.g., Day and Wensley 1983) treat these factors as antecedents to a market orientation. Certainly, organizational culture is a psychological construct that is difficult to operationalize and measure without referring to consequent behavior. The problem is that, as the literature suggests, even if a promoting environment exists (i.e., acceptance of culture or philosophy), corresponding behavior does not necessarily take place. This is exactly the issue of the marketing concept for the last several decades -- difficulty to implement the philosophy.

It can be argued that defining the antecedent (culture) in terms of a particular consequence is circular logic and poses great difficulty in empirical investigation. More specifically, this circular logic could have led to confounding of culture and behavior. This confounding appeared to be the primary obstacle in investigating the marketing concept's practical implications in the past. One may argue that "the behavior-culture confounding" is in the nature of culture (i.e., close relationship between value and behavior) and, therefore, these two should not be separated. However, that behavior and environment are interrelated does not warrant bundling the two together and putting them in the same box. Some evidence, for instance, suggests that the three components (customer orientation, competitor orientation, interfunctional coordination) of Narver and Slater's (1990) scale were not distinct but rather represent uni-dimensionality (Dobscha, Mentzer, and Littlefield 1994; Siguaw and Diamantopoulos 1994). This could be evidence of the confounded constructs.

Kohli and Jaworski's (1990) definition of a market orientation, on the other hand, seems to resolve this operationalization problem. Their definition of a market orientation as implementation of the marketing concept directs us to focus on the behavior itself (i.e., market-oriented behavior), rather than something (i.e., culture or philosophy) that can be inferred by the behavior. The merit of taking this approach is threefold: 1) it opens windows of opportunities to pursue cultural and other antecedents of a market orientation, 2) it provides a behavioral guideline for the implementation of the marketing concept, and 3) it provides conceptual consistency with existing knowledge.

It is noteworthy that in 1972, McNamara empirically investigated *adoption* and *implementation* of the marketing concept. The degree of prevalence (i.e., adoption and implementation) of the concept was studied across different sizes of corporations and kinds of market (consumer and industrial) served. Although McNamara measured implementation mostly in terms of the organization's structural elements (e.g., hierarchical status of the marketing executive, coordinating devices between the marketing department and other departments) but not in terms of the behaviors per se, the basic approach appears to be useful in the current stage of market orientation research.

MANAGERIAL ACTION VARIABLES

The research stream of the operationalization of a market orientation reflects the eventual interest of both managers and academics in implementing the concept to attain a certain consequence -- profit and/or other business performance measures (e.g., Narver

and Slater 1990; Jaworski and Kohli 1993). Although marketing academics have made progress in operationalizing the concept, such operationalization needs to be explicated further for it to be more actionable for managers. In other words, managers need more specific variables in their day-to-day terms; i.e., managerial action variables.

Several recommendations were made by McNamara (1972) for implementing the marketing concept:

1. Give the top marketing executive higher corporate status,
2. Assign wider variety of marketing-related activities under the marketing department,
3. Utilize interdepartmental meetings and committees, and
4. Encourage both formal and informal communication within the marketing department.

It is notable that McNamara's structural view of the marketing concept operationalization is quite different from a behavioral view of the marketing concept implementation by Bell and Emory (1971). Bell and Emory provided several specific managerial action variables. They suggested action-oriented measures from a corporate level for the three elements of their marketing concept:

Consumer Concern

1. Supply of adequate product information to the buyer,
2. Development and maintenance of a formal information system to process consumer concern, and
3. Positive business effort to advance product safety and environmental protection.

Integrated Operation

1. Integrated operations across company and industry to ascertain efficient flow of resources.

Profit Reward

1. Implementing a profit planning system where consumer benefit is the first step, followed by assessment of company's capability to fill consumer needs and profitability.

Behavioral measures at both corporate and functional levels have been suggested by Webster (1988). First, he emphasized the importance of a corporate culture that values a customer orientation. Top management's commitment to such culture is one of the requirements mentioned. Thus, existence of such commitment is one indicator of the promoting culture. Second, Webster talks about the integration of marketing into the strategic planning process. Both competitor analysis and target market information, in which marketing has the expertise, should be an integral part of the strategic planning process. The extent to which the information is incorporated into strategic planning can be a useful variable. Third, marketing should be given an adequate level of resources to develop and reward marketing managers. Existence or availability of developmental programs and reward programs for marketing personnel are given as examples of manifestations of marketing concept implementation. Next, reward should be given for executing the marketing concept. The performance criteria should be, then, based on market oriented measures. Market oriented financial measures, such as rate of return by channel of distribution, type of account, and type of media expenditure should be

developed. The use of such measures may be indicative of the organization's commitment to a market orientation. Finally, accountability of the marketing department for customer satisfaction information is suggested. The marketing department should represent customers within the organization and be responsible to communicate the information throughout the organization on a regular basis. Shapiro (1988) mostly concurs with Webster, providing a market-oriented check-list that can be used as behavioral measures (p. 125):

1. Are we easy to do business with? (easy to contact, fast to provide information, easy to order from, make reasonable promises),
2. Do we keep our promises? (on product performance, delivery, installation, training, service),
3. Do we meet the standards we set? (specifics, general tone, do we even know the standards),
4. Are we responsive? (do we listen, do we follow up, do we ask "why not" and "why," do we treat customers as individual companies and individual people), and
5. Do we work together? (share blame, share information, make joint decisions, provide satisfaction).

Dickson (1992) states both competition and customer-focus are needed to be successful in the marketplace (p. 78). Dickson proposes three broad action directions for the organization to be both. First, firms should have a stronger drive to improve their operations that are more sensitive to changes in the environment. It is said that reward systems, leadership, and encouragement should be provided by superiors. For example, rewards should be related to the rate of improvement in performance. In addition,

Dickson suggests that clan culture proposed by Ouchi (1979) is best suited for an uncertain market environment. Second, the organization's perceptual acuteness of the market environment must be sharpened. Formal and informal information flows within the organization are argued to be critical and a lot more cost effective than creating a new information system, and removing "the functions and individuals who have created information "gates" that they open and close at their discretion (p. 79)" is suggested as the first step. Finally, several suggestions relating to increasing implementation speed are provided. The author states "responsiveness can compensate for a firm's imperfect knowledge" about customer and competition, which is especially true in a rapidly changing environment. "A decision process that is continuously adapting to new information and feedback (p. 79)" is argued to reduce decision biases and response time.

Relating to the relationship between a turbulent environment and formal decision process, Glazer and Weiss (1993) advocate that applying formal planning procedures hinders business performance in quickly changing market environments. In such an environment, the authors recommend avoiding over-analyzing the information. This point seems to agree with one of Dickson's prescriptions to put more emphasis on response cycle time. Thus, environmental turbulence appears to be one of the interesting moderating variables that play a part in the market orientation-performance relationship.

In relation to the market environment, Dobscha, Mentzer, and Littlefield (1994) suggest including competitive factors for environmental information scanning. The suggestion is consistent with Kohli and Jaworski's paradigm of "intelligence generation,

dissemination, and responsiveness." Along this line, Kohli and Jaworski (1990) suggest that senior managers communicate their commitment to a market orientation to junior employees, and develop positive attitudes toward change and calculated risk. A number of behavioral (activity-based) variables are available from the MARKOR scale (see Appendix II-1: Jaworski and Kohli 1993; Kohli, Jaworski, and Kumar 1993) under the three operationalized dimensions of a market orientation. Slater and Narver (1994b) also provide their market orientation scale that has been used by several other authors (e.g., Dobscha, Mentzer, and Littlefield 1994; Siguaw, Brown, and Winding 1994).

Managerial action variables found in the market orientation research were reviewed in this section. Several advantages of reviewing this kind of variable in one research stream can be given. First, by looking at the action variables and actual measurement items researchers may be better able to understand the meaning of the preceding operationalization and the concept. Sometimes, authors give specific recommendations for managerial actions without empirical support (e.g., King 1965; Kohli and Jaworski 1990). Even in such a case, the recommendations can be traced back to their rationale, which is often the concept itself. Various shades and nuances of the construct and its operationalization can be detected by looking at these variables. Second, those recommendations, and measurement items (i.e., indicators of the concept) are good candidates for future empirical research. As Churchill (1979) suggests, development of measures begins with domain specification and searching for good candidates of measures. Particularly this process is relevant in survey research.

The same benefits can be said about reviewing antecedents, consequence, and moderating variable research. The next section deals with the research concerning the antecedents of a market orientation.

ANTECEDENTS RESEARCH

Relatively little research has been done in the area of antecedents of a market orientation. This is so probably because the marketing concept had been largely a normative philosophy of marketing management. Many of the early studies about the concept do not explicitly address the conditions that 1) come before market orientation, and 2) foster or discourage a market orientation.

Internal Factors

As discussed before, Day and Wensley's (1983) thrust is that the marketing concept being interpreted as a "customer orientation" captures only an incomplete picture of the marketplace. They argue that the firm should balance both customer orientation and competitor orientation to be market oriented. In other words, these two kinds of orientation should be in place before being market-oriented -- i.e., antecedents. This argument is understandable when a customer orientation and a competitor orientation are postulated as counteracting elements (i.e., if one's level increases, the other's decreases.) in competitive marketing strategies (Day and Wensley 1988).

Webster (1988) provided several antecedents to develop a 'customer-oriented' (interchangeably used as market-driven and market-oriented by Webster) business:

1. Top management support of customer-oriented values and beliefs,
2. Integration of market and customer focus into the business' strategic planning process,
3. The development of strong marketing managers and programs,
4. The creation of market-based measures of performance, and,
5. The development of customer commitment throughout the organization.

All the items above are internal to the organization. Following these organizational antecedents, Webster provided a set of specific actions to materialize each component. (Refer back to the section on action variable research.)

For the use of marketing research information, Deshpande and Zaltman (1982) looked at organizational factors that may affect the utilization of knowledge. They indicated that less formalized and more decentralized organizations are more likely to make greater and better use of research (and maybe better performance too) than alternatively structured businesses. As discussed earlier, these organizational factors were treated as *antecedents* to a market orientation in Kohli and Jaworski's (1990) framework.

In their seminal article, Kohli and Jaworski (1990) presented a set of antecedents to a market orientation (defined as organization-wide market intelligence generation, dissemination, and responsiveness to such intelligence). These antecedents are:

1. Senior management factors (communication -- action gap of top management, middle managers' ambiguity, risk aversion of top management, upward mobility and education of top management, top management attitude toward change, marketing managers' ability to win trust of non-marketing managers),

2. Interdepartmental dynamics (interdepartmental conflict, interdepartmental connectedness, concern for ideas of other departments), and,

3. Organizational systems (departmentalization, formalization, centralization, market-based reward systems, acceptance of political behavior).

Literature appears to support these three factors (c.f., Webster 1988; Argyris 1966; Deshpande and Zaltman 1982; Ruekert, Walker and Roering 1985). However, essentially parallel to Webster's (1988) antecedents, Kohli and Jaworski's factors are once again organizational. These factors are drawn from the authors' literature review and field interviews, and their field interview format (Kohli and Jaworski 1990, p. 2) gives us a reason why the factors turned out to be internal or organizational in nature: the authors asked the interviewees "what *organizational* factors foster or discourage this orientation?" In other words, the organizational factors were *sought*.

Organization Culture

One possible organizational antecedent suggested but not explicitly included in the literature is organizational culture. In the literature, organizational culture is defined by various authors. Deshpande and Webster (1989) defined it as "the pattern of shared values and beliefs that help members of an organization understand why things happen and thus teach them the behavioral norms in the organization" (p. 4). Jelinek, Smircich,

and Hirsch (1983) said it is "some underlying structure of meaning, that persists over time, constraining people's perception, interpretation, and behavior" (p. 337). Kotter and Heskett (1992) argued that organizational culture refers to "values that are shared by the people in a group and that tend to persist over time even when group membership changes" (p.4). Hofstede, Neuijen, Oshayv, and Sanders (1990) summarized that "there is no consensus about its definition, but most authors will probably agree on the following characteristics of the organizational/corporate culture construct: it is (1) holistic, (2) historically determined, (3) related to anthropological concepts, (4) socially constructed, (5) soft, and (6) difficult to change" (p. 286).

In marketing strategy and customer orientation research, organizational culture appears to have attracted researchers' interests recently (e.g., Bonoma 1984; Webster 1988; Deshpande and Webster 1989; Deshpande, Farley, and Webster 1993). Given that the three factors (senior management factor, interdepartmental dynamics, organizational systems) of Kohli and Jaworski (1990) represent organizational *climate* (i.e., perceived operationalization of organizational culture), organizational culture can be thought of as one encompassing antecedent to a market orientation. Subtle differences between organizational climate and culture have been addressed by several authors. Deshpande and Webster (1989) defined the climate as "members' perceptions about the extent to which the organization is currently fulfilling their expectations" (p.5). They also quoted Schneider and Rentsch (1987, p. 7): "climate refers to the ways organizations operationalize the themes that pervade everyday behavior -- the routines of organizations

and the behaviors that get rewarded, supported and expected by organizations." A recent working paper by Slater and Narver (1994b) treats Kohli and Jaworski's antecedents as factors that represent the dimensions of a "market oriented culture." It is, in fact, Narver and Slater's (1990) position that market orientation is an organizational culture. Felton (1959) also emphasized "the proper state of mind" that "insists on the integration and coordination of all of the marketing functions" (p. 55) as an important condition to implement the marketing concept.

Kotter and Heskett discussed a particular type of organization culture that leads to consistently good performance: adaptive cultures (1992, p. 45). It is their contention that "only cultures that can help the organization anticipate and adapt to environmental change will be associated with superior performance over long periods of time" (p. 44). The authors described that adaptive culture entails a risk-taking, trusting, and proactive approach to organizational life. The members in such a culture are more likely to support one another's efforts to identify problems and implement workable solutions, and are receptive to change and innovation (Kilman, Saxton, and Serpa 1985). Referring to the members' awareness of environmental change, Kotter and Heskett stated that "the cultural ideal is that managers throughout the hierarchy should provide leadership to initiate change in strategies and tactics whenever necessary to satisfy the legitimate interests of just not stockholders, or customers, or employees, but all three" (1992, p. 50). In other words, in organizations with adaptive culture, managers pay close attention to all their

constituencies and initiate change when needed to serve their legitimate interests, even if that means taking some risks.

Combining the adaptive culture argument and Kohli and Jaworski's (1990) intelligence-based market orientation, it can be thought that such adaptive culture is an antecedent to a market orientation. Further investigation of the role of organization culture as well as organizational climate relative to a market orientation is clearly warranted.

External Factors

External environment, as defined by Zaltman, Duncan, and Holbek (1973), consists of "those relevant physical and social factors outside the boundaries of the organization or specific decision unit that are taken directly into consideration in the decision-making behavior of individuals in that system" (p. 114). Included in this external environment are: customer component, suppliers component, competitor component, socio-political component, and technological component (Zaltman, Duncan, and Holbek 1973). It can be considered that the external environment is everything in the market other than the focal organization. Since the organization is not self-contained but an open-system that interacts with its environment (Pfeffer 1978; Pfeffer and Salancik 1978; Scott 1992), the state of the environment should have certain bearings on the behavior of the organization. However, factors external to the firm as antecedents to a market orientation also seem to have been ignored by both Webster (1988) and Kohli and

Jaworski (1990). Only several authors saw potential antecedent roles of external factors in determining the magnitude of a market orientation. Dobscha, Mentzer, and Littlefield (1994) empirically investigated whether several factors external to the firm have antecedent roles to a market orientation. Specifically, the authors focused on seven market environment factors (entry barriers, seller concentration, degree of government regulation, buyer power, rate of growth, rate of technological change, and supplier power -- independent variables) that can affect the magnitude of a market orientation (dependent variable). Among these independent variables, only the rate of technological change was found to be significant as a potential antecedent to a market orientation. Also, an exploratory variable, "the degree of the firm's control over technological change in the industry," was found to be significant. This study appears to be the first empirical study ever conducted and published on the external antecedents to a market orientation. Day and Nedungadi (1994), for example, investigated four factors' (seller concentration, buyer power, cost and investment structure, and market growth rate) influence on the balance between customer emphasis and competitor emphasis of managerial judgments. It is a related issue, but not exactly a market orientation. In fact, as Dobscha, Mentzer, and Littlefield pointed out, the external environmental factors had been treated by other authors only as moderating variables for the market orientation-performance relationship (c.f., Narver and Slater 1990; Jaworski and Kohli 1993; Slater and Narver 1994a and 1994b).

Importantly, also ignored in the antecedent research is the temporal dimension of the antecedent. By definition, antecedent is a preceding phenomenon to a consequence. When the consequence is a market orientation, the antecedent should be something that happened before this phenomenon. When one measures the degree of market orientation as a consequence, he or she needs to measure antecedent variables of the past (i.e., If you measure the degree of market orientation of today, you need to measure the antecedent variables of, let's say, five years ago). The temporal nature of antecedents has been addressed in no study in the past. Longitudinal studies are necessary. This is clearly an important issue to be explored to accumulate more dependable knowledge about the antecedents to a market orientation.

RESEARCH ON PERFORMANCE AS A CONSEQUENCE

Is there any performance-based rationale for a business to implement the marketing concept? King (1965) asked this question and called for researchers to investigate whether implementation of the marketing concept has enabled the firm to better achieve specific goals. Unfortunately, it has been an agenda for both managers and marketing academics for almost four decades since the appearance of the term "marketing concept" in 1950s (Webster 1988). Anecdotal evidence has accumulated for a market orientation. However, until recently there has been little empirical evidence to support the concept's validity as a profitable business/marketing philosophy.

For the first empirical study of the profitability-market orientation relationship, Narver and Slater (1990) developed a construct of market orientation and hypothesized that the magnitude of market orientation is moderated by the external market environment and positively related to business performance. In their study, 140 SBUs of a major corporation's forest product division (commodity and non-commodity businesses) were chosen for the sample, and the correlation between perceived profitability (ROA) and the market orientation scale was mixed (i.e., some were positive and others were negative) for the commodity businesses, but positive for the non-commodity businesses. Although overall somewhat mixed, the authors concluded that the positive relationship between market orientation and profitability appears to be moderate. The study's limited external validity due to the sampling procedure (i.e., all the SBUs are from one division of a company) was a liability. However, the results were encouraging and significant enough to call for further research with a larger cross-sectional sample.

As discussed, Kohli and Jaworski's seminal framework (Kohli and Jaworski 1990; Jaworski and Kohli 1993) focuses on a firm's internal activities (intelligence generation, dissemination and responsiveness) and organizational determinants (top management, interdepartmental dynamics, and organizational systems) of a market orientation. In their framework, market orientation is moderated by the market environment (i.e., market turbulence, competitive intensity, and technological turbulence) and is hypothesized as positively correlated with employee-related business performance variables (i.e., organizational commitment and espri de corps) and perceived overall economic

performance variables (i.e., overall performance, overall relative performance in market share). The test result of the market orientation-performance relationship was mixed, indicating that the magnitude of market orientation is positively correlated with a *subjective* measure of performance (i.e., "overall performance") as perceived by managers but not significantly so with a *more objective* measure (i.e., self-reported "market share") (Jaworski and Kohli 1993).

The performance relationship was once again tested by Slater and Narver (1994a). Although the study's focus was on the moderating effect of environmental factors, the market orientation-performance relationship was also tested. The authors used three kinds of performance measures: ROA, sales growth, and new product success. For each of these dimensions of business performance, market orientation's positive effect was found to be significant. Among the measures, sales growth had the most significant relationship.

There are two empirical studies indirectly related to market orientation's performance implications. The first concerns customer orientation. Deshpande, Farley, and Webster (1993) conducted a study concerning the customer orientation in Japanese firms, and measured the sellers' "customer orientedness" from both seller's and buyer's perspectives (i.e., dyad). Interestingly, they found only a weak agreement between the two perceptions of the seller's customer orientation, and business performance was significantly related only to the buyer's perception of customer orientation. Although the study is not exactly a market orientation study, further study of performance measures

that utilize the customer's perspective seems to be warranted because customer orientation is a primary component of market orientation. When the focal phenomenon of interest is a *customer* orientation, *customer* as key informant seems reasonable. However, when a market orientation (a broader concept than a customer orientation) is one's interest, customer may not be in the best position to make a judgment. For instance, customers may not have the slightest idea about how the seller conducts intelligence activities concerning government regulations.

The second study is Day and Nedungadi (1994), who investigated the balance of customer orientation and competitor orientation in managerial judgment. They argued that, to be competitive and market-driven, the business has to balance the customer focus analysis and the competitor focus analysis in a strategic decision-making process. As the authors argued, hypothesized, and found well-balanced corporations fared better than those with an emphasis on either customers or competitors. Although the independent variable is not quite a market orientation, the result is interesting for market orientation research because the construct (i.e., the balance of the two kinds of orientation) shares the significant aspects of a market orientation -- being alert to the market (competitors, customers, other participants in the market, and environmental factors). Although only competitors and customers were addressed in the study, it can be speculated that paying attention to varied groups of market participants leads to better performance.

The discussion so far has been concerned with the empirical findings of the economic consequence of the marketing concept and a market orientation. In the last

several years, increasing amount of empirical studies has been conducted, and they shed light on the economic performance implications of market orientation. One issue that has been discussed but not empirically addressed explicitly is, again, the temporal distance between market orientation and performance outcomes. As market orientation's economic implications are argued to be long-term in nature (Day 1990 and 1994; Day and Nedungadi 1994; Jaworski and Kohli 1993; Narver and Slater 1990; Slater and Narver 1994a), not incorporating potential time lag effect is a clear deficiency.

On the other hand, there are several theoretical and empirical articles that are relevant to the research on other consequences of a market orientation. Apart from the bottom-line performance implications, Lawton and Parasuraman (1980) addressed the impact of the marketing concept on new product development planning. They measured the extent to which the marketing concept is adopted and investigated the relationship between the level of adoption and several dimensions of new product planning. They found no support for a significant effect on: 1) the level of utilization of customer-derived ideas for new products, 2) the level of utilization of marketing research information for new product planning, or 3) the degree of product innovativeness. They concluded that the marketing concept does not seem to play any tangible role in the new product development process as measured by the three dimensions. The result is contrary to what has been said in the literature before and after this study. Interestingly, the study does not appear to be cited frequently in the literature. It is unclear, however, to what extent the operationalization of the adoption of the marketing concept reflects actual

implementation of the concept. The scale consisted of four items (refer to the operationalization research section of this chapter): 1) Thorough knowledge of behavior and needs of our customers is the focal point of all the marketing activities of our firm, 2) To what extent are the activities and efforts of the various departments within your firm coordinated to insure the satisfaction of the users of your products, 3) How often does the highest ranking marketing executive in your firm participate in top-level management decisions, and 4) What percentage of management-level personnel in your firm have had some experience in the marketing area.

Walker and Ruekert (1987) argued that business performance is a multi-dimensional construct, as acknowledged in several empirical articles on market orientation (e.g., Kohli, Jaworski, and Kumar 1993). Walker and Ruekert argue that there are three primary dimensions of performance: effectiveness, efficiency, and adaptability. Effectiveness refers to the success of a business' products and programs relative to the competitors' (e.g., relative sales growth). Efficiency refers to an input-output ratio such as profitability as measured by ROI. Adaptability is the business' success in responding over time to a changing environment (e.g., percentage of sales made by new products). The authors suggest that the appropriateness of performance measures depends on the business' strategy type, because particular strategies are developed to achieve a particular performance outcome. Miles and Snow's popular strategy typology (analyzer, defender, prospector, reactor) is a good example. Defenders may not be so keen on adaptiveness as far as their primary concern is to defend well established, stable, undifferentiated

commodity products markets. In other words, Walker and Ruekert suggest that good performance on one dimension may well mean sacrificing performance on others. This point has not been reflected well in the existing empirical studies: the variety of performance measures has been limited largely to efficiency (e.g., ROA) and effectiveness (e.g., market share).

In their literature synthesis article, Kohli and Jaworski (1990) suggested that a greater degree of market orientation may have a positive impact on the organization's personnel. By being integrated in the organization, the employees feel a sense of belonging and pride in their organization. This may well lead to greater commitment to the organization and its goals, higher level of job satisfaction, and so forth. The construct termed "esprit de corps" was used, and was proposed to be in positive correlation with the level of market orientation. In their 1993 article, empirical results are supportive of these relationships (organizational commitment and esprit de corps).

MODERATING FACTOR RESEARCH

Strategy Type

Walker and Ruekert (1987) argued that strategy type, performance on particular dimensions, and marketing activities have contingent relationships. They synthesized the Porter and Miles-Snow typologies into three business-unit strategy types (i.e., prospectors, low-cost defenders, and differentiated defenders) and argued that each strategy type is chosen to excel in particular dimensions of performance and executed by

most appropriate marketing activities. Following Kohli and Jaworski's (1990) conceptualization of a market orientation as an organized set of marketing activities based on market information, one can argue that the strategy type is a moderating factor to the relationship between market orientation and performance. Because implementing a strategy requires control and monitoring of its effectiveness in the market, the rationale is that a particular strategy pursued by an organization may determine the level and the kind of performance it strives for and information it attends to. However, the moderating effect of strategy type has not been investigated in the past. In particular, Miles and Snow's (1978) typology (i.e., defenders, prospectors, analyzers, reactors) seems to be relevant to a market orientation because Miles and Snow consider strategic orientation type as a planned pattern of organizational adaptation to environment (market) (p.28-29; 1978). The typology was developed by the authors based on the patterns of behavior they observed in four industries (84 organizations): college textbook publishing, electronics, food processing, and hospitals. With empirical support, it has been shown that the typology is a useful framework (Hambrick 1982; Hambrick 1983; McDaniel and Kolari 1987; Snow and Hrebiniak 1980).

Defenders are those "organizations which have narrow product-market domains. ... As a result of this narrow focus, these organizations seldom need to make major adjustments in their technology, structure, or methods of operation. Instead, they devote primary attention to improving the efficiency of their existing operations" (p. 29; 1978). *Prospectors* are "organizations which almost continually search for market opportunities,

and they regularly experiment with potential responses to emerging environmental trends. Thus, these organizations often are the creators of change and uncertainty to which their competitors must respond. However, because of their strong concern for product and market innovation, these organizations usually are not completely efficient" (p. 29; 1978). *Analyzers* are those "organizations which operate in two types of product-market domains, one relatively stable, the other changing. In their stable areas, these organizations operate routinely and efficiently through formalized structures and process. In their more turbulent areas, top managers watch their competitors closely for new ideas, and then they rapidly adopt those which appear to be the most promising" (p. 29; 1978). *Reactors* are "organizations in which top managers frequently perceive change and uncertainty occurring in their organizations but are unable to respond effectively. ... [this type of organization] seldom makes adjustment of any sort until forced to do so by environmental pressures" (p. 29; 1978).

Building on Child (1972), Miles and Snow (1978) contended that organizations deliberately choose the appropriate strategy to fit themselves to their environment. Furthermore, it is indicated that organizations select their strategy based on the environment with an intent to be good at particular performance criteria, such as economic efficiency and new product innovation. The implication of this argument is significant to the relationship between market-oriented behavior and economic performance. It can be hypothesized that the relationships between market orientation and some aspects of economic performance are not monotonic across organizations.

Depending on the strategy type, the relationships can be either strengthened or weakened. Although theory strongly suggests that environment-based strategy choice moderates the market orientation-performance relationship (e.g., Day and Wensley 1988; Kohli and Jaworski 1990; Miles and Snow 1978), Slater and Narver (1994b) provided some evidence that three strategic dimensions (market proactiveness, heterogeneity of served market segments, and choice between differentiation and cost) do not have a significant moderating effect on the market orientation-performance relationship. In sum, it is not well understood whether or not strategy type moderates the market orientation-performance relationship. Understanding such potential moderating effects are extremely important to understand the relationship between market orientation and economic performance.

Environmental Factors

Kohli and Jaworski suggested that environmental factors (supply-side factors, demand-side factors) moderate the relationship between market orientation and business performance (1990; p.14-15). The supply-side moderators refer to the nature of competition among suppliers and the technology they employ. The demand-side factors refer to the nature of demand in an industry such as customer preferences or value-consciousness. Market turbulence (i.e., a demand-side factor: changes in the composition of customers and their preferences) was hypothesized as having a positive correlation with the strength of the market orientation-performance relationship. On the other hand,

when the technological turbulence (a supply-side factor) is high, the authors proposed a relatively weaker relationship between a market orientation and performance. The authors also hypothesized that when the intensity of competition (a supply-side factor) is greater, the performance relationship is stronger. Following these propositions and empirical tests, Jaworski and Kohli (1993) found that none of the three environmental characteristics (i.e., market turbulence, technological turbulence, competitive intensity) plays a moderating role. Jaworski and Kohli (1993) concluded that a market orientation probably is 'robust' across various contexts (Jaworski and Kohli 1993; Slater and Narver 1994a and 1994b).

RECAPITULATION AND EXTENDED MODEL OF MARKET ORIENTATION

It appears that the research program of market orientation has moved to a different stage in the last few years, especially after the two seminal articles by Kohli and Jaworski (1990) and Narver and Slater (1990). Up to the very recent time, the marketing concept and a market orientation have been largely a matter of 'faith' with little empirical support. Normative prescriptions without systematic construct development were common up to 1990. That such normative theories guided numerous practitioners and marketing academics toward useful ends (e.g., customer as an important stakeholder, moral obligation of the marketers) is unarguable. However, increasing competition, changing technology and customer needs have forced a closer examination of what we have taken

for granted -- a market orientation -- and the complexity of it. The literature review so far strongly indicates this view.

The preceding literature review of market orientation research can be recapitulated as follows:

1. Conceptualization and operationalization of the market orientation construct varies across the past studies (e.g., Kohli and Jaworski 1990 vs. Narver and Slater 1990);

2. Measures of business performance are not explored extensively (a limited variety of measured dimensions and the lack of the temporal dimension in measurement);

3. Market orientation has been measured on only one-side (seller) but not from the customer or competitor's perspectives (Deshpande, Farley, and Webster 1993);

4. Overall market orientation/performance relationship is moderate but mixed depending probably on the competitive environment (Narver and Slater 1990; Jaworski and Kohli 1993);

5. Moderating effects of the environmental characteristics *on the relationship between market orientation and performance* are not significant (Jaworski and Kohli 1993) *but* their antecedent effects *on market orientation itself* are significant (Narver and Slater 1990);

6. Moderating effect of strategy type on the relationship between market orientation and performance has been suggested (Miles and Snow 1978; Walker and Ruekert 1987), but not explored well;

7. Although scope and size of the sample have been expanded, the samples are drawn only from American corporations that preclude generalization about the study results beyond the geographical boundaries;

8. Antecedent research has been limited to the internal structural elements. No investigation has been conducted into the antecedent role of organizational culture. Other potential factors, such as external environmental factors, have not been explored well, except for one study (Dobscha, Mentzer, and Littlefield 1994); and

9. Antecedent research has not formally incorporated the temporal dimension in market orientation research design (e.g., Kohli and Jaworski 1993; Dobscha, Mentzer, and Littlefield 1994).

An Extended Model of Market Orientation

Based on the literature review, an extended model of market orientation was developed (Figure 2). This extended model explicitly incorporates the factors that are included in the marketing concept, market orientation, and their related literature. The center of this model is the extended market orientation construct (EMO). The EMO construct captures a set of organizations' intelligence-related activities pertaining to a broader or extended range of market factors than those of the existing market orientation constructs. Included as market factors in the EMO construct are competition, customers, suppliers, regulatory environment, social movements and trends, and macro-economic factors.

In summary, the model argues that: 1) firms engage in a broad range of intelligence-related activities at varying degrees (conduct) as a response to the environmental factors (structure), 2) the extent to which a firm engages in such activities (conduct) determines its market performance (consequence), and 3) the strengths of the relationships between intelligence-related activities (conduct) and market performance (consequence) varies depending upon the firm-specific situational factors (moderators).

Theoretical Underpinnings

Eclectic combination of several theoretical paradigms can be observed in the way the extended model (Figure 2) is constructed. First, the model exhibits the classic "structure-conduct-performance" paradigm (c.f., Thorelli 1977; Vernon 1972). Structure refers to the environmental characteristics which are either internal or external. Traditional industrial organization theorists typically refer to structure as factors external to organization, while organization theorists have focused on internal task environment factors (Thorelli 1977). Business performance is posited as a derivative of the interaction between the firm and external and internal environments in which it operates (Vernon 1972). In the extended model of market orientation, the environmental factors are first treated as antecedents. Both groups of antecedent factors are assumed to be fairly stable, or at least perceived as stable over time, and they constitute the ground from which people live, think, and behave. The double arrows represent the intertwined relations but non-distinct boundaries between the two groups of factors (i.e., internal and external environment) (c.f., Starbuck and Hedberg 1977; Thorelli 1977). These antecedents serve as precursors to a market orientation that is operationalized in this dissertation as a set of intelligence-related *behaviors*. Consequences of such behavior, as hypothesized, may take the forms of economic and organizational outcome. Moderating the relationship between the conduct or behavior and outcome are several factors that have been considered to influence business performance. Those moderators are assumed to be transient and less stable than environmental antecedents. By definition, the observational

time frame of moderators should be more recent than the antecedents' and, ideally, before the outcome.

In operationalizing the market orientation construct for this dissertation, the so-called stakeholder concept and constituency-based theory are weighed significantly (Anderson 1982; Connolly, Conlon, and Deutsch 1980; Kotter 1972; Stardivant 1977; Zeithaml and Zeithaml 1984). Anderson (1982) discussed firms' multiple constituencies, stakeholders and publics. From a resource dependence perspective (Pfeffer and Salancik 1978; Pfeffer 1978), he argued that organizations maintain themselves by negotiating resource exchanges with external interest groups. Consistent with the constituency-based theory of marketing, Kotler (1972) views the organization as a resource conversion machine which takes resources in from nine publics: three input publics (supporters, employees, suppliers), two output publics (agents, consumers), and four sanctioning publics (government, competitors, special publics, and general publics) (p. 51). Zeithaml and Zeithaml (1984) argued for a proactive orientation of marketing by acting to the elements of external environment. This proactive posture of marketing was termed "environmental marketing" (Zeithaml and Zeithaml 1984). The importance of managing an organization's dependence on multiple stakeholders, therefore, cannot be ignored. These perspectives strongly suggest we include multiple stakeholders in the domain of market orientation. The construct of a market orientation should, therefore, capture this boundary spanning role of marketing. Interestingly, a recent article by Slater and Narver (1995) concurrs by saying "A business must be careful not to underestimate the potential

contributions of other learning sources [than customers and competitors], such as suppliers, businesses in different industries, consultants, universities, government agencies, and others that possess knowledge valuable to the business" (p.68; parentheses added). In this dissertation, consistent with Kohli and Jaworski's (1990) conceptualization, the construct of intelligence-based activities and response of organization are argued to be more parsimonious and capable of capturing a broader range of environmental factors than others.

Focus of Empirical Investigation

The conceptual model of EMO (Figure 2) illustrates the research areas identified in the literature. Because the literature on a market orientation has taken shape recently, the areas that have received empirical research attention are quite limited. The research areas, therefore, can be classified into one of the following two categories: 1) *relatively* unexplored areas, and 2) unexplored areas.

Research areas that have received some empirical attention in the past belong to the "relatively unexplored" category. Those are 1) external environmental factors as antecedents, 2) organizational structural antecedents, 3) other organizational antecedents, 4) economic and organizational performance measures as outcomes, and several moderating factors (i.e., supply-side factors, demand-side factors, and organizational structure) (c.f., Jaworski and Kohli 1993, Narver and Slater 1990; Slater and Narver 1994a; Dobscha, Mentzer, and Littlefield 1994).

Because the extended construct of market orientation is based on the structure-conduct-performance paradigm, this dissertation first attempts to provide additional evidence of support (or refutation) to the current state of knowledge by focusing on the *structural environments* of organizations (i.e., organizational structural antecedents and external environment factors) and economic (or market) performance as a consequence. Despite the fact that they have received limited empirical attention so far, other or non-structural organizational antecedents, non-economic organizational performance, and the several moderating factors (i.e., supply-side factors, demand-side factors, and organizational structure) were beyond the scope of this dissertation. Because investigating the appropriateness of: 1) the theoretical flow of structure-conduct-(economic) performance paradigm, and 2) the EMO construct based on this paradigm is a fundamental research issue for this dissertation, those elements just mentioned before were not included in the focus of this dissertation. Thus, some of the structural elements that were treated as *moderating* factors in the past research (i.e., supply-side factors, demand-side factors, and organizational structure) were included as *antecedents*, based on the structure-conduct-(economic) performance paradigm.

The second category is the research areas that have not been explored. Included are: 1) cultural antecedents as an internal environment, 2) strategy type as a moderator, and most importantly, 3) the extended market orientation construct. Investigating these areas is another research focus for this dissertation. Since empirical research on market orientation is relatively new, empirically testing these unexplored areas in relation to the

extended model of market orientation would greatly contribute to our understanding of the market orientation phenomenon.

The focal empirical research areas in this dissertation are shaded in Figure 2. These areas represent this dissertation's knowledge contribution in the forms of replication, extension, and exploration of the market orientation research stream.

In past empirical studies, we also observed the absence of causal directionality incorporated in empirical investigation. This dissertation study attempts to improve this deficiency by developing a structural equation model that explicitly tests the relationships between market orientation, antecendents, and consequences (Figure 3). The model, of course, is no replacement of longitudinal experimental study. However, it should provide some ground for us to draw causal inferences.

In the next section, specific research questions and hypotheses for this dissertation are provided.

RESEARCH QUESTIONS AND HYPOTHESES

An Extended Construct of A Market Orientation and Its Operationalization

What is a more appropriate operationalization of a market orientation? As we examined the literature, the operationalizations of a market orientation have been varied and limited in their scope (e.g., Narver and Slater 1990; Kohli and Jaworski 1990). In resolving different conceptualizations and operationalizations (Narver and Slater 1990; Kohli and Jaworski 1990), it is this study's position to treat the market orientation

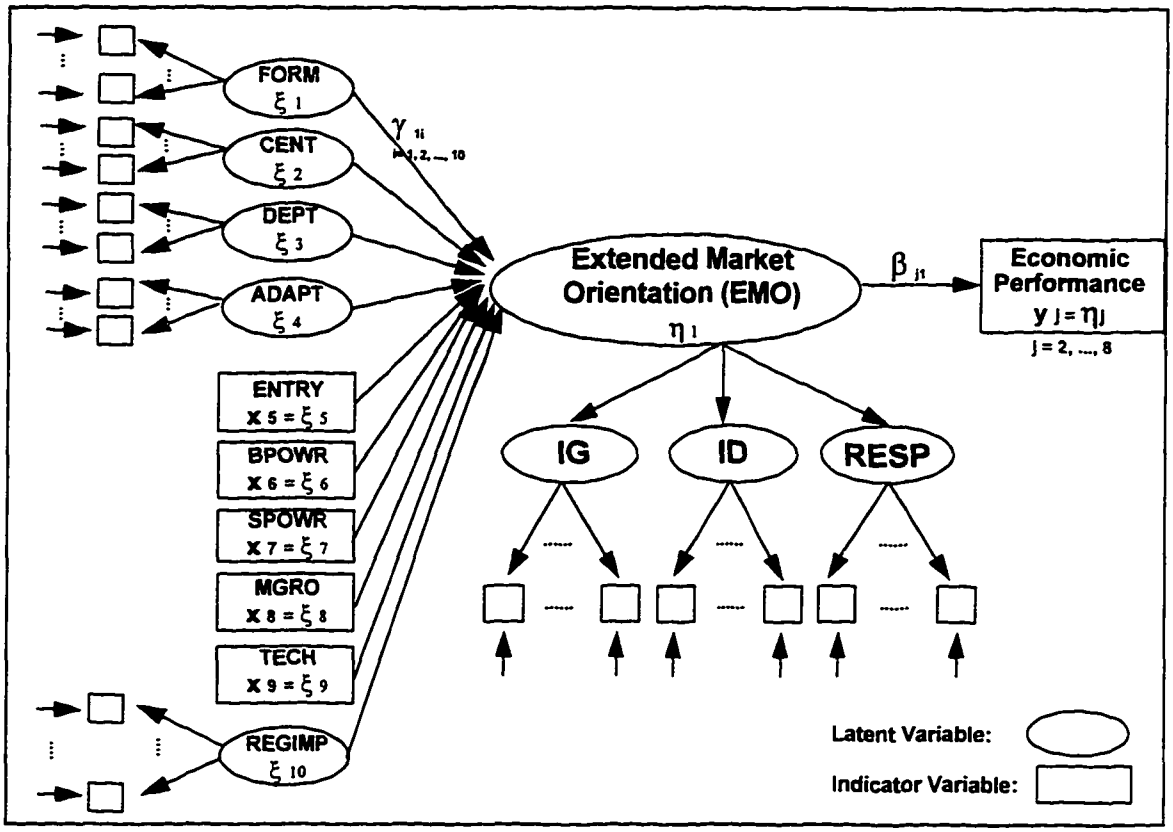

Figure 3 EMO Structural Equation Model

construct as a set of intelligence-related behaviors. The current literature provides a starting point of this conceptualization (Kohli and Jaworski 1990; Jaworski and Kohli 1993; Kohli, Jaworski, and Kumar 1993). The limitation of the current operationalization in the literature, however, is its narrow scope of constituencies in the market. Although competition and customers are widely incorporated in both Narver and Slater's (1994) and Jaworski and Kohli's (1993) items, other important players in the market, such as suppliers and regulatory bodies, are not explicitly addressed. Constituency-based theory

and the resource dependency perspective suggest that the firm's ability to manage multiple constituencies is an important indicator of its performance (e.g., Kotter 1979; Pfeffer and Salancik 1978; Zeithaml and Zeithaml 1984). Therefore, it can be thought that, by incorporating other constituencies, the EMO construct should better explain the relationship between market orientation and economic performance than original market orientation construct by Kohli and Jaworski (1990), Jaworski and Kohli (1993), Kohli, Jaworski, and Kumar (1993).

H1: The relationship between market orientation and economic performance is better explained by the extended market orientation construct (EMO) than by the original market orientation construct (MO) by Kohli and Jaworski (1990), Jaworski and Kohli (1993), and Kohli, Jaworski, and Kumar (1993).

Market Orientation and Outcome Measures

The marketing concept has been held as a business philosophy for over four decades. It has been largely a normative theory that contends economic performance should follow its implementation. In the past, several economic and organizational outcome measures have been tested by researchers to examine the influence of a market orientation. Statistical significance at the $\alpha = .05$ level and direction (positive or negative) of the correlation between economic performance measures and a market orientation are provided below:

Economic Measures

- Return on Assets (ROA): Narver and Slater (1990) Significant and positive;

- Relative Market Share: Jaworski and Kohli (1993) Not significant;
- Sales Growth: Slater and Narver (1994a) Significant and positive;
- New Product Sales as a Percentage of Total Sales: Slater and Narver (1994a) Significant and positive; and
- Overall Economic Performance: Jaworski and Kohli (1993) Significant and positive.

Of greater interest in this dissertation is the economic outcome of market oriented behavior. For several decades, many have argued the marketing concept is a profitable business philosophy. Implementing the marketing concept (i.e., being market oriented) should lead to positive economic performance relatively over a long period of time (Day 1990 and 1994; Day and Nedungadi 1994; Jaworski and Kohli 1993; Narver and Slater 1990; Slater and Narver 1994a). As conceptualizations and operationalizations varied from study to study in the past, it is hard to hypothesize the relationships between the extended market orientation construct in this dissertation and any particular outcome measure used in the past. It should be also noted that past studies did not explicitly measure market orientation's long-term impact on performance. However, these findings may serve as a baseline for developing hypotheses, unless there is a compelling reason to reconsider the past empirical results.

First, market oriented behavior may help organizations to identify new, more profitable market opportunities more quickly and accurately than the competition. Further, a market orientation might also help organizations anticipate future

environmental changes that positively or negatively affect their business. All in all, intelligence activities seem to enhance the profit position of the organization relative to its competition. Thus, market orientation and profitability is hypothesized as positively correlated. Profitability can be measured in various ways. Some of the common indicators are return on asset (ROA), return on investment (ROI), and return on total sales (ROS).

H2a: The greater the extended market orientation, the greater the profitability: (1) ROA, (2) ROI, (3) ROS.

Perceived market share was not found to be significant by Jaworski and Kohli (1993). The authors provided several possible reasons for this somewhat perplexing result. First, market share may not be pursued by all organizations. For instance, some companies may not be concerned with market share per se, but with such efficiency measures as profitability in a niche market. Second, the authors' cross-sectional research design might not have captured a time lag in the effect of market orientation on market share. The authors speculated that a market orientation leads to a high market share over a relatively long period of time. Nonetheless, it is suggested that being customer oriented helps improve and maintain customer loyalty (Day and Nedungadi 1994). As customer orientation is a component of the marketing concept, customer loyalty also can be considered a long-term outcome of a market orientation. Through customer loyalty, organizations should at least maintain their market share indirectly. The question is: "Does a market orientation help organizations to achieve a high market share?"

Generally, it is considered that a low cost position in the industry is critical to achieve high market share (Porter 1980). It is possible that market oriented intelligence activities lead organizations to identify means to reduce cost through a search of alternative raw material sources or through process innovation. If this is the case, a market orientation may be positively related to a high market share. Again, the relationship between market orientation and market share is indirect, through cost advantage, and long-term in nature. In sum, it is hypothesized that the relationship between market orientation and market share is positive and long-term in nature.

H2b: The greater the extended market orientation, the greater the market share growth.

As argued previously, market orientation should promote customer's loyalty, and that loyalty would be helpful in maintaining sales. However, it may require some time for an organization to gain customer loyalty (Jaworski and Kohli 1993). On the other hand, prospecting market-oriented behavior may lead to identification of new customers, which brings in additional revenue to the organization. Slater and Narver (1994a) found relative sales growth (to competitors) was positively correlated with their three-component scale of a market orientation (customer orientation, competitor orientation, and interfunctional coordination). Since their conceptualization differs from the one developed in this dissertation, it is hard to assess how transferable their result would be to this study.

H2c: The greater the extended market orientation, the greater the relative sales growth.

The market environment changes and evolves over time. A changing market creates new opportunities and threats to organizations. The new opportunities often emerge as a need for innovative products and services to match evolving needs. Market oriented organizations should have an advantage in understanding such dynamic market opportunities through generating and disseminating relevant intelligence of the market. The new product development literature supports this logic and the importance of market knowledge (c.f., Cooper 1975; Souder 1987; Calantone and Cooper 1981). In addition, cross-functional integration is an important aspect of the marketing concept and a market orientation, and the literature on new product development provides substantial support for such interfunctional coordination (c.f., Gupta, Raj, and Wilemon 1986; Parry and Song 1993; Souder 1987). Thus, it is hypothesized that the degree of market orientation and the percentage of new product sales to total sales (relative to the competition) are positively correlated.

H2d: The greater the extended market orientation, the greater the new product sales as a percentage of total sales.

Jaworski and Kohli (1993) found that overall economic performance was positively correlated to the degree of market orientation. In their study, the "overall performance" was measured by two items asking for the subject's overall perception of the business unit's performance. As noted by the authors and others, business performance is a multidimensional construct (Steers 1975; Walker and Ruekert 1987). The economic performance indicators discussed so far cover efficiency (ROA, ROI, and

ROS) and effectiveness (market share, percent of new product sales to total sales, and sales growth). A combined measure of these should represent a more complete picture of an organization's overall economic performance relative to the competition.

H2e: The greater the extended market orientation, the greater the overall performance.

Moderating Effects of Strategy Type on Market Orientation-Performance Relationship

Whether or not strategy types play a moderating role on the market orientation-performance relationship is an important question. The review of the literature strongly suggests existence of moderating effects of strategy types. The central logic is that implementing a particular strategy is essentially a process of organizational adaptation to the market environment (Miles and Snow 1978; p.28-29). Since the strategy type by Miles and Snow is a planned pattern of the adaptation with a particular set of economic goals, market orientation (a set of adaptive behaviors) in relation to performance should vary depending on the strategic type. Therefore, a generic 'umbrella' hypothesis is:

H3: The relationship between the extended market orientation and economic performance is moderated by the type of strategy employed.

Defenders

The distinct feature of the Defender's product-market domain is its narrow focus and stability. A defender's good performance in the industry depends on its ability to *maintain* aggressively its eminence within the well-defined market segment (Miles and Snow 1978). The aggressive maintenance effort is said to be evident in its continuous

and intensive efforts to become more technologically efficient (Miles and Snow 1978). Because the Defender's primary emphasis is more on efficiency, rather than on effectiveness, their fundamental performance appraisal method involves comparing their efficiency with other organizations. Profitability (ROA, ROI, and ROS) is one of those efficiency measures. Fundamentally, market share is an effectiveness measure, although the Defenders seem to pay attention to maintaining their share position in narrowly defined market segments. In fact, market share can be achieved through efficient operations and lower cost (Porter 1980). On the other hand, relative sales growth and new product introduction are both effectiveness measures in which the Defenders are less interested (Miles and Snow 1978).

Prospectors

Unlike the Defender, the Prospector's capability is that of finding and exploiting new product and new market opportunities. Their product-market domain is usually broad and continuously developing (Miles and Snow 1978). Growth is primarily coming from the development of the new markets and products. They are innovators and, thus, often find technological innovation very expensive and not as efficient as competitors focused on standardization (1978; p. 59). The Prospectors, therefore, evaluate themselves more often in terms of effectiveness in new product development and new market development, rather than market share or efficiency.

Analyzers

Miles and Snow (1978) believe that the Defender and the Prospector occupy two opposite ends of a continuum of environmental strategies (p. 68). The Analyzer sits between these two extremes. A unique combination of the strengths of the two strategies, the Analyzer type tries to minimize risk while maximizing profit opportunity. The Analyzers put emphasis on developing new products and markets, but only after their feasibility has been verified (1978; p. 70). The Analyzers' strategy can be described as a "follower" strategy rather than a first-mover or pioneer strategy. They imitate the first-mover or Prospectors (p. 73). The Analyzer's concern is how to identify and capitalize on new product and market opportunities while at the same time preserving a stable core of products and market segments. Their performance criteria are a combination of the Defenders and Prospectors. In order to survive, the Analyzer must maintain "its firm base of efficient operation while pursuing effectiveness through the well-conceived addition of new products and markets" (p. 77). In summary, Analyzers aspire to be a good, if not the best, performer in all performance dimensions by definition. It is, therefore, conceivable that this type of strategy has a positive moderating effect on the relationships between market orientation and *every* performance dimension.

Reactors

Different from the three other types, the Reactors do not present any consistent pattern of response behavior to environmental conditions. As the name suggests, they

simply react in inconsistent manner, and it usually occurs only after their environmental pressure exceeds tolerance. Miles and Snow (1978) provided several reasons for this lack of strategic consistency: 1) management's failure to articulate a viable organizational strategy, 2) lack of linkage between technology, structure, process, and strategy, and 3) management's adherence to a particular strategy that is already irrelevant to environmental conditions (p. 82). Having no consistent strategy, the Reactors wish to be good in every performance dimension, but typically fail to excel in any. Because of the incoherent behaviors among the Reactors, this type of strategy is not identified as a viable strategic alternative to a firm. Managerially speaking, it cannot be a "strategy" because neither planned actions nor response behavior patterns are observed. It would be safe to say that few, if any, managers would actively pursue this pattern of inconsistency. In fact, by definition, the "Reactor-type" is not a strategy for its lack of consistency. For this inconsistency, it was judged that the Reactor type is neither theoretically nor managerially important. To be meaningful and useful from a managerial perspective, the strategy type must be reflective of an intended strategy (Mintzberg 1978). Thus, in this dissertation only three viable strategy types out of the four were used (c.f., Hambrick 1982; Hambrick 1983; McDaniel and Kolari 1987) for evaluating the moderating effect on the relationship between EMO and performance.

Based on the preceding arguments, the following hypotheses were developed to test the moderating effect of the strategy types on the relationship between market orientation and economic performance of the business.

ROA, ROI, and ROS

H3a: The strength of relationship between the extended market orientation and performance as measured by efficiency (ROA, ROI, ROS) is greater for the Defenders and the Analyzers than for the Prospectors. Furthermore, there is no difference in the strength between the Defenders and the Analyzers.

Market Share Growth

H3b: The strength of relationship between the extended market orientation and performance as measured by market share growth is greater for the Defenders and the Analyzers than for the Prospectors. Furthermore, there is no difference in the strength between the Defenders and the Analyzers.

Relative Sales Growth

H3c: The strength of relationship between the extended market orientation and performance measured by relative sales growth is greater for the Prospectors and the Analyzers than for the Defenders. Furthermore, there is no difference in the strength between the Prospectors and the Analyzers.

New Product Sales as Percentage of Total Sales

H3d: The strength of relationship between the extended market orientation and performance measured by new product sales as percentage of total sales is greater for the Prospectors and the Analyzers than for the Defenders. Furthermore, there is no difference in the strength between the Prospectors and the Analyzers.

Overall Performance

H3e: The strength of relationship between the extended market orientation and overall performance as measured by an omnibus single-item performance measure is the greatest for the the Analyzers among the three viable strategy types.

Internal Antecedents to A Market Orientation

As reviewed, the literature on market orientation has examined and suggested various antecedents. It was found that there should be both internal and external factors that operate as antecedents. Internal factors refer to those found within the boundary of the organization. Various structural antecedents were tested in the past (Jaworski and Kohli 1993), although the extended concept of a market orientation in this dissertation is purported to capture a broader range of organization's constituencies and factors in the market than the previous construct. Following is a list of organizational antecedents included in Jaworski and Kohli's (1993) study:

Senior Management Factor:	Senior management's: 1) emphasis on market orientation, and 2) risk aversion.
Interdepartmental Dynamics:	Interdepartmental 1) conflict and 2) connectedness.
Organizational Systems:	1) formalization, 2) centralization, 3) departmentalization, and 4) reward system.

Among these factors, structural elements of the internal environment (i.e., those under the Organizational Systems above) are of primary replication interest in this dissertation for the "structure-conduct-performance" paradigm.

Internal Factors -- Structure

Structural dimensions of organizations have been discussed well in both organization management and marketing literature (c.f., Deshpande and Zaltman 1982;

Pfeffer 1978; Ruekert, Walker, and Roering 1985; Scott 1992; Zaltman, Duncan, and Holbek 1973). *Formalization* is defined as "the emphasis placed within the organization on following specific rules and procedures in performing one's job" (Zaltman, Duncan, and Holbek 1973; p. 138). It had been thought that formalization: 1) might hinder proactive new information search, but 2) might facilitate implementation in response to new information (Kohli and Jaworski 1990; Zaltman, Duncan, and Holbek 1973). Jaworski and Kohli (1993), thus, hypothesized that formalization is *negatively* correlated with intelligence generation and dissemination and *positively* correlated with responsiveness. Contrary to the theory and their thought, it was found that formalization is not significantly related to any of the dimensions of market orientation (Jaworski and Kohli 1993). Jaworski and Kohli (1993) provided post-hoc speculation of the result by saying programmatic approaches in increasing the degree of market orientation may not be effective, and mere emphasis on rules and procedures may not lead to any behavior. Based on Jaworski and Kohli's (1993) finding, the relationship between the extended market orientation and formalization is hypothesized as follows:

H4a: Formalization is not related to the extended market orientation (EMO).

Degree of *centralization* refers to the amount of responsibility and authority delegated (Flippo 1966). More formally, Zaltman, Duncan, and Holbek (1973) defined it as the "the locus of the authority and decision making in the organization" (p. 142). In less centralized organizations, the extent of participation by organizational members in

decision-making is greater than that of more centralized organizations. Greater centralization produces uniformity of policy and action, lessens risks of errors by personnel who lack either information or skill, utilizes the skills of central and specialized experts, and enables closer control of operations (Flippo 1966; p. 131). On the other hand, less centralization tends to lead to speedier decisions and actions on the spot at any hierarchical level, and such decisions are more likely to be adapted to individual situations (Flippo 1966; p. 131). Additionally, it is thought that as tasks become more complex or ambiguous, decentralized organizational structure is usually superior to centralized structure (Scott 1992; p.161). Similar to the relationship between formalization and market orientation, centralization may lower intelligence generation and intelligence dissemination and increase responsiveness (Kohli and Jaworski 1990). Empirical results are mixed. Jaworski and Kohli (1993) found that centralization is, in general, negatively correlated to any of the dimensions of market orientation, although statistical significance varies between two sample sets in their study. One possible explanation is that, because a market orientation requires *organization-wide* involvement in a wide range of intelligence activities and responses, organizations may find a great degree of centralization prohibitingly inflexible to be market oriented.

H4b: The greater the centralization, the lower the degree of extended market orientation.

In Jaworski and Kohli (1993), *departmentalization* refers to "the number of departments into which organizational activities are segregated and compartmentalized."

It can be thought that the more departments involved, the more difficult for organizations to communicate information and respond to it quickly. Conceptually, a greater degree of departmentalization seems to be antagonistic to a market orientation: organization-wide activities. Thus, it appears that the degree of departmentalization reduces the extent of market orientation. Jaworski and Kohli (1993) found, however, departmentalization is not significantly correlated to any of the three dimensions of market orientation. The authors explained that the sheer number of departments in organizations may not be as important as departmental connectedness -- the degree of formal and informal direct contact among employees across departments (1993; p. 56). Interestingly, implicit in the *number of departments* is a greater number of departments should lead to alienation, lower connectedness, and greater interdepartmental conflicts. Explicitly conceptualized and operationalized as such, departmentalization can be defined as "the extent to which departments are isolated from interdepartmental interactions." Thus, the relationship between the departmentalization and the market orientation is hypothesized as follows.

H4c: The greater the departmentalization, the lower the degree of extended market orientation.

Internal Factors -- Organizational Culture

It has become clear that organizational culture as an antecedent has not received proper attention in the market orientation literature. Although Narver and Slater have positioned a market orientation as "organizational culture," they operationalized the construct in terms of a set of behavior. Their circular logic was discussed before, and it is

argued that organizational culture be treated as an antecedent to a market orientation. Particularly relevant here is the degree of "adaptiveness" of organizational culture (Kotter and Heskett 1992). When managers care much about their constituencies, they are likely to pay close attention to those constituencies. Being caring and alert, when something in the firm's environment changes, managers are quick to identify this shift. This perspective is strongly based on the resource dependence perspective -- an open system framework -- arguing that one cannot understand the behavior of a firm without understanding the environmental context within which it operates. The resource dependence model emphasizes adaptation (Scott 1992; p. 114).

Thus, it can be hypothesized that the greater the degree of adaptiveness of organizational culture, the greater the degree of extended market orientation.

H4d: The greater the degree of adaptiveness of culture, the greater the degree of extended market orientation.

External Antecedents to A Market Orientation

As we have observed in the literature, relatively little attention has been paid to the potential antecedent role of external factors to a market orientation. In fact, as Dobscha, Mentzer, and Littlefield (1994) pointed out, external environmental factors had been treated by other authors only as moderating variables for the market orientation-performance relationship (e.g., Narver and Slater 1990; Jaworski and Kohli 1993; Slater and Narver 1994a and 1994b). Dobscha, Mentzer, and Littlefield (1994) empirically tested the relationship between seven market environment factors (entry barrier, seller

concentration, degree of government regulation, buyer power, rate of growth, rate of technological change, and supplier power -- independent variables) and the magnitude of a market orientation (dependent variable). Among these independent variables, only the rate of technological change was found to be significant as a potential antecedent to a market orientation. Since market orientation represents the organization's behavioral response to the external environment, the finding is quite surprising and contradicts what resource dependency theory suggests. It was argued that "the manager is a processor and responder to the demands and constraints confronting the organization. In this [responsive] role, the manager assesses the context, determines how to adapt the organization to meet the constraints of the context, and implements the adaptation" (Pfeffer and Salancik 1978; p. 265). Industrial organization economics also posits external market factors are both opportunities and constraints for the organization's survival (Porter 1980).

At least two possible explanations for the perplexing finding can be offered. One has to do with the construct and scale of market orientation used in Dobscha, Mentzer, and Littlefield (1994). They used Narver and Slater's three-factor scale which is based on the definition of a market orientation as "a culture." It might be the case that culture in general, as being a fairly stable phenomenon over the time, is not always "sensitive" enough to accommodate the external environment. The insensitive nature of some types of culture is documented by various authors (Kotter and Heskett 1992; Peters and Waterman 1982). For instance, rigid bureaucratic culture or culture that was set by the

founder and held, say, for a hundred years may not encourage the managers and employees to look for the change of fundamentals in the external environment. Encapsulated culture exists and, if this is the case, it is unlikely we will find a significant relationship between the culture and external environment.

Another possible explanation lies in a temporal dimension of the measurement procedure. By definition, antecedents precede a focal phenomenon -- in this case, a market orientation. When external antecedents are measured at the same time a market orientation is measured, we may fail to capture the time lag effect that should exist between the environmental antecedents and the behavioral response. These possible drawbacks can be improved by using the intelligence-based construct of a market orientation.

It is, therefore, meaningful to replicate the tests of antecedent effect of external environment factors on market orientation.

Entry Barrier

Entry barrier to an industry is high when: 1) economy of scale is required to compete on cost, 2) customer loyalty based on product differentiation by incumbents is high, 3) initial capital requirements are high, 4) switching cost for the buyers is high, 5) access to distribution channels is hard to secure, 6) incumbent's cost advantage independent of scale is significant, and 7) entry is regulated by the government (Porter 1980). It is imaginable that when entry barrier is high and threat of new entry is low to an

incumbent firm, the firm may not need to be sensitive and alert to potential entrants competing for its business. Intelligence-related activities of the incumbent firm may not have to be either extensive or intensive.

H5a: The greater the entry barrier, the lower the degree of extended market orientation.

Buyer's Bargaining Power

Buyer's bargaining power is defined as a leverage that tends to force down prices, bargain for higher quality or more services, and play selling competitors against each other (Porter 1980). When bargaining power of buyers is high, it is conceivable that the seller organization tries to pay more attention to its customers' will and how to meet their needs. Market orientation should be highly instrumental to this kind of managerial behavior: generating and disseminating intelligence about the customers and their sources of bargaining power, and responding to the power by accommodation (i.e., to buy-in) or by alleviation (i.e., to avoid the powerful buyers and switch to buyers with less power) (Porter 1980).

H5b: The greater the buyer's bargaining power, the greater the degree of extended market orientation.

Supplier's Bargaining Power

Suppliers can exert bargaining power over buying organizations by posing a threat to raise prices, to reduce the quality of products or service, or both (Porter 1980). The power of suppliers, therefore, potentially reduces profitability of the buyers who cannot

pass the cost increases on to their customers. Supplier power tends to be high when: 1) there are only a few dominant suppliers and they are more concentrated than the buyers, 2) there are very few viable substitutions to their products or services, 3) suppliers can disregard the size of business within the buyers' industry, and 4) there is a good reason to believe that suppliers can move to forward integration (Porter 1980). The same logic as the one for buyer's power and a market orientation is applicable here.

H5c: The greater the supplier's bargaining power, the greater the degree of extended market orientation.

Rate of Market Growth

When market growth is high, an organization may be able to get away with a minimal level of market oriented activities (Kohli and Jaworski 1990; Slater and Narver 1994a). Implied is that when the market is growing at a substantial rate, demand can exceed supply and customers will be more likely to accept what is offered -- a seller's market. Inversely, when the demand is weak and the growth is low, businesses must try harder to provide superior value by understanding and meeting the customer's needs. Therefore, it is conceivable that the magnitude of a market orientation and the rate of market growth are negatively correlated.

H5d: The greater the market growth, the lower the degree of extended market orientation.

Rate of Technological Change

Dobscha, Mentzer, and Littlefield (1994) found that the rate of technological change is positively correlated with the magnitude of market orientation. Technological change plays a major role in the structural change of an existing industry (Edosomwan 1989; Porter 1985). Fast technological change brings volatility into the marketplace. New technology increases the threat of substitutes and the performance-per-cost ratio, and erodes the protective barriers of incumbents (Day 1990). Sustaining competitive advantage becomes more difficult, as new technology can change the relative advantage of the past. Market-oriented behavior should be useful in this technologically turbulent environment. Organizations need to constantly monitor market and technology development, and coordinate responses to such changes by, for example, investing in emerging technology or securing new suppliers. It has been argued that as technology changes: 1) more flexibility in managerial training and background will be required, and 2) coordination functions become more important due to the increasing number of technical specialists (Edosomwan 1989). Breadth of personnel involved and coordination is an integral part of being market-oriented. Thus, it is reasonable to hypothesize that the rate of technological change is positively correlated with the magnitude of market orientation.

H5e: The greater the rate of technological change, the greater the degree of extended market orientation.

Degree of Government Regulation

Government can affect the competition of an industry through regulations, subsidies, or other means (Porter 1980). It can also affect the ease of entry by establishing or removing regulations. Airline industry de-regulation and "fast-track" pharmaceutical approval by the FDA are just a few examples that changed competition significantly in a particular industry. Under both low and high levels of government regulations, organizations may need to pay close attention to the regulatory environment and anticipate future regulatory actions. The task for the organization is to be attentive to the *change* in the degree of regulation, but not necessarily to the current level of regulation. It is, therefore, necessary to tap into the extent to which the change in government regulations affects the organization.

Although it is hard to deny the pervasive influence of government regulations, as argued, their antecedent effect on market orientation is unclear. Dobscha, Mentzer, and Littlefield (1994) empirically found government regulation plays no antecedent role to market orientation. However, their study's operationalization was based on the *level* of government regulations, but not the magnitude of the *change* in regulations. Thus, it was hypothesized that the regulatory change does affect the degree of market orientation.

H5f: The greater the magnitude of government regulation change, the greater the degree of extended market orientation.

SUMMARY

In this chapter, the literature on market orientation was reviewed. Historical accounts of the marketing concept and market orientation were provided. By applying the classic "structure-conduct-performance" paradigm, the body of literature was grouped into the antecedent, concept, operationalization, outcome, and moderator studies (Figure 1). Following this organizing framework, the chapter identified a number of research issues tested, suggested, or raised by marketing researchers up to the present time.

Among the critical issues was the conceptualization of market orientation. For this dissertation, an intelligence-based behavioral conceptualization of market orientation (Kohli and Jaworski 1990; Jaworski and Kohli 1993; Kohli, Jaworski, and Kumar 1994) is chosen over a culture-based perspective (Narver and Slater 1990; Slater and Narver 1994a; Slater and Narver 1994b). The behavioral conceptualization is further extended by incorporating a wider range of constituencies and environmental factors in the market. Underlying these extensions are constituency-based theory and a resource dependence perspective. This resulted in an extended construct of market orientation and an extended conceptual model of market orientation (Figure 2).

Within the extended conceptual model, several areas of investigation (the shaded parts of Figure 2) were determined for this dissertation. Review of the literature revealed these areas as relatively unexplored, suggesting a good potential for significant contribution to the knowledge of market orientation through an empirical study. Critical

evaluation of existing theories and empirical results provided a ground to generate a set of hypotheses for this dissertation.

In the next chapter, research design and methodology will be discussed.

CHAPTER 3

RESEARCH METHODOLOGY

The purpose of this study is to test the hypotheses developed in the previous chapter. Those hypotheses were generated based on the extended conceptual model of market orientation which delineates the interrelationships among the variables of interest. Hypothesis 1 addresses the question of the extended market orientation construct, which incorporates more constituencies than customers and competitors. The theoretical rationales behind this hypothesis are constituency-based theory and a resource dependence perspective.

Hypotheses 2a - 2e test the relationships between the extended market orientation and economic performance of the firm. Respondents were asked to evaluate their organizations' market orientation relative to their business units' major competitors.

Hypothesis 3 was proposed to test the potential moderating effect of strategy type (Miles and Snow's strategic typology) on the relationship between the extended market orientation and performance. Sub-hypotheses (H3a - H3e) addressed the questions of moderating effects of the three viable strategic types (i.e., Defender, Prospector, Analyzer).

Antecedents to a market orientation can be categorized into two groups: internal antecedents and external antecedents. Respondents were asked to evaluate each of the antecedents. Regarding the internal antecedents, organizational structure (H4a - 4c) and adaptiveness of organizational culture (H4d) were of particular interest in this dissertation. The external antecedent factors encompassed several structural characteristics of the market (H5a - 5e).

RESEARCH DESIGN

A survey research design was used to collect the data to test the hypotheses developed in the previous chapter. A survey research design was considered appropriate for this dissertation for several reasons: 1) survey research has an advantage to collect perceptual data from a large population, 2) survey data are easily quantifiable and amenable to statistical analysis and hypothesis testing, and 3) several measures were developed by previous researchers for survey design, and replication and extension of the past studies was an important aspect of this dissertation (Marshall and Rossman 1989). Furthermore, many of the variables in the model of an extended market orientation could not be subjected to an experimental manipulation. All these reasons supported the choice of a survey research design for this dissertation.

All the variables of interest were assessed through respondents' perceptual evaluation (refer to the shaded areas of Figure 2). Formal structural relationships among these variables relevant to the Hypotheses 2 - 5 are depicted in Figure 3.

DEVELOPMENT OF NEW SCALES

The overall methodology followed the procedures recommended by Churchill (1979) and updated by Gerbing and Anderson (1988). That is, the definition of each construct was based on an iterative process of review of existing literature and exploratory research conducted for the purpose of this study. The scale developed for this study evolved from a combination of exploratory qualitative study (in-depth interviews) conducted by the author and a review of the market orientation literature. The in-depth interview scheme and summary of the findings are provided in Appendix II-2.

The first step toward developing a measure is to specify the domain of the constructs of interest (Churchill 1979). To this end, the author conducted a review of literature, in addition to completing a series of in-depth interviews with business managers (marketing and non-marketing). Exploratory in-depth interviews were used to gain a deeper understanding of the constructs of interest. In total, six depth interviews were conducted to define the extended construct of market orientation. Depth interviews allow the researcher: 1) to gain insights into the complexities of the meaning of market environments, market orientation, and activities pertaining to market orientation, 2) to identify potential determinants and consequences of a market orientation, and 3) to gain a deeper understanding of the phenomena in the context of industry competition.

Consistency between the literature and the findings from the interviews provided support for including the factors and variables already identified through the literature review. Additional insights gained from the exploratory interviews were also taken into

consideration for defining the extended construct of market orientation. Based on the findings of this exploratory research phase, in conjunction with the review of literature, the following conceptual definitions were developed for the two new constructs developed for this dissertation.

EXTENDED MARKET ORIENTATION

Extended Market Orientation:
An organization's generation and dissemination of intelligence regarding its external environment, and responsiveness to it.

Intelligence Generation:
Organization-wide involvement in monitoring, collecting, and analyzing information pertaining to the external market environment.

Intelligence Dissemination:
Organization-wide involvement in sharing and disseminating information pertaining to the external market environment.

Responsiveness:
Organization-wide involvement in acting on the market information generated and disseminated.

ORGANIZATIONAL ANTECEDENTS

Adaptiveness of Organizational Culture:
The extent to which the organization's culture is receptive to and appreciative of the changes in market.

Following the domain specifications, a set of the items designed to measure EMO and Adaptiveness of Organizational Culture were developed. For EMO scale, a number of new items were generated for Intelligence Generation (15 items), Intelligence

Dissemination (10 items), Responsiveness (12 items). These items were added to the original set of Kohli and Jaworski's market orientation scale items. A total of 10 items were newly developed for Adaptiveness of Organizational Culture.

PRETEST

Among the measures for this dissertation, those of several key constructs were chosen for a pretest. These were the constructs of the extended market orientation (EMO), adaptiveness of organizational culture (ADAPT), and economic performance. These constructs had not been tested or extensively used in past studies, and were developed and adopted for the purpose of this dissertation. Therefore, validation of the measures was necessary. A set of the items designed to measure Intelligence Generation (25 items), Intelligence Dissemination (18 items), Responsiveness (26 items), Adaptiveness of Organizational Culture (10 items), and Economic Performance (7 items) were pretested (See Appendix II-1).

In addition to the purpose of the reliability and construct evaluation, one important objective for this pretest process is to reduce the number of items to a more manageable one. Potential benefits for doing so are multifaceted. One is that the length of the questionnaire can be reduced if the items are fewer. Second, the resulting parsimony of the construct is not only theoretically important but also computationally desirable especially in applying the structural equation modeling. A related issue is the required size of the sample for structural equation models. One conventional rule of

thumb (Joreskog and Sorbom 1993) tells us that the minimum sample size is a function of the number of free parameters to be estimated (e.g., $k(k+1)/2$, where k is the number of free parameters to be estimated). Thus, the fewer the number of items, the smaller the sample size can be, which could be helpful if the response rate had turned out to be low. Although these reasons support the idea of fewer items per construct, it should be done so without sacrificing the breadth of the meaning of the construct. This is particularly important for this dissertation because the proposed extended market orientation construct is supposed to capture a broader range of market factors and constituencies than previous models. The ideal scales should, therefore, adequately cover the breadths of the purported constructs with the least number of items.

Other measures included in the final questionnaire had been used extensively in the marketing and management literature. Therefore, except for the economic performance measures (P87 - P93), these were *not included* in the pretest. Those constructs were: formalization, centralization, departmentalization, entry barrier, buyer's bargaining power, supplier's bargaining power, market growth, technological change, impact of regulatory change, and strategy type. The economic performance measures were *included* in the pretest to evaluate their distributional characteristics. Because these were the dependent variables of the EMO construct, the additional prudence was thought necessary.

Note, however, all the measures included in the final questionnaire were subjected to scale validation and reliability analyses prior to the hypotheses testing. The details of the scale validation process with the final data is provided in Chapter 4.

SCALE VALIDATION PROCESS BY USING PRETEST DATA

Pretest Sample

A mailing -- including cover letter, stamped return envelope, and pretest questionnaire -- was sent to a random sample of 300 marketing executives of 3,300 manufacturing companies in the United States. A commercial mailing list vendor was used to generate the list of 3,300 companies. A profile of the 3,300 companies and 300 companies in terms of sales volume and employee size is given in Appendix II-3. The first mailing was followed by a subsequent mailing including a reminder letter, stamped return envelope and another copy of the questionnaire. Cover letters are provided in Appendix II-4. In total, ninety three questionnaires were returned. Of the 300 listed respondents, the mailings to six respondents were undeliverable and returned. Three respondents explicitly communicated that they could not cooperate in the study due to their company policies. One response was unusable due to the severe item response omissions, leaving ninety two useable responses. Therefore, the effective response rate for the pretest was 31.3 per cent (i.e., 92/(300-6)).

Descriptive Statistics

The descriptive statistics for the pretest data are given in Appendix II-5. Note in Appendix II-5, an asterisk (*) is added to the reverse items. Mean, minimum and maximum values, standard deviation, kurtosis, and skewness for each item were examined for unusual irregularity.

Mean for several variables were found to be notably high, that is equal to or higher than 4.00 on the 5-point scale. These were P1, P7, P30, and P59. Several more were very close to 4.00 (i.e., greater than 3.90). These were P22, P32, P39, P41, P44, P50, and P70.

Several variables had relatively small standard deviations, indicating the variability among the subjects was relatively small. These were P23 (.74), P41 (.67), P47 (.71), P66 (.76), and P69 (.77).

Of interest was kurtosis because structural equation modeling (discussed later in this chapter) is said to be so sensitive to highly kurtotic variables that reliable parameter estimates and model fit might not be obtained especially under maximum likelihood estimation method (West, Finch, and Curran 1995). However, some other authors argue that overall, the maximum likelihood method in structural equation model is quite robust against violation of normality (Chou and Bentler 1995). Setting the controversy aside, the following variables were found highly kurtotic, with kurtosis greater than 1.000 in *absolute* value: P1, P3, P5 - P8, P10 - P13, P15, P21 - P23, P35, P41, P46 - P47, P59, P69 - P71, P76, P79, and P86.

Skewness is the tendency of the deviations from the mean to be larger (i.e., "heavy-tailedness") in one direction than in the other. Variables with relatively high skewness (i.e., the absolute value greater than 1.000) were: P1, P7, P15, P22 - P23, P29 - P30, P32, P59, P68, P70 - P71, P80, and P87.

Scale Validation

Because item-total correlation is merely an indication of the internal consistency, not necessarily an indication of the external consistency, a confirmatory factor analysis was first applied to evaluate unidimensionality of measures (c.f., Gerbing and Anderson 1988; Bollen 1989). If the unidimensionality is untenable based on the confirmatory factor analysis: 1) the items that cause the problem should be removed, or 2) the construct should be reconsidered. Following these analyses (both substantive and quantitative), in addition to several descriptive statistics, items should be added, dropped, or refined. Desired are those items highly correlated with the postulated construct but not so with other constructs (Gerbing and Anderson 1988). In sum, confirmatory factor analyses were conducted to examine whether the items are tapping into the constructs of interest and are reasonable measures of the constructs of interest (the extended construct of market orientation and adaptiveness of organizational culture). Hypothesized confirmatory factor analytic models for the two constructs are provided in Figure 4.

Following the confirmatory factor analysis, Cronbach's alpha, item-to-total correlation and correlation matrices of the pretest data were examined. The internal

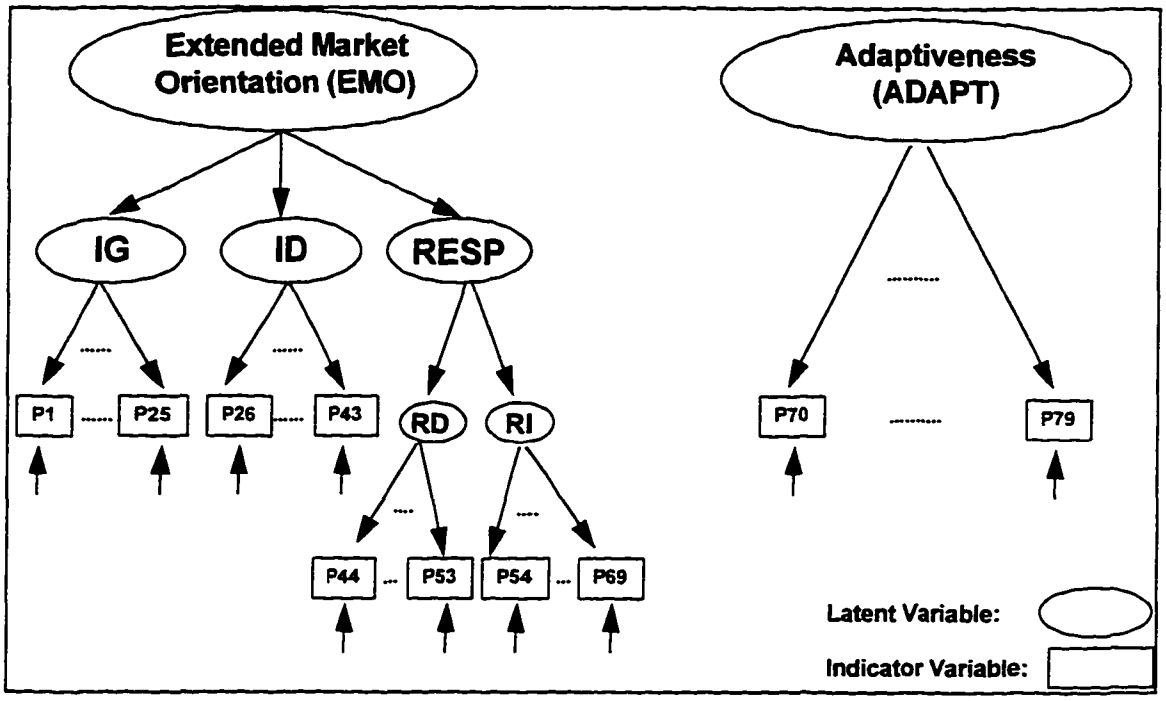

Figure 4 Pretest Confirmatory Factor Analysis Models

consistency of the measures was assessed through item-total correlation calculated from the pretest data. In addition, Cronbach's coefficient alpha was calculated as an indicator of the reliability of the scales (c.f., Churchill 1979).

Acceptable level of reliability as measured by Cronbach's alpha is not clear-cut. Nunnally and Bernstein (1994) indicate that reliability of .70 may be acceptable in the early stages of predictive or construct validation research (p. 264-265). The same authors also note "it can be argued that increasing reliability much beyond .80 in basic research is often wasteful of time and money" as "measurement error attenuates correlation very

little at that level" (p. 265). Although, other things being equal, "the higher, the better" principle applies to reliability, this dissertation is basic research in nature and is the first attempt to evaluate the extended market orientation model. Therefore, Cronbach alpha of .80 or greater were deemed adequate, and medium to high .70s were accepted with some caution.

Those items with low correlation coefficients were eliminated. In addition, those items that caused a substantial drop in the item-total correlation were eliminated (Churchill 1979). In the following sections, details of scale validation analyses and results for each construct are reported.

EXTENDED MARKET ORIENTATION

As a result of the peer reviews, in-depth exploratory interviews, and the review of literature, an initial set of items (69 items in total) for a pretest was developed to measure the extended construct of market orientation (EMO). Of these items, thirty-two of them are directly adopted from Jaworski and Kohli (1993) and Jaworski, Kohli, and Kumar (1993) (Appendix II-1). Others were either derivatives of Kohli and Jaworski's measures or newly developed items based on the literature review and exploratory interviews for this study.

Five factors (Intelligence Generation, Intelligence Dissemination, Response Design, and Response Implementation) were first purported to measure the extended

market orientation scale in this dissertation. These five components should load on the higher-order latent construct, the extended market orientation (EMO) (see Figure 4).

Of those newly developed items, 15 items (items P11 - P25) were predicted to load on Intelligence Generation, 10 items (items P34 - P43) on Intelligence Dissemination, and 12 items (items P51 - P53 on Response Design and items P54 - P56 and P64 - P69 on Response Implementation) on Responsiveness (see Appendix II-1. for measures).

First, confirmatory factor analyses were conducted individually on the four measurement scales: Intelligence Generation (IG), Intelligence Dissemination (ID), Response Design (RD), and Response Implementation (RI). Second, appropriateness of the two-dimension (RD and RI) structure of the Responsiveness (RESP) was evaluated. Finally, the three-component model of the extended market orientation (EMO) was evaluated.

Intelligence Generation

A total of 25 items (P1 - P25) were subjected to a confirmatory factor analysis. The first two iterations of confirmatory factor analysis by using LISREL 8.12 indicated that lambda (λ) estimates of five items (items P1, P2, P7, P16, and P18) lacked statistical significance at .05 level ($t = 1.96$). Of those five items, P1, P2, and P7 were from Jaworski and Kohli's (1993) original market orientation (MO) scale, in which most of the items were centered around two market constituents: customers and competitors.

Because the extended market orientation (EMO) attempts to capture additional constituents as well, the two domains (MO and EMO) should be overlapped but different. It can be considered that the difference of the domains produced the weak statistical significance for the three items (P1, P2, and P7). Both P16 and P18 were newly developed items. P16 refers to the direct interaction with customers by non-marketing people. While such interaction is desirable, it may not necessarily result in tangible intelligence generation. On the other hand, P18 refers to the relative weight given to in-house market research and outside market research. The logic was if you are high on intelligence generation, you are more likely to have an in-house market research function and rely on it rather than outsource the function. However, it can be argued that neither one of them necessarily reflects a greater extent of intelligence generation. Much market information can be generated by outside vendors, such as market research firms, and there seems to be no inherent reason to say in-house research is more indicative of greater intelligence generation. Considering these substantive reasons and the lack of statistical significance of the λ estimates of the five items (P1, P2, P7, P16, and P18), they were subsequently removed from the EMO scale.

With the remaining 20 items, further iterations were applied. In iteration 3, modification indices suggested to add an error covariance between items P13 and P14, and P15 and P17 for a great decrease in chi-square, 19.7 and 20.0 respectively. Substantively speaking, items P13 and P14 were developed to tap intelligence generation on social trends and movements, and items P15 and P17 were for suppliers. Such content

overlaps were quite expected, and it was decided that the item with a lower R-squared of LISREL estimate for each pair would be removed (i.e., items P14 and P17).

Iteration 4 with the remaining eighteen variables (items P3 - P6, P8 - P13, P15, P19 - P25) produced modification indices of 10.0 (P3 and P5), 9.6 (P13 and P19), and 9.2 (P19 and P20). First, item P3 also refers to in-house market research. Again, similar to the case of P18 (already removed), conducting in-house, market research does not necessarily indicate a greater degree of market intelligence generation. Thus, P3 was deemed inappropriate and subsequently removed. Next, item P19 refers to the intelligence generation regarding general social trends. The same content was covered by P13, and the modification index of 9.6 was understandable. Not as clear as this is the modification index between P19 and P20 (regulatory policy shifts). Substantively both contents were important, but two items (P19 and P20) capture the same content and one of these two (P19) was causing large modification index with a supposedly different content item (P20). Thus, it was decided to remove P19.

Iteration 5 with the remaining sixteen variables (items P4 - P6, P8 - P13, P15, P20 - P25) revealed that item P4 fell short of statistical significance at the .05 level. Item P4 refers to the organization's sensitivity toward the change in customer-related information. Content-wise, attentiveness to changing customer demands is covered by P5 and P10. Therefore, it was considered that the "targeted" domain was adequately captured by other items, and P4 was removed.

Iteration 6 was conducted with the fifteen variables (items P5 - P6, P8 - P13, P15, P20 - P25). All the items were found to be significant, but the fit was not particularly good or bad (χ^2 = 123.584; df = 90; GFI = .854; AGFI = .805; CFI = .843). No modification indices were produced from this iteration. Therefore, with the fifteen items, reliability analysis was conducted. Cronbach alpha for this fifteen-item scale was .799. Among the items, items P9, P20, P22, and P25 were found to have low item-total correlation, with a range of .245 and .325. Since the low item-total correlations indicate that these items do not seem to efficiently tap into the construct (i.e., marginal contribution to the entire EMO scale), these items (P9, P20, P22, and P25) were subsequently removed.

Another round of confirmatory factor analysis (Iteration 7) was then conducted with the remaining eleven items (items P5 - P6, P8, P10 - P13, P15, P21, P23 - P24). The fit was improved (χ^2 = 69.033; df = 44; GFI = .884; AGFI = .826; CFI = .862). However, it was found that item P6 was involved in producing both the positive and negative largest standardized residuals, with item P13 and item P15 respectively. Substantively both P13 and P15 are important items for the EMO scale because they tap into two important market forces (general social trends and suppliers) that were not addressed in the past research. Substantively it is difficult to explain why item P6 caused the large standardized residuals where it should not. However, given the importance of the two items (P13 and P15) to the overall EMO scale, a pragmatic tradeoff was made to get rid of the unexplainable disturbance item (P6).

After the removal of P6, the fit was further improved and deemed acceptable (χ^2 = 50.456; df = 35; GFI = .905; AGFI = .851; CFI = .896). Cronbach alpha for this ten-item scale (items P5, P8, P10 - P13, P15, P21, P23 - P24) for Intelligence Generation was not particularly high at .767 but deemed acceptable.

Intelligence Dissemination

A total of 18 items (P26 - P43) were subjected to a confirmatory factor analysis. The first iteration of confirmatory factor analysis indicated that item P26 lacks statistical significance at .05 level (t = 1.96). The item refers to the information sharing about competitors. Because intelligence dissemination regarding the competitors was captured by other item (P33), P26 was subsequently removed.

With the remaining 17 items (P27 - P43), further iterations were applied. In Iteration 2, modification indices suggested to add an error covariance between items P27 and P41, and P27 and P35 for a decrease in chi-square, 11.5 and 8.6 respectively. The fit was reasonable (χ^2 = 161.592; df = 119; GFI = .817; AGFI = .765; CFI = .890). Substantively, the two items (P27 and P35) refer to interdepartmental or cross functional meetings and item P41 refers to informal information exchange. Because items P27 and P35 seem to overlap in their content and item P41 alone taps into an important means of intelligence dissemination, it was decided to remove item P27. Also found was that item P39 did not have strong R-squared of LISREL estimate (.086) relative to other items ranging from .143 to .582. The content of item P39 also refers to crossfunctional

information sharing and is tapped by other items. Thus item P39 was also determined to be removed.

With the remaining fifteen items (items P28 - P38, and P40 - P43), Iteration 3 was conducted. The fit was improved (χ^2 = 101.5; df = 90; GFI = .861; AGFI = .815; CFI = .963). All the items were found to be significant, but modification indices suggested to add error covariances between: 1) P36 and P35, and 2) P37 and P36. This is understandable because item P36 refers to a broader range of information content relative to the other two, and all the items refer to interfunctional information sharing. It was concluded that item P36 be removed because item P36's broad information content seems to overlap with that of the other two.

Next, with the remaining fourteen items, another round of confirmatory factor analysis was conducted (Iteration 4). The fit was excellent (χ^2 = 75.115; df = 77; GFI = .892; AGFI = .853; CFI = 1.000). Since unidimensionality was deemed present, reliability analysis was conducted. Cronbach alpha for this fourteen-item scale was .855. All the items have moderate to strong item-total correlation, ranging from .380 to .636. However, because there still were a large number of items and, given the potential advantages of having fewer items, each item was examined for its substantive content and item-total correlations for possible item removal. Among the items, items P30, P34, P41, and P43 were found to have relatively low or moderate item-total correlations, ranging from high .30s to low .40s. Substantively, P30 (customers), P34 (market information),

P41 (information in general), and P43 (information in general) were covered by other items, so they were subsequently removed.

Another round of confirmatory factor analysis (Iteration 5) was then conducted with the remaining ten items (items P28 - P29, P31 - P33, P35, P37 - P38, P40, and P42). The fit still remained excellent ($\chi^2 = 36.605$; df = 35; GFI = .924; AGFI = .880; CFI = .992). Cronbach alpha for this ten-item scale for Intelligence Dissemination was .837. Even though the alpha was somewhat lower than the one obtained in the previous iteration (i.e., .855), the total decrease (.018) by reducing the number of items from fourteen to ten was considered a good trade-off to make. Considering their relatively low item-total correlations, it appeared to be the case that the sheer number of items contributed to a higher Cronbach alpha. Besides, the fit indices of the scale were still robust. Thus, the resulting ten-item scale for Intelligence Dissemination was considered still adequate and quite reliable.

Responsiveness

A total of 26 items (P44 - P53 for Response Design, and P54 - P69 for Response Implementation) were subjected to a confirmatory factor analysis with two dimensions. The entire process of confirmatory factor analysis of the responsiveness construct can be divided into two major steps. First, it involves confirmatory factor analysis on each dimension. Second, the two dimensions are subjected to a second-order confirmatory factor analysis, both loading on the higher-order factor "Responsiveness."

Response Design

First, ten items (P44 - P53) were subjected to confirmatory factor analysis, all loading on Response Design. The first iteration of confirmatory factor analysis indicated that the lambda (λ) estimate of item P52 lacks statistical significance at .05 level. In addition to this lack of statistical significance, the modification indices suggested to add error covariances between: 1) P52 and P45, and 2) P52 and P47. Because P52 taps into new product development as activity and customer needs as type of market information, it is understandable that both P45 (new product development and market segmentation) and P47 (new product development and customer needs) correlated with P52. Because substantive item content was captured by these two items and the item's lack of statistical significance, and P52 was subsequently removed.

Additionally, modification indices suggested to add an error covariance between items P53 and P51 for a decrease in chi-square statistic by 9.4. Item P53 refers to the extent to which a product is launched because of an internal organizational reason rather than external market needs or requirements. The meaning of the item (internally driven marketing practice vs. externally driven practice) is adequately covered by other items (e.g., P45, P46, P47, P50). On the other hand, P51 taps into the responsiveness of an organization in relation to regulatory changes. This item is particularly important to the EMO construct, because the construct's theoretical rationale strongly supports the inclusion of regulatory element in the market forces. Thus, it was decided to remove item P53.

The second iteration was conducted with the remaining eight items (P44 - P51). The fit was good ($\chi^2 = 27.590$; df = 20; GFI = .938; AGFI = .888; CFI = .935). However, item P45 was found to be not significant at .05 level. P45 refers to new product development and market segmentation. However as noted earlier, similar content was captured by P47 (new product development and customer needs) and the content duplication was quite obvious. Even though having duplicated content coverage was likely to contribute to a higher Cronbach alpha, simply keeping two similar items where one item can capture the content could not be justified. Therefore item P45 was removed, and the third iteration was applied to the remaining seven items (P44, and P46 - P51). The fit remained good ($\chi^2 = 22.827$; df = 14; GFI = .942; AGFI = .884; CFI = .924). Cronbach alpha for this seven-item scale was .741, which was not high. All the items have moderate to strong item-total correlation, ranging from .347 to .652. Taken altogether, the seven-item scale for Response Design was deemed adequate in the fit, but its reliability was not high.

Response Implementation

Next step was to conduct a confirmatory factor analysis on Response Implementation. A total of sixteen items (P54 - P69) were used for the analysis. All the sixteen items were purported to load on Response Implementation. The first iteration of confirmatory factor analysis indicated that λ of item P54 lacks statistical significance at the .05 level. The item refers to the organization's response implementation toward the

changes in the macro economic environment, such as economic growth, interest rate, and foreign exchange fluctuations. Although responding to such changes are theoretically possible, such response implementation at the business level would probably be indirect in nature. That is, no business would try to directly change the state of the macro economy, but would only try to alleviate the negative consequences by managing internal operations. This indirect nature of response implementation was not found in other items which asked about the extent of response implementation at more direct, controllable levels such as marketing mix or regulatory compliance. Perhaps these are the reasons for the lack of statistical significance, and P54 was subsequently removed.

On the other hand, modification indices suggested to add an error covariance between items P63 and P55 (expected decrease in chi-square 8.0), P63 and P58 (8.5), P63 and P62 (20.2), P67 and P59 (8.3), and P67 and P60 (11.4). Clearly items P63 and P67 seem to be problematic as they are highly correlated with items that are supposed to capture different aspects of the construct. It was decided to remove P63 and P67.

With the remaining thirteen items (P55 - P62, P64 - P66, P68 - P69), the second iteration was conducted. The fit was good ($\chi^2 = 88.786$; df = 65; GFI = .864; AGFI = .809; CFI = .913), and all the items were significant. Modification indices suggested to add error covariances between P55 and P57 (expected decrease in chi-square 9.3), and P58 and P60 (10.1). These modification indices were difficult to interpret. Item P55 refers to response implementation with regard to suppliers, while P57 refers to competitors. Item P58 refers to coordinated actions and P60 refers to timely response

implementation. Content-wise, these items are distinct. Perhaps, however, some common theme (i.e., response implementation) underlying among these items are not. In fact, if the underlying theme is the cause of the modification indices, deleting the items might not help in measuring what is intended. Because the results were not fully explainable, they were not removed. With the thirteen items (P55 - P62, P64 - P66, and P68 - P69), reliability was assessed. Cronbach alpha for this thirteen-item scale was .843. All the items have moderate to strong item-total correlation, ranging from .359 to .656. In sum, although with many items in one dimension, the thirteen-item scale for Response Implementation was deemed adequate and reliable.

Two-factor Measurement Model for RD and RI

The next step was to examine the appropriateness of a two-factor measurement model (i.e., the two constructs were allowed to correlate). Although theoretically Response Design (seven items; P44, P46 - P51) and Response Implementation (thirteen items; P55 - P62, P64 - P66, and P68 - P69) were correlated and belong to one higher-order construct (namely Responsiveness), a measurement model (Figure 5) was tested first to examine whether they were reasonably but not "severely" correlated.

A severe correlation between the two factors should be interpreted as indications of: 1) unidimensionality of the two factors, and 2) an untenable two-factor solution. Thus it should be read as the inappropriateness of a purported second-order factor structure *within the responsiveness construct.*

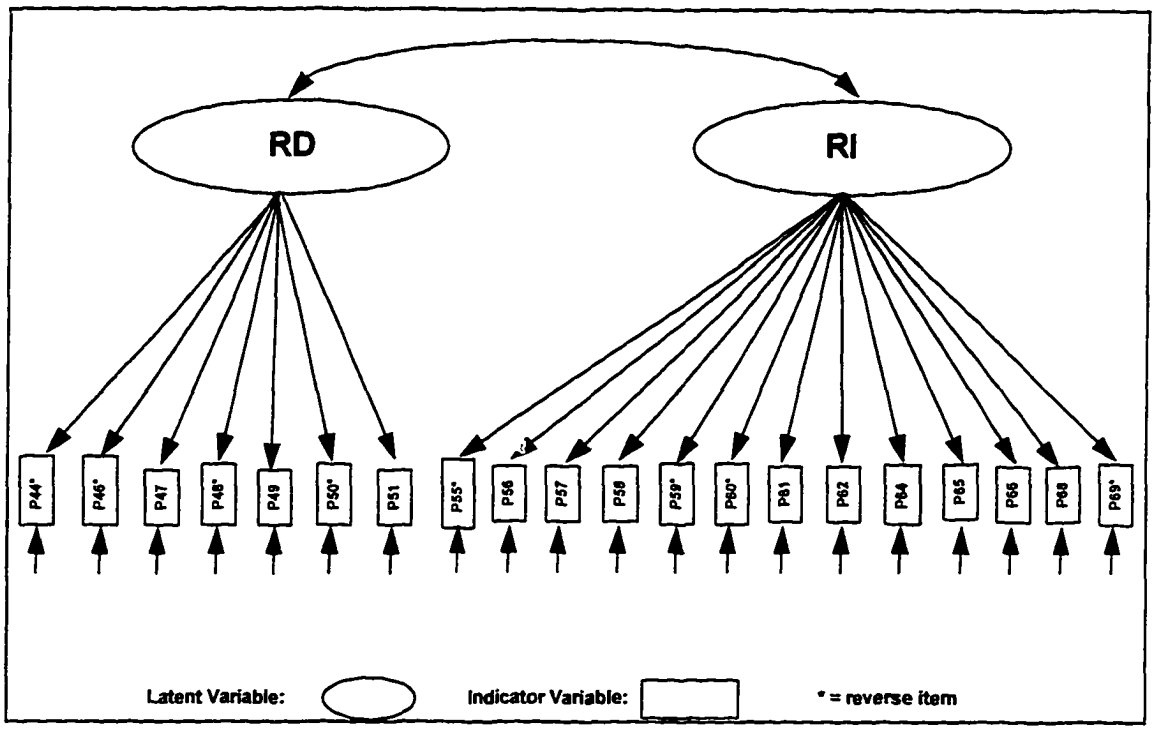

Figure 5 **Pretest Confirmatory Factor Analysis Measurement Model - Response Design and Response Implementation**

A total of twenty items were subjected to a measurement model confirmatory factor analysis. The fit was not good ($\chi^2 = 312.560$; df = 188; GFI = .763; AGFI = .709; CFI = .773). The modification indices suggested that item P61 belongs to Response Design rather than Response Implementation, with an expected decrease in chi-square by 9.4. Furthermore, the indices suggested to add error covariances between items P61 and P44 (expected decrease in chi-square by 11.2), and P61 and P51 (19.3). P61 refers to the response speed to the changes in competitors' pricing structures. The intended focus of

the item was the *speed* of such implementation. However, close inspection revealed that the item can be interpreted as referring to whether or not they implement the response with speed. While the first interpretation's focus is on speed, the second one's focus is implementation. In short, the item could have been confusing to the respondents. This seems to explain the suggested error covariances with two other items (P44 and P51) in Response Design. Because of the unclear focus and dimensionality of the item, P61 was subsequently removed.

Another item in question was P59. The modification indices suggested to add error covariances between P59 and P62 (decrease in chi-square by 8.5), and P59 and P68 (9.0). All the three items (P59, P62, and P68) refer to the responsiveness to customers, and item P59 seems to tap into the contents that the other two items capture. Therefore, it was decided to remove P59 from the construct.

A second iteration was conducted with the remaining eighteen items (seven items for Response Design, eleven items for Response Implementation). The fit was improved (χ^2 = 191.263; df = 134; GFI = .814; AGFI = .762; CFI = .863). However, as it was considered, the two factors were found out to be "severely" correlated at .903. It is an indication of unidimensionality of the two purportedly distinct factors, and the two-factor measurement model seems to be rather artificial and untenable. Given the untenable two-factor structure, it was decided to treat the two dimensions as one dimension and additional confirmatory analyses were applied to this combined (or "collapsed") dimension. Next, with the remaining eighteen items (P44, P46 - P51, P55 - P58, P60,

P62, P64 - P66, P68 - P69), confirmatory factor analyses on a single-factor solution model were examined.

Single-factor Responsiveness Model

The first iteration produced a reasonable fit ($\chi^2 = 195.492$; df = 135; GFI = .810; AGFI = .760; CFI = .856). The modification index suggested to add error covariance between P48 and P50, with an expected decrease in chi-square by 9.1. Item P48 questions whether the business plan is developed based more on technological advances rather than on market research, while item P50 asks whether the product line depends more on internal reasons than external market needs. Although the extended market orientation model strongly supports being responsive to external constituents' needs, it remains unclear whether technological advances inherently run athwart of market research. There can be a case that a market opportunity for certain technological advances might be discovered as a result of market research. The item (P48) can be logically inconsistent. Therefore, P48 was removed.

With the remaining seventeen items, another iteration was done. The fit was somewhat improved ($\chi^2 = 165.439$; df = 119; GFI = .824; AGFI = .774; CFI = .883), and no modification indices suggested adding error covariances between any items. Although this indicates that the items are reasonably loading on one factor, the sheer number of items prompted the author to examine the comparative value of each item for possible removal. If, say, two items are tapping the same content but one item is more highly

correlated than the other one, the item with lower correlation can be removed. With this rationale, a standard reliability analysis was conducted to examine item-total correlation for each item.

The item-total correlation ranged from .366 to .710. There were seven items (P47, P51, P56, P64, P66, P68, and P69) with correlations lower than the low .40s. The highest was .438 and the lowest was .378. Both P51 and P69 refer to the organization's responsiveness to regulatory environment changes. The item-total correlation was .3661 for P51, and .3815 for P69. It was decided to remove P51. Item P66 had item-total correlation of .3779. The item refers to the responsiveness to suppliers, which was also captured by item P55 (item-total correlation .461). Applying similar logic, P66 was also deleted. Item P68 (item-total correlation .423) refers to the responsiveness to customers, which was captured by P62 (item-total correlation .604). It was also decided to remove P68. The other four items (P47, P56, P64, and P69) were tapping into different content and aspects of organizations' responsiveness. Therefore, the four items were not removed despite their not-so-strong item-total correlation. In summary, three items (P51, P66, and P68) were removed from the seventeen items, and reliability of the scale was once again examined. Cronbach alpha for this fourteen-item scale was .8606. A confirmatory factor analysis on this scale indicates good fit ($\chi^2 = 104.507$; df = 77; GFI = .855; AGFI = .802; CFI = .920). Although with a large number of items, this 14-item scale (P44, P46 - P47, P49 - P50, P55 - P58, P60, P62, P64 - P65, and P69) was deemed acceptable and reliable.

EMO Preliminary Validation

In order to validate the EMO scale, a two-step procedure was employed. First, each of the three components (Intelligence Generation, Intelligence Dissemination, and Responsiveness) were subjected to a confirmatory factor analysis at the measurement model level (i.e., each factor or latent construct is allowed to correlate with others, with each measurement item loading on the respective latent construct). Second, a higher-order factor analysis was conducted on the three factors loading to a second-order construct (EMO).

When there are three or more components within one larger construct, it is recommended to conduct confirmatory factor analysis on two components at a time (Joreskog and Sorbom 1993). Following this advice, two components (Intelligence Generation and Intelligence Dissemination) were first subjected to a confirmatory factor analysis. Although the choice of two components can be a matter of random selection, these two were chosen because their theoretical domains were considered close but distinct (Joreskog and Sorbom 1993). Distinguishing two similar components at an early stage ensures efficient model validation.

The first iteration on the two component factors did not produce good fit (χ^2 = 283.015; df = 188; GFI = .788; AGFI = .739; CFI = .815). The two factors correlated at .809 in this iteration. According to the modification indices, error covariances were suggested to be added between P12 and P40 (8.5), and P24 and P40 (12.0). After individual item analyses, it was concluded that P40 might be an ambiguous item that

could refer to both information collection and sharing within an organization. Thus, P40 was removed.

With the remaining nineteen items (P5, P8, P10 - P13, P15, P21, P23, and P24 for Intelligence Generation; P28 - P29, P31 - P33, P35, P37 - P38, and P42 for Intelligence Dissemination), another iteration of confirmatory factor analysis was applied. The fit was somewhat improved ($\chi^2 = 244.162$; df = 169; GFI = .823; AGFI = .778; CFI = .855). The correlation between the two factors was .810 for this model. Although the fit was not excellent, it was considered adequate at this stage because the two components were subjected to a confirmatory factor analysis on a three-component measurement model that includes the responsiveness component. The goal of this scale validation process was to establish good fit with the purported *three* components as a whole, but not necessarily between *any two* components.

EMO Three-Component Model Validation

So far, each of the three components was examined first. Items in each component were subjected to confirmatory factor analyses, and inadequate items were deleted. Next, two of the three components were subjected to a confirmatory factor analysis (refer to the previous section).

In this section, the final stage of EMO scale validation is described. At this stage, the three components were subjected to confirmatory factor analyses altogether. First, the three-factor measurement model was tested (Figure 6). Then, higher-order confirmatory

factor analyses were conducted (Figure 7.a.). Note the remaining items for each component are:

- Intelligence Generation: P5, P8, P10, P11, P12, P13, P15, P21, P23, and P24 (10 items);
- Intelligence Dissemination: P28, P29, P31, P32, P33, P35, P37, P38, and P42 (9 items); and
- Responsiveness: P44, P46, P47, P49, P50, P55, P56, P57, P58, P60, P62, P64, P65, and P69 (14 items)

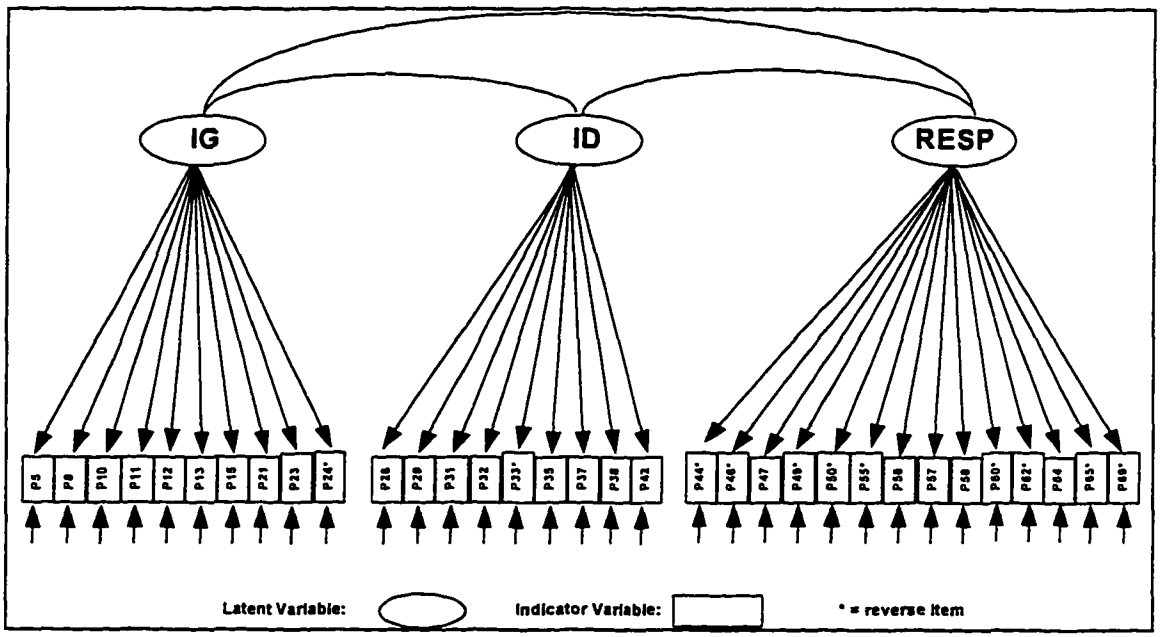

Figure 6 Pretest EMO Measurement Model

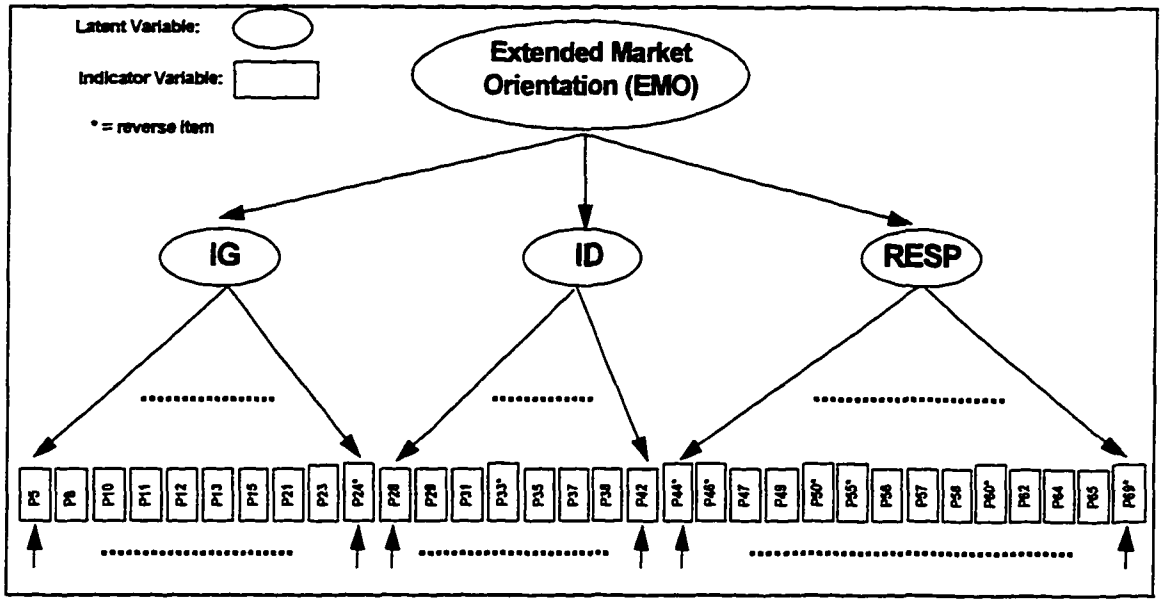

Figure 7.a. Pretest Second-order EMO Scale

A total of 33 items with three constructs were used for a three-factor measurement model confirmatory factor analysis (Figure 6). The first iteration did not produce good fit ($\chi^2 = 680.292$; df = 492; GFI = .708; AGFI = .667; CFI = .791). Correlation coefficients among the factors for this iteration were: .804 (IG and ID), .732 (ID and RESP), and .622 (TG and RESP). The correlation seemed to be reasonable, given the fact that intelligence generation, dissemination, and responsiveness were theorized to occur in this chronological order, thus temporally adjacent constructs should correlate higher than between distant ones. The modification indices suggested to add paths to P49, a Responsiveness item, from both Intelligence Generation and Intelligence Dissemination. In fact, this Jaworski and Kohli's original item is a "catch-all" item for the three

dimensions. It read, "Several departments get together periodically to plan a response to changes taking place in our business environment." It refers to the information generation in the meeting, the information sharing, and the response based on what the organization members planned in the meeting. The item's focus and dimensionality was questionable, and was considered inappropriate. P49 was subsequently removed.

The second iteration was conducted with 32 items, and it still produced poor fit ($\chi^2 = 616.596$; df = 461; GFI = .722; AGFI = .682; CFI = .814). It also produced a modification index that suggested to add a path to P56, a Responsiveness item, from Intelligence Generation. Although the intended focus of the item was whether the organization "routinely revises its service efforts," one might interpret the item with emphasis on "ensuring that they are at least as good as our competitors." It can be thought that the process of the "ensuring" involves some form of intelligence generation, getting to know what competitors have to offer. Taking this reasoning and the modification index together, P56 was also removed.

The third iteration produced marginal improvements in fit indices ($\chi^2 = 575.777$; df = 431; GFI = .736; AGFI = .696; CFI = .822). Modification indices did not suggest to add any additional paths from latent constructs to measurement items. However, the indices suggested to add error covariances between P62 and P32 (expected decrease in chi-square 12.5) and P62 and P57 (8.1). First, one modification index suggested that P62 was correlated with an item (P32) in Intelligence Dissemination. Content-wise, these two items should be distinct. P62 refers to the corrective response with regard to customer

dissatisfaction, and P32 refers to the amount of communication between marketing and manufacturing. This modification index was hard to interpret, and appeared to indicate a case of spurious correlation. On the other hand, the second modification index between P62 and P57 seemed to be the case of content overlap. Both P62 and P57 refer to the response implementation with regard to the customers. In conclusion, to avoid: 1) the spurious correlation between the items in distinct constructs, and 2) the content overlap between the items in the same construct, P62 was subsequently removed.

The next iteration was conducted with 30 items ($\chi^2 = 506.765$; df = 402; GFI = .751; AGFI = .712; CFI = .859). A path from Intelligence Generation to P32 was suggested to be added by the modification index (chi-square decrease by 8.4). The item refers to the communication between marketing and manufacturing regarding market developments. The intended focus of the item was the amount of interdepartmental communication. However, it could be argued that this rather specific communication could be either for simple exchange of information or for information generation. Because it could be confusing and interpreted in either way, P32 was subsequently removed.

With the remaining 29 items, another iteration was conducted. The iteration produced somewhat improved fit ($\chi^2 = 461.056$; df = 374; GFI = .767; AGFI = .729; CFI = .876). The modification index suggested to add an error covariance between P21 (an Intelligence Generation item) and P65 (a Responsiveness item). This suggestion was difficult to interpret. The contents of the items and the purported latent constructs seem

distinct. Item P65 was an attempt to capture interdepartmental competitive response, which was also covered by P58 and P57. Therefore, it was decided to remove P65.

After removing P65, with the remaining 28 items, another iteration of confirmatory factor analysis was conducted. The fit was improved ($\chi^2 = 421.980$; df = 347; GFI = .777; AGFI = .739; CFI = .888). The modification index suggested to add an error covariance between P12 and P37, with an expected decrease in chi-square by 15.9. Both P12 (Intelligence Generation) and P37 (Intelligence Dissemination) refer to regulatory aspects of the market. Despite the fact that these items are composed to tap into the different latent constructs, their *focal market elements* were the same (i.e., regulatory aspects). It was quite reasonable to have an error covariance between such items. One possible option would be to delete either one or both items. However, tapping into the regulatory aspects of the market was theoretically essential in the EMO model. Deleting even one of the two items leads to not capturing the important aspect in one of the two dimensions (either Intelligence Generation or Dissemination). It was judged that the potential loss by deleting item(s) was significant. Therefore, it was decided to add the error covariance between P12 and P37. Adding error covariances previously not explicitly hypothesized is considered appropriate in model generation studies provided that adequate substantive explanation can be found (Joreskog and Sorbom, 1993; pp. 127-8).

After adding the error covariance, the model was refitted ($\chi^2 = 405.046$; df = 346; GFI = .784; AGFI = .746; CFI = .912). The fit was not excellent, but deemed acceptable

considering the number of items (28 items) and latent constructs (three latent constructs). The LISREL estimates, standard errors, t-values, and correlation coefficients between the latent constructs are provided in Table 2.

Finally, the three factors were subjected to a second-order confirmatory factor analysis for estimating the path coefficients. Note the fit indices are the same as the measurement model's ($\chi^2 = 405.046$; df = 346; GFI = .784; AGFI = .746; CFI = .912), and they were considered adequate. The LISREL estimates, standard errors, and t-value are provided in Table 3. The LISREL estimates for this model are provided in Figure 7.b. Reliability as measured by Cronbach alpha for the entire EMO scale (28 items) was .893. Cronbach alphas for Intelligence Generation (10 items), Intelligence Dissemination (8 items), and Responsiveness (10 items) were .767, .800, and .826 respectively. These are also reported in Table 3.

ADAPTIVENESS OF ORGANIZATIONAL CULTURE

Adaptiveness

Measures of the adaptiveness of organizational culture are newly constructed based on the literature (Kilman, Saxton, and Serpa 1985; Kotter and Heskett 1992; Jaworski and Kohli 1993) and the exploratory interviews (Appendix II-2). Because the measures of this construct are new and have never been used, they were subjected to a pretest for scale validation. The validation was conducted by applying confirmatory factor analyses and subsequent reliability analyses.

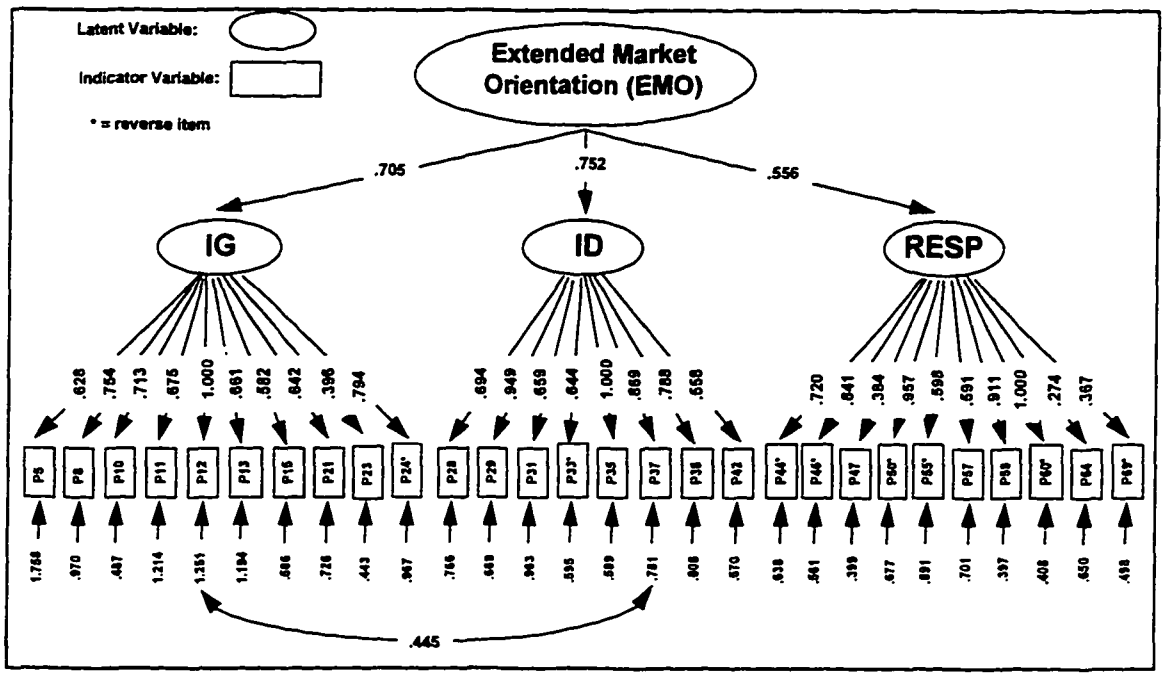

Figure 7.b. Pretest Validated Second-order EMO Scale

A total of ten items (P70 - P79) were examined for the adaptiveness of organizational culture. Several iterations of confirmatory factor analysis were conducted to purify this dimension. The first iteration did not produce good fit statistics (χ^2 = 85.718; df = 35; GFI = .821; AGFI = .719; CFI = .788). This iteration produced a number of modification indices that involved item P73. The indices suggested to add error covariances between P73 and P71 (expected decrease in chi-square by 8.7), P74 (14.4), P75 (8.7), P78 (8.0), and P79 (8.9). This suggests that the meaning of the item P73 might be multifaceted and/or its content overlaps with other items in the same

construct. In fact P73 can be a "catch-all" item which captures a broad and general idea, that is the willingness to implement new business strategy. Relative to this item, other items were more specific. Because of its extensive meaning overlap with other items, P73 was subsequently deleted.

The second iteration with the remaining nine items produced improved fit (χ^2 = 43.406; df = 27; GFI = .897; AGFI = .828; CFI = .910). Only one error covariance was suggested to be added by the modification index (P70 and P71, with a decrease of chi-square by 11.0). In fact, both items were designed to measure how receptive the members of the organization are with regard to change and new opportunities. The two items are quite similar. Substantively, either one of them could be deleted for the content duplication. Empirically, however, reliability analysis was conducted to see which one was more consistent with the rest of the items. The item-total correlation for P70 was .4458, and it was .5495 for P71. Cronbach alpha for the nine items was .7879. If P70 was deleted, the alpha would drop to .7724. If P71 was deleted, the alpha would be .7570. Taken together, P71 was more consistent with the rest of the items in this dimension. Thus, it was decided to delete P70.

With the remaining eight items (P71 - P72, P74 - P79), a confirmatory factor analysis was applied. The fit was excellent (χ^2 = 28.392; df = 20; GFI = .929; AGFI = .872; CFI = .947). The reliability of the scale (Cronbach alpha) was .7724 and acceptable. The LISREL estimates, standard errors, and t-value are provided in Table 4. The LISREL estimates for this model are also provided in Figure 7.c.

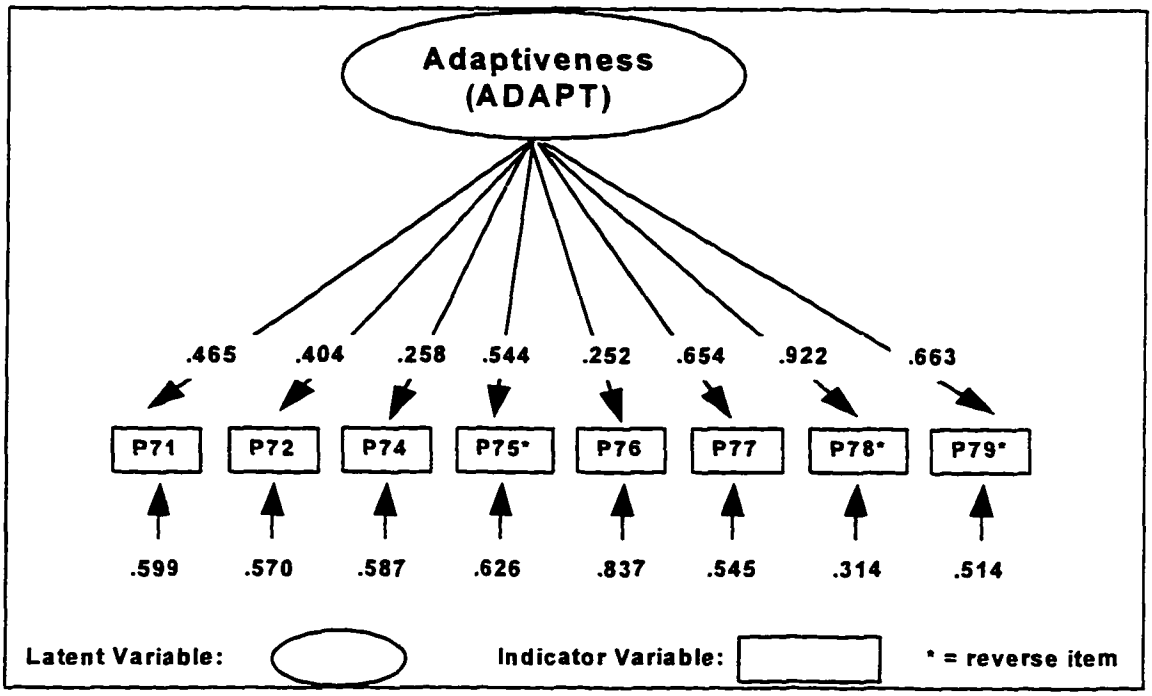

Figure 7.c. Pretest Validated ADAPT Scale

ECONOMIC PERFORMANCE

The market orientation literature and the results of exploratory in-depth interviews indicate that a market orientation is important because it provides a competitive advantage to the organization. Thus, the criterion variables (economic outcomes) were measured relative to those of the organization's competition. Because competitors are the standard of comparison in the performance scale, each economic outcome item was phrased so that aspect of the economic performance was evaluated by the respondent relative to his/her organization's primary competitors.

Seven five-point scales (P87 - P93) were subjected to the pretest. The pretest data indicated that the responses to the seven items were not normally distributed. (Appendices II-5 and II-6) The responses tend to distribute heavily toward higher scores (four and five), and relatively few reported low performance scores (i.e., one or two).

Several possibilities were considered for these non-normal distributions. A first possibility was response bias. It can be argued that the respondents, for one reason or another, might have been motivated to report better-than-actual performance. Similarly, if one is responsible for more than one business unit, the person might be more motivated to report about the best performance business unit than others. A second possibility is non-response bias. It can be argued that those who cooperate in business surveys would be, more likely, working in high performance organizations. For instance, if one is working for a high performance organization, the person might have a reason to feel good about it, be more willing to share the information about the company, and be more willing to respond to the survey. Conversely, those working in low performance organizations might not be as willing as those with high performance organizations to respond to the survey. A third possibility is rather fundamental with regard to the distribution. It could be the case that the respondents were honest, accurate, and no different from non-respondents. Yet, they define their relevant competition based on their own abilities and objectives to compete. In other words, organizations "choose" the competition with whom they can compete more than favorably, or at least compete at parity level. For example, a pop-and-mom store on a street corner may not consider a

company like Wal-Mart as competition, because it is simply not possible to compete in Wal-Mart's terms and thus it is irrelevant as part of the competition set.

It is difficult to verify which one or more would be the reasons for the non-normal distributions without conducting rather extensive follow-up studies. For the purpose of this dissertation, however, several remedial measures were taken to possibly alleviate the non-normalities. First, the five-point scales were revised to seven-point scales so that the respondents have more points from which to choose. It was also hoped that, if rounding-up bias was the case, the rounding-up effect by one point on seven-point scale would not be as severe as that on a five-point scale. Thus, possibly, the responses could be distributed more dispersely. Second, with regard to the potential bias on business unit selection, it was decided to add a clear instruction to the respondents who are responsible to multiple business units. The instruction read: "If you are responsible for multiple business units, please select the one unit that is most representative of those business units and answer all the questions with regard to the selected business unit." The instruction was included in the introduction of the final instrument (Appendix II-7, page 1).

Although these remedial measures are by no means a guarantee for the elimination of the distribution bias, they should be noted as incremental improvements following the pretest.

ADDITIONAL FINDINGS FROM PRETEST

Several additional findings from the pretest are in order. In the classification question section, the respondents were asked about their business units' annual sales and return on investment. Comments written on the margin of several returned questionnaires revealed one reason that these items were unanswered: confidentiality of the information for many privately-held companies. In fact, the item non-response rates for the two items were quite high (8.7 percent for annual sales and 46.7 percent for ROI). Besides the confidentiality issue, it might be the case that it is difficult for some to recall the ROI figure off the top of their heads. Also noted was that a few respondents crossed out "ROI" and wrote "ROS" and gave the percentages.

If the item non-response is due to the confidentiality issue, it can be only addressed by clearly assuring the strict control of confidential information in both questionnaire and cover letters. It was decided to make the confidentiality statement in bold fonts in the cover letters. With regard to the potential difficulty that the respondents might have in answering the ROI figure, it could be that marketing managers may be better able to recall their specific ROS figures than the ROI figures. It was decided to change it from ROI in the pretest questionnaire to ROS in the final questionnaire.

MEASURES OF EXTENDED MARKET ORIENTATION

A set of the items designed to measure Intelligence Generation (25 items), Intelligence Dissemination (18 items), and Responsiveness (26 items) were subjected to a

pretest for scale validation. Such validation was conducted by applying confirmatory factor analyses and subsequent reliability analyses. As a result, following pretest items for EMO were included in the final questionnaire:

- Intelligence Generation: P5, P8, P10, P11, P12, P13, P15, P21, P23, and P24 (10 items);
- Intelligence Dissemination: P28, P29, P31, P33, P35, P37, P38, and P42 (8 items); and
- Responsiveness: P44, P46, P47, P50, P55, P57, P58, P60, P64, and P69 (10 items)

For conversions from the pretest item numbers to final questionnaire item numbers, refer to Appendix II-1.

The pretest results indicated that the second-order (three first-order factors and one second-order factor) structure had acceptable fit ($\chi^2 = 405.046$; df = 346; GFI = .784; AGFI = .746; CFI = .912). With regard to the reliability, Cronbach alphas from the pretest were .767 (Intelligence Generation), .800 (Intelligence Dissemination), and .826 (Responsiveness). For the entire EMO scale with 28 items, Cronbach alpha was .8933.

Note, in order to test Hypothesis 1 described in Chapter 2, Kohli and Jaworski's (1990) original 32 items (P1 - P10, P26 - P33, P44 - P50, P57 - P63) were also retained and included in the final questionnaire.

MEASURES OF ORGANIZATIONAL ANTECEDENTS TO MARKET ORIENTATION

Adaptiveness of Organizational Culture

Measures of the adaptiveness of organizational culture were newly constructed based on the literature (Kilman, Saxton, and Serpa 1985; Kotter and Heskett 1992; Jaworski and Kohli 1993) and the exploratory interviews (Appendix II-2). A total of ten items (P70 - P79) were used for the pretest (Appendix II-1). For each item statement, respondents were asked to rate their agreement or disagreement on a five-point scale. A one-factor structure, corresponding to Adaptiveness (items P70 - P79), was conceptualized.

As reported in the previous pretest section, the items were subjected to a scale validation process by applying confirmatory factor analyses and subsequent reliability analyses. As a result, eight items (P71 - P72, P74 - P79) were retained for the final questionnaire. The fit was excellent ($\chi^2 = 14.911$; df = 14; GFI = .929; AGFI = .872; CFI = .947). The reliability of the scale (Cronbach alpha) was not too high (.7724). However, this scale is a newly developed scale based on the theory, and it was deemed acceptable for the first exploration of the construct's role in the overall EMO model.

Formalization, Centralization, and Departmentalization

Measures of formalization and centralization consist of seven items (F64 - F70) and five items (F71 - F74 and F77), respectively. Respondents were asked to rate their

degree of agreement or disagreement with each item on a five-point scale. These measures are adopted from Jaworski and Kohli (1993). Departmentalization (items F75 - F76 and F78 - F84) is adapted from the items measuring interdepartmental conflict and interdepartmental connectedness in Jaworski and Kohli (1993). The measures of these three constructs are also provided in Appendix II-1.

The three scales were all conceptualized as first-order-factor constructs. Since they have been used extensively in the marketing literature, the scales were not subjected to a pretest. They were, however, subjected to scale validation with the data collected by the final questionnaire instrument. The validation process involved confirmatory factor analyses and reliability analyses.

MEASURES OF EXTERNAL ANTECEDENTS

Industry Characteristics

Entry barrier (item F22, ENTRY), buyer's bargaining power (item F23, BPOWR), and supplier's bargaining power (item F24, SPOWR) were single-item measures that asked respondents to rate their business unit's market structure on a five-point scale (1=Very Low; 5=Very High). Likewise, rates of market growth (item F25, MGRO) and technological change (item F26, TECH) were measured by single-items of five-point scales. All of the five items (Appendix II-1) were adopted from Narver and Slater (1990), Narver and Slater (1991), and Slater and Narver (1994). Because these measures have

been extensively used in the literature and deemed to be valid, they were not subjected to a pretest.

Degree of Government Regulation

The measure of degree of government regulation was adapted from that of Dobscha, Mentzer, and Littlefield (1994). Government regulation was measured by the potential impact of regulatory change (items F18 - F21, REGIMP) (Appendix II-1). For each item, respondents were asked about their perceptions on a five-point scale (1=Very Low; 5=Very High). The measure was deemed acceptable and not subjected to a pretest. They were, however, subjected to scale validation with the data collected by the final questionnaire instrument. The validation process involved confirmatory factor analyses and reliability analyses.

MEASURE OF STRATEGY TYPES

The strategy type (F85, STRAT) was measured by using a categorical variable. A self-typing measure asked the respondents to evaluate the strategies of their own organizations using descriptions of the four generic strategies in the Miles and Snow Typology. The descriptions of the types were the same as those used in Snow and Hrebiniak (1980) and McDaniel and Kolari (1987). Each strategic type (Defender, Prospector, Analyzer, and Reactor) were labeled respectively as Type 1, Type 2, and so on (Appendix II-1). Although only the three viable strategy types (Defender, Prospector,

and Analyzer) were going to be used for the *test* of moderating effects of the strategy type on the relationships between the EMO and performance measures, the reactor type was also included as a choice in the questionnaire. The value of having this type as a response alternative was to screen those with no strategic behavioral pattern, for the purpose of the moderating effects test. If this choice were not given, one might choose any other strategic type for a compromise, which could bias the comparison between the three viable strategic types (Defenders, Analyzers, Prospecters).

The measures have been used extensively in the literature and deemed valid. Therefore, they were not subjected to a pretest.

MEASURES OF ECONOMIC OUTCOMES

Seven economic outcome indicators (overall, market share, relative sales growth, percentage of new product sales to total sales, ROA, ROI, ROS) were developed for the pretest (P87 - P93, Appendix II-1). Respondents were asked to assess the economic performance of their own business unit relative to their major competitors. The seven items were developed to measure different aspects of organizations' economic performance.

Due to the non-normal distribution found in the pretest data (details in the pretest section in this chapter), a change was made to the measures by converting the original five-point scales to seven-point scales. Other than the number of scale points, the

measures were not changed. The items for the final questionnaire were labeled F86 through F92 (Appendix II-1).

CLASSIFICATION QUESTIONS

Several classification questions about the respondent's business unit and the respondent were asked (Appendix II-7. Final Questionnaire, Section 8). These include primary industry (the largest part of the business), approximate annual total sales and return on sales, approximate number of full-time employees, and number of locations of business operations. Respondents were also asked about the number of business units for which they were responsible.

OTHER MEASURES

Note in the pre-test questionnaire, several newly created items (P80 - P86; Appendix II-1) were included for an exploratory purpose only and the items are not relevant to this final dissertation questionnaire.

THE FINAL QUESTIONNAIRE

Following the pretest of the selected measures, the final questionnaire was developed (Appendix II-7). The measures included in the final questionnaire were clustered into eight sections, beginning with intelligence generation and followed by external antecedents, intelligence dissemination, responsiveness, internal antecedents,

strategy types, performance outcomes, and classification questions. The order was determined by considering the degree of generality of each section and implicit cues for potential hypotheses guessing. There were two factors taken into consideration in an attempt to minimize potential hypothesis-guessing: 1) the hypothesized sequential relationships between market orientation and internal factors seemed to be fairly easy to guess, and thus the antecedents were placed after market orientation, and 2) relationships between market orientation and external antecedents are reportedly unclear (e.g., Dobscha, Mentzer, and Littlefield 1994) and thus hard to guess. The proposed order accommodates these concerns. At the end of the questionnaire, several classification questions, such as respondent demographics and business classification, were given.

One concern was a potential grouping effect, as the question items were grouped by construct. Although randomly scrambling the items was an option, it was not adopted considering the increased complexity and difficulty for the respondents by doing so. Already, 98 individual questions were included in the eight-page (cover page included) questionnaire. Scrambling the items was judged to increase the possibility of respondent fatigue and, possibly, non-response and refusal. Thus, it was not adopted for this particular questionnaire.

All the questionnaire items asked the respondent to make subjective judgments based on what he or she perceived about the organization, its market orientation, and its internal and external environments. The use of these subjective measures is an accepted practice in the management literature, supporting the high correlation between

respondent's subjective assessments and their objective counterparts (Dess and Robinson 1984; Narver and Slater 1990).

For most of the items, a five-point Likert-type rating scale was used (e.g., 1 = Strongly Disagree, 5 = Strongly Agree; 1 = Very Low, 5 = Very High). Economic performance items (F86 - F92) were on seven-point scales. "Don't know" answer choices were not given in the questionnaire, because the author was interested in the manager's perceptive response to the item, not the "knowledge" about the item per se.

Physical Design and Layout

The overall design was based on the concept of the "total design method" (Dillman 1978). The questionnaire was printed in a booklet of 8 1/2" x 11" size. No questions appeared on the front cover page, reserved for motivating respondents to respond to the questionnaire. On the front cover page, the identity of the researcher and institution were clearly communicated with the purpose of the study. The significance of the research and importance and value of the respondent's cooperation were particularly emphasized. Confidentiality of the responses was also assured. A graphic illustration on the front page was the University of Tennessee's emblem to enhance the credibility of this research project. The return address was provided for both practical and credibility reasons. Finally, the questionnaire booklet was printed on light beige color paper.

On the back-cover page, appreciation of the cooperation and a request for the respondent's business card were expressed. It represented the survey research's reciprocal

nature -- thanking for the valuable information and promising an executive summary report (a reward) -- for those who were interested. The overall layout of the questionnaire also followed the recommendations made by Dillman (1978).

SAMPLE AND DATA COLLECTION

Sample Size and Selection

The unit of analysis of this dissertation was the strategic business unit (SBU). A random sample of 1,000 companies was generated from a list of 3,300 manufacturing companies in the United States, which was available from a commercial mailing-list vendor. First, for each of the 1,000 manufacturing companies in the list, one marketing vice president from each manufacturing company was identified. A sample of the U.S. manufacturing companies was considered appropriate for this dissertation for several reasons: 1) manufacturing as a whole (durable and non-durable goods) accounts for approximately 20% of the GNP of the U.S., 2) the manufacturing sector is critical for the nation's economy to compete globally (c.f., Best 1990), and 3) manufacturing firms typically engage in a broad range of business activities from purchasing, research and development, sales and marketing, to monitoring regulations.

Data were collected through a self-administered written questionnaire. A package of written questionnaire, cover letter asking for their cooperation, and a business-reply, postage-paid return envelope was mailed. There were two reminder mailings to non-respondents. Both follow-ups included the questionnaire, a reminder letter, and a

business-reply, postage-paid return envelope. The first reminder was mailed approximately two weeks after the first mailing, and the second reminder followed about two weeks after the first reminder.

SCALE VALIDATION WITH THE FINAL SAMPLE

Prior to the statistical hypotheses testing, confirmatory factor analyses and ordinary reliability analyses were applied with the final sample to validate all the scales and their unidimensionality. The results are provided in the next chapter.

STATISTICAL TECHNIQUES FOR HYPOTHESES TESTING

Structural equation modeling was extensively used to test the hypotheses. This modeling procedure was particularly appropriate for answering the research questions and testing the hypotheses in this dissertation, because: 1) the entire EMO model is based on the so-called "structure-conduct-performance" paradigm in which elements of market are thought to be systematically and causally related, 2) the modeling can account for measurement errors for both indicator and latent variables, resulting in less biased estimates for the structural parameters, and 3) this dissertation attempts to add knowledge on the network of the constructs by simultaneously testing the relationships in the EMO model, while past research in the literature did so in methodologically a very limited sense by using ordinal multiple regression analyses.

The following sections describe the outline of the hypotheses testing within the structural equation model of the EMO (Figure 3). The actual results are included in the next chapter.

Hypothesis 1

Hypothesis 1 tested whether the extended market orientation scale (EMO) is better capable of explaining the relationship between market orientation and performance than the original market orientation scale (MO) proposed by Kohli and Jaworski (1990), Jaworski and Kohli (1993), and Kohli, Jaworski, and Kumar (1993). Note that the MO scale was based on the original 32 items (items F1 - F10, F27 - F34, F39 - F45, and F47 - F53) which were kept in the final questionnaire to test this hypothesis. Note, also, that several of these items were removed from the EMO scale as a result of the scale validation with the pretest data.

Performance was measured by seven single-item scales (market share, relative sales growth rate, percentage of new product sales, ROA, ROI, ROS, and overall). The performance measures are referred to as SOM, SGRO, PCTNP, ROA, ROI, ROS, and OVERALL respectively.

For each of the seven measures (dependent variables), EMO and MO (independent variables) were structurally equated. Thus, one model equates EMO and the performance measures (EMO model), while the other equates MO and the performance variables (MO model). Each structural parameter was estimated by using

LISREL 8.12, and the overall fit for each model was estimated by chi-square goodness-of-fit statistics. As the hypothesis states, it was expected that the EMO model would produce better fit as measured by the chi-square statistic (i.e., lower chi-square statistic adjusted by the degree of freedom) than the MO model.

H1: χ^2 (EMO) < χ^2 (MO)

Hypotheses 2a - 2e

Hypotheses 2a-2e examined the relationships between EMO and the seven performance measures. EMO and each performance measure are hypothesized as positively correlated. All the hypothesized relationships were tested by estimating the structural equation parameters (βs and ζs) between EMO and each of the performance measures (ROA, ROI, ROS, SOM, SGRO, PCNTNP, and OVERALL).

H2a (1): $ROA = \beta_{21} (EMO) + \zeta_1$

H2a (2): $ROI = \beta_{31} (EMO) + \zeta_2$

H2a (3): $ROS = \beta_{41} (EMO) + \zeta_3$

H2b: $SOM = \beta_{51} (EMO) + \zeta_4$

H2c: $SGRO = \beta_{61} (EMO) + \zeta_5$

H2d $PCTNP = \beta_{71} (EMO) + \zeta_6$

H2e: $OVERALL = \beta_{81} (EMO) + \zeta_7$

Hypotheses 3a - 3e

Hypotheses 3a-3f examined a moderating role of Miles and Snow's strategy type (STRAT) on the relationships between the extended market orientation (EMO) and the seven economic performance measures (SOM, SGRO, PCTNP, ROA, ROI, ROS, and PERF). To test the existence of a moderating effect by strategy type, multiple-group structural equation analyses were conducted to examine whether the parameter estimate (β) between each performance measure and the extended market orientation (EMO) differs across the three viable strategic types (Figure 3).

H3a (ROA, ROI, ROS):

β_{j1} (Defenders, Analyzers) > β_{j1} (Prospectors)

β_{j1} (Defenders) = β_{j1} (Analyzers)

($j = 2, 3, 4$)

H3b (SOM):

β_{51} (Defenders, Analyzers) > β_{51} (Prospectors)

β_{51} (Defenders) = β_{51} (Analyzers)

H3c (SGRO):

β_{61} (Prospectors, Analyzers) > β_{61} (Defenders)

β_{61} (Prospectors) = β_{61} (Analyzers)

H3d (PCTNP):

β_{71} (Prospectors, Analyzers) > β_{71} (Defenders)

β_{71} (Prospectors) = β_{71} (Analyzers)

H3e (OVERALL):

β_{81} (Analyzers) > β_{81} (Prospectors, Defenders)

Hypotheses 4a - 4d

Hypotheses 4a-4d examined the relationships between four organizational antecedents: formalization (FORM), centralization (CENT), departmentalization (DEPT), and adaptiveness of organizational culture (ADAPT). Formalization is hypothesized to have no significant correlation with EMO(H4a). Both centralization (H4b) and departmentalization are expected to have a negative correlation with EMO (H4c). Adaptiveness of organizational culture (H4d) is expected to have positive correlation with EMO. Each hypothesis was tested by estimating the corresponding structural equation parameter (γ) in the EMO model given all the other free parameters (Figure 3):

H4a (FORM):
γ_{11} (FORM) = 0

H4b (CENT):
γ_{12} (CENT) < 0

H4c (DEPT):
γ_{13} (DEPT) < 0

H4d (ADAPT):
γ_{14} (ADAPT) > 0

Hypotheses 5a - 5f

Hypotheses 5a - 5f examined the antecedent roles of external factors -- six market characteristics. Each hypothesis was tested by estimating the corresponding parameter (γ) in the structural equation model given all the other free parameters in the model (Figure 3):

H5a (ENTRY):
γ_{15} (ENTRY) > 0

H5b (BPOWR):

γ_{16} (BPOWR) > 0

H5c (SPOWR):

γ_{17} (SPOWR) > 0

H5d (MGRO):

γ_{18} (MGRO) < 0

H5e (TECH):

γ_{19} (TECH) > 0

H5f (REGIMP):

$\gamma_{1\,10}$ (REGIMP) = 0

SUMMARY

The research methodology that was used to test the research hypotheses was discussed in this chapter. Research design, operationalization of constructs, instrument development and pretest, data collection method, and statistical data analysis techniques were described. In Chapter 4, the results of statistical hypotheses testing are provided.

CHAPTER 4

DATA ANALYSES AND RESULTS

In this chapter, analyses of the data and the results of hypotheses testing are reported. First, descriptions of the data are provided. Sample demographic information, response rate, descriptive statistics, non-response bias are discussed. Reliability and construct validity are also examined for each construct based on the final data. Finally, the results of statistical analyses and hypotheses testing follow the discussions of the scale validations.

FINAL SAMPLE DATA

Final Sample Data

A mailing -- including cover letter, stamped return envelope, and final questionnaire -- was sent to a random sample of 1,000 marketing executives (one executive per company; total 1,000 companies) of 3,000 manufacturing companies in the United States. After subtracting 300 marketing executives for the pretest from the original mailing list of 3,300, 3,000 names were left for a random sampling of 1,000 for the final analysis. A profile of the 1,000 companies in terms of sales volume and

employee size is given in Appendix II-3. The first mailing was followed by two follow-up mailings including a reminder letter, stamped return envelope and a copy of the questionnaire. Content of the cover letters for the final questionnaire was similar to that of the pretest cover letters provided in Appendix II-4.

Of the 1,000 listed respondents, the mailings to twenty eight respondents were undeliverable and returned. Twenty four respondents explicitly communicated that they could not cooperate in the study due to their company policies or lack of time. One response was unusable due to the severe item non-responses. Four individuals communicated that they were not marketing executives and had neither the knowledge nor the qualifications to answer the questions.

After three waves of questionnaire mailing, a total of 393 responses were returned out of the listed 1,000. Of those 393 respondents, twenty nine were not eligible because their business units' primary businesses were not manufacturing. The total usable responses was 364 (i.e., 393 - 29). Therefore, the effective response rate for the final data was 38.76 percent (i.e., 364/(1,000 - 28 - 4 - 29)).

Descriptive Statistics

The descriptive statistics for the final data are given in Appendix II-8. Mean, minimum and maximum values, standard deviation, kurtosis, and skewness for each item were examined for unusual irregularity.

Mean for several variables were found to be notably high, that is equal to or higher than 4.00 on the 5-point scale. Those were F1, F7, F31, F41, F49, F52. Several were very close to 4.00 (i.e., greater than 3.90). Those were F16, F45, F54. Means were also high for the seven-point scale items (F86 - F92), ranging from 4.71 to 5.31. Histograms for these economic performance items are given in Appendix II-9. Values for a few items (i.e., F74 and F82) were quite low (i.e., lower than 2.00).

Several variables had relatively small standard deviations, indicating the variability among the subjects was relatively small. Those were F42 (.78), F52 (.75), F53 (.72), F58 (.75), F76 (.78), F81 (.67), F82 (.65), F83 (.69), and F84 (.73). Of these items, five items (i.e., F76, F81, F82, F83, and F84) were considered to be part of Departmentalization scale.

The following variables were found highly kurtotic, with the kurtosis greater than 1.00 in *absolute* value: F1, F5, F7, F12, F16, F17, F31, F41, F42, F49, F52, F63, F74, F77, F81, F82, and F83.

Variables with relatively high skewness (i.e., the absolute value greater than 1.00) were: F1, F7, F16, F31, F41, F49, F74, F77, F81, and F86.

For variable F85 (Strategy Type), the frequency distribution is provided in Appendix II-8. It should be noted that only 18 out of a total of 364 respondents (or 4.9%) answered their business units' strategy type is the Reactor type. This is not surprising because this type is not a viable strategic alternative to organizations (Miles and Snow 1978), and few organizations deliberately pursue this inconsistent pattern of behavior as

an intended strategy. The value of having this type as a response alternative in the questionnaire was to screen those with no strategic behavioral pattern. If this choice were not given, one might choose any other strategic type for a compromise, which could bias the comparison between the three viable strategic types (Defenders, Analyzers, Prospectors).

Non-Response Bias

Assuming that all responses can eventually be obtained by a number of follow-up mailings, evidence of potential non-response bias could be found by analyzing whether or not any differences exist between responses by the number of mailings required. Following this logic, a MANOVA was applied to the seven economic performance variables (i.e., F86 - F92) by the number of mailings sent before receiving the response. The results are given in Appendix II-10. None of the multivariate tests of significance indicated differences in the performance variables. Univariate F-tests also showed no significant differences in the performance variables by the number of mailings required. Because no significant statistical differences in those seven variables were found, it was concluded that evidence of non-response bias was not present.

SCALE VALIDATION

Confirmatory factor analyses were conducted to examine whether or not unidimensionality for each scale is tenable. After establishing unidimensionality,

reliability of the scale was evaluated by assessing item-total correlation and Cronbach alpha.

EXTENDED MARKET ORIENTATION (EMO)

As a result of the peer reviews, in-depth exploratory interviews, and the review of literature, an initial set of items (68 items in total) for a pretest were developed to measure the extended construct of market orientation (EMO). Of these items, thirty-two of them are directly adopted from Jaworski and Kohli (1993) and Jaworski, Kohli, and Kumar (1993) (Appendix II-1). Others were either derivatives of Kohli and Jaworski's measures or newly developed items based on the literature review and exploratory interviews for this study.

Incorporating the pretest results, three factors (Intelligence Generation, Intelligence Dissemination, Responsiveness) were purported to measure the extended market orientation scale for this dissertation. These three components should load on the higher-order latent construct, the extended market orientation (EMO). Figure 8 depicts the factor structure of the EMO scale.

First, confirmatory factor analyses were conducted individually on the three measurement scales: Intelligence Generation (IG), Intelligence Dissemination (ID), Responsiveness (RESP). Second, appropriateness of the three-component model of the extended market orientation (EMO) was evaluated. A measurement model (Figure 8), where each component is allowed to correlate with others, was first validated. Then, a

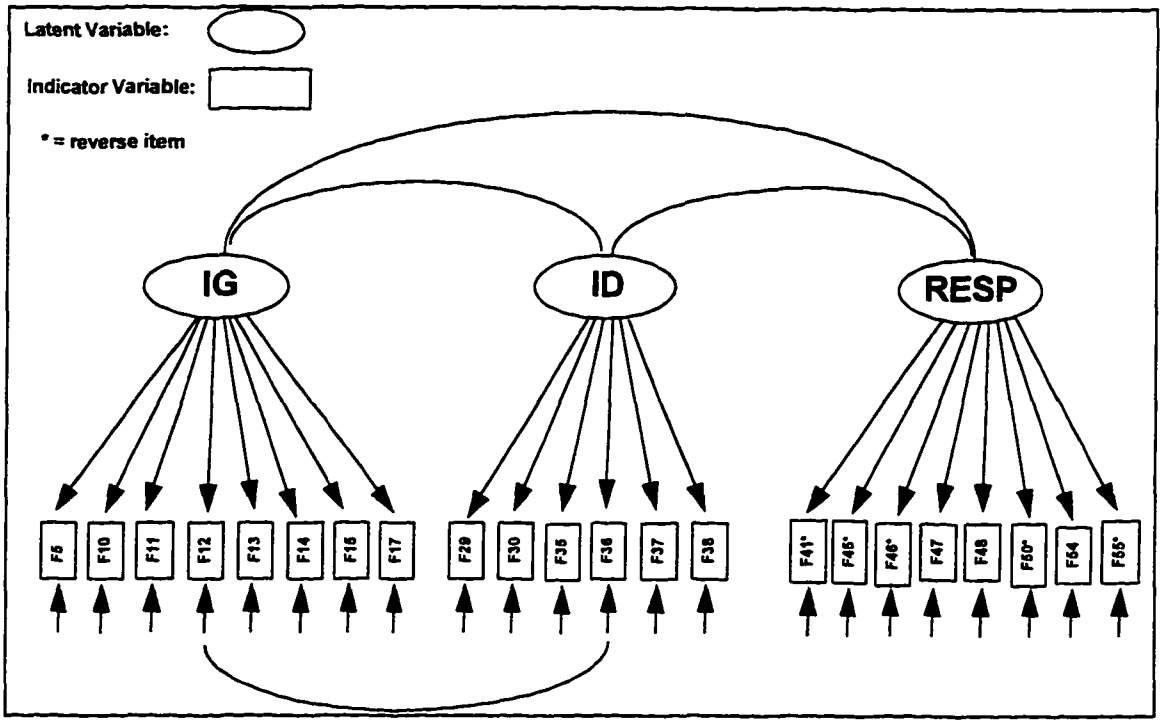

Figure 8 Final EMO Validated Scale Measurement Model

second-order factor model for the EMO scale (Figure 9) was validated. The following sections describe the process of EMO scale validation with the final data.

Intelligence Generation

A total of ten items (F5, F8, F10 - F17) were subjected to confirmatory factor analyses. The first iteration produced reasonable fit indices ($\chi^2 = 75.950$; df = 35; GFI = .955; AGFI = .930; CFI = .889). All the items were significantly loaded on this latent construct, with their t-statistics ranging from 4.311 to 10.316. A modification index

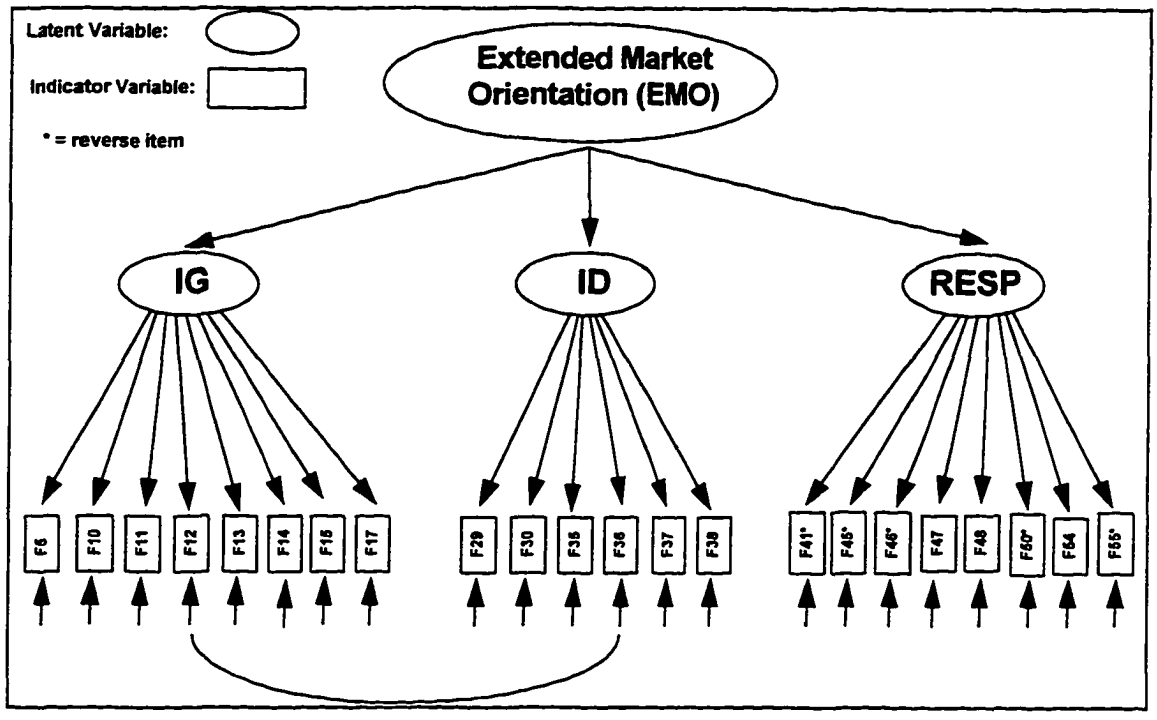

Figure 9 Final EMO Validated Second-order Scale

suggested to add an error covariance between F8 and F17. Both items refer to how competitor information is generated in the organization. However, the framing of the items are different. In item F8, it was asked whether the information is generated independently by several departments. In item F17, it was simply asked whether few or many are involved in generating the information. According to the theory of market orientation and the marketing concept, independent information generation can be problematic without coordination. This point is critical, but perhaps indiscernible to the respondents in the item F8. Thus, it was decided to remove F8 from the EMO scale.

With the remaining nine items, another iteration of confirmatory factor analysis was conducted. The iteration produced a good fit ($\chi^2 = 45.246$; df = 27; GFI = .972; AGFI = .953; CFI = .942), and it was concluded that the nine-item scale (F5, F10 - F17) was unidimensional.

Intelligence Dissemination

A total of eight items (F29 - F30, F32, F34 - F38) were subjected to a confirmatory factor analysis. The first iteration produced a good fit ($\chi^2 = 47.040$; df = 20; GFI = .968; AGFI = .942; CFI = .957). All the items were significantly loaded on this latent construct, with their t-statistics ranging from 7.154 to 13.628. No significantly high modification indices were produced. Therefore, it was concluded that the eight-item scale was unidimensional.

Responsiveness

A total of ten items (F39, F41 - F42, F45 - F 48, F50, F54 - F55) were subjected to a confirmatory factor analysis. The first iteration produced good fit statistics ($\chi^2 = 95.549$; df = 35; GFI = .947; AGFI = .917; CFI = .915). All the items were significantly loaded on this latent construct, with their t-statistics ranging from 3.935 to 14.749. Thus, it was concluded that the ten-item scale is unidimensional.

Three-component Measurement Model

Three dimensions as validated in the preceding steps were subjected to a three-component measurement model (Figure 9). A total of 27 items had been retained. These items included in the three dimensions were:

- Intelligence Generation : nine items (F5, F10 - F17),
- Intelligence Dissemination: eight items (F29 - F30, F32, F34 - F38), and
- Responsiveness: ten items (F39, F41 - F42, F45 - F 48, F50, F54 - F55).

The first iteration did not produce good fit statistics ($\chi^2 = 667.935$; df = 321; GFI = .871; AGFI = .848; CFI = .843). Specifically, the largest modification index (41.8) suggested to add a path from Responsiveness construct to item F34, an Intelligence Generation item. The item refers to the timely dissemination of competitor information to other departments in the organization. Certainly, the item content was intended to capture the activities *before* the organization executes the response based on the disseminated intelligence. However, it could be the case that the intended distinction was not distinguishable for the respondents. Thus, it was decided to remove item F34 from the Intelligence Dissemination construct.

With the remaining 26 items, another iteration of confirmatory factor analysis was conducted. The iteration produced marginal improvements in the fit statistics ($\chi^2 = 588.037$; df = 296; GFI = .883; AGFI = .862; CFI = .858). The largest modification index (32.7) suggested that an error covariance should be added between F39 and F41.

Item F39 refers to the responsiveness to the competitors' price changes, and F41 refers to the responsiveness to the changes in the customer's product and service needs. Content-wise, the responsiveness to the competitor's move (F39) is also captured by F47.

F39 (a Responsiveness item) was also involved in two other modification indices. One of them suggested to add a path from Intelligence Generation to F39 with a modification index at 11.0. Another, however, suggested to add a path from Intelligence Dissemination to F39 with a modification index at 9.6. Note that item F39 refers to the responsiveness to the competitors' price changes. To be responsive to such changes, an organization must "know" first, which involves generating information on the competition. Likewise, being responsive requires some form of implementation which involves deciding how to respond. In a typical organization, deciding what to do with a price change would not be a matter for a single person's decision. It might require discussion, persuasion, and even a co-decision. These can fall into an area of Intelligence Dissemination. Thus, it seemed that item F39 could have been an ambiguous or confusing item.

Taken altogether, it was decided to remove F39 from the EMO scale. With the remaining 25 items (nine items for Intelligence Generation, seven items for Intelligence Dissemination, and nine items for Responsiveness), another iteration was conducted. The remaining items were:

- Intelligence Generation : nine items (F5, F10 - F17),
- Intelligence Dissemination: seven items (F29 - F30, F32, F35 - F38), and

- Responsiveness: nine items (F41 - F42, F45 - F 48, F50, F54 - F55).

The iteration produced an improvement on fit statistics ($\chi^2 = 526.234$; df = 272; GFI = .891; AGFI = .869; CFI = .870). The largest modification index was 22.8 between item F12 and item F36. Both items refer to the regulatory environment. As argued in the pretest, these are theoretically important items for the extended model of market orientation, and the common content (the regulatory environment) explains the correlated error between the items. Like in the case of pretest, it was judged that such an error covariance is substantively justified and decided to add the error covariance between items F12 and F36.

Adding the error covariance improved the fit statistics a little ($\chi^2 = 502.703$; df = 271; GFI = .897; AGFI = .876; CFI = .882). The largest modification index was 15.5 between items F15 and F32. Although both F15 and F32 refer to the buyers, each was phrased quite clearly about Intelligence Generation and Intelligence Dissemination respectively. However, F32 refers to customer information, which was also captured by other items (F29, F30, and F35) in the same Dissemination dimension. Therefore, it was decided to remove item F32 from the EMO scale.

With the remaining 24 items, another iteration was applied. Again, the fit statistics were slightly improved ($\chi^2 = 455.260$; df = 248; GFI = .901; AGFI = .880; CFI = .888). The largest modification index was 11.3, suggesting to add a path from the Responsiveness construct to item F16, an Intelligence Generation item. The item's

content was intelligence generation regarding the end-users. The end-users as subject matters were also covered by F5, also an Intelligence Generation item. Because the content was adequately captured by item F5, it was decided to remove item F16.

With the remaining 23 items, an additional iteration was conducted. The fit was acceptable ($\chi^2 = 400.316$; df = 226; GFI = .908; AGFI = .888; CFI = .903). The largest modification index was 10.1, suggesting a path to be added from Intelligence Generation to item F42, a Responsiveness item. Item F42 refers to the customer's product needs, which were adequately covered by F41 in the same dimension. Because keeping item F42 would not contribute to uniquely capture the breadth of the construct, it was decided to remove the item.

With the remaining 22 items, another round of confirmatory factor analysis was conducted. The remaining items were:

- Intelligence Generation : eight items (F5, F10 - F15, F17),
- Intelligence Dissemination: six items (F29 - F30, F35 - F38), and
- Responsiveness: eight items (F41, F45 - F 48, F50, F54 - F55).

The fit was improved and acceptable ($\chi^2 = 362.623$; df = 205; GFI = .913; AGFI = .893; CFI = .906). With no significantly high modification indices suggested, it was judged that the measurement model of EMO scale has an acceptable level of fit. The LISREL estimates of this validated measurement model are provided in Table 5.

Second-order EMO Model

Given the validated measurement model of EMO, a second-order model (Figure 8) was examined by a confirmatory factor analysis. The fit statistics ($\chi^2 = 362.623$; df = 205; GFI = .913; AGFI = .893; CFI = .906) were the same as the measurement model's because the degrees of freedom and the Chi-square statistics were the same. Covariances between the higher-order construct (EMO) and the three dimensions were all significant at $\alpha = .05$ level. Thus, the second-order model of EMO was deemed validated. The LISREL estimates for this validated model are given in Table 6.

Reliability

With the final items in place, reliability analysis was conducted for each of the three dimensions and the entire EMO scale. The reliability coefficient, or Cronbach alpha, for Intelligence Generation (eight items) was .6704, which was not very high. The item-total correlations ranged from .2515 (F5) to .4747 (F11). The Cronbach alpha for Intelligence Dissemination (six items) was .7750, higher than Intelligence Generation. The item-total correlations ranged from .3659 (F30) to .5961 (F35). As for the Responsiveness dimension (eight items), the Cronbach alpha was .7372. For this dimension, the item-total correlations ranged from .2444 (F54) to .5993 (F50). For the overall EMO scale (22 items), the reliability coefficient was .8474.

Although the reliabilities for the individual dimensions were not very high, they were close to or higher than .70, the rule-of-thumb proposed by Nunnally (1978) for a

study in an early stage of basic research. For the overall EMO scale, .8474 was considered to be adequate. Taken altogether, the scale for EMO was judged to be acceptable for its unidimensionality and reliability for this dissertation.

KOHLI & JAWORSKI'S MARKET ORIENTATION SCALE (MO)

Intelligence Generation

A total of ten items (F1 - F10) were subjected to a confirmatory factor analysis. The first iteration did not produce good fit statistics (χ^2 = 1090.516; df = 35; GFI = .934; AGFI = .896; CFI = .766). Specifically, a large modification index (58.3) suggested to add an error covariance between items F4 and F9. Substantively, they refer to the distinct contents (customer information and industry shifts), but the phrasing of the items was similar. Perhaps the phrasing had some effect. Content-wise, however, item F4's "customer information" was adequately captured by other items. Thus, it was decided to remove item F4 from the scale.

With the remaining nine items, another iteration was conducted. It produced a reasonable fit (χ^2 = 362.623; df = 205; GFI = .970; AGFI = .949; CFI = .888). However, there were two modification indices: 1) F7 and F8 (13.1), and 2) F9 and F10 (11.7). Substantively, each of the items taps into a unique aspect of intelligence generation, and deleting any of these items could result in not capturing the breadth of the construct. Therefore, it was decided to keep these items for the Intelligence Generation dimension.

Thus, it was concluded that this dimension's unidimensionality was reasonable. The retained nine items for this dimension were: F1 - F3, F5 - F10.

Intelligence Dissemination

A total of eight items (F27 - F34) were used for the first round of confirmatory analysis. The fit was not very good ($\chi^2 = 90.814$; df = 20; GFI = .932; AGFI = .878; CFI = .863). The largest modification index was 38.8 between items F33 (information on the market developments) and F34 (information on the competition). Because the content of item F33 was covered by F28, it was decided to remove item F33.

Another item of concern in the first iteration was F27 for its lack of statistical significance at $\alpha = .05$ level. Its t-statistic was .728, well below the critical value of 1.96. Substantively, the item appears to capture some aspect of intelligence dissemination because informal talks within the business unit might facilitate the information exchanges and, thus, information dissemination. However, the lack of formality and, perhaps, the lack of the intent of intelligence dissemination in the item might have contributed to the weak relationship between F27 and the latent construct. Based on this reasoning, item 27 was also removed.

With the remaining six items (F28 - F32, and F34), another iteration of confirmatory factor analysis was conducted. The fit was good ($\chi^2 = 36.972$; df = 9; GFI = .964; AGFI = .917; CFI = .914). Thus, it was concluded that the intelligence dissemination dimension is unidimensional.

Responsiveness

For the responsiveness dimension, Kohli and Jaworski proposed two subdimensions, namely Response Design and Response Implementation (Kohli and Jaworski 1990; Jaworski and Kohli 1993). Therefore, Responsiveness was thought to constitute a higher-order factor on which two factors (Response Design and Response Implementation) load. Thus, this responsiveness scale validation should be a process of second-order confirmatory factor analysis. To this end, individual subdimensions were first analyzed. Next, these two subdimensions were subjected to a measurement model in which the two were allowed to correlate.

Response Design (RD)

A total of seven items (F39 - F45) were subjected to a confirmatory factor analysis. The first iteration did not turn out very good fit statistics ($\chi^2 = 67.992$; df = 14; GFI = .944; AGFI = .888; CFI = .858). The largest modification index was 38.9 between items F39 (competitor's price change) and F41 (changes in customers' product/service needs). The organization's response design to the customer needs was captured also by F42. Item F41 was also involved in two large negative standardized residuals with F42 (-2.743) and F44 (-2.828). Taken altogether, it was decided to remove item F41 from the Response Design dimension. With the remaining six items, another iteration was applied.

The fit was excellent (χ^2 = 19.761; df = 9; GFI = .982; AGFI = .957; CFI = .952). No significantly high modification indices were found from this iteration. Thus, the Response Design dimension was deemed unidimensional.

Response Implementation (RI)

A total of seven items (F47 - F53) were used for a confirmatory factor analysis. The first iteration produced reasonably good fit statistics (χ^2 = 80.217; df = 14; GFI = .938; AGFI = .876; CFI = .891). The largest modification index was 33.0 between items F52 and F53. Both items refer to the response implementation with regard to the customers, and the contents seemed to be overlapped. After examining other modification indices, however, it was found that item F52 was also involved with F48 with the index at 25.6. Because, this time, the substantive contents were similar and they could not be the criterion in choosing one item over the other, item F52 was selected to be removed based solely on the empirical criteria.

With the remaining six items, another iteration was applied. The fit was excellent (χ^2 = 27.171; df = 9; GFI = .973; AGFI = .938; CFI = .956), and it was concluded that this dimension was also unidimensional.

Measurement Model and Second-order Model (RD and RI)

The two factors were first allowed to correlate for the measurement model (Figure 10). Confirmatory factor analysis on this model produced a good fit (χ^2 = 133.614; df =

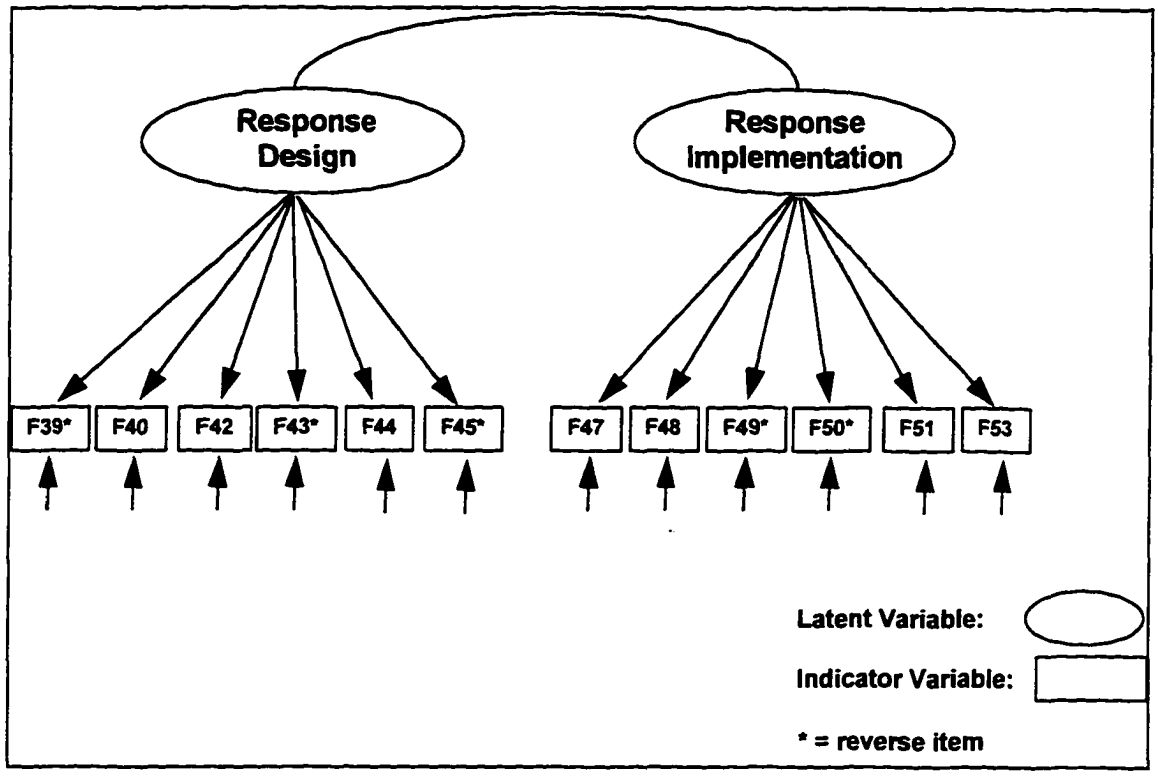

Figure 10 **Kohli and Jaworski Response Design and Response Implementation Measurement Model**

53; GFI = .938; AGFI = .909; CFI = .910). The LISREL estimates are given in Table 7. However, the correlation between the two dimensions (Response Design and Response Implementation) was extremely high at .914. Indeed this level of high correlation seemed to indicate a single-factor solution, rather than the proposed two-factor solution. To compare these two possible solutions, the chi-square statistics for the two nested models were compared. The single-factor solution was estimated by including all the remaining items under one factor, Responsiveness. The single-factor solution produced a good fit as

well (χ^2 = 140.235; df = 54; GFI = .935; AGFI = .906; CFI = .904). The difference in chi-square statistics between the two model was 6.621 (140.235 - 133.614) with the degrees of freedom of one (54 - 53). The critical value for the chi-square difference at one degree of freedom is 3.84. Thus, it was concluded that the two-factor solution was significantly better in terms of the model fit.

Responsiveness Second-order Factor Model

The two dimensions were subjected to a second-order confirmatory factor analysis (Figure 11). The iteration, however, indicated that this model was problematic. The LISREL model could not reliably estimate the error variance for the Response

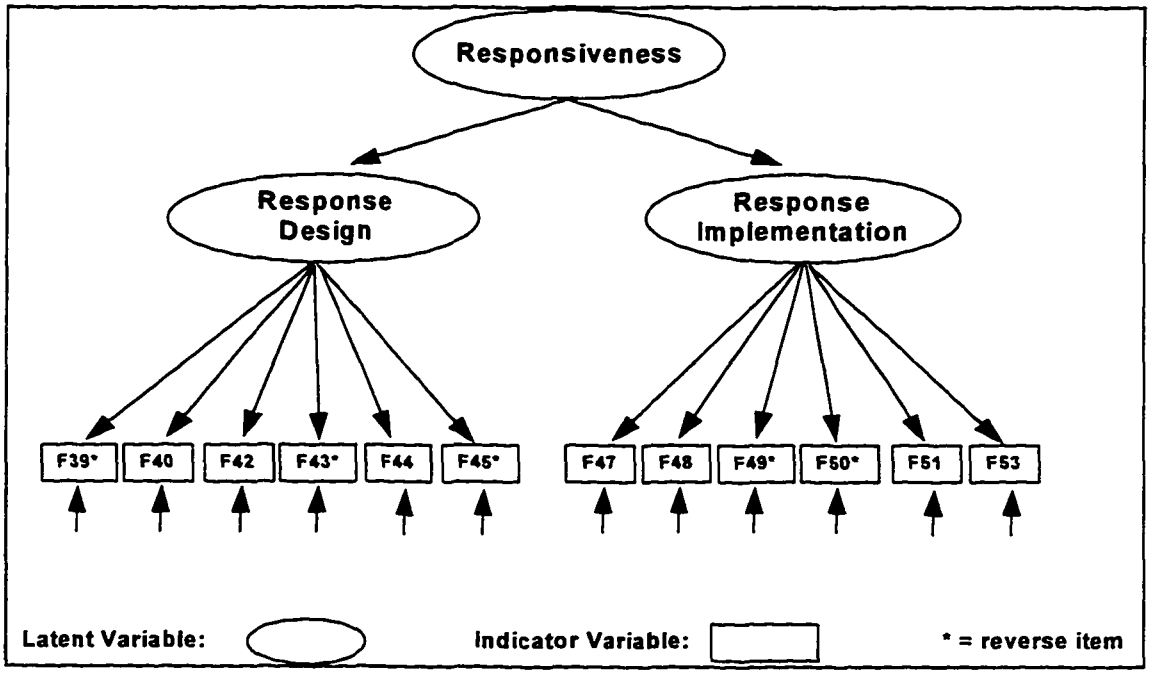

Figure 11 Kohli and Jaworski Responsiveness Second-order Model

Implementation factor, due to its high correlation with Response Design. Thus, statistical significance of the LISREL estimates could not be produced. The fit statistics were the same as the measurement model's (χ^2 = 140.235; df = 54; GFI = .935; AGFI = .906; CFI = .904).

Given the evidence of: 1) the questionable second-order factor structure, but 2) the highly correlated but distinct two dimensions, it was concluded that Responsiveness should be measured by two separate scales at the measurement level.

Two-factor IG/ID Validation

Before proceeding to the full four-factor market orientation (MO) model, two factors (Intelligence Generation and Intelligence Dissemination) were subjected to a confirmatory factor analysis for their dimensional distinctiveness.

A total of 15 items were used. These items were:

- Intelligence Generation(nine items): F1 - F3, F5 - F10, and
- Intelligence Dissemination (six items): F28 - F32, and F34.

The fit statistics for the first iteration were not very good (χ^2 = 173.498; df = 89; GFI = .938; AGFI = .917; CFI = .871). The largest modification index (18.4) suggested to add an error covariance between items F5 (polling end-users) and F32 (sharing customer data). Generating intelligence with regard to the end-users (F5) was not covered by any other items within the Intelligence Generation dimension, while sharing the customer

data (F32) was captured by F29 and F30 within the Intelligence Dissemination dimension. Thus, it was decided to remove item F32 for its content duplication with other items.

After removing item 32, another iteration was applied. The fit indices were good this time (χ^2 = 124.058; df = 76; GFI = .951; AGFI = .932; CFI = .910), and it was concluded that the two constructs were reasonably distinct.

Four-factor MO Measurement Model Validation

The next step was to validate whether the four dimensions (Intelligence Generation, Intelligence Dissemination, Response Design, and Response Implementation) are distinct. The four constructs were subjected to a measurement model confirmatory factor analysis, where each of the four were allowed to correlate with all the other constructs (Figure 12).

A total of 26 items were used. These items were:

- Intelligence Generation(nine items): F1 - F3, F5 - F10,
- Intelligence Dissemination (five items): F28 - F31, and F34,
- Response Design (six items): F39 - F40, F42 - F45, and
- Response Implementation (six items): F47 - F51, and F53.

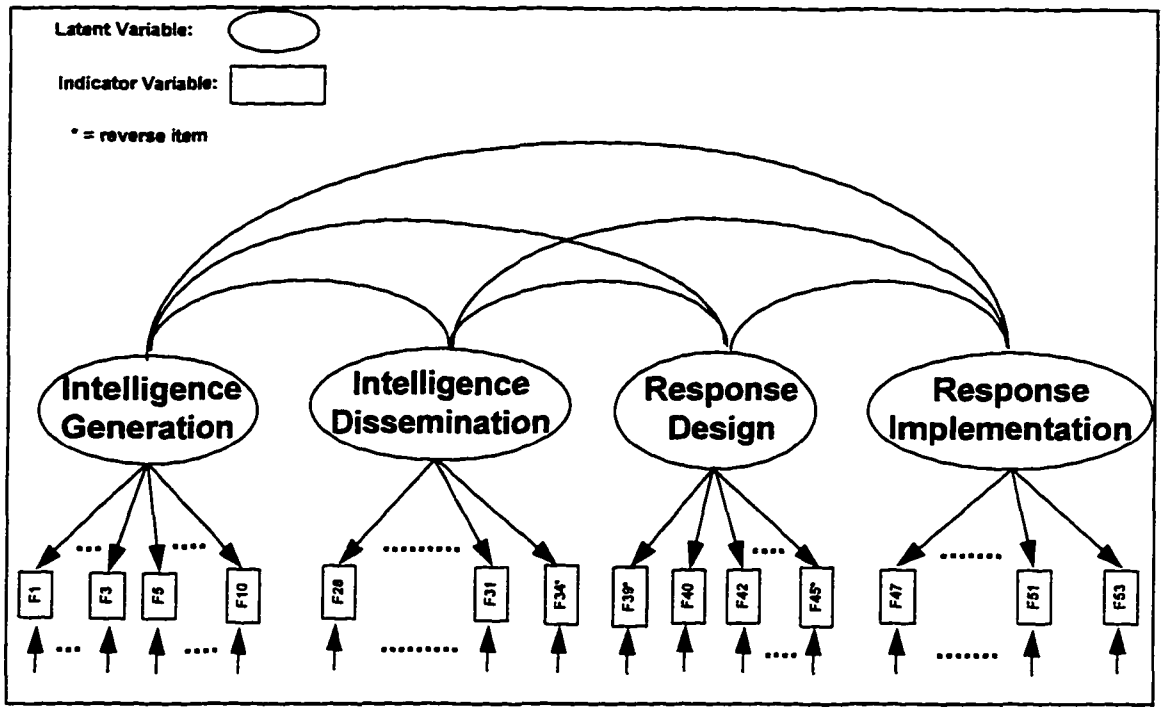

Figure 12 Four-factor MO Scale Measurement Model

The fit statistics for the first iteration were not considered acceptable (χ^2 = 579.559; df = 293; GFI = .874; AGFI = .849; CFI = .839). The largest modification index was 66.9, which suggested to add a path from Response Implementation to item F34. This item refers to the speed of interdepartmental communication with regard to the competitor information. Information regarding the competition is an important one. However, within the dimension to which F34 belongs, this is the only item that taps into the competition. Because of the substantive importance of the item for the scale, it was decided not to remove F34 in spite of the large modification index.

The second largest modification index was 24.8, which suggested to add an error covariance between F39 (a Response Design item) and F51 (a Response Implementation item). Both items refer to the competitors' price changes. A close examination of item F39, however, led the author to believe the item's intent could have been ambiguous. The item reads, "it takes us forever to *decide* how to respond to our competitors' price changes." There was no doubt that "deciding" is part of response, but it may not necessarily be part of the response *design.* Rather, it might well be part of the response implementation, because one usually finds out the price change (generating and disseminating the information), decides what to do to cope with it, and responds to it. In fact, all the other items in Response Design (F40, F42 - F45) refer to the organization's response orientation or principles, but F39 does not. Therefore, it was decided to remove F39 from the response design dimension for its content inconsistency with the other items.

With the remaining 25 items, a second iteration was conducted. The iteration produced a modest fit improvement ($\chi^2 = 515.235$; df = 269; GFI = .884; AGFI = .860; CFI = .855). This time, the largest modification index was 22.1, which suggested to add a path from Response Implementation to item F30, an Intelligence Dissemination item. Item F30 also produced two large negative standardized residuals with F45 (-3.287) and F50 (-2.800). Content-wise, item F30 refers to the customer information which was also captured by F31. Taken altogether, it was decided to remove item F30.

After removing F30, with 24 items remaining, another iteration of confirmatory factor analysis was applied. This iteration produced a marginal improvement in the fit statistics ($\chi^2 = 468.049$; df = 246; GFI = .891; AGFI = .868; CFI = .865). The largest modification index was 21.4 between items F28 (interdepartmental meetings regarding the market developments) and F44 (planning the responses to the changes in marketplace). However, each of the items refers to a unique aspect within the respective dimension not covered by any other items, and removing either of them would risk not capturing the important content of the construct. Thus, it was decided not to remove either of the items.

The second largest modification index for this iteration was 20.4 between items F47 and F51. Both items refer to the speed of response implementation with regard to the competitors' moves. Item F51 was also involved in producing a large negative standardized residual (-2.777) with item F28. Since both items refer to the speed of response to the competitive moves, item F51 was selected for removal. After removing item F51, 23 items were left for more iterations.

With the remaining 23 items, another iteration was conducted. The fit statistics were slightly improved ($\chi^2 = 413.754$; df = 224; GFI = .898; AGFI = .874; CFI = .878). After several iterations, the largest modification index became relatively small, which was 14.0 between items F7 and F8. This modification index suggested to add an error covariance between these two items. The same error covariance was suggested in the process of EMO scale validation with the pretest data (c.f., Chapter 3). The same

rationale for removing F8 applied. That was, *independently* generating competitive intelligence by several departments might not necessarily be consistent with the marketing concept and market orientation, because the theories of the marketing concept and market orientation require the organization to engage in *coordinated* activities. Therefore, item F8 was removed.

With the remaining 22 items, another iteration was applied The fit was reasonable ($\chi^2 = 361.338$; df = 203; GFI = .906; AGFI = .883; CFI = .895). A modification index (14.9) suggested to add a path from Response Implementation to F45. Item F45 refers to whether the organization's product line decision is driven by market needs. This was consistently addressed by other items (F40, F42 - F44) in the same dimension, and an incremental value of keeping item F45 appeared to be small. Thus, it was concluded to remove item F45.

After the removal of F45, there were 21 items left. These were:

- Intelligence Generation(eight items): F1 - F3, F5 - F7, F9 - F10,
- Intelligence Dissemination (four items): F28 - F29, F31, and F34,
- Response Design (four items): F40, F42 - F44, and
- Response Implementation (five items): F47 - F50, and F53.

The confirmatory factor analysis for these twenty one items produced acceptable fit statistics ($\chi^2 = 318.130$; df = 183; GFI = .917; AGFI = .895; CFI = .900). All the λs (i.e., factor loadings of the indicator variables to the respective latent construct) were

significant at $\alpha = .05$ level. No significantly high modification indices were observed. Therefore, it was concluded that this four-factor measurement model of MO by Kohli and Jaworski was a reasonable one. The LISREL estimates, standard errors, and t-statistics for this model are provided in Table 8.

Four-factor MO Second-order Model Validation

Following the measurement model validation, the appropriateness of the second-order factor structure for the MO scale was assessed. The model is depicted in Figure 13. A confirmatory factor analysis was conducted. The fit was acceptable ($\chi^2 = 319.963$; df = 185; GFI = .916; AGFI = .895; CFI = .901). The fit statistics were slightly different than those for the measurement model because of the difference of two degrees of freedom between the two models. Each path from the higher-order construct (MO) to the individual four dimensions were significant (i.e., t-statistics was equal to or greater than 1.96). Therefore, it was concluded that this four-component second-order factor structure was reasonable. The LISREL estimates, standard errors, and t-statistics for this second-order model are provided in Table 9.

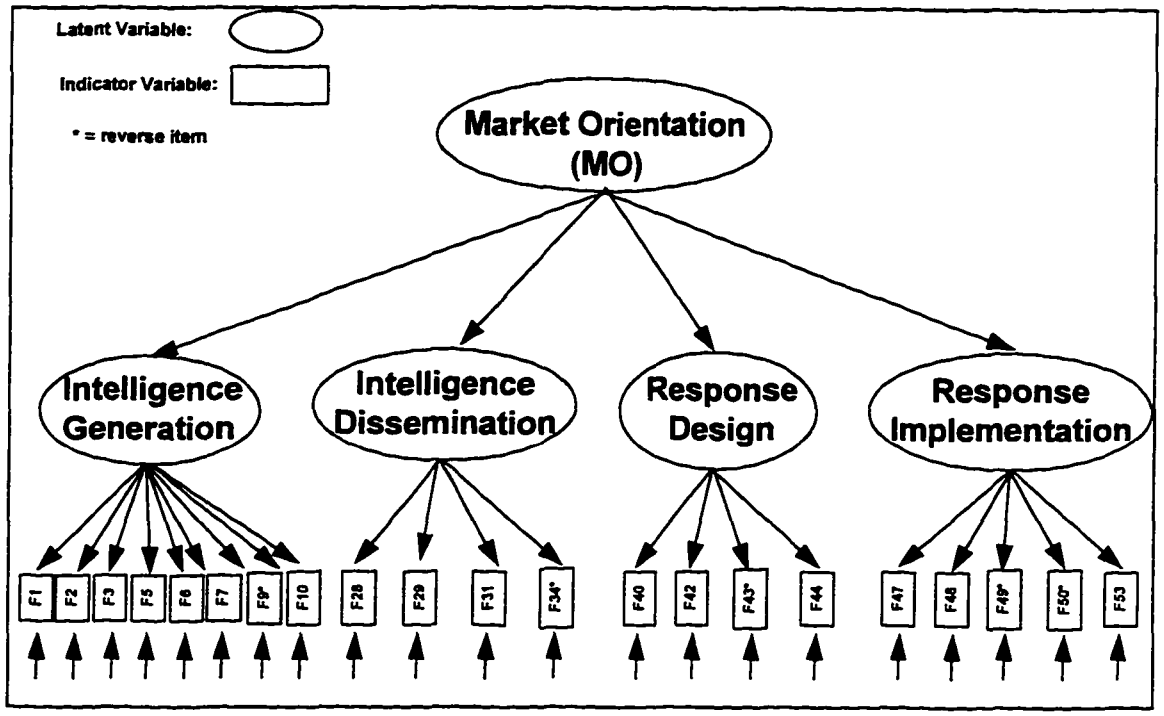

Figure 13 Four-factor Kohli and Jaworski MO Scale Second-order Model

Reliability Analysis for MO Scale

The reliability of the MO scale was evaluated by examining the reliability coefficients (i.e., Cronbach alphas) and item-total correlations.

For Intelligence Generation (8 items), Cronbach alpha was very low at .5884. The item-total correlations ranged from .1754 (F7) to .3693 (F10).

For Intelligence Dissemination (4 items), Cronbach alpha was low (.6368). The item-total correlations ranged from .3504 (F34) to .4603 (F28).

Cronbach alpha for Response Design (4 items) was also very low (.4780), with the item-total correlations ranged from .1332 (F43) to .3627 (F44).

Response Implementation (5 items) fared relatively well. Its Cronbach alpha was .7364. The item-total correlations ranged from .3870 (F47) to .6099 (F48).

For the overall MO scale, the coefficient alpha was .8258, which was good. In conclusion, while overall reliability was good, individual dimensions were not reliable. It was reasonable to think that the good overall reliability of the MO scale (.8258) was primarily a product of the sheer number of items. The reliability coefficients are also given in Table 9.

FORMALIZATION

A total of seven items (F64 - F70) were subjected to a confirmatory factor analysis. The first iteration with the seven items resulted in a poor fit ($\chi^2 = 437.756$; df = 14; GFI = .746; AGFI = .493; CFI = .572). In fact, several very large modification indices were found to be related to item F70. The largest one was with F69 (197.0). Others were with F64 (25.1), F68 (24.0), and F67 (23.2). Looking at the content of F70, it was very broad and covers the overarching theme of the other items, that is the degree of employee supervision on the compliance to the rules. In other words, F70 was very likely a "catch-all" item. Because the other items seemed to have captured the breadth of the construct, it was considered that item F70 was adding little value. Thus, it was decided to remove item F70.

With the remaining six items (F64 - F69), another iteration was conducted. Improvement in the fit statistics was notable (χ^2 = 133.396; df = 9; GFI = .868; AGFI = .692; CFI = .813). However, like in the case of the last iteration, several very large modification indices were found to be related to item F68. The largest one was with F67 (109.9). Others were with F65 (23.9), F64 (14.3), and F66 (8.8). Looking at the content of F68, like F70's, it was very broad. It captured the overarching theme of the construct but in a different way than F70's, that was the extent of freedom for the employees to make their own rules. It was considered that item F68 was another "catch-all" item. Following the same rationale, it was decided to remove item F68.

With the remaining five items (F64 - F67, F69), another iteration of confirmatory factor analysis was conducted. The fit was excellent (χ^2 = 37.897; df = 5; GFI = .953; AGFI = .859; CFI = .924). All the items loaded significantly onto the latent construct at α = .05 level, and the construct was considered unidimensional The reliability coefficient for this five-item scale was .7480, which was acceptable but not very high. The item-total correlations ranged from .3232 (F69) to .6626 (F66). In sum, however, the scale was adequate and acceptable. The LISREL estimates, standard errors, and t-statistics for this scale (FORM) are provided in Table 10.

CENTRALIZATION

A total of five items (F71 - F74, F77) were used for a confirmatory factor analysis. The first iteration produced good fit statistics (χ^2 = 68.267; df = 5 GFI = .924;

AGFI = .773; CFI = .938). The scale's unidimensionality was considered reasonable. Cronbach alpha for this five-item scale was very high (.8920). The item-total correlations were also high and ranged from .6680 (F72) to .7930 (F73). It was concluded that the scale was adequate and quite reliable. The LISREL estimates, standard errors, and t-statistics for this scale (CENT) are provided in Table 11.

DEPARTMENTALIZATION

Nine items (F75 - F76, F78 - F84) were subjected to confirmatory factor analyses. The first iteration produced reasonable, but not excellent fit statistics (χ^2 = 196.626; df = 27 GFI = .857; AGFI = .761; CFI = .878). In fact, one item (F83) was found to be involved in several large modification indices with other items. These items were F82 (65.2), F78 (20.5), F81 (16.5), F76 (16.3), and F75 (13.8). Substantively speaking, F83 refers to the amount of opportunities for the organizational members to engage in informal talks across different departments. The item content seemed to be vaguely covering the broad construct that multiple items were intended to capture here. Because the content was considered to be captured by other items, it was concluded to remove item F83.

With the remaining eight items, another iteration of confirmatory factor analysis was applied. The fit was excellent (χ^2 = 95.420; df = 20; GFI = .928; AGFI = .871; CFI = .931). Thus, the eight-item scale (F75 - F82, F84) was considered unidimensional. The reliability was also adequate. Cronbach alpha for this scale was .8617. The item-total

correlations ranged from .3610 (F81) to .7397 (F75). In conclusion, the scale was considered adequate and reliable. The LISREL estimates, standard errors, and t-statistics for this scale (DEPT) are provided in Table 12.

ADAPTIVENESS OF ORGANIZATION CULTURE

A total of eight items (F56 - F63) were subjected to a confirmatory factor analysis. The fit was excellent ($\chi^2 = 53.927$; df = 20; GFI = .958; AGFI = .924; CFI = .964). All the measurement items were significantly loaded onto the latent construct. The construct was considered unidimensional. The reliability was also good. The Cronbach alpha was .8508. The item-total correlations ranges from .4475 (F59) to .7370 (F62). The LISREL estimates, standard errors, and t-statistics for this scale (ADAPT) are provided in Table 13.

IMPACT OF GOVERNMENT REGULATIONS

A total of four items (F18 - F21) were used for the scale validation. A confirmatory factor analysis on these items produced an excellent fit ($\chi^2 = 15.145$; df = 2; GFI = .978; AGFI = .891; CFI = .982). Thus, the assumption of unidimensionality was deemed appropriate. Cronbach alpha for this four-item scale was adequate (.8786). The item-total-correlations ranged from .6676 (F21) to .8096 (F19). Taken altogether, the scale was considered unidimensional and quite reliable. The LISREL estimates, standard errors, and t-statistics for this scale (REGIMP) are provided in Table 14.

OTHER MEASURES

It was not possible to validate several other measures by using the confirmatory factor analysis technique and ordinary reliability analysis. Those measures were either single-items or self-classification (i.e., categorical) items. The single-item measures included in the final questionnaire were:

- Entry Barrier (F22),
- Buyer's Bargaining Power (F23),
- Supplier's Bargaining Power (F24),
- Market Growth (F25),
- Technological Change (F26), and
- Economic Performance Measures (F86 - F92).

There was one categorical variable that classified the organization's strategy type (F85, Type 1 - Type 4).

HYPOTHESES TESTS

Structural Equation Model

Structural equation modeling technique was extensively used to test the hypotheses. This modeling procedure was particularly appropriate for answering the research questions and testing the hypotheses in this dissertation as argued in Chapter 3.

Figure 14 is the structural equation model that was used for many of the hypotheses tests, incorporating the validated scales and measurement items. For the purpose of this full structural equation model, however, the second-order construct of EMO was *hierarchically aggregated* to the first-order construct (i.e., the measurement items were aggregated within the respective dimension). Therefore, the EMO scale is depicted as a three-indicator first-order construct (i.e., Intelligence Generation, Intelligence Dissemination, and Responsiveness) in this structural model, instead of the 22-item scale as validated in the preceding scale validation process.

The literature discusses some of the advantages and disadvantages of aggregation techniques in the structural equation modeling. The first is the total disaggregation technique. The traditional structural equations approach (i.e., *total disaggregation*) uses each item as a separate measurement indicator of the respective construct, allowing the researcher the most detailed analysis. However, "in practice it can be unwieldy because of likely high level of random error in typical items and the many parameters that must be estimated" (Bagozzi and Heatherton 1994). On the other hand, the *total aggregation*, which aggregates all the items into one, single-item indicator, is the other extreme that gives little advantage over the traditional multivariate statistical analyses. A compromise between the two is the *partial disaggregation* technique. It allows the researcher to retain meaningful theoretical dimensions, all the advantages of structural equation modeling, including accounting for measurement error variance, and utilizing multiple-item, multi-dimensional variables (Dabholkar, Thorpe, and Rentz 1996).

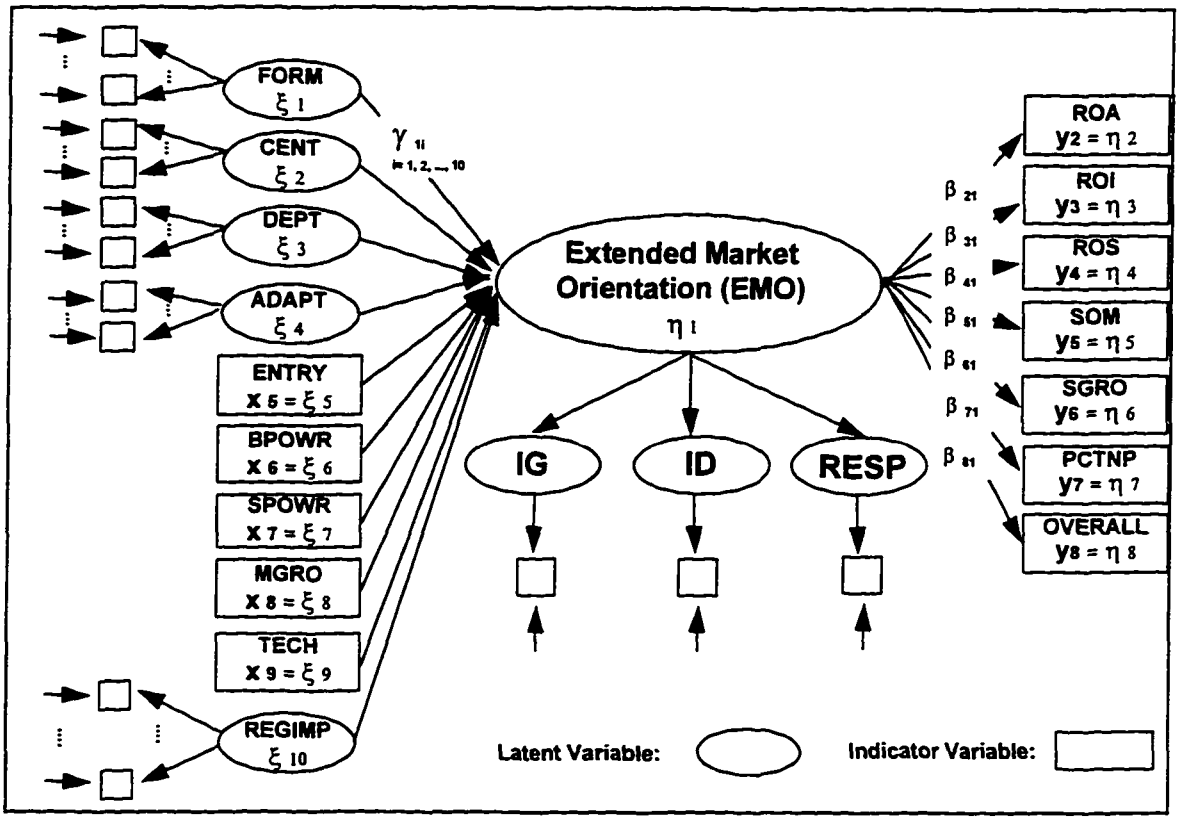

Figure 14 EMO Structural Equation Model

The logic for the EMO's hierarchical aggregation was similar to that of the partial disaggregation technique. Given this large, full-scale structural equation model, fitting the EMO scale with the sheer number of items (22 items) with the second-order factor structure was found prohibitingly complex, intractable, and non-convergent. Even with the partial disaggregation technique, with six and nine aggregated-indicator EMO scales, the full structural model fitting was found problematic (e.g., non-convergent estimates, negative error variances, non-positive definite phi and/or psi matrices). Furthermore,

there was an identification problem in estimating the paths from EMO to the first-order factors. Hayduk (1987) recommends a three-step process to remedy a model identification problem: 1) fix the measurement error variances of constructs if possible, 2) fix any structural coefficients that are reliably known, and 3) eliminate troublesome variables. For the first step, all the measurement errors that can be fixed were already done so. The only measurement errors that can be fixed at some value in the model were those of single-item measures (i.e., zero measurement error). It is the second step that was relevant in the situation at hand. Because the EMO construct was already validated with the three distinct dimensions, it was theoretically and methodologically appropriate that the items in the respective dimension could be aggregated to form one indicator (i.e., three indicators in total). In other words, the three indicators can be then treated as the indicators of the EMO, leading to fix one λ coefficient at one (1.00).

Thus, because the EMO scale was already validated in terms of the factor structure and item loadings, the hierarchical aggregation (i.e., three aggregated indicators; one for each of the three dimensions) was applied as an appropriate technique for testing the hypotheses in this dissertation.

With the hierarchically aggregated EMO scale, the full structural model (Figure 14) was estimated. The model fit was not good (χ^2 = 1,873.369; df = 879; GFI = .796; AGFI = .760; CFI = .873), but reasonable given the great number of parameters to be estimated in the complex model. The LISREL estimates, standard errors, and t-statistics for this model are provided in Table 15.

Hypothesis 1

Hypothesis 1 asked whether the extended market orientation scale (EMO) is better capable of explaining the relationship between market orientation and performance than the original market orientation scale (MO) proposed by Kohli and Jaworski (1990), Jaworski and Kohli (1993), and Kohli, Jaworski, and Kumar (1993).

Performance was measured by seven single-item scales (market share, relative sales growth rate, percentage of new product sales, ROA, ROI, ROS, and overall). The performance measures are referred to as SOM, SGRO, PCTNP, ROA, ROI, ROS, and OVERALL respectively (Appendix II-1).

For each of the seven measures (dependent variables), EMO and MO (independent variables) were structurally equated. Thus, one model equates EMO and the performance measures (EMO model), while the other equates MO and the performance variables (MO model). Each structural parameter was estimated by using LISREL and the overall fit for each model was estimated by chi-square goodness-of-fit statistics. It was hypothesized that the EMO model would produce a better fit as measured by the chi-square statistic (i.e., lower chi-square statistic adjusted by the degree of freedom) than the MO model.

Methodologically, however, comparing the chi-square statistics of two different models are possible *only if* the models were nested (i.e., the measurement items are exactly the same, but the two models are different in the way the items and the constructs are related). Because the EMO and the MO scales were not nested models, direct

comparison of the chi-square statistics was not appropriate for this hypothesis. The comparison needed to rely on the fit indices, especially those adjusted by the degrees of freedom and parsimony of the models.

The two models (EMO model and MO model) were separately estimated by LISREL. For these two models, the total disaggregation technique was used (i.e., all the items were used.) The fit statistics for both models are provided in Table 16, and LISREL estimates, standard errors, and t-statistics for this model are provided in Table 17.

In general, it was found that the two scales were comparable in terms of the fit indices. On GFI, NFI, and CFI, the MO scale's (.892, .841, and .921) were slightly better than those of EMO scale (.883, .838, and .917). Adjusted by the degrees of freedom, the MO scale model (.867) was still slightly better than the EMO scale model (.857) on AGFI. However, taking into account the parsimony of the scales (parsimony goodness of fit index or PGFI and parsimony normed fit index or PNFI), the EMO model was equal to (.725) or better (.737) than that of the MO model (.734). Thus, it was difficult to conclude which model explains the relationships better based on these descriptive fit indices.

This comparability of the two scales led the author to further investigate the relative influence with statistical significance of the two constructs on each performance indicator. The general model is provided in Figure 15. In this model, two constructs lead to economic performance (PERF), that has a single indicator from F86 to F92. The EMO

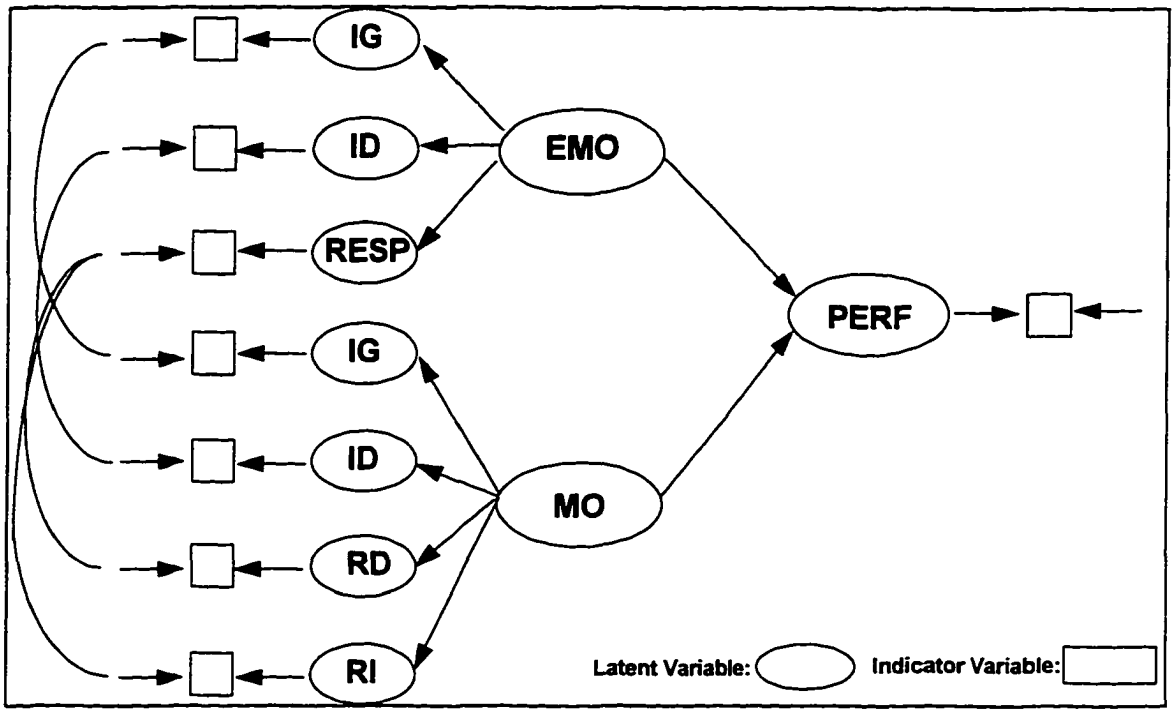

Figure 15 EMO - MO Comparative Model

construct has three indicators, representing the three dimensions. The MO construct has four indicators, representing the four dimensions. Some of these indicators' errors were allowed to correlate, namely EMO's Intelligence Generation and MO's, EMO's Intelligence Dissemination and MO's, EMO's Responsiveness and MO's Response Design and Response Implementation. These error correlations were reasonable because some of the items within the dimensions (before the hierarchical aggregations) were common between EMO and MO.

First, the model was estimated by setting the paths from EMO and MO to PERF equal (i.e., equality constraint). Second, the model was estimated again by freeing the two paths (i.e., letting the model estimate the paths separately with no equality constraint). If the improvement of the chi-square statistics from the first model to the second was significant, it can be concluded that the two scales (EMO and MO) have differential influences on the performance.

The model (Figure 15) was run for each performance indicator (F86 - F92). The chi-square statistics for the model are given in Table 18. Using the critical value of chi-square statistics at one degree of freedom and $\alpha = .05$ level (i.e., 3.84), no difference was found between the two scales in terms of the path weights in any of the performance indicators.

Combined altogether, Hypotheses 1 was rejected. The EMO scale was not found to explain the relationship between market orientation and economic performance significantly better than the MO scale. They were found to be statistically comparable.

Hypotheses 2a - 2e

Hypotheses 2a-2e examined the relationships between EMO and the seven performance measures. EMO and each performance measure were hypothesized as positively correlated. All the hypothesized relationships were tested by estimating the structural equation parameters (βs) between EMO and each of the performance measures

(ROA, ROI, ROS, SOM, SGRO, PCTNP, and OVERALL). For the LISREL estimates, refer to the Table 15.

First, the relationship between EMO and ROA (H2a) was examined. The LISREL estimate of β between EMO and ROA (.252) was significant at $\alpha = .05$ level. Thus, H2a (1) was supported.

As for ROI and ROS, the model also supported H2a (2) and (3). The LISREL estimate for the βs were significant and .269 and .240 respectively.

For the market share growth, the β between EMO and SOM was .234 and significant. Thus, H2b was also supported.

For the sales growth, the β estimate (.230) was also significant, and it supported H2c.

For the relationship between EMO and the percentage of the new product sales in the total sales (H2d), the β was .240 and significant. Thus, H2d was also supported.

Finally, H2e was tested for the relationship between EMO and the overall performance of the organization. Again, the β (.244) was significant, and it supported H2e.

In conclusion, the empirical data provided the support for all the hypotheses, that is EMO was significantly related to the economic performance measures.

Hypotheses 3a - 3e

Hypotheses 3a-3e examined a moderating role of Miles and Snow's strategy type (STRAT) on the relationships between the extended market orientation (EMO) and the seven economic performance measures (SOM, SGRO, PCTNP, ROA, ROI, ROS, and OVERALL). To test the existence of a moderating effect by strategy type, multiple-group structural equation analyses were conducted to examine whether the parameter estimate (β) between each performance measure and the extended market orientation (EMO) differs across the three viable strategic types (See Joreskog and Sorbom 1993, pp. 51 - 84 and Bollen 1989, pp. 355 - 369 for detailed, technical treatment of the multiple-group structural equation modeling.)

The mechanics of this procedure was basically as follows. First, the sample was divided into three groups (Type 1 through Type 3) according to the response to item F85. For each subsample, a covariance matrix was calculated. For each of the three subsamples, parameters were estimated by LISREL. Of particular interest was β between each performance measure and the EMO. The pair-wise comparison of the βs of the three types for each performance measure was conducted. More specifically, the pair-wise comparison was based on the chi-square difference between the two models, where one model constrained the two βs to be equal, and the other let the two βs be free to covary. The difference of the two models' statistical significance was used as a test for the equal βs. The results are given in a summary form (Table 19), providing the chi-square statistics for every pair of strategy types for each performance indicator.

Hypothesis H3a predicted that, for the three performance measures (ROA, ROI, and ROS), the β parameters of Defenders and Analyzers would be greater than that of Prospectors. Further, it was hypothesized that the β parameters of Defenders and Analyzers would be equal. The formal hypothesis was:

H3a (ROA, ROI, ROS):
β_{jl} (Defenders, Analyzers) > β_{jl} (Prospectors)
β_{jl} (Defenders) = β_{jl} (Analyzers)

(j = 2, 3, 4)

ROA

For ROA, the first pair-wise comparison was between Defenders (Type 1) and Prospectors (Type2). The chi-square was 422.610 (df = 15) for the equal-β model, and was 317.244 (df = 14) for the free-β model (i.e., βs were allowed to be free to covary). The chi-square difference was 105.366 (df = 1). The critical value of chi-square statistical difference with one degree of freedom at α = .05 level is 3.84. Thus, the chi-square statistic was not improved but worsened by constraining the two parameters to be equal. The β estimates for the free-β model were 1.074 for Defenders and .168 for Prospectors.

The second pair-wise comparison was between Prospectors (Type 2) and Analyzers (Type 3). The chi-square was 614.464 (df = 15) for the equal-β model, and was 472.391 (df = 14) for the free-β model (i.e., βs were allowed to be free to covary). The chi-square difference was 142.073 (df = 1). Thus, the chi-square statistic was not

improved by constraining the two parameters to be equal. The β estimates for the free-β model were 1.492 for Prospectors and .044 (not significant at α = .05 level) for Analyzers.

The third pair-wise comparison was between Defenders (Type 1) and Analyzers (Type 3). The chi-square was 411.681 (df = 15) for the equal-β model, and was 290.501 (df = 14) for the free-β model (i.e., βs were allowed to be free to covary). The chi-square difference was 121.180 (df = 1). Thus, the chi-square statistic was not improved by constraining the two parameters to be equal. The β estimates for the free-β model were 1.327 for Defenders and .052 (not significant at α = .05 level) for Analyzers.

Taken altogether, it was Defenders, Prospectors, and Analyzers in the order of magnitude of the β. Therefore, *with regard to ROA*, H3a was partially supported. Although Defenders' β was the greatest (partial support for H3a-ROA), Prospectors' β was, in fact, greater than that of Analyzers (partial rejection of H3a-ROA).

ROI

For ROI, the first pair-wise comparison was between Defenders (Type 1) and Prospectors (Type2). The chi-square was 423.871 (df = 15) for the equal-β model, and was 310.571 (df = 14) for the free-β model. The chi-square difference was 113.300 (df = 1). The critical value of chi-square statistical difference with one degree of freedom at α = .05 level is 3.84. Thus, the chi-square statistic was not improved but worsened by

constraining the two parameters to be equal. The β estimates for the free-β model were 1.158 for Defenders and .170 for Prospectors.

The second pair-wise comparison was between Prospectors (Type 2) and Analyzers (Type 3). The chi-square was 640.181 (df = 15) for the equal-β model, and was 490.873 (df = 14) for the free-β model. The chi-square difference was 149.308 (df = 1). Thus, the chi-square statistic was not improved by constraining the two parameters to be equal. The β estimates for the free-β model were 1.532 for Prospectors and .051 (not significant at α = .05 level) for Analyzers.

The third pair-wise comparison was between Defenders (Type 1) and Analyzers (Type 3). The chi-square was 408.891 (df = 15) for the equal-β model, and was 286.095 (df = 14) for the free-β model. The chi-square difference was 122.796 (df = 1). Thus, the chi-square statistic was not improved by constraining the two parameters to be equal. The β estimates for the free-β model were 1.388 for Defenders and .065 (not significant at α = .05 level) for Analyzers.

Taken altogether, it was Defenders, Prospectors, and Analyzers in the order of magnitude of the β. Therefore, *with regard to ROI*, H3a was partially supported. Although Defenders' β was the greatest (partial support for H3a-ROI), Prospectors' β was, in fact, greater than that of Analyzers (partial rejection of H3a-ROI).

ROS

The first pair-wise comparison was between Defenders (Type 1) and Prospectors (Type2). The chi-square was 395.876 (df = 15) for the equal-β model, and was 300.019 (df = 14) for the free-β model. The chi-square difference was 95.857 (df = 1). The critical value of chi-square statistical difference with one degree of freedom at $\alpha = .05$ level is 3.84. Thus, the chi-square statistic was not improved but worsened by constraining the two parameters to be equal. The β estimates for the free-β model were .923 for Defenders and .128 for Prospectors.

The second pair-wise comparison was between Prospectors (Type 2) and Analyzers (Type 3). The chi-square was 596.335 (df = 15) for the equal-β model, and was 457.078 (df = 14) for the free-β model. The chi-square difference was 139.257 (df = 1). Thus, the chi-square statistic was not improved by constraining the two parameters to be equal. The β estimates for the free-β model were 1.588 for Prospectors and .024 (not significant at $\alpha = .05$ level) for Analyzers.

The third pair-wise comparison was between Defenders (Type 1) and Analyzers (Type 3). The chi-square was 399.274 (df = 15) for the equal-β model, and was 279.665 (df = 14) for the free-β model. The chi-square difference was 119.609 (df = 1). Thus, the chi-square statistic was not improved by constraining the two parameters to be equal. The β estimates for the free-β model were 1.262 for Defenders and .026 (not significant at $\alpha = .05$ level) for Analyzers.

Taken altogether, it was Defenders, Prospectors, and Analyzers in the order of magnitude of the β. Therefore, *with regard to ROS*, H3a was partially supported. Although Defenders' β was the greatest (partial support for H3a-ROS), Prospectors' β was, in fact, greater than that of Analyzers (partial rejection of H3a-ROS).

SOM

Hypothesis H3b predicted that, for the market share growth measure (SOM), the β parameters of Defenders and Analyzers would be greater than that of Prospectors. Further, it was hypothesized that the β parameters of Defenders and Analyzers would be equal. The formal hypothesis was:

H3b (SOM):

β_{51} (Defenders, Analyzers) > β_{51} (Prospectors)

β_{51} (Defenders) = β_{51} (Analyzers)

The first pair-wise comparison was between Defenders (Type 1) and Prospectors (Type2). The chi-square was 409.153 (df = 15) for the equal-β model, and was 354.999 (df = 14) for the free-β model. The chi-square difference was 54.154 (df = 1). The critical value of chi-square statistical difference with one degree of freedom at $\alpha = .05$ level is 3.84. Thus, the chi-square statistic was not improved but worsened by constraining the two parameters to be equal. The β estimates for the free-β model were -1.581 for Defenders and .129 for Prospectors. Defenders' β was not only smaller but negative.

The second pair-wise comparison was between Prospectors (Type 2) and Analyzers (Type 3). The chi-square was 640.101 (df = 15) for the equal-β model, and was 482.367 (df = 14) for the free-β model. The chi-square difference was 157.734 (df = 1). Thus, the chi-square statistic was not improved by constraining the two parameters to be equal. The β estimates for the free-β model were 2.084 for Prospectors and .069 (not significant at α = .05 level) for Analyzers.

The third pair-wise comparison was between Defenders (Type 1) and Analyzers (Type 3). The chi-square was 426.398 (df = 15) for the equal-β model, and was 354.999 (df = 14) for the free-β model. The chi-square difference was 295.931 (df = 1). Thus, the chi-square statistic was not improved by constraining the two parameters to be equal. The β estimates for the free-β model were 1.674 for Defenders and .068 (not significant at α = .05 level) for Analyzers.

Taken altogether, it was Prospectors, Defenders, and Analyzers, in the order of magnitude of the β. Therefore, H3b was completely rejected. The β of Prospectors was not only the greatest, but Defenders' β and Analyzer's β were not equal.

SGRO

In Hypothesis H3c, it was hypothesized that for the sales growth measure (SGRO), the β parameters of Prospectors and Analyzers would be greater than that of Defenders. Further, it was hypothesized that the β parameters of Prospectors and Analyzers would be equal. The formal hypothesis was:

H3c (SGRO):

β_{61} (Prospectors, Analyzers) > β_{61} (Defenders)

β_{61} (Prospectors) = β_{61} (Analyzers)

The first pair-wise comparison was between Defenders (Type 1) and Prospectors (Type2). The chi-square was 426.152 (df = 15) for the equal-β model, and was 354.871 (df = 14) for the free-β model. The chi-square difference was 71.281 (df = 1). The critical value of chi-square statistical difference with one degree of freedom at $\alpha = .05$ level is 3.84. Thus, the chi-square statistic was not improved but worsened by constraining the two parameters to be equal. The β estimates for the free-β model were -1.683 for Defenders and .140 for Prospectors. Defenders' β was not only smaller but negative.

The second pair-wise comparison was between Prospectors (Type 2) and Analyzers (Type 3). The chi-square was 656.902 (df = 15) for the equal-β model, and was 503.278 (df = 14) for the free-β model. The chi-square difference was 153.624 (df = 1). Thus, the chi-square statistic was not improved by constraining the two parameters to be equal. The β estimates for the free-β model were 1.850 for Prospectors and .007 (not significant at $\alpha = .05$ level) for Analyzers.

The third pair-wise comparison was between Defenders (Type 1) and Analyzers (Type 3). The chi-square was 416.473 (df = 15) for the equal-β model, and was 294.396 (df = 14) for the free-β model. The chi-square difference was 122.077 (df = 1). Thus, the chi-square statistic was not improved by constraining the two parameters to be equal.

The β estimates for the free-β model were 1.628 for Defenders and .017 (not significant at $\alpha = .05$ level) for Analyzers.

Taken altogether, it was Prospectors, Defenders, and Analyzers in the order of magnitude of the β. Therefore, H3c was partially supported.

PCTNP

In Hypothesis H3d, it was hypothesized that for the measure of the percentage of the new product sales to the total sales (PCTNP), the β parameters of Prospectors and Analyzers would be greater than that of Defenders. Further, it was hypothesized that the β parameters of Prospectors and Analyzers would be equal. The formal hypothesis was:

H3d (PCTNP):

β_{7l} (Prospectors, Analyzers) > β_{7l} (Defenders)

β_{7l} (Prospectors) = β_{7l} (Analyzers)

The first pair-wise comparison was between Defenders (Type 1) and Prospectors (Type2). The chi-square was 375.804 (df = 15) for the equal-β model, and was 320.240 (df = 14) for the free-β model. The chi-square difference was 55.564 (df = 1). The critical value of chi-square statistical difference with one degree of freedom at $\alpha = .05$ level is 3.84. Thus, the chi-square statistic was not improved but worsened by constraining the two parameters to be equal. The β estimates for the free-β model were -1.662 for Defenders and .103 (not significant at $\alpha = .05$ level) for Prospectors.

The second pair-wise comparison was between Prospectors (Type 2) and Analyzers (Type 3). The chi-square was 613.368 (df = 15) for the equal-β model, and was 501.402 (df = 14) for the free-β model. The chi-square difference was 111.966 (df = 1). Thus, the chi-square statistic was not improved by constraining the two parameters to be equal. The β estimates for the free-β model were 1.613 for Prospectors and .041 (not significant at $\alpha = .05$ level) for Analyzers.

The third pair-wise comparison was between Defenders (Type 1) and Analyzers (Type 3). The chi-square was 334.192 (df = 15) for the equal-β model, and was 255.373 (df = 14) for the free-β model. The chi-square difference was 78.819 (df = 1). Thus, the chi-square statistic was not improved by constraining the two parameters to be equal. The β estimates for the free-β model were 1.135 for Defenders and .041 (not significant at $\alpha = .05$ level) for Analyzers.

Taken altogether, it was Prospectors, Defenders and Analyzers in the order of magnitude of the β. Therefore, H3c was partially supported.

OVERALL

In Hypothesis H3e, it was hypothesized that, for the measure of overall performance (OVERALL), the β parameters of Analyzers would be greater than those of Prospectors and Defenders. No hypothesis on the comparison between Prospectors and Defenders was made. The formal hypothesis was:

H3e (OVERALL):

β_{8l} (Analyzers) > β_{8l} (Prospectors, Defenders)

The first pair-wise comparison was between Defenders (Type 1) and Prospectors (Type2). The chi-square was 478.333 (df = 15) for the equal-β model, and was 381.089 (df = 14) for the free-β model. The chi-square difference was 97.244 (df = 1). The critical value of chi-square statistical difference with one degree of freedom at $\alpha = .05$ level is 3.84. Thus, the chi-square statistic was not improved but worsened by constraining the two parameters to be equal. The β estimates for the free-β model were -2.202 for Defenders and .181 for Prospectors.

The second pair-wise comparison was between Prospectors (Type 2) and Analyzers (Type 3). The chi-square was 723.681 (df = 15) for the equal-β model, and was 535.397 (df = 14) for the free-β model. The chi-square difference was 188.284 (df = 1). Thus, the chi-square statistic was not improved by constraining the two parameters to be equal. The β estimates for the free-β model were 2.129 for Prospectors and .041 (not significant at $\alpha = .05$ level) for Analyzers.

The third pair-wise comparison was between Defenders (Type 1) and Analyzers (Type 3). The chi-square was 482.772 (df = 15) for the equal-β model, and was 311.958 (df = 14) for the free-β model. The chi-square difference was 170.814 (df = 1). Thus, the chi-square statistic was not improved by constraining the two parameters to be equal. The β estimates for the free-β model were 1.850 for Defenders and .044 (not significant at $\alpha = .05$ level) for Analyzers.

Taken altogether, it was Prospectors, Defenders, and Analyzers in the order of magnitude of the β. Therefore, H3e was not supported.

Umbrella Hypothesis - H3

The umbrella hypothesis (H3) for the hypotheses H3a - H3e was:

H3: The relationship between the extended market orientation and economic performance is moderated by the type of strategy employed.

Although the results of the individual sub-hypotheses testings were mixed, the relationship between the extended market orientation and economic performance was found to be varied across the strategy types. Thus, H3 was supported.

Hypotheses 4a - 4d

Hypotheses 4a-4d examined the relationships between EMO and four organizational antecedents: formalization (FORM), centralization (CENT), departmentalization (DEPT), and adaptiveness of the organizational culture (ADAPT). Formalization was hypothesized to have no significant correlation with EMO(H4a). Both centralization (H4b) and departmentalization were expected to have a negative correlation with EMO (H4c). Adaptiveness of the organizational culture (H4d) was expected to have positive correlation with EMO. Each hypothesis was tested by estimating the corresponding structural equation parameter (γ) in the EMO model given all the other free parameters (Table 15). The formal hypotheses were:

H4a (FORM):

γ_{11} (FORM) = 0

H4b (CENT):

γ_{12} (CENT) < 0

H4c (DEPT):

γ_{13} (DEPT) < 0

H4d (ADAPT):

γ_{14} (ADAPT) > 0

H4a was supported. Although the γ was positive at 1.508, it was not significant at $\alpha = .05$ level (t = .254).

H4b was not supported. The γ for the centralization scale was negative as hypothesized, but it was not significant (t = .157).

H4c was not supported. The γ for the departmentalization scale was negative as hypothesized, but it was not significant (t = .141).

Finally, H4d was not supported. The γ for the adaptiveness scale was positive as hypothesized, but it was not significant (t = .173).

In conclusion, none of the organizational antecedents was found to be significantly related to the EMO scale.

Hypotheses 5a - 5f

Hypotheses 5a - 5f examined the antecedent roles of external factors -- six market characteristics. Each hypothesis was tested by estimating the corresponding parameter (γ) in the structural equation model given all the other free parameters in the model (Table 15). The formal hypotheses were:

H5a (ENTRY):

γ_{15} (ENTRY) > 0

H5b (BPOWR):

γ_{16} (BPOWR) > 0

H5c (SPOWR):

γ_{17} (SPOWR) > 0

H5d (MGRO):

γ_{18} (MGRO) < 0

H5e (TECH):

γ_{19} (TECH) > 0

H5f (REGIMP):

$\gamma_{1\,10}$ (REGIMP) > 0

First, H5a was not supported. The γ for the entry barrier measure was positive as hypothesized, but it was not significant (t = .758).

H5b was not supported. The γ for the buyer's power measure was negative, and it was not significant (t = .193).

H5c was not supported. The γ for the supplier's power measure was not only negative, but it was also not significant (t = .189).

H5d was not supported. The γ for the market growth measure was not only positive, but it was also not significant (t = .213).

H5e was not supported. The γ for the technological change measure was positive as hypothesized, but it was not significant (t = .206).

H5f was not supported. The γ for the impact of regulations measure was positive as hypothesized, but it was not significant (t = .360).

In conclusion, none of the external antecedents was found to be significantly related to the EMO scale.

SUMMARY

This chapter described the data analysis procedures and the results of the hypotheses testing. The descriptive statistics of the final data and response rate were reported. It also reported that evidence of non-response bias was not detected.

Scale validation processes for the multiple-item measures were also reported. Confirmatory factor analyses and reliability analyses were conducted for the multiple-item scales. Following the scale validation was the hypotheses testing and the results. The structural equation modeling technique was extensively used in testing the hypotheses developed for this dissertation. A table that summarizes the results of hypotheses testing is provided in Table 20.

In the next chapter, implications of the results of hypotheses testing are discussed. Both theoretical and managerial implications of the findings are provided. In the concluding part, future research opportunities are discussed.

CHAPTER 5

CONCLUSIONS AND IMPLICATIONS

The research goal of this dissertation was to clarify a part of the structural mechanism of a market in relation to the business's market orientation. Following the introductory chapter, the extant literature of the marketing concept and market orientation research was first reviewed. The literature review identified the research problem of this dissertation: what constitutes a market orientation, how is it developed, and what is its result? Formal research questions were also developed based on this research problem. Those were:

1. What are the internal and external antecedents of a market orientation?
2. Is there any relationship between a business organization's market orientation and its economic performance?
3. Does the organization's strategy play a moderating role on the relationship between market orientation and economic performance?

The review of the literature and a series of in-depth interviews with business executives helped the author develop a series of specific hypotheses that encompassed the three research questions.

The methodology was described in Chapter 3. Methodological justifications for the survey research were provided. The pretest procedures and subsequent scale validation process and the results were described in detail. Then, the measures in the final questionnaire were described. The final data collection process was also documented in this methodology chapter. Toward the end of the chapter, an introduction to the statistical techniques for hypotheses testing was made. Statistical hypotheses were developed to test the theoretical hypotheses that were developed in Chapter 2.

In Chapter 4, analyses of the data and the results were reported. The scale validation with the final data was reported in detail. The hypothesis testing procedures were also described in Chapter 4. The structural equation modeling technique was extensively used in testing those hypotheses. The results of the tests were documented.

Building on these preceding chapters, this chapter concludes the dissertation by first discussing the results of hypotheses testing. Individual results are reviewed and explanations for the results are provided. Implications for both academic researchers and practicing managers are provided based on the findings. Suggestions for future research are also provided.

FINDINGS AND DISCUSSIONS

In the following sections, findings from the individual hypothesis testing results are discussed.

HYPOTHESIS 1

H1: The relationship between market orientation and economic performance is better explained by the extended market orientation construct (EMO) than by the original market orientation construct (MO) by Kohli and Jaworski (1990), Jaworski and Kohli (1993), and Kohli, Jaworski, and Kumar (1993).

H1 was not supported. Instead, it was found that the two scales were statistically comparable in explaining the relationship between market orientation and economic performance. Based on the constituency-based theory and resource-dependence perspective, the EMO scale incorporates a broader range of market factors than the MO scale. Therefore, it was hypothesized that the EMO scale would be more capable of explaining the relationship than the MO scale.

In fact, when the two scales are compared solely on the measurement model basis, the EMO scale was superior to the MO scale on several fit statistics (Table 21). The check marks (✓) show where each scale fared better than the other. Of particular importance is that the EMO scale is superior to the MO scale on parsimonious fit indices, PGFI and PNFI. Because these indices are the modified indices of GFI and NFI by taking into account the model's parsimony, the EMO's superiority, in spite of its broader domain specification, is notable. Also on the reliability of the scale, EMO was found clearly superior to MO (Table 22). However, when they were compared head-to-head *in relation to* the economic performance indicators, the scales were found comparable. Why?

There is one possible reason that might have led to the rejection of H1. Although the EMO scale was superior to the MO scale in terms of the fit and reliability as a stand-alone scale, the involvement of the performance measures in the model might have obscured the superiority of the EMO scale. More specifically, for a scale to statistically explain economic performance well, the key is to have measurement items with high correlations with the performance indicators *but not necessarily* with their latent construct. Thus, even if the scale as a whole does not hold up well with low fit statistics, the predictive power of the scale can be high.

Thus, in conclusion, the author would argue that one would be better off by using the EMO scale rather than the MO scale, because the former was found to be superior in the reliability and fit statistics *and* as good as the latter in the predictive power.

HYPOTHESES 2A - 2E

Hypotheses 2a - 2e referred to the positive relationships between EMO and economic performance, and all of them were supported. As reviewed in Chapter 2, market orientation's performance-based rationale was strongly supported philosophically and theoretically, but somewhat mildly so by empirical studies in the literature. More specifically, Narver and Slater's (1990) study found only mixed support for the relationship between market orientation and ROA. In Jaworski and Kohli's (1993) study, a positive relationship was found only between market orientation and overall performance, but not market share. Slater and Narver (1994a) found market orientation's

positive effect on three performance measures (ROA, sales growth, and new product success). In general, Narver and Slater's studies reported more positive results than Kohli and Jaworski. This point was important, because the market orientation scales used in those studies were different, and the research outcomes could have been a product of scale choice.

With regard to this dissertation, the positive outcome with regard to the relationships between EMO and all the performance measures was particularly meaningful, because the EMO scale adopted the dimensionality of Kohli and Jaworski's scale that has not found strong empirical support before. All in all, this dissertation provided further support for the positive impact of market orientation on economic performance.

ROA, ROI, and ROS

EMO was found to be significantly related to the three profitability measures. These findings give support for the hypothesis that intelligence-related activities would help organizations to adapt to the changing environment and secure profitable positions relative to the competition.

Market Share Growth

No published studies had found a positive effect of market orientation on market share. Jaworski and Kohli (1993) reasoned that *market share* might be gained over time

by a market oriented organization and, therefore, their cross sectional study was not capable of capturing the time lag. However, the finding of this dissertation was not consistent with their reasoning. Even with a cross sectional study design, the robust relationship between EMO and *relative market share growth* was observed. The distinction between *market share* and *relative market share growth* is an important one, because the latter term inherently captures the dynamism of competitive market. Clearly, the latter seems to be more relevant to both researchers and practicing managers. With this point in mind, we can say the finding is a significant and encouraging one to the marketing discipline.

Relative Sales Growth

This dissertation's empirical support for sales growth was consistent with the findings of Slater and Narver (1994a), which was that relative sales growth is positively related to a market orientation. Note Slater and Narver's study used a different scale than the EMO or even Kohli and Jaworski's. In spite of the scale differences, and perhaps because of the differences, this is also an important finding that a market orientation makes business sense.

New Product Sales

If a company understands the market well and consistently improves its current products or develops a new product, the ratio of new product sales should be generally

high. Therefore, the percentage of new product sales to total sales can be interpreted as a measure of company's active and prospective engagement to the marketplace. The EMO scale was thought to be positively related to this measure, and hypothesis was supported. This is a new and significant empirical finding, because past studies did not investigate this relationship despite the fact that the new product development literature (c.f., Chapter 2) provides a strong theoretical support.

Overall Performance

This measure was used to capture an omnibus picture of a firm's business performance. Because the EMO model was constructed to broadly capture the dynamics of the marketplace, it was hypothesized that this broad performance measure would be positively related to the EMO scale. The support for the hypothesis was found, and one might be able to argue that the EMO is capable of explaining a broad performance outcome as well as more specific, narrower performance outcome (e.g., relative sales growth).

HYPOTHESES 3A - 3E

The most complex set of hypotheses in this dissertation referred to the moderating role of the strategy type on the relationship between EMO and economic performance. None of the hypotheses were completely supported, although many of them were

partially supported. In summary, here are the hypotheses and test results in the order of the size of the β estimates:

H3a (ROA):	(Defenders, Analyzers) > Prospectors
Results:	Defenders > Prospectors > Analyzers
H3a (ROS):	(Defenders, Analyzers) > Prospectors
Results:	Defenders > Prospectors > Analyzers
H3a (ROI):	(Defenders, Analyzers) > Prospectors
Results:	Defenders > Prospectors > Analyzers
H3b (SOM):	(Defenders, Analyzers) > Prospectors
Results:	Prospectors > Defenders > Analyzers
H3c (SGRO):	(Prospectors, Analyzers) > Defenders
Results:	Prospectors > Defenders > Analyzers
H3d (PCTNP):	(Prospectors, Analyzers) > Defenders
Results:	Prospectors > Defenders > Analyzers
H3e (OVERALL):	Analyzers > (Prospectors, Defenders)
Results:	Prospectors > Defenders > Analyzers

To better understand some of the partial support/rejection of the hypotheses, a post-hoc analysis was conducted. This time, for each performance dimension, a mean score was compared for each strategy type by one-way ANOVA. The summary results of the ANOVA are provided in Table 23, as well as the ranking of β coefficients summarized above.

Several important observations can be made from Table 23.

1. Analyzers' β coefficients were consistently the lowest across the performance variables;

2. Defenders' β coefficients were the highest in ROA, ROS, and ROI;

3. Prospectors' β coefficients were the highest in SOM, SGRO, PCTNP, and OVERALL;

4. Across the different performance measures, Prospectors' mean scores were *descriptively* the highest among the three, but *statistically* tied with Analyzers' on ROA, ROI, ROS, and OVERALL;

5. Across the different performance measures, Defenders' mean scores were *descriptively* the lowest among the three, but *statistically* tied with Analyzers' on all the measures; and

6. Across the different performance measures, Analyzers' mean scores were *descriptively* the second among the three. But *statistically,* they tied with Prospectors' on ROA, ROI, ROS, and OVERALL and Defenders' on all the performance measures.

Note that the β coefficient represents the ratio of change of dependent variable (performance variables) to a unit change of independent variable (EMO). In managerial sense, it is a measure of "impact" or "bang" one can expect by manipulating the EMO. On the other hand, the mean scores simply represent the current overall level of performance by different strategy types. By combining these two different ideas behind the statistics, one can conclude the following:

- Relatively speaking, Analyzers would gain the least incremental benefit in any performance dimension by increasing the EMO level. In fact, no significant t-values (Table 19) were found on their β coefficients, and that would suggest they are likely to get no incremental performance benefit by increasing the level of EMO.

- However, Analyzers are generally doing "OK" on all the performance measures relative to other types. They are consistently ranked the second on any of the measures.

Recall that Analyzers pursue a unique combination of the strengths of Defenders and Prospectors. This type of business tries to minimize the risk while maximizing profit opportunity. They emphasize developing new products and markets, but only after their feasibility has been established. In sum, Analyzers aspire to be good, if not best, in all performance dimensions (Miles and Snow 1978). This can be observed in their mean performance scores. They are neither the best nor the worst in a relative sense. In addition, as the name Analyzers suggests, they are already committed to analyzing the market. In one way, they are already market-oriented *to some extent*, especially because the EMO conceptualization is based on the intelligence related activities and responsiveness. It can be argued that, for those who are already market-oriented, the incremental benefit by increasing the level of market orientation might not be as high as those who are not.

Next, the following observations can be made regarding the Defenders:

- Relative to the others, Defenders would gain the greatest incremental performance benefit in ROA, ROI, and ROS. Defenders were supposed to be the best on these performance dimensions among the three.
- On SOM, SGRO, PCTNP, and OVERALL measures, they are the worst performers judging from the mean comparisons. However, they can still expect "moderate" gain by increasing the level of EMO, although not as much as Prospectors would.

Recall also that Defenders are supposed to excel in efficiency. Their product domain is typically narrow and stable over the time. They strive to maintain efficient operations by continuously improving manufacturing capabilities and in-depth market

coverage (Miles and Snow 1978). However, judging from the mean score, the Defenders in the sample are not doing very well on the efficiency measures (ROA, ROI, and ROS) on which they were supposed to do well. Looking at the β coefficients, theirs were the greatest on these three efficiency measures. Taken altogether, it can be argued that it is the Defender who can benefit the greatest by increasing the EMO level to excel at what they need to excel. Even on the other performance dimensions (SOM, SGRO, PCTNP, and OVERALL), they can still expect better incremental performance gain by increasing the EMO level, relative to Analyzers.

Finally, Prospectors:

- Prospectors would benefit from the greatest incremental gain in SOM, SGRO, PCTNP, and OVERALL by increasing the EMO level.
- Judging from the mean comparisons, they are, in fact, the best performers in every performance measure. However, they can still expect "moderate" incremental gain in ROA, ROI, and ROS, although not as much as Defenders.

Miles and Snow (1978) stated that growth for Prospectors is primarily coming from new market and product developments. They are innovators and, thus, often find technological innovation very expensive and not as efficient as competitors focused on standardization (e.g., Defenders). However, the mean performance scores in this dissertation's data indicated otherwise: Prospectors are doing very well in all the dimensions. Even better news is that they can further expect greater gains relative to the others. Looking at the βs, they even indicated that Prospectors can gain the greatest

incremental performance benefit in SOM, SGRO, PCTNP, and OVERALL measures by increasing the EMO level. These are the areas where Prospectors should do well and, in fact, they are doing well on these dimensions. Probably, a market orientation is such an important idea for Prospectors to achieve and maintain their high performance levels, and prescriptively speaking, Prospectors should try to maintain or even increase the current level of EMO.

Umbrella Hypothesis

H3: The relationship between the extended market orientation and economic performance is moderated by the type of strategy employed.

The umbrella hypothesis was supported by the series of sub-hypotheses tests. It was, in fact, found that the relationships between EMO and performance measures are not monotonic. The strength of the relationships varied across the strategy types. Although the sub-hypotheses were partially supported most of the times, the post-hoc analyses indicated that the findings from the hypotheses testing are quite reasonable.

In sum, one general conclusion can be drawn: the impact of the EMO level on the performance is the highest for Defenders on the financial efficiency measures (ROA, ROI, ROS), the highest for Prospectors on overall and marketing effectiveness measures (SOM, SGRO, PCTNP, OVERALL), and very little for Analyzers on any dimension.

HYPOTHESES 4A - 4D

None of the internal factors (formalization, centralization, departmentalization, and adaptiveness of organizational culture) were found to be significantly related to the EMO scale. Although organization theory suggests otherwise, the internal factors do not seem to play any antecedent role to the extended market orientation, according to the data. These theoretically counter-intuitive results were, however, empirically not so surprising. Recapitulation of the existing literature along with the results might be helpful to explain why.

Formalization

H4a: Formalization is not related to the extended market orientation (EMO).

H4a was supported. As Jaworski and Kohli (1993) found out, formalization was not significantly related to the level of market orientation. Their post-hoc speculation that mere emphasis on rules and procedures may not lead to any behavioral consequence with regard to a market orientation seems to have received additional support from this dissertation.

Centralization

H4b: The greater the centralization, the lower the degree of extended market orientation.

H4b was not supported: centralization was not significantly related to EMO. Although Jaworski and Kohli (1993) found in their two samples that centralization is generally negatively correlated to a market orientation, the statistical significance varied between the two samples in their study (i.e., one significant and another not significant at $\alpha = .05$ level). Likewise in this dissertation, it was found that the γ estimate for centralization was negative but not significant (Table 15). Taken altogether, one might conclude that centralization might negatively influence the level of EMO, but that might not be in a statistically significant influence. One potential area of future research would involve increasing the precision of the centralization scale. Further refinement of the scale, and a greater sensitivity of the scale, might help us better explain whether the hypothesized relationship can hold or not.

Departmentalization

H4c: The greater the departmentalization, the lower the degree of extended market orientation.

Recall that in Jaworski and Kohli's study, the degree of departmentalization was simply measured by the number of departments in the organization. In this dissertation, however, departmentalization was defined as "the extent to which departments are isolated from interdepartmental interactions." This definition was more in line with what Jaworski and Kohli referred to as "interdepartmental connectedness." However,

departmentalization was also not found to be significantly related to the level of EMO, and the finding concurred to Jaworski and Kohli's (1993) result.

Even with different conceptualizations and definitions, departmentalization was not found to be related to the level of EMO. One remaining question, though, is the extent to which these two measures would be related. If, in fact, these two measures were highly correlated, we would have obtained more dependable evidence to argue departmentalization is not related to the EMO construct. However, because this dissertation's questionnaire did not ask the number of departments in the respondents' business units, there is no way to make this argument. Clearly, this represents a future research opportunity.

Adaptiveness of the Organizational Culture

H4d: The greater the degree of adaptiveness of culture, the greater the degree of extended market orientation.

The newly developed measure of adaptiveness of organizational culture was not found to be significantly related to the level of EMO. Because there were no empirical studies which directly addressed the construct's relationship with market orientation, there was no *empirical* reference point to qualify this finding. Thus, strictly from a theoretical perspective, the finding was puzzling. The importance of organizational culture to a market orientation has been strongly argued by Narver and Slater's research program, and

organizational theory suggests that the level of adaptiveness of the culture would be positively related to the EMO's level.

However, assuming that the theory is *correct*, several possible reasons for the non-significant result can be offered. A first explanation concerns a measurement problem. It might be the case that the measure (ADAPT) did not measure what it intended to measure (i.e., it measured something else, whatever this *something* was). Even though the reliability (α = .8508) and the fit statistics (χ^2 = 53.927; df = 20; GFI = .958; AGFI = .924; CFI = .964) were good, this scale was newly developed and has not been subjected to a greater scrutiny of construct validity tests yet. Such a construct validation process should involve confirmatory factor analyses, in which the ADAPT scale is related to other supposedly related but different constructs (e.g., entrepreneurship). Findings from this construct validation study would provide more information on the ADAPT construct's antecedent status.

A second possible reason is relevant not only to the ADAPT construct but also to the other internal organizational factor constructs (FORM, CENT, and DEPT). It is that, *in the context of economic performance*, the hypothesized influences of these measures were simply not strong enough. In other words, the relationships between the EMO scale and economic performance measures were "too" strong, and the explanatory powers of the internal organizational factors included in this dissertation could not surface.

Note, however, that is not to say the organizational factors are irrelevant to the level of EMO. In fact, these findings direct us to an even more intriguing question: what

would happen to these internal organizational factors if the EMO scale was related to other business performance measures, such as "being a good corporate citizen?" Recall that the focus of this dissertation was to put the EMO construct in the context of a firm's economic performance. Thus, any hypothesized antecedent relationship to EMO must be interpreted in the context of economic performance.

To explore this possibility, a post-hoc analysis was conducted. The analysis involved a multiple regression model *without* economic performance. That is to treat four internal antecedents (FORM, CENT, DEPT, and ADAPT) as independent variables and EMO as a dependent variable. The score for each variable was derived by summing the individual item scores. In one way, this represents a model that is "free" from the economic performance context. The regression results are provided in Appendix II-11.

The regression equation was found to be statistically significant ($F = 43.647$; $df = 4, 342$) with R-square .338. No evidence of severe multi-collinearity was observed. It was shown that, except for CENT, all the internal antecedents have significant regression coefficients ($\alpha = .05$). The regression equation was:

$$EMO = .6075(FORM) - .1882(CENT) - .7612(DEPT) + .6816(ADAPT) + 66.3602$$

If this regression model were used, we would have found three "significant" antecedents, and found "supports" for H4c (DEPT) and H4d (ADAPT). This exploratory post-hoc regression model could be evidence for the hypothetical effect of the choice of performance measure on the antecedent status of the internal factors. If the context were

to be changed, the relationships might be changed. This question represents an important future research opportunity.

HYPOTHESES 5A - 5F

Like in the cases of the internal factors, the external structural variables were not found to be significantly related to the EMO construct. The findings were consistent with those of Dobscha, Mentzer, and Littlefield (1994). Although these authors' study used Narver and Slater's market orientation scale, the findings were nonetheless concordant: the external factors do not seem to play antecedent roles to a market orientation.

Not as antecedents, but as moderating factors, Jaworski and Kohli (1993) investigated the influences of market turbulence, competitive intensity, and technological turbulence on the linkage between market orientation and performance. It was found that the three factors do not play any moderating roles. The authors concluded that the relationship between a market orientation and performance is robust across contexts characterized by varying degrees of the three factors.

Although the results of this dissertation generally concurred with the past empirical findings, again, this dissertation's results should be interpreted carefully. The EMO model tested in this dissertation put these factors in the performance context. Some or all of the relationships might turn to statistical significance if other performance measures were used. For instance, one such business performance measure would be "longevity of the company." One can argue that the goal of a business is survival, and

longevity might be a legitimate performance measure. Perhaps, some of the industry structure has something to do with the probability of survival (e.g., monopolistic markets and the survival of the incumbents). In such a case, some external factors may play antecedent roles to EMO.

Another multiple-regression post-hoc analysis was conducted to assess the plausibility of such a case. The analysis, again, involved a multiple regression model *without* economic performance. This time, six external antecedents (ENTRY, BPOWR, SPOWR, MGRO, TECH, and REGIMP) were treated as independent variables. EMO was treated as a dependent variable. The score for each variable was derived by summing the individual item scores. The regression results are provided in Appendix II-12.

The regression equation was found to be statistically significant ($F = 7.130$; $df = 6, 347$) with R-square .110. No evidence of severe multi-collinearity was found. It was shown that, except for ENTRY and BPOWR, all the external antecedents have significant regression coefficients ($\alpha = .05$) . The regression equation was:

$$EMO = -.5676(ENTRY) - .0323(BPOWR) + 1.4792(SPOWR) + 1.6432(MGRO) + 2.0721(TECH) + .4387(REGIMP) + 56.7340$$

Were this regression model used, we would have found four "significant" antecedents (SPOWR, MGRO, TECH, and REGIMP), and found "supports" for H5c (SPOWR), H5e (TECH) and H5f (REGIMP). Although the R-square of the regression was relatively small, this exploratory post-hoc regression model can also be interpreted as evidence for the hypothetical effect of the choice of performance measure on the antecedent status of

the external market factors. If the context were to be changed, the relationships might change. This is another intriguing future research question that needs to be addressed.

CONTRIBUTIONS OF THIS DISSERTATION

Several important contributions were made by this dissertation research. In the following sections, the knowledge contributions are discussed from both theoretical and managerial perspectives.

Theoretical Implications

Important theoretical implications can be offered based on the findings of this research. The implications should contribute to fill the existing knowledge gap regarding a market orientation. Here are several general theoretical implications based on the results of hypotheses testing and post-hoc analyses and discussions.

1. The Extended Market Orientation (EMO) scale has more desirable properties than the existing market orientation scale developed by Kohli and Jaworski.

As discussed in relation to H1, the EMO scale exhibited more desirable properties than the MO scale. At both the entire scale level and the component level, the EMO consistently had greater reliability (Table 22). The EMO scale also appears to have a better internal consistency than the MO scale, particularly when parsimony is taken into

consideration (Table 21). The advantages are significant because the EMO scale is argued to capture a broader spectrum of market factors than any of the existing market orientation scales, and yet has a better parsimonious fit. Therefore, building on the Kohli and Jaworski's works, the scale is an improvement over the MO scale.

Although an improvement, the EMO scale can be improved further. One area is to further increase the reliability of the scale. As Churchill (1979) noted, developing a reliable scale is a continuous improvement process. The norm of a scale should emerge only after a series of additional domain refinement, item development, item refinement, and replications. A single study simply cannot establish the desired norm. Furthermore, from a construct validity standpoint, the scale should be subjected to a broader network of constructs. Even though the EMO model in this study was quite a comprehensive explanatory model of economic performance, it does not exist in vacuum. Related constructs, such as those factors not included in this study, can be included to evaluate EMO's construct validity. This would provide more complete information to appraise EMO's construct validity.

2. The EMO model supports the fundamental economic rationale of being market oriented.

The relationship between EMO and performance was strongly supported in this dissertation. Some of the lukewarm support for the relationship in the existing literature was affirmatively enhanced by this dissertation.

The marketing concept and its implementation have been accepted as a normative prescription in the marketing discipline for over four decades. Having been a normative theory, the concepts' scientific status has not been established yet. Shedding light on the market orientation-performance relationship and developing a descriptive theory around the phenomenon is a matter of great theoretical interest.

Alderson (1965) said "theory emerges only when an attempt is made to predict the outcome of marketing activities" (p. 23). Of particular contribution by this dissertation was the prediction of economic performance based on the extended construct of market orientation (EMO). The construct is purported to capture a wide range of environmental elements in relation to businesses' intelligence-related activities and responses. This extension was an attempt to reflect marketing's boundary roles that have been well accepted for the last several decades. By using the newly developed EMO scale that captures a broader spectrum of market factors, the validity of the market orientation-performance relationship was strengthened.

3. The strategy type appears to be an important determinant of the strength of the EMO-performance relationship.

The inquiry about the strategy type's moderating role was one of the pioneering efforts of this dissertation. As discussed in detail, the hypotheses testing results supported such a role. Because a firm's strategy directs the organization's attention to certain performance criteria, different types of strategy (Defenders, Analyzers, and

Prospectors) should be related to different adaptive behavioral patterns. This dissertation provided a support for this reasoning. Defined as a set of intelligence-related activities in this dissertation, the construct of EMO was argued to play a critical role to achieve certain economic performance With several different economic performance measures, the study provided evidence that the relationships are not monotonic across the strategy types. Thus, overall, the theoretical argument for the moderating role was supported.

The findings from the testing of H3a - H3e are important, because they provide some prescriptive insights on managing the level of EMO. The prescriptive aspects are discussed in the section on managerial implications.

4. The environmental (internal and external) factors do not seem to play significant roles in explaining variation of the EMO in the context of economic performance.

It was found that the environmental factors do not seem to play any antecedent role to EMO. Even though the findings are theoretically perplexing, empirical literature was supportive of the findings.

However, the results should be interpreted with caution. Because all the factors were put into the context of economic performance, the hypothesized relationships might not have turned out. Furthermore, the measures that were used in this dissertation were by no means perfect. For instance, all the external market factors were measured by single-item scales, except for REGIMP. Development of and use of multiple-item

measures for these factors might change the outcomes. Even with multiple-items, reliability might not have been sufficiently high. Furthermore, construct validity is always difficult to assess and must be evaluated in the context of the nomological net. Thus, continued efforts should be directed to improve the measures and investigate a more complete network of relationships to draw more dependable conclusions.

Managerial Implications

For managers who are more inclined to practical applications of the findings, several implications can be drawn from the study's results.

1. The Extended Market Orientation (EMO) is supportive to good economic performance.

The findings from the tests of H2a - H2e strongly support the positive relationships between the EMO scale and all the economic performance indicators included in the study. EMO's consistently positive relationships with all those indicators suggest that the market intelligence activities pay off economically. The fact that the EMO scale has a greater breadth than the existing MO scale and found more consistent performance rationale suggests managers conceive market intelligence more broadly. Certainly, competitors and customers are important market forces to know about for the business. However, this dissertation suggests that the managers should not stop there.

Probably, being preoccupied with competition and customers could lead to a

myopic understanding of a dynamic market. If we can safely assume the competition and customers have perfect knowledge, and monitoring and following them are all it takes, such preoccupation might pay off. However, we all know such is not the case. Customers do not always know what they really want or *will* want. Competitors often are just as smart as you are. Perhaps, the key is to go beyond these two key players in the market and prospectively look for the signs and symptoms from a broader range of phenomenon, such as social trends, regulatory changes, and macroeconomic shifts.

Certainly, these are broad and, at times, ambiguous factors to follow and understand. But they should have pervasive influences on customers and competition. To be ahead of the competition and your customers, you need to be both *expeditionary* and *expeditious*. A broader conception of intelligence-related activities should be helpful for an organization to achieve and maintain competitive advantages.

2. The performance-based rationale of the EMO is robust across the different organizational and market environments.

Although organizational theory and industrial organization economics suggest strong relationships between the environmental variables (internal and external) and EMO, the study found no statistically significant relationships between them. Even though somewhat counter-intuitive, the finding is understandable: it is the conduct, not structure, that matters to economic performance. Recall the entire EMO model (Figures 2 and 14). The antecedents were related to EMO *in the context of* economic performance,

but they were not depicted as the multiple bivariate relationships between the antecedents and EMO. In a comprehensive model like this study's, the covariation between economic outcomes and the mediating variable (i.e., EMO) can overwhelm the lesser antecedent relationships. It seems that is what happened in this study.

The managerial implication based on the study's results is quite strong. It can be said that the EMO is robust in explaining the economic performance across the different levels of internal and external environments. If one is interested in managing the relative influences of those antecedents and EMO *in the context of economic performance*, he or she might want to focus on the level of EMO, the level of market intelligence activities.

3. The strategy type of organization has important implications for the EMO-performance relationship.

The firm's strategy directs the organizational member's attention to certain performance criteria. Thus, as reviewed in the literature, different types of strategy (Defenders, Analyzers, and Prospectors) exhibit different focus and behavioral patterns. When strategy is defined as a pattern of the organization's adaptive response to the environment, it should significantly influence the relationship between EMO and various performance measures. This dissertation provided a support for this reasoning.

For managers who are at organizations with a Defender-type strategy, primarily pursuing economic efficiency as measured by ROA, ROS, and ROI, EMO is more important for them than for those with other strategy types. They might want to increase

the current level of EMO or at least maintain it if it is already high. EMO is also important for those who are at Prospector-type companies, focusing on such effectiveness measures as market share growth, sales growth, and new product success. For Analyzers, increasing the EMO level might not lead to incremental economic performance gains as measured by the seven variables. However, this is not to say that EMO is not important. Contrarily, it *is* important. By definition, the organizations with an Analyzer-type strategy are already conducting market intelligence activities. These activities are the cornerstone of their strategy implementation: extensive marketing surveillance mechanisms (Miles and Snow 1978). Thus, they cannot compromise the EMO level, just because their incremental gains might be smaller than the others'. In fact, they need to maintain the current level of commitment to the market intelligence to sustain the viability of the strategy.

In sum, the EMO appears to be robust and helpful in achieving different performance criteria. For different reasons, the EMO is an important idea to implement for organizations with any of the three different types of strategy.

SUGGESTIONS FOR FUTURE RESEARCH

This study is a modest but important beginning of a research stream. The EMO research program seems to be abundant with future research opportunities.

Although the EMO model was developed based on the causal inference of the existing evidence, this dissertation by no means established causal relationships. A

strong form of causal research should be attempted by longitudinal experimental research designs, where extraneous variables are under tight control and temporal cause-and-effects relationships can be more readily investigated. Such is a difficult task because the market is dynamic and is not a laboratory. Exercising some experimental manipulation, say lowering the degree of market orientation if at all possible, could be fatal to an organization. A useful compromise might have to be made. For example, case studies would be a promising methodology if one could find a small number of organizations that are in the process of increasing (or decreasing) their level of market orientation. Combined with qualitative inquiries, more insights on market orientation phenomena can be gained from the case study methodology.

Replications with different samples are also necessary. Strictly speaking, the findings of this dissertation are only applicable to the respondents of the particular sample. Replication studies with different samples should render proper qualifications to the results of this study.

Non-economic performance measures were not included in the scope of the investigation in this dissertation. As business performance is multi-faceted, investigating EMO's implications on other performance criteria should make an important contribution to the knowledge. They include, but are not limited to, customer satisfaction, customer retention, social acceptance, corporate image, and employee satisfaction.

All the structural elements included in the EMO were found to be insignificant as antecedents to EMO. An exploratory variable, adaptiveness of the organizational culture,

was also found to be insignificant. Now, what would really be an antecedent to EMO? One interesting, albeit unclear, candidate would be the strategic type. Although it was treated as a moderating factor in this dissertation, the different type of strategy might directly increase or decrease the level of EMO (i.e., an antecedent status). One possible antecedent justification for the strategic type is that Miles and Snow's typology seems to be built at least partly on Mintzberg's (1978) view, in which strategic choices were thought to shape organization's structure and process. In other words, one may argue that if a company's strategy is already established and perceived as a pattern, the organization would conceptually interpret the strategy as *intent* and structure its operations with *actions*. If so, being conceptualized as a set of market intelligence activities, EMO could be a response invoked by the intent, or strategy.

However, to investigate the possibility of antecedent status of the strategy type, a difficult measurement issue has to be resolved. For instance, in this dissertation, the strategy variable was operationalized as a categorical variable and such was adequate for examining the moderating effects. However, it would be more appropriate to operationalize the strategy variable as a parametric variable to evaluate its antecedent status by using a statistically rigorous technique (e.g., the structural equation modeling). To develop a parametric strategy variable, we need to have a better understanding on the dimensions of the strategy type, such as "the degree of importance of market intelligence in developing a long-term strategy." The current marketing and strategic management

literature seems to lack in this area of research. Better understanding of the dimensions should help us quantify the strategy at least on an interval or ordinal scale.

Cross-national investigations of market orientation have been called for in the literature for some time. To the best of the author's knowledge, the concept of market orientation originated in the United States. However, regardless of the acceptance of the term, it is reasonable to suppose that there are market-oriented companies and not-so-market-oriented companies outside the United States. Do those non-American market-oriented companies perform just as well as American counterparts? Inquiries such as this would contribute to a richer understanding of a market orientation.

As noted earlier, there were other factors that were not addressed in this investigation. Those factors (not shaded in Figure 2) represent future research opportunities. Replications, extensions, and explorations are critical for developing a more dependable knowledge base.

Finally, further construct validation and scale refinement should not be forgotten. One of the contributions of this dissertation was the development and validation of the EMO scale and, in the author's opinion, it resulted in significant findings.

LIMITATIONS

Caution should be exercised in interpreting the results of this dissertation. Like any other studies, this study is by no means a perfect one. Several salient limitations are in order.

Theoretical Limitations

The theoretical scope of the phenomena in this dissertation is limited. First, the research questions and hypotheses were developed based on the classic structure-conduct-performance paradigm and related resource-dependence theory. These theoretical and conceptual perspectives, in fact, directed the author to develop the model of extended market orientation. One might argue for the inherent "theory-ladenness" in this dissertation's investigation.

A second issue is related to the breadth of the core construct, EMO. Although the EMO construct is more broadly defined in this dissertation than any existing studies, how much more broadly it could be defined was ultimately a matter of the researcher's judgment. The breadth of market factors incorporated in this study was a result of careful review of the relevant literature and a series of exploratory interviews.

Third, economic performance of the business was chosen to be the measure of business performance, which, in a more general sense, may include some non-economic aspects. One can argue, for example, that the goal of marketing activities is meeting customer's needs regardless of the economic consequence. Yet another person may argue that the goal for a business is to deliver employee satisfaction. Those non-economic performance measures are certainly intriguing and should be explored in future studies.

All in all, the author has no intention to claim that the extended conceptual model of market orientation is a complete model of a market orientation. Built on the accumulated body of knowledge, it is a step forward in our understanding of a market

orientation. Furthermore, this dissertation investigates only a part of this model. Those parts that were not dealt with in this study should be examined in the future. The model should be continuously expanded, modified, improved, and tested.

Methodological Limitations

In this study, a survey method was used for the data collection. While the advantages are abundant, some of the inherent liabilities of survey methodology should be acknowledged. First, the quality of the data is heavily dependent upon respondents' cooperation. Even with such cooperation, response bias is always a potential and difficult to detect. Second, the depth and breadth of investigation are traded off due to the physical limitations, such as the length of the questionnaire. The balance of these two is ultimately a matter of subjective judgment. Here, the researcher's bias might have had an opportunity to slip in.

The sample consisted of marketing executives of business units in manufacturing companies. The service sector, which continues to increase in importance in the national economy, was not considered for this study. Past empirical studies on market orientation were based on samples of manufacturers. As replication of the past studies was an important objective in this dissertation, it was decided to limit the sample frame to manufacturing companies in the United States. Furthermore, only marketing executives were sought for their responses. Because of their professional and educational

backgrounds, and focus of attention -- which may well be different from other functional executives -- their responses should be interpreted with caution.

Although the response rate of 38.76% appeared to be adequate given that it was a industrial survey, it is possible that this percentage of marketing executives responding to the survey did not represent the population. Care was taken to investigate the *evidence* of non-response bias, and it was not found in the data. However, that does not mean there was no response-bias. Replications of the study with different industrial samples should give us additional insights on the representativeness of the respondents.

The statistical technique extensively used for hypotheses testing was structural equation modeling. Although the technique's advantages are numerous (refer to Chapter 3), some of its limitations should be noted. First, although the model of extended market orientation is built on theory-based inference of causality between variables, structural equation modeling is by no means a technique that is capable of testing causal relationships between the variables. An "argument" for causality should be made based on stringent experimental control of the variables. Data for this dissertation were collected through self-administered surveys, where the author had little control over both experimental and extraneous variables.

Finally, as with any other statistical techniques, validity of the estimated parameters in the model can only be as good as the validity of the measures. Developing valid and reliable measures is, in fact, a never-ending process that one researcher cannot handle in one study. Again, research on further refinement of the measures is needed.

CONCLUDING REMARKS

The research goal of this dissertation was to clarify a part of the structural mechanism of a market in relation to the business's market orientation. By way of investigating the research problem (what constitutes a market orientation, how is it developed, and what is its result), this dissertation contributed to our understanding of the structural relationships between the market and firm's behavior.

The author would like to conclude this dissertation by expressing his sincere appreciation for the impressive works by other researchers. Without the accumulated knowledge, this dissertation project would not have been possible.

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APPENDICES

Appendix I.

Table 1
Two Conceptualizations of Market Orientation

Authors	Kohli and Jaworski (1990) Jaworski and Kohli (1993)	Narver and Slater (1990)
Definition	***Implementation*** of the marketing concept	Organization ***culture*** that creates the necessary behaviors to create superior customer value and business performance
Construct Dimensions	• Intelligence Generation • Intelligence Dissemination • Responsiveness to Market Intelligence	• Customer Orientation • Competitor Orientation • Interfunctional Coordination • Long-term Profit Focus
Properties	• Parsimony; focus on key activities (intelligence-related) • Action-oriented guideline for managerial behavior • Observability (measurability) of behavior	• Culture (antecedent) operationalized in terms of behavior; circular logic • Potential confounding of antecedents and consequence (unclear dimensionality) • Focus on only two key players in market -- competitors and customers

Table 2
Pretest LISREL Estimates, Standard Errors, and t-values
EMO Measurement Model

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value	Reliability (Cronbach alpha)
ϕ (IG ID)	.826	.061	13.518	
ϕ (ID RESP)	.635	.083	7.646	
ϕ (IG RESP)	.578	.092	6.259	
IG (10 items)	-	-	-	.767
λ (IG P5)	.511	.157	3.243	
λ (IG P8)	.613	.123	4.983	
λ (IG P10)	.580	.093	6.270	
λ (IG P11)	.549	.134	4.103	
λ (IG P12)	.813	.142	5.734	
λ (IG P13)	.538	.132	4.060	
λ (IG P15)	.473	.096	4.952	
λ (IG P21)	.522	.106	4.914	
λ (IG P23)	.322	.081	3.996	
λ (IG P24*)	.646	.124	5.211	
ID (8 items)	-	-	-	.800
λ (ID P28)	.548	.108	5.079	
λ (ID P29)	.750	.110	6.841	
λ (ID P31)	.520	.118	4.396	
λ (ID P33*)	.508	.096	5.300	
λ (ID P35)	.790	.107	7.397	
λ (ID P37)	.686	.112	6.119	
λ (ID P38)	.622	.113	5.514	
λ (ID P42)	.440	.092	4.780	

Table 2 (continued)

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value	Reliability (Cronbach alpha)
RESP (10 items)	-	-	-	.826
λ (RESP P44*)	.600	.100	5.975	
λ (RESP P46)	.702	.100	7.044	
λ (RESP P47)	.320	.075	4.285	
λ (RESP P50*)	.798	.111	7.219	
λ (RESP P55*)	.499	.112	4.442	
λ (RESP P57)	.493	.101	4.881	
λ (RESP P58)	.760	.092	8.291	
λ (RESP P60*)	.834	.096	8.669	
λ (RESP P64)	.228	.092	2.489	
λ (RESP P69*)	.306	.082	3.714	
δ (IG P5)	1.758	.269	6.545	-
δ (IG P8)	.970	.156	6.220	-
δ (IG P10)	.487	.084	5.805	-
δ (IG P11)	1.214	.189	6.410	-
δ (IG P12)	1.251	.207	6.033	-
δ (IG P13)	1.194	.186	6.418	-
δ (IG P15)	.586	.094	6.228	-
δ (IG P21)	.726	.116	6.237	-
δ (IG P23)	.443	.069	6.430	-
δ (IG P24*)	.967	.157	6.160	-
δ (ID P28)	.766	.122	6.297	-
δ (ID P29)	.668	.116	5.776	-
δ (ID P31)	.963	.150	6.425	-
δ (ID P33*)	.595	.095	6.248	-
δ (ID P35)	.589	.107	5.523	-
δ (ID P37)	.781	.129	6.058	-
δ (ID P38)	.808	.130	6.198	-
δ (ID P42)	.570	.090	6.357	-

Table 2 (continued)

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value	Reliability (Cronbach alpha)
δ (RESP P44*)	.638	.103	6.216	-
δ (RESP P46)	.561	.095	5.920	-
δ (RESP P47)	.399	.061	6.505	-
δ (RESP P50*)	.677	.116	5.859	-
δ (RESP P55*)	.891	.137	6.485	-
δ (RESP P57)	.701	.109	6.422	-
δ (RESP P58)	.397	.074	5.368	-
δ (RESP P60*)	.408	.079	5.130	-
δ (RESP P64)	.650	.097	6.671	-
δ (RESP P69*)	.498	.498	6.571	-
θ (P12 P37)	.445	.125	3.564	-

Table 3
Pretest LISREL Estimates, Standard Errors, and t-values
EMO Second-order Model

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value	Reliability (Cronbach alpha)
EMO (28 items)	-	-	-	.893
IG (10 items)	.705	.142	4.985	.767
λ (IG P5)	.628	.213	2.948	
λ (IG P8)	.754	.185	4.070	
λ (IG P10)	.713	.152	4.681	
λ (IG P11)	.675	.190	3.548	
λ (IG P12)	1.000	-	-	
λ (IG P13)	.661	.188	3.520	
λ (IG P15)	.582	.144	4.053	
λ (IG P21)	.642	.159	4.032	
λ (IG P23)	.396	.114	3.478	
λ (IG P24*)	.794	.190	4.191	
ID (8 items)	.752	.117	6.436	.800
λ (ID P28)	.694	.150	4.637	
λ (ID P29)	.949	.162	5.851	
λ (ID P31)	.659	.161	4.101	
λ (ID P33*)	.644	.134	4.803	
λ (ID P35)	1.000	-		
λ (ID P37)	.869	.162	5.377	
λ (ID P38)	.788	.159	4.960	
λ (ID P42)	.558	.127	4.406	

Table 3 (continued)

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value	Reliability (Cronbach alpha)
RESP (10 items)	.556	.103	5.406	.826
λ (RESP P44*)	.720	.126	5.707	
λ (RESP P46)	.841	.127	6.610	
λ (RESP P47)	.384	.092	4.184	
λ (RESP P50*)	.957	.142	6.752	
λ (RESP P55*)	.598	.138	4.329	
λ (RESP P57)	.591	.125	4.732	
λ (RESP P58)	.911	.120	7.581	
λ (RESP P60*)	1.000	-		
λ (RESP P64)	.274	.111	2.469	
λ (RESP P69*)	.367	.100	3.647	
ζ (IG)	.163	.097	1.685	-
ζ (ID)	.058	.085	.681	-
ζ (RESP)	.387	.105	3.685	-
δ (IG P5)	1.758	.269	6.545	-
δ (IG P8)	.970	.156	6.220	-
δ (IG P10)	.487	.084	5.805	-
δ (IG P11)	1.214	.189	6.410	-
δ (IG P12)	1.251	.207	6.033	-
δ (IG P13)	1.194	.186	6.418	-
δ (IG P15)	.586	.094	6.228	-
δ (IG P21)	.726	.116	6.237	-
δ (IG P23)	.443	.069	6.430	-
δ (IG P24*)	.967	.157	6.160	-

Table 3 (continued)

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value	Reliability (Cronbach alpha)
δ (ID P28)	.766	.122	6.297	-
δ (ID P29)	.668	.116	5.776	-
δ (ID P31)	.963	.150	6.425	-
δ (ID P33*)	.595	.095	6.248	-
δ (ID P35)	.589	.107	5.523	-
δ (ID P37)	.781	.129	6.058	-
δ (ID P38)	.808	.130	6.198	-
δ (ID P42)	.570	.090	6.357	-
δ (RESP P44*)	.638	.103	6.216	-
δ (RESP P46)	.561	.095	5.920	-
δ (RESP P47)	.399	.061	6.505	-
δ (RESP P50*)	.677	.116	5.859	-
δ (RESP P55*)	.891	.137	6.485	-
δ (RESP P57)	.701	.109	6.422	-
δ (RESP P58)	.397	.074	5.368	-
δ (RESP P60*)	.408	.079	5.130	-
δ (RESP P64)	.650	.097	6.671	-
δ (RESP P69*)	.498	.498	6.571	-
θ (P12 P37)	.445	.125	3.564	-

Table 4
Pretest LISREL Estimates, Standard Errors, and t-values
ADAPT Scale

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value	Reliability (Cronbach alpha)
ADAPT (8 items)	-	-	-	.7724
λ (ADAPT P71)	.465	.095	4.880	
λ (ADAPT P72)	.404	.092	4.410	
λ (ADAPT P74)	.258	.090	2.882	
λ (ADAPT P75*)	.544	.100	5.452	
λ (ADAPT P76)	.252	.106	2.383	
λ (ADAPT P77)	.654	.100	6.608	
λ (ADAPT P78*)	.922	.100	9.233	
λ (ADAPT P79*)	.663	.097	6.815	
δ (ADAPT P71)	.599	.095	6.302	-
δ (ADAPT P72)	.570	.089	6.397	-
δ (ADAPT P74)	.587	.089	6.609	-
δ (ADAPT P75*)	.626	.102	6.160	-
δ (ADAPT P76)	.837	.126	6.654	-
δ (ADAPT P77)	.545	.095	5.748	-
δ (ADAPT P78*)	.314	.092	3.409	-
δ (ADAPT P79*)	.514	.091	5.648	-

Table 5
Final LISREL Estimates, Standard Errors, and t-values
EMO Measurement Model

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value	Reliability (Cronbach alpha)
ϕ (IG ID)	.766	.042	18.033	
ϕ (ID RESP)	.680	.043	15.730	
ϕ (IG RESP)	.570	.055	10.384	
IG (8 items)	-	-	-	.6704
λ (IG F5)	.428	.079	5.434	
λ (IG F10)	.523	.050	10.470	
λ (IG F11)	.671	.064	10.379	
λ (IG F12)	.510	.071	7.222	
λ (IG F13)	.468	.062	7.581	
λ (IG F14)	.375	.051	7.393	
λ (IG F15)	.405	.056	7.230	
λ (IG F17*)	.614	.072	8.551	
ID (6 items)	-	-	-	.7750
λ (ID F29)	.540	.045	12.130	
λ (ID F30)	.423	.058	7.282	
λ (ID F35)	.682	.053	12.956	
λ (ID F36)	.610	.057	10.795	
λ (ID F37)	.660	.051	12.992	
λ (ID F38)	.631	.047	13.570	
RESP (8 items)	-	-	-	.7372
λ (RESP F41*)	.471	.043	10.901	
λ (RESP F45*)	.627	.051	12.379	
λ (RESP F46*)	.367	.057	6.458	
λ (RESP F47)	.422	.055	7.674	
λ (RESP F48)	.695	.047	14.666	
λ (RESP F50*)	.734	.049	14.918	
λ (RESP F54)	.206	.048	4.307	
λ (RESP F55*)	.270	.050	5.441	

Table 5 (continued)

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value	Reliability (Cronbach alpha)
δ (IG F5)	1.550	.123	12.650	-
δ (IG F10)	.516	.047	11.000	-
δ (IG F11)	.868	.079	11.048	-
δ (IG F12)	1.209	.099	12.269	-
δ (IG F13)	.896	.074	12.151	-
δ (IG F14)	.611	.050	12.204	-
δ (IG F15)	.748	.061	12.249	-
δ (IG F17*)	1.170	.099	11.840	-
δ (ID F29)	.430	.038	11.359	-
δ (ID F30)	.886	.070	12.597	-
δ (ID F35)	.573	.052	11.004	-
δ (ID F36)	.753	.064	11.845	-
δ (ID F37)	.532	.048	10.988	-
δ (ID F38)	.429	.040	10.698	-
δ (RESP F41*)	.428	.037	11.715	-
δ (RESP F45*)	.543	.049	11.150	-
δ (RESP F46*)	.859	.068	12.697	-
δ (RESP F47)	.779	.062	12.505	-
δ (RESP F48)	.401	.041	9.821	-
δ (RESP F50*)	.422	.044	9.627	-
δ (RESP F54)	.632	.049	12.937	-
δ (RESP F55*)	.668	.052	12.825	-
θ (F12 F36)	.256	.057	4.477	-

Table 6
Final LISREL Estimates, Standard Errors, and t-values
EMO Second-order Model

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value	Reliability (Cronbach alpha)
EMO (22 items)	-	-	-	**.8474**
IG (8 items)	.537	.062	8.723	**.6704**
λ (IG F5)	.638	.128	4.965	
λ (IG F10)	.780	.099	7.924	
λ (IG F11)	1.000	-	-	
λ (IG F12)	.761	.122	6.212	
λ (IG F13)	.697	.108	6.439	
λ (IG F14)	.560	.089	6.323	
λ (IG F15)	.604	.097	6.221	
λ (IG F17*)	.915	.131	6.999	
ID (6 items)	.653	.059	11.100	**.7750**
λ (ID F29)	.791	.079	9.990	
λ (ID F30)	.620	.092	6.735	
λ (ID F35)	1.000	-	-	
λ (ID F36)	.893	.097	9.206	
λ (ID F37)	.967	.093	10.447	
λ (ID F38)	.925	.086	10.732	
RESP (8 items)	.522	.052	10.079	**.7372**
λ (RESP F41*)	.642	.065	9.883	
λ (RESP F45*)	.854	.078	10.926	
λ (RESP F46*)	.500	.080	6.230	
λ (RESP F47)	.575	.078	7.299	
λ (RESP F48)	.947	.077	12.309	
λ (RESP F50*)	1.000	-	-	
λ (RESP F54)	.280	.066	4.238	
λ (RESP F55*)	.367	.069	5.303	

Table 6 (continued)

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value	Reliability (Cronbach alpha)
ζ (IG)	.161	.045	3.562	-
ζ (ID)	.040	.040	1.002	-
ζ (RESP)	.266	.047	5.716	-
δ (IG F5)	1.550	.123	12.650	-
δ (IG F10)	.516	.047	11.000	-
δ (IG F11)	.868	.079	11.048	-
δ (IG F12)	1.209	.099	12.269	-
δ (IG F13)	.896	.074	12.151	-
δ (IG F14)	.611	.050	12.204	-
δ (IG F15)	.748	.061	12.249	-
δ (IG F17*)	1.170	.099	11.840	-
δ (ID F29)	.430	.038	11.359	-
δ (ID F30)	.886	.070	12.597	-
δ (ID F35)	.573	.052	11.004	-
δ (ID F36)	.753	.064	11.845	-
δ (ID F37)	.532	.048	10.988	-
δ (ID F38)	.429	.040	10.698	-
δ (RESP F41*)	.428	.037	11.715	-
δ (RESP F45*)	.543	.049	11.150	-
δ (RESP F46*)	.859	.068	12.697	-
δ (RESP F47)	.779	.062	12.505	-
δ (RESP F48)	.401	.041	9.821	-
δ (RESP F50*)	.422	.044	9.627	-
δ (RESP F54)	.632	.049	12.937	-
δ (RESP F55*)	.668	.052	12.825	-
θ (F12 F36)	.256	.057	4.477	-

Table 7
Kohli & Jaworski Response Design and Response Implementation
Measurement Model
LISREL Estimates, Standard Errors, and t-values

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value
ϕ (RD RI)	.914	.035	26.348
RD (6 items)	-	-	-
λ (RD F39*)	.387	.054	7.226
λ (RD F40)	.274	.054	5.101
λ (RD F42)	.505	.042	11.946
λ (RD F43*)	.262	.061	4.292
λ (RD F44)	.477	.048	9.896
λ (RD F45*)	.634	.052	12.209
RI (6 items)	-	-	-
λ (RI F47)	.450	.054	8.275
λ (RI F48)	.698	.047	14.820
λ (RI F49*)	.542	.050	10.815
λ (RI F50*)	.723	.049	14.702
λ (RI F51)	.411	.052	7.940
λ (RI F53)	.358	.040	8.990
δ (RD F39*)	.724	.058	12.454
δ (RD F40)	.762	.060	12.805
δ (RD F42)	.361	.034	10.746
δ (RD F43*)	1.001	.078	12.899
δ (RD F44)	.529	.045	11.715
δ (RD F45*)	.534	.051	10.577
δ (RI F47)	.755	.061	12.426
δ (RI F48)	.396	.040	9.870
δ (RI F49*)	.582	.049	11.809
δ (RI F50*)	.437	.044	9.957
δ (RI F51)	.692	.055	12.487
δ (RI F53)	.396	.032	12.281

Table 8
Kohli & Jaworski Market Orientation (MO)
Measurement Model
LISREL Estimates, Standard Errors, and t-values

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value	Reliability (Cronbach alpha)
ϕ (IG ID)	.805	.058	13.766	
ϕ (IG RD)	.815	.060	13.596	
ϕ (IG RI)	.669	.057	11.712	
ϕ (ID RD)	.920	.052	17.655	
ϕ (ID RI)	.864	.043	20.193	
ϕ (RD RI)	.795	.049	16.122	
IG (8 items)	-	-	-	.5884
λ (IG F1)	.350	.060	5.846	
λ (IG F2)	.435	.074	5.844	
λ (IG F3)	.415	.066	6.326	
λ (IG F5)	.474	.080	5.909	
λ (IG F6)	.441	.077	5.758	
λ (IG F7)	.172	.052	3.304	
λ (IG F9)	.412	.053	7.785	
λ (IG F10)	.520	.052	9.999	
ID (4 items)	-	-	-	.6368
λ (ID F28)	.622	.059	10.532	
λ (ID F29)	.531	.046	11.590	
λ (ID F31)	.362	.048	7.578	
λ (ID F34*)	.490	.048	10.256	
RD (4 items)	-	-	-	.4780
λ (RD F40)	.321	.053	6.003	
λ (RD F42)	.525	.043	12.194	
λ (RD F43*)	.238	.061	3.884	
λ (RD F44)	.562	.048	11.773	

Table 8 (continued)

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value	Reliability (Cronbach alpha)
RI (5 items)	-	-	-	.7364
λ (RI F47)	.440	.055	8.028	
λ (RI F48)	.714	.047	15.151	
λ (RI F49*)	.542	.050	10.752	
λ (RI F50*)	.706	.050	14.146	
λ (RI F53)	.364	.040	9.118	
δ (IG F1)	.845	.068	12.428	-
δ (IG F2)	1.302	.105	12.428	-
δ (IG F3)	.995	.081	12.296	-
δ (IG F5)	1.509	.122	12.411	-
δ (IG F6)	1.381	.111	12.450	-
δ (IG F7)	.674	.052	12.909	-
δ (IG F9)	.615	.052	11.787	-
δ (IG F10)	.520	.049	10.532	-
δ (ID F28)	.783	.068	11.581	-
δ (ID F29)	.439	.040	11.023	-
δ (ID F31)	.582	.047	12.476	-
δ (ID F34*)	.521	.044	11.698	-
δ (RD F40)	.734	.058	12.652	-
δ (RD F42)	.340	.034	9.893	-
δ (RD F43*)	1.013	.078	12.933	-
δ (RD F44)	.440	.043	10.327	-
δ (RI F47)	.764	.062	12.430	-
δ (RI F48)	.374	.040	9.293	-
δ (RI F49*)	.583	.050	11.739	-
δ (RI F50*)	.462	.046	10.102	-
δ (RI F53)	.391	.032	12.195	-

Table 9
Kohli & Jaworski Market Orientation (MO)
Second-order Model
LISREL Estimates, Standard Errors, and t-values

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value	Reliability (Cronbach alpha)
MO (21 items)	-	-	-	.8258
IG (8 items)	.429	.047	9.040	.5884
λ (IG F1)	.661	.128	5.156	
λ (IG F2)	.840	.160	5.261	
λ (IG F3)	.782	.143	5.489	
λ (IG F5)	.889	.172	5.178	
λ (IG F6)	.835	.163	5.114	
λ (IG F7)	.333	.104	3.202	
λ (IG F9)	.808	.123	6.583	
λ (IG F10)	1.000	-	-	
ID (4 items)	.474	.048	9.834	.6368
λ (ID F28)	1.324	.165	8.039	
λ (ID F29)	1.124	.133	8.448	
λ (ID F31)	.752	.118	6.389	
λ (ID F34*)	1.000	-	-	
RD (4 items)	.535	.047	11.484	.4780
λ (RD F40)	.563	.101	5.595	
λ (RD F42)	.922	.095	9.738	
λ (RD F43*)	.412	.111	3.695	
λ (RD F44)	1.000	-	-	

Table 9 (continued)

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value	Reliability (Cronbach alpha)
RI (5 items)	.604	.048	12.525	.7364
λ (RI F47)	.616	.081	7.618	
λ (RI F48)	1.000	-	-	
λ (RI F49*)	.760	.077	9.825	
λ (RI F50*)	.991	.082	12.119	
λ (RI F53)	.509	.060	8.513	
ζ (IG)	.088	.028	3.150	-
ζ (ID)	.005	.017	.279	-
ζ (RD)	.035	.026	1.324	-
ζ (RI)	.144	.034	4.280	-
δ (IG F1)	.845	.068	12.428	-
δ (IG F2)	1.302	.105	12.428	-
δ (IG F3)	.995	.081	12.296	-
δ (IG F5)	1.509	.122	12.411	-
δ (IG F6)	1.381	.111	12.450	-
δ (IG F7)	.674	.052	12.909	-
δ (IG F9)	.615	.052	11.787	-
δ (IG F10)	.520	.049	10.532	-
δ (ID F28)	.783	.068	11.581	-
δ (ID F29)	.439	.040	11.023	-
δ (ID F31)	.582	.047	12.476	-
δ (ID F34*)	.521	.044	11.698	-

Table 9 (continued)

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value	Reliability (Cronbach alpha)
δ (RD F40)	.734	.058	12.652	-
δ (RD F42)	.340	.034	9.893	-
δ (RD F43*)	1.013	.078	12.933	-
δ (RD F44)	.440	.043	10.327	-
δ (RI F47)	.764	.062	12.430	-
δ (RI F48)	.374	.040	9.293	-
δ (RI F49*)	.583	.050	11.739	-
δ (RI F50*)	.462	.046	10.102	-
δ (RI F53)	.391	.032	12.195	-

Table 10
Final LISREL Estimates, Standard Errors, and t-values
FORM Scale

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value	Reliability (Cronbach alpha)
FORM (5 items)	-	-	-	.7480
λ (FORM F64*)	.525	.053	9.986	
λ (FORM F65*)	.645	.050	12.962	
λ (FORM F66*)	.806	.047	16.994	
λ (FORM F67*)	.520	.044	11.775	
λ (FORM F69)	.289	.051	5.656	
δ (FORM F64*)	.648	.055	11.879	-
δ (FORM F65*)	.476	.046	10.296	-
δ (FORM F66*)	.227	.045	5.095	-
δ (FORM F67*)	.413	.037	11.110	-
δ (FORM F69)	.707	.055	12.793	-

Table 11
Final LISREL Estimates, Standard Errors, and t-values
CENT Scale

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value	Reliability (Cronbach alpha)
CENT (5 items)	-	-	-	.8920
λ (CENT F71)	.747	.049	15.311	
λ (CENT F72)	.620	.044	14.171	
λ (CENT F73)	.811	.043	18.937	
λ (CENT F74)	.775	.040	19.460	
λ (CENT F77)	.736	.042	17.548	
δ (CENT F71)	.476	.042	11.461	-
δ (CENT F72)	.415	.035	11.810	-
δ (CENT F73)	.255	.027	9.376	-
δ (CENT F74)	.204	.023	8.859	-
δ (CENT F77)	.289	.028	10.431	-

Table 12
Final LISREL Estimates, Standard Errors, and t-values
DEPT Scale

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value	Reliability (Cronbach alpha)
DEPT (8 items)	-	-	-	.8617
λ (DEPT F75)	.798	.045	17.666	
λ (DEPT F76*)	.607	.037	16.309	
λ (DEPT F78*)	.569	.041	13.900	
λ (DEPT F79)	.702	.048	14.530	
λ (DEPT F80*)	.539	.046	11.817	
λ (DEPT F81*)	.257	.037	6.955	
λ (DEPT F82*)	.463	.032	14.541	
λ (DEPT F84*)	.443	.038	11.806	
δ (DEPT F75)	.317	.033	9.667	-
δ (DEPT F76*)	.247	.023	10.556	-
δ (DEPT F78*)	.358	.031	11.575	-
δ (DEPT F79)	.479	.042	11.358	-
δ (DEPT F80*)	.498	.041	12.125	-
δ (DEPT F81*)	.385	.030	12.826	-
δ (DEPT F82*)	.208	.018	11.354	-
δ (DEPT F84*)	.337	.028	12.128	-

Table 13
Final LISREL Estimates, Standard Errors, and t-values
ADAPT Scale

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value	Reliability (Cronbach alpha)
ADAPT (8 items)	-	-	-	.8508
λ (ADAPT F56)	.585	.048	12.249	
λ (ADAPT F57)	.437	.044	10.683	
λ (ADAPT F58)	.356	.040	8.874	
λ (ADAPT F59*)	.430	.048	9.013	
λ (ADAPT F60)	.539	.049	11.040	
λ (ADAPT F61)	.719	.048	15.081	
λ (ADAPT F62*)	.853	.047	18.291	
λ (ADAPT F63*)	.766	.045	16.950	
δ (ADAPT F56)	.531	.044	11.968	-
δ (ADAPT F57)	.489	.040	12.306	-
δ (ADAPT F58)	.429	.034	12.593	-
δ (ADAPT F59*)	.603	.048	12.575	-
δ (ADAPT F60)	.587	.048	12.237	-
δ (ADAPT F61)	.444	.040	11.019	-
δ (ADAPT F62*)	.306	.035	8.813	-
δ (ADAPT F63*)	.338	.034	9.950	-

Table 14
Final LISREL Estimates, Standard Errors, and t-values
REGIMP Scale

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value	Reliability (Cronbach alpha)
REGIMP (4 items)	-	-	-	.8786
λ (REGIMP F18)	.932	.051	18.359	
λ (REGIMP F19)	.918	.045	20.566	
λ (REGIMP F20)	.785	.048	16.367	
λ (REGIMP F21)	.762	.053	14.389	
δ (REGIMP F18)	.373	.040	9.287	-
δ (REGIMP F19)	.193	.030	6.401	-
δ (REGIMP F20)	.417	.039	10.826	-
δ (REGIMP F21)	.594	.051	.030	-

Table 15
EMO Full Structural Equation Model
LISREL Estimates, Standard Errors, and t-values

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value
Single Item Performance Measures			
λ (F86 OVERALL)	1.000	-	-
λ (F87 SOM)	1.000	-	-
λ (F88 SGRO)	1.000	-	-
λ (F89 PCTNP)	1.000	-	-
λ (F90 ROS)	1.000	-	-
λ (F91 ROA)	1.000	-	-
λ (F92 ROI)	1.000	-	-
ε (F86 OVERALL)	1.142	.092	12.442
ε (F87 SOM)	1.353	.108	12.536
ε (F88 SGRO)	1.354	.108	12.554
ε (F89 PCTNP)	1.625	.129	12.629
ε (F90 ROS)	1.600	.127	12.597
ε (F91 ROA)	1.442	.116	12.484
ε (F92 ROI)	1.427	.115	12.395
EMO (3 items)			
λ (IG EMO)	1.000	-	-
λ (ID EMO)	.970	.125	7.748
λ (RESP EMO)	1.551	.170	9.126
ε (IG EMO)	17.346	1.408	12.320
ε (ID EMO)	10.607	.893	11.874
ε (RESP EMO)	5.303	.803	6.602
External Antecedents			
λ (F18 REGIMP)	1.000	-	-
λ (F19 REGIMP)	1.000	-	-
λ (F20 REGIMP)	1.000	-	-

Table 15 (continued)

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value
λ (F21 REGIMP)	1.000	-	-
λ (F22 ENTRY)	1.000	-	-
λ (F23 BPOWR)	1.000	-	-
λ (F24 SPOWR)	1.000	-	-
λ (F25 MGRO)	1.000	-	-
λ (F26 TECH)	1.000	-	-
δ (F18 REGIMP)	.374	.040	9.307
δ (F19 REGIMP)	.198	.030	6.569
δ (F20 REGIMP)	.414	.038	10.786
δ (F21 REGIMP)	.587	.051	11.598
δ (F22 ENTRY)	1.053	.080	13.115
δ (F23 BPOWR)	.894	.068	13.115
δ (F24 SPOWR)	.873	.067	13.115
δ (F25 MGRO)	.747	.057	13.115
δ (F26 TECH)	.857	.065	13.115
Internal Antecedents			
λ (F56 ADAPT)	1.000	-	-
λ (F57 ADAPT)	.760	.080	9.511
λ (F58 ADAPT)	.586	.070	8.384
λ (F59* ADAPT)	.698	.083	8.379
λ (F60 ADAPT)	.863	.089	9.703
λ (F61 ADAPT)	1.148	.096	12.015
λ (F62* ADAPT)	1.314	.101	13.039
λ (F63* ADAPT)	1.192	.095	12.598
δ (F56 ADAPT)	.479	.041	11.806
δ (F57 ADAPT)	.484	.039	12.370
δ (F58 ADAPT)	.420	.033	12.605
δ (F59* ADAPT)	.596	.047	12.606
δ (F60 ADAPT)	.584	.047	12.320
δ (F61 ADAPT)	.441	.039	11.234
δ (F62* ADAPT)	.352	.035	10.014

Table 15 (continued)

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value
δ (F63* ADAPT)	.365	.034	10.657
λ (F64* FORM)	1.000	-	-
λ (F65* FORM)	.992	.0897	11.067
λ (F66* FORM)	.968	.089	10.941
λ (F67* FORM)	.590	.075	7.881
λ (F69 FORM)	.618	.081	7.679
δ (F64* FORM)	.464	.046	10.082
δ (F65* FORM)	.440	.044	9.964
δ (F66* FORM)	.445	.044	10.151
δ (F67* FORM)	.523	.043	12.196
δ (F69 FORM)	.615	.050	12.259
λ (F71 CENT)	1.000	-	-
λ (F72 CENT)	.839	.062	13.621
λ (F73 CENT)	1.060	.064	16.463
λ (F74 CENT)	.974	.061	16.057
λ (F77 CENT)	.936	.062	15.080
δ (F71 CENT)	.440	.039	11.447
δ (F72 CENT)	.382	.032	11.763
δ (F73 CENT)	.245	.025	9.711
δ (F74 CENT)	.242	.024	10.208
δ (F77 CENT)	.311	.028	11.036
λ (F75 DEPT)	1.000	-	-
λ (F76* DEPT)	.741	.049	15.181
λ (F78* DEPT)	.730	.052	13.954
λ (F79 DEPT)	.899	.062	14.511
λ (F80* DEPT)	.673	.058	11.566
λ (F81* DEPT)	.319	.046	6.872
λ (F82* DEPT)	.580	.041	14.107
λ (F84* DEPT)	.573	.048	12.046
δ (F75 DEPT)	.322	.031	10.321

Table 15 (continued)

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value
δ (F76* DEPT)	.268	.024	11.280
δ (F78* DEPT)	.345	.029	11.732
δ (F79 DEPT)	.462	.040	11.544
δ (F80* DEPT)	.503	.041	12.310
δ (F81* DEPT)	.387	.030	12.881
δ (F82* DEPT)	.210	.018	11.683
δ (F84* DEPT)	.326	.027	12.217
Error Covariances			
θ (F86 F87)	.558	.078	7.192
θ (F86 F88)	.592	.078	7.556
θ (F86 F89)	.118	.058	2.034
θ (F86 F90)	.674	.086	7.856
θ (F86 F91)	.605	.081	7.464
θ (F86 F92)	.637	.082	7.783
θ (F87 F88)	.958	.094	10.189
θ (F87 F90)	.266	.085	3.141
θ (F87 F91)	.199	.080	2.475
θ (F87 F92)	.234	.081	2.902
θ (F88 F90)	.468	.088	5.339
θ (F88 F91)	.407	.083	4.908
θ (F88 F92)	.422	.083	5.071
θ (F90 F91)	1.255	.111	11.253
θ (F90 F92)	1.185	.109	10.855
θ (F91 F92)	1.272	.109	11.637
Antecedents - EMO			
γ (FORM EMO)	1.508	5.947	.254
γ (CENT EMO)	-.841	5.368	-.157
γ (DEPT EMO)	-.674	4.788	-.141
γ (ADAPT EMO)	.781	4.502	.173
γ (ENTRY EMO)	.738	.973	.758
γ (BROWR EMO)	-1.715	8.907	-.019

Table 15 (continued)

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value
γ (SPOWR EMO)	-1.959	10.376	-.189
γ (MGRO EMO)	2.890	13.573	.213
γ (TECH EMO)	2.971	14.449	.206
γ (REGIMP EMO)	.129	.358	.360
ζ (All Antecedents EMO)	1.734	1.685	1.029
EMO - Performance Measures			
β (ROA EMO)	.252	.038	6.566
β (ROI EMO)	.269	.039	6.814
β (ROS EMO)	.240	.039	6.186
β (SOM EMO)	.234	.037	6.402
β (SGRO EMO)	.230	.036	6.340
β (PCTNP EMO)	.240	.039	6.172
β (OVERALL EMO)	.244	.036	6.865

Table 16
Fit Statistics Comparison for EMO and MO

Note: * indicates reverse item.

	EMO	MO
Chi-square (df)	663.034 (357)	593.921 (330)
Goodness of Fit Index **(GFI)**	.883	.892
Adjusted Goodness of Fit Index **(AGFI)**	.857	.867
Parsimony Goodness of Fit Index **(PGFI)**	.725	.725
Normed Fit Index **(NFI)**	.838	.841
Parsimony Normed Fit Index **(PNFI)**	.737	.734
Comparative Fit Index **(CFI)**	.917	.921

Table 17
EMO and MO
Relationships with Performance
LISREL Estimates, Standard Errors, and t-values

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value
EMO (22 items)			
IG	.506	.059	8.539
ID	.536	.052	10.231
RESP	.624	.052	12.042
ζ (IG)	.214	.051	4.218
ζ (ID)	.174	.038	4.631
ζ (RESP)	.147	.038	3.909
IG (8 items)			
λ (IG F5)	.599	.126	4.760
λ (IG F10)	.794	.098	8.109
λ (IG F11)	1.000	-	-
λ (IG F12)	.730	.118	6.163
λ (IG F13)	.683	.106	6.428
λ (IG F14)	.522	.086	6.064
λ (IG F15)	.562	.095	5.947
λ (IG F17*)	.871	.127	6.838
δ (IG F5)	1.565	.124	12.662
δ (IG F10)	.494	.047	10.548
δ (IG F11)	.848	.079	10.748
δ (IG F12)	1.209	.099	12.246
δ (IG F13)	.895	.074	12.077
δ (IG F14)	.623	.051	12.246
δ (IG F15)	.764	.062	12.294
δ (IG F17*)	1.190	.100	11.845
ID (6 items)			
λ (ID F29)	.789	.081	9.793
λ (ID F30)	.617	.093	6.616
λ (ID F35)	1.000	-	-

Table 17 (continued)

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value
λ (ID F36)	.863	.097	8.864
λ (ID F37)	.957	.094	10.158
λ (ID F38)	.963	.089	10.839
δ (ID F29)	.434	.038	11.280
δ (ID F30)	.889	.071	12.574
δ (ID F35)	.578	.053	10.901
δ (ID F36)	.777	.065	11.900
δ (ID F37)	.545	.050	10.968
δ (ID F38)	.400	.040	10.137
RESP (8 items)			
λ (RESP F41*)	.645	.065	9.994
λ (RESP F45*)	.859	.078	11.089
λ (RESP F46*)	.492	.080	6.161
λ (RESP F47)	.585	.078	7.471
λ (RESP F48)	.939	.076	12.393
λ (RESP F50*)	1.000	-	-
λ (RESP F54)	.284	.066	4.306
λ (RESP F55*)	.395	.069	5.722
δ (RESP F41*)	.427	.036	11.807
δ (RESP F45*)	.540	.048	11.267
δ (RESP F46*)	.864	.068	12.741
δ (RESP F47)	.774	.062	12.524
δ (RESP F48)	.411	.040	10.195
δ (RESP F50*)	.425	.043	9.906
δ (RESP F54)	.631	.049	12.945
δ (RESP F55*)	.657	.051	12.799
Performance Measures			
λ (F86 OVERALL)	1.000	-	-
λ (F87 SOM)	1.000	-	-
λ (F88 SGRO)	1.000	-	-

Table 17 (continued)

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value
λ (F89 PCTNP)	1.000	-	-
λ (F90 ROS)	1.000	-	-
λ (F91 ROA)	1.000	-	-
λ (F92 ROI)	1.000	-	-
ε (F86 OVERALL)	1.166	.096	12.142
ε (F87 SOM)	1.331	.110	12.116
ε (F88 SGRO)	1.334	.110	12.151
ε (F89 PCTNP)	1.597	.130	12.293
ε (F90 ROS)	1.541	.127	12.118
ε (F91 ROA)	1.418	.118	12.032
ε (F92 ROI)	1.390	.117	11.853
Error Covariances			
θ (F36 F12)	.283	.058	4.873
θ (F86 F87)	.560	.080	6.955
θ (F86 F88)	.593	.081	7.305
θ (F86 F89)	.131	.059	2.234
θ (F86 F90)	.660	.088	7.501
θ (F86 F91)	.608	.084	7.231
θ (F86 F92)	.637	.085	7.499
θ (F87 F88)	.937	.096	9.767
θ (F87 F90)	.227	.086	2.644
θ (F87 F91)	.176	.082	2.139
θ (F87 F92)	.205	.082	2.495
θ (F88 F90)	.429	.089	4.844
θ (F88 F91)	.385	.085	4.536
θ (F88 F92)	.395	.085	4.368
θ (F90 F91)	1.213	.113	10.754
θ (F90 F92)	1.136	.110	10.297
θ (F91 F92)	1.242	.112	11.132

Table 17 (continued)

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value
EMO - Performance Measures			
β (ROA EMO)	.637	.078	8.182
β (ROI EMO)	.685	.078	8.794
β (ROS EMO)	.636	.081	7.867
β (SOM EMO)	.591	.075	7.873
β (SGRO EMO)	.581	.075	7.741
β (PCTNP EMO)	.611	.081	7.551
β (OVERALL EMO)	.572	.071	8.090
MO (21 items)			
IG	.275	.051	5.349
ID	.583	.058	9.994
RD	.294	.051	5.811
RI	.391	.051	7.731
ζ (IG)	.036	.016	2.335
ζ (ID)	.043	.029	1.501
ζ (RD)	.015	.009	1.607
ζ (RI)	.043	.015	2.944
IG (8 items)			
λ (IG F1)	1.000	-	-
λ (IG F2)	1.271	.312	4.078
λ (IG F3)	1.230	.288	4.271
λ (IG F5)	1.378	.337	4.091
λ (IG F6)	1.271	.316	4.017
λ (IG F7)	.501	.178	2.813
λ (IG F9*)	1.316	.275	4.781
λ (IG F10)	1.562	.310	5.038

Table 17 (continued)

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value
δ (IG F1)	.856	.068	12.507
δ (IG F2)	1.311	.105	12.473
δ (IG F3)	.998	.081	12.322
δ (IG F5)	1.521	.122	12.465
δ (IG F6)	1.395	.111	12.513
δ (IG F7)	.676	.052	12.924
δ (IG F9*)	.591	.051	11.552
δ (IG F10)	.517	.049	10.525
ID (4 items)			
λ (ID F28)	1.000	-	-
λ (ID F29)	.863	.101	8.532
λ (ID F31)	.614	.092	6.700
λ (ID F34*)	.779	.100	7.817
δ (ID F28)	.788	.069	11.459
δ (ID F29)	.436	.040	10.787
δ (ID F31)	.569	.046	12.295
δ (ID F34*)	.529	.046	11.634
RD (4 items)			
λ (RD F40)	1.000	-	-
λ (RD F42)	1.683	.300	5.611
λ (RD F43*)	.761	.228	3.330
λ (RD F44)	1.736	.315	5.518
δ (RD F40)	.736	.058	12.646
δ (RD F42)	.329	.035	9.541
δ (RD F43*)	1.011	.078	12.921
δ (RD F44)	.451	.043	10.486
RI (5 items)			
λ (RI F47)	1.000	-	-
λ (RI F48)	1.599	.207	7.726

Table 17 (continued)

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value
λ (RI F49*)	1.216	.176	6.907
λ (RI F50*)	1.605	.210	7.628
λ (RI F53*)	.824	.128	6.439
δ (RI F47)	.761	.061	12.451
δ (RI F48)	.382	.040	9.608
δ (RI F49*)	.585	.050	11.828
δ (RI F50*)	.454	.045	10.160
δ (RI F53*)	.390	.032	12.234
Performance Measures			
λ (F86 OVERALL)	1.000	-	-
λ (F87 SOM)	1.000	-	-
λ (F88 SGRO)	1.000	-	-
λ (F89 PCTNP)	1.000	-	-
λ (F90 ROS)	1.000	-	-
λ (F91 ROA)	1.000	-	-
λ (F92 ROI)	1.000	-	-
ε (F86 OVERALL)	1.213	.096	12.628
ε (F87 SOM)	1.376	.110	12.554
ε (F88 SGRO)	1.389	.110	12.597
ε (F89 PCTNP)	1.654	.131	12.646
ε (F90 ROS)	1.628	.129	12.619
ε (F91 ROA)	1.513	.120	12.592
ε (F92 ROI)	1.506	.120	12.522
Error Covariances			
θ (F86 F87)	.606	.081	7.526
θ (F86 F88)	.644	.082	7.893
θ (F86 F89)	.134	.059	2.295
θ (F86 F90)	.724	.089	8.145
θ (F86 F91)	.676	.085	7.928
θ (F86 F92)	.712	.086	8.248

Table 17 (continued)

Note: * indicates reverse item.

Parameter	LISREL Estimate	Standard Error	t-value
θ (F87 F88)	.987	.096	10.279
θ (F87 F90)	.292	.086	3.385
θ (F87 F91)	.245	.083	2.954
θ (F87 F92)	.283	.083	3.390
θ (F88 F90)	.500	.090	5.576
θ (F88 F91)	.459	.086	5.333
θ (F88 F92)	.477	.087	5.510
θ (F90 F91)	1.304	.115	11.355
θ (F90 F92)	1.237	.113	10.973
θ (F91 F92)	1.347	.114	11.795
EMO - Performance Measures			
β (ROA EMO)	.558	.076	7.350
β (ROI EMO)	.594	.076	7.803
β (ROS EMO)	.563	.079	7.168
β (SOM EMO)	.552	.073	7.601
β (SGRO EMO)	.531	.073	7.315
β (PCTNP EMO)	.562	.079	7.131
β (OVERALL EMO)	.522	.068	7.649

Table 18
EMO and MO
Relative Influences on Performance
Chi-square Statistical Difference

Performance Measures	Equality Constraint Model	Free Model	Chi-square Difference
OVERALL (F86)	$\chi 2 = 73.891$ (df = 15)	$\chi 2 = 73.735$ (df = 14)	$\chi 2 = .156$ (df = 1)
SOM (F87)	$\chi 2 = 57.928$ (df = 15)	$\chi 2 = 57.897$ (df = 14)	$\chi 2 = .029$ (df = 1)
SGRO (F88)	$\chi 2 = 60.986$ (df = 15)	$\chi 2 = 60.980$ (df = 14)	$\chi 2 = .006$ (df = 1)
PCTNP (F89)	$\chi 2 = 52.321$ (df = 15)	$\chi 2 = 52.311$ (df = 14)	$\chi 2 = .010$ (df = 1)
ROS (F90)	$\chi 2 = 55.464$ (df = 15)	$\chi 2 = 55.250$ (df = 14)	$\chi 2 = .214$ (df = 1)
ROA (F91)	$\chi 2 = 68.737$ (df = 15)	$\chi 2 = 67.922$ (df = 14)	$\chi 2 = .815$ (df = 1)
ROI (F92)	$\chi 2 = 69.766$ (df = 15)	$\chi 2 = 68.959$ (df = 14)	$\chi 2 = .807$ (df = 1)

Table 19
Pair-wise Comparisons of Strategy Types
Chi-square Statistics, β Estimates, and t-values

Performance Measures	Equality Constraint Model	Free Model	Chi-square Difference	β Estimates of Free Model (t value)
ROA				
Type 1 - Type 2	$\chi 2 = 422.610$ (df = 15)	$\chi 2 = 317.244$ (df = 14)	$\chi 2 = 105.366$ (df = 1)	Type1: 1.074 (11.278) Type 2: .168 (4.556)
Type 2 - Type 3	$\chi 2 = 614.464$ (df = 15)	$\chi 2 = 472.391$ df = 14)	$\chi 2 = 142.073$ (df = 1)	Type2: 1.492 (11.125) Type 3: .044 (.971)
Type 1 - Type 3	$\chi 2 = 411.681$ (df = 15)	$\chi 2 = 290.501$ (df = 14)	$\chi 2 = 121.180$ (df = 1)	Type1: 1.327 (9.334) Type 3: .052 (1.109)
ROI				
Type 1 - Type 2	$\chi 2 = 423.871$ (df = 15)	$\chi 2 = 310.571$ (df = 14)	$\chi 2 = 113.300$ (df = 1)	Type1: 1.158 (11.001) Type 2: .170 (4.544)
Type 2 - Type 3	$\chi 2 = 640.181$ (df = 15)	$\chi 2 = 490.873$ (df = 14)	$\chi 2 = 149.308$ (df = 1)	Type2: 1.532 (11.212) Type 3: .051 (1.120)
Type 1 - Type 3	$\chi 2 = 408.891$ (df = 15)	$\chi 2 = 286.095$ (df = 14)	$\chi 2 = 122.796$ (df = 1)	Type1: 1.388 (9.135) Type 3: .065 (1.368)

Table 19 (continued)

Performance Measures	Equality Constraint Model	Free Model	Chi-square Difference	β Estimates of Free Model (t value)
ROS				
Type 1 - Type 2	$\chi^2 = 395.876$ (df = 15)	$\chi^2 = 300.019$ (df = 14)	$\chi^2 = 95.857$ (df = 1)	Type1: .923 (11.651) Type 2: .128 (3.611)
Type 2 - Type 3	$\chi^2 = 596.335$ (df = 15)	$\chi^2 = 457.078$ (df = 14)	$\chi^2 = 139.257$ (df = 1)	Type2: 1.588 (10.576) Type 3: .024 (.494)
Type 1 - Type 3	$\chi^2 = 399.274$ (df = 15)	$\chi^2 = 279.665$ (df = 14)	$\chi^2 = 119.609$ (df = 1)	Type1: 1.262 (9.521) Type 3: .026 (.568)
SOM				
Type 1 - Type 2	$\chi^2 = 409.153$ (df = 15)	$\chi^2 = 354.999$ (df = 14)	$\chi^2 = 54.154$ (df = 1)	Type1: -1.581 (7.250) Type 2: .129 (2.284)
Type 2 - Type 3	$\chi^2 = 640.101$ (df = 15)	$\chi^2 = 482.367$ (df = 14)	$\chi^2 = 157.734$ (df = 1)	Type2: 2.084 (8.562) Type 3: .069 (1.269)
Type 1 - Type 3	$\chi^2 = 426.398$ (df = 15)	$\chi^2 = 295.931$ (df = 14)	$\chi^2 = 130.467$ (df = 1)	Type1: 1.674 (8.095) Type 3: .068 (1.322)

Table 19 (continued)

Performance Measures	Equality Constraint Model	Free Model	Chi-square Difference	β Estimates of Free Model (t value)
SGRO				
Type 1 - Type 2	$\chi 2 = 426.152$ (df = 15)	$\chi 2 = 354.871$ (df = 14)	$\chi 2 = 71.281$ (df = 1)	Type1: -1.683 (6.978) Type 2: .140 (2.527)
Type 2 - Type 3	$\chi 2 = 656.902$ (df = 15)	$\chi 2 = 503.278$ (df = 14)	$\chi 2 = 153.624$ (df = 1)	Type2: 1.850 (9.531) Type 3: .007 (.149)
Type 1 - Type 3	$\chi 2 = 416.473$ (df = 15)	$\chi 2 = 294.396$ (df = 14)	$\chi 2 = 122.077$ (df = 1)	Type1: 1.628 (8.050) Type 3: .017 (.323)
PCTNP				
Type 1 - Type 2	$\chi 2 = 375.804$ (df = 15)	$\chi 2 = 320.240$ (df = 14)	$\chi 2 = 55.564$ (df = 1)	Type1: -1.662 (6.458) Type 2: .103 (1.778)
Type 2 - Type 3	$\chi 2 = 613.368$ (df = 15)	$\chi 2 = 501.402$ (df = 14)	$\chi 2 = 111.966$ (df = 1)	Type2: 1.613 (10.321) Type 3: .041 (.746)
Type 1 - Type 3	$\chi 2 = 334.192$ (df = 15)	$\chi 2 = 255.373$ (df = 14)	$\chi 2 = 78.819$ (df = 1)	Type1: 1.135 (8.985) Type 3: .041 (.804)

Table 19 (continued)

Performance Measures	Equality Constraint Model	Free Model	Chi-square Difference	β Estimates of Free Model (t value)
OVERALL				
Type 1 - Type 2	$\chi 2 = 478.333$ (df = 15)	$\chi 2 = 381.089$ (df = 14)	$\chi 2 = 97.244$ (df = 1)	Type1: -2.202 (6.096) Type 2: .181 (2.759)
Type 2 - Type 3	$\chi 2 = 723.681$ (df = 15)	$\chi 2 = 535.397$ (df = 14)	$\chi 2 = 188.284$ (df = 1)	Type2: 2.129 (8.803) Type 3: .041 (.844)
Type 1 - Type 3	$\chi 2 = 482.772$ (df = 15)	$\chi 2 = 311.958$ (df = 14)	$\chi 2 = 170.814$ (df = 1)	Type1: 1.850 (8.229) Type 3: .044 (.950)

Table 20
Summary of Hypotheses Testing Results

	Theoretical Hypothesis	Results
H1	The relationship between market orientation and economic performance is better explained by the extended market orientation construct (EMO) than by the original market orientation construct (MO) by Kohli and Jaworski (1990), Jaworski and Kohli (1993), and Kohli, Jaworski, and Kumar (1993).	Not supported; MO and EMO were statistically comparable.
H2a	The greater the extended market orientation, the greater the profitability: (1) ROA, (2) ROI, (3) ROS.	Supported for ROA, ROI, and ROS.
H2b	The greater the extended market orientation, the greater the market share growth.	Supported.
H2c	The greater the extended market orientation, the greater the relative sales growth.	Supported.
H2d	The greater the extended market orientation, the greater the new product sales as a percentage of total sales.	Supported.
H2e	The greater the extended market orientation, the greater the overall performance.	Supported.
H3	The relationship between the extended market orientation and economic performance is moderated by the type of strategy employed.	Supported.

Table 20 (continued)

	Theoretical Hypothesis	Results
H3a	The strength of relationship between the extended market orientation and performance as measured by efficiency (ROA, ROI, ROS) is greater for the Defenders and the Analyzers than for the Prospectors. Furthermore, there is no difference in the strength between the Defenders and the Analyzers.	ROA, ROI, ROS: Partially supported
H3b	The strength of relationship between the extended market orientation and performance as measured by market share growth is greater for the Defenders and the Analyzers than for the Prospectors. Furthermore, there is no difference in the strength between the Defenders and the Analyzers.	Not supported.
H3c	The strength of relationship between the extended market orientation and performance measured by relative sales growth is greater for the Prospectors and the Analyzers than for the Defenders. Furthermore, there is no difference in the strength between the Prospectors and the Analyzers.	Partially supported.
H3d	The strength of relationship between the extended market orientation and performance measured by new product sales as percentage of total sales is greater for the Prospectors and the Analyzers than for the Defenders. Furthermore, there is no difference in the strength between the Prospectors and the Analyzers.	Partially supported.

Table 20 (continued)

	Theoretical Hypothesis	Results
H3e	The strength of relationship between the extended market orientation and overall performance as measured by an omnibus single-item performance measure is the greatest for the Analyzers among the three viable strategy types.	Not supported.
H4a	Formalization is not related to the extended market orientation (EMO).	Supported.
H4b	The greater the centralization, the lower the degree of extended market orientation.	Not supported.
H4c	The greater the departmentalization, the lower the degree of extended market orientation.	Not supported.
H4d	The greater the degree of adaptiveness of culture, the greater the degree of extended market orientation.	Not supported.
H5a	The greater the entry barrier, the lower the degree of extended market orientation.	Not supported.
H5b	The greater the buyer's bargaining power, the greater the degree of extended market orientation.	Not supported.
H5c	The greater the supplier's bargaining power, the greater the degree of extended market orientation.	Not supported.
H5d	The greater the market growth, the lower the degree of extended market orientation.	Not supported.
H5e	The greater the rate of technological change, the greater the degree of extended market orientation.	Not supported.
H5f	The greater the magnitude of government regulation change, the greater the degree of extended market orientation.	Not supported.

Table 21
Fit Indices of EMO and MO Scales

	EMO	MO
Chi-square Statistic (df)	362.623 (205)	319.963 (185)
GFI	.913	✓ .916
AGFI	.893	✓ .895
PGFI	✓ .740	.734
NFI	✓ .809	.796
PNFI	✓ .718	.701
CFI	✓ .906	.901

Note: Check marks (✓) show where each scale fared better than the other.

Table 22
Scale Reliability

	EMO	MO
Intelligence Generation	.6704 (8 items)	.5884 (8items)
Intelligence Dissemination	.7750 (6 items)	.6368 (4 items)
Responsiveness	.7372 (8 items)	**Response Design:** .4780 (4 items) **Response Implementation:** .7364 (5 items)
Scale Total	.8474 (22 items)	.8258 (21 items)

Table 23
Mean Performance Scores and β Estimates Rankings

	ANOVA Results* Mean Scores	β Estimates Ranking
ROA	Prospectors=Analyzers=Defenders (P)5.1774 (A)4.9291 (D)4.7500	Defenders>Prospectors>Analyzers
ROI	Prospectors=Analyzers; Analyzers=Defenders; Prospectors>Defenders (P)5.3387 (A)5.0078 (D)4.7500	Defenders>Prospectors>Analyzers
ROS	Prospectors=Analyzers; Analyzers=Defenders; Prospectors>Defenders (P)5.1840 (A)4.9923 (D)4.6447	Defenders>Prospectors>Analyzers
SOM	Prospectors>Analyzers=Defenders (P)5.3130 (A)4.9000 (D)4.7403	Prospectors>Defenders>Analyzers
SGRO	Prospectors>Analyzers=Defenders (P)5.3435 (A)4.9923 (D)4.6579	Prospectors>Defenders>Analyzers
PCTNP	Prospectors>Analyzers=Defenders (P)5.3154 (A)4.5923 (D)4.2987	Prospectors>Defenders>Analyzers
OVERALL	Prospectors=Analyzers=Defenders (P)5.5758 (A)5.3846 (D)5.1948	Prospectors>Defenders>Analyzers

* Mean differences were based on pair-wise comparisons using the Scheffe's test at α = .05 level.

Appendix II.

Appendix II-1
Measures

Note: * indicates reverse item.

Construct	Pretest Item #	Final Item #	Final Question #	EMO/ MO	Item	Source
Intelligence Generation (IG)	P1	F1	1-1	MO	In this business unit, we meet with customers at least once a year to find out what products or services they will need in the future.	Jaworski and Kohli (1993)
	P2	F2	1-2	MO	Individuals from our manufacturing department interact directly with customers to learn how to serve them better.	Jaworski and Kohli (1993)
	P3	F3	1-3	MO	In this business unit, we do a lot of in-house market research.	Jaworski and Kohli (1993)
	P4*	F4*	1-4	MO	We are slow to detect changes in our customers' product preferences.	Jaworski and Kohli (1993)
	P5	F5	1-5	EMO, MO	We poll end users at least once a year to assess the quality of our products and services.	Jaworski and Kohli (1993)
	P6	F6	1-6	MO	We often talk with or survey those who can influence our end users' purchases (e.g., retailers, distributors).	Jaworski and Kohli (1993)
	P7	F7	1-7	MO	We collect industry information through informal means (e.g., lunch with industry friends, talks with trade partners).	Jaworski and Kohli (1993)
	P8	F8	1-8	EMO, MO	In our business unit, intelligence on our competitors is generated independently by several departments.	Jaworski and Kohli (1993)

Appendix II-1 (continued)

Note: * indicates reverse item.

Construct	Pretest Item #	Final Item #	Final Question #	EMO/ MO	Item	Source
Intelligence Generation (IG)	P9*	F9*	1-9	MO	We are slow to detect fundamental shifts in our industry (e.g., competition, technology, regulation).	Jaworski and Kohli (1993)
	P10	F10	1-10	EMO, MO	We periodically review the likely effect of changes in our business environment (e.g., regulation) on customers.	Jaworski and Kohli (1993)
	P11	F11	1-11	EMO	In this business unit, we frequently collect and evaluate general macro economic information (e.g., interest rate, exchange rate, GDP, industry growth rate, inflation rate).	Newly Developed
	P12	F12	1-12	EMO	In this business unit, we maintain contacts with officials of government and regulatory bodies (e.g., Department of Agriculture, FDA, FTC, Congress) in order to collect and evaluate pertinent information.	Newly Developed
	P13	F13	1-13	EMO	In this business unit, we collect and evaluate information concerning general social trends (e.g., environmental consciousness, emerging lifestyles) that might affect our business.	Newly Developed

Appendix II-1 (continued)

Note: * indicates reverse item.

Construct	Pretest Item #	Final Item #	Final Question #	EMO/ MO	Item	Source
Intelligence Generation (IG)	P14	deleted	deleted		In this business unit, we collect and evaluate information concerning social movements (e.g., religious activism, consumer activism) that might affect our business.	Newly Developed
	P15	F14	1-14	EMO	In this business unit, we spend time with our suppliers to learn more about various aspects of their business (e.g., manufacturing process, industry practices, clientele).	Newly Developed
	P16	deleted	deleted		People from other departments (e.g., manufacturing, R&D) interact directly with customers to learn how to serve them better.	Newly Developed
	P17	deleted	deleted		In this business unit, we keep ourselves updated on our suppliers' capabilities (e.g., technology, differential advantage in material sourcing).	Newly Developed
	P18*	deleted	deleted		In this business unit, we rely more on outside market research than on in-house market research.	Newly Developed
	P19	deleted	deleted		Our business unit is quick to detect and evaluate changes in general social trends that could affect our business.	Newly Developed

Appendix II-1 (continued)

Note: * indicates reverse item.

Construct	Pretest Item #	Final Item #	Final Question #	EMO/ MO	Item	Source
Intelligence Generation (IG)	P20	deleted	deleted		Our business unit is quick to detect regulatory policy shifts that could affect our business.	Newly Developed
	P21	F15	1-15	EMO	In this business unit, we ask trade people or resellers regularly for their assessment of our product/service quality.	Newly Developed
	P22	deleted	deleted		As a matter of habit, we try to pick our customers' brains to identify weaknesses in our product/service.	Newly Developed
	P23	F16	1-16	EMO	We collect end-user information through informal means (e.g., chat with end-users at conventions, talks with others in the industry).	Newly Developed
	P24*	F17*	1-17	EMO	In our business unit, only a few people are collecting competitor information.	Newly Developed
	P25*	deleted	deleted		We are slow to detect fundamental shifts in our society in general (e.g., demographics, culture, lifestyle).	Newly Developed
Intelligence Dissemination (ID)	P26	F27	3-1	MO	A lot of informal "hall talk" in this business unit concerns our competitors' tactics or strategies.	Jaworski and Kohli (1993)
	P27	F28	3-2	MO	We have interdepartmental meetings at least once a quarter to discuss market trends and developments.	Jaworski and Kohli (1993)

Appendix II-1 (continued)

Note: * indicates reverse item.

Construct	Pretest Item #	Final Item #	Final Question #	EMO/ MO	Item	Source
Intelligence Dissemination (ID)	P28	F29	3-3	EMO, MO	Marketing personnel in our business unit spend time discussing customers' future needs with other functional departments.	Jaworski and Kohli (1993)
	P29	F30	3-4	EMO, MO	Our business unit periodically circulates documents (e.g., reports, newsletters) that provide information on our customers.	Jaworski and Kohli (1993)
	P30	F31	3-5	MO	When something important happens to a major customer or market, the whole business unit knows about it in a short period.	Jaworski and Kohli (1993)
	P31	F32	3-6	EMO, MO	Data on customer satisfaction are disseminated at all levels in this business unit on a regular basis.	Jaworski and Kohli (1993)
	P32*	F33*	3-7	MO	There is minimal communication between marketing and manufacturing departments concerning market developments.	Jaworski and Kohli (1993)
	P33*	F34*	3-8	EMO, MO	When one department finds out something important about competitors, it is slow to alert other departments.	Jaworski and Kohli (1993)
	P34	deleted	deleted		Our marketing people get a lot of calls from people in other departments for market information.	Newly Developed

Appendix II-1 (continued)

Note: * indicates reverse item.

Construct	Pretest Item #	Final Item #	Final Question #	EMO/ MO	Item	Source
Intelligence Dissemination (ID)	P35	F35	3-9	EMO	We have cross-functional meetings very often to discuss market trends and developments (e.g., customers, competition, suppliers).	Newly Developed
	P36	deleted	deleted		We have interdepartmental meetings very often to discuss general macro environments (e.g., national economic trends, social/cultural trends).	Newly Developed
	P37	F36	3-10	EMO	We regularly have interdepartmental meetings to update our knowledge of regulatory requirements.	Newly Developed
	P38	F37	3-11	EMO	Technical people in this business unit spend a lot of time sharing information about technology for new products with other departments.	Newly Developed
	P39*	deleted	deleted		People in our R&D department have a difficult time obtaining customer information from our marketing people.	Newly Developed
	P40*	deleted	deleted		In our business unit, information is something you have to purposefully ask for.	Newly Developed
	P41	deleted	deleted		In this business unit, I often receive information in informal ways from others that they think would be useful for me.	Newly Developed

Appendix II-1 (continued)

Note: * indicates reverse item.

Construct	Pretest Item #	Final Item #	Final Question #	EMO/ MO	Item	Source
Responsiveness (RESP) - Response Design (RD)	P42	F38	3-12	EMO	Market information spreads quickly through all levels in this business unit.	Newly Developed
	P43*	deleted	deleted		In this business unit, people often waste time looking for information others already have.	Newly Developed
	P44*	F39*	4-1	EMO, MO	It takes us forever to decide how to respond to our competitors' price changes.	Jaworski and Kohli (1993)
	P45	F40	4-2	MO	The principles of market segmentation drive new product development efforts in this business unit.	Jaworski and Kohli (1993)
	P46*	F41*	4-3	EMO, MO	For one reason or another, we tend to ignore changes in our customers' product or service needs.	Jaworski and Kohli (1993)
	P47	F42	4-4	EMO, MO	We periodically review our product development efforts to ensure that they are in line with what customers want.	Jaworski and Kohli (1993)
	P48*	F43*	4-5	MO	Our business plans are driven more by technological advances than by market research.	Jaworski and Kohli (1993)
	P49	F44	4-6	MO	Several departments get together periodically to plan a response to changes taking place in our business environment.	Jaworski and Kohli (1993)
	P50*	F45*	4-7	EMO, MO	The product lines we sell depend more on internal politics than real market needs.	Jaworski and Kohli (1993)

Appendix II-1 (continued)

Note: * indicates reverse item.

Construct	Pretest Item #	Final Item #	Final Question #	EMO/ MO	Item	Source
Responsiveness (RESP) - Response Design (RD)	P51	deleted	deleted		We can quickly decide what actions to take when a government regulation changes.	Newly Developed
	P52	deleted	deleted		We develop new products based on the unmet needs of customers.	Newly Developed
	P53*	deleted	deleted		All too often, we launch a product just because it is someone's pet project.	Newly Developed
Responsiveness (RESP) - Response Implementa-tion (RI)	P54*	deleted	deleted		We are slow to act on changes in the macro-economic environment (i.e., economic growth, interest rate, foreign exchange).	Newly Developed
	P55*	F46*	4-8	EMO	We are slow to start business with new suppliers even though we think they are better than existing ones.	Newly Developed
	P56	deleted	deleted		We routinely revise our service efforts to ensure that they are at least as good as our competitors'.	Newly Developed
	P57	F47	4-9	EMO, MO	If a major competitor were to launch an intensive campaign targeted at our customers, we would implement a response immediately.	Jaworski and Kohli (1993)
	P58	F48	4-10	EMO, MO	The activities of the different departments in this business unit are well coordinated.	Jaworski and Kohli (1993)
	P59*	F49*	4-11	MO	Customer complaints fall on deaf ears in this business unit.	Jaworski and Kohli (1993)

Appendix II-1 (continued)

Note: * indicates reverse item.

Construct	Pretest Item #	Final Item #	Final Question #	EMO/ MO	Item	Source
Responsiveness (RESP) - Response Implementa-tion (RI)	P60*	F50*	4-12	EMO, MO	Even if we came up with a great marketing plan, we probably would not be able to implement it in a timely fashion.	Jaworski and Kohli (1993)
	P61	F51	4-13	MO	We are quick to respond to significant changes in our competitors' pricing structures.	Jaworski and Kohli (1993)
	P62	F52	4-14	MO	When we find out that customers are unhappy with the quality of our service, we take corrective action immediately.	Jaworski and Kohli (1993)
	P63	F53	4-15	MO	When we find that customers would like us to modify a product or service, the departments involved make concerted efforts to do so.	Jaworski and Kohli (1993)
	P64	F54	4-16	EMO	If a special interest group (e.g., consumer group, environmental group) were to publicly accuse us of harmful business practices, we would respond to the criticism immediately.	Newly Developed
	P65	deleted	deleted		In our business unit, we initiate and involve different departments to respond to competitive moves.	Newly Developed
	P66	deleted	deleted		In this business unit, we often act on the suggestions of our suppliers immediately.	Newly Developed
	P67	deleted	deleted		Compared to our competitors, we can quickly implement marketing decisions.	Newly Developed

Appendix II-1 (continued)

Note: * indicates reverse item.

Construct	Pretest Item #	Final Item #	Final Question #	EMO/ MO	Item	Source
Responsiveness (RESP) - Response Implementa-tion (RI)	P68*	deleted	deleted		Many of our people tend to delay calling customers back who have a complaint.	Newly Developed
	P69*	F55*	4-17	EMO	We tend to take longer than our competitors to respond to a change in regulatory policy.	Newly Developed
Adaptiveness of Organizational Culture (ADAPT)	P70	deleted	deleted	-	Members of this business unit believe that they can effectively manage whatever new problems and opportunities will come their way.	Newly Developed
	P71	F56	5-1	-	Members of this business unit are receptive to change and innovation.	Newly Developed
	P72	F57	5-2	-	When it comes to problem solving, we value creative new solutions more than the solutions of conventional wisdom.	Newly Developed
	P73	deleted	deleted	-	We are always willing to devise and implement new business strategies.	Newly Developed
	P74	F58	5-3	-	We firmly believe that a change in market creates a positive opportunity for us.	Newly Developed
	P75*	F59*	5-4	-	We value the orderly and risk-reducing management process much more highly than leadership initiatives for change.	Newly Developed

Appendix II-1 (continued)

Note: * indicates reverse item.

Construct	Pretest Item #	Final Item #	Final Question #	EMO/ MO	Item	Source
Adaptiveness of Organizational Culture (ADAPT)	P76	F60	5-5	-	Members of this business unit tend to talk more about opportunities rather than problems.	Newly Developed
	P77	F61	5-6	-	Top managers here encourage the development of innovative marketing strategies, knowing well that some will fail.	Newly Developed
	P78*	F62*	5-7	-	Top managers in this business unit like to "play it safe."	Newly Developed
	P79*	F63*	5-8	-	Top managers around here like to implement plans only if they are very certain that they will work.	Newly Developed
Exploratory Variable	P80	-	-	-	People in this business unit are always encouraged to openly discuss new ideas to solve problems.	Exploratory Item; not part of dissertation
	P81	-	-	-	We believe our senior managers were promoted to their current positions because of their demonstrated initiatives for change.	Exploratory Item; not part of dissertation
	P82	-	-	-	For everyone in this organization, proactiveness in performing one's job is the key to getting formal rewards (i.e., pay raise, promotion).	Exploratory Item; not part of dissertation
	P83	-	-	-	People in this business unit get recognized for being sensitive to competitive moves.	Exploratory Item; not part of dissertation

Appendix II-1 (continued)

Note: * indicates reverse item.

Construct	Pretest Item #	Final Item #	Final Question #	EMO/ MO	Item	Source
Exploratory Variable	P84	-	-	-	In this business unit, we have both formal and informal ways to recognize those people who propose innovative methods of performing their jobs.	Exploratory Item; not part of dissertation
	P85*	-	-	-	In our organization, risk-taking is often talked about but never rewarded.	Exploratory Item; not part of dissertation
	P86	-	-	-	In our business unit, even small improvements in how we perform our jobs are recognized by supervisors.	Exploratory Item; not part of dissertation
Formalization (FORM)	-	F64*	5-9	-	I feel that I am my own boss in most matters.	Jaworski and Kohli (1993)
	-	F65*	5-10	-	A person can make his own decisions without checking with anybody else.	Jaworski and Kohli (1993)
	-	F66*	5-11	-	How things are done around here is left up to the person doing the work.	Jaworski and Kohli (1993)
	-	F67*	5-12	-	People here are allowed to do almost as they please.	Jaworski and Kohli (1993)
	-	F68*	5-13	-	Most people here make their own rules on the job.	Jaworski and Kohli (1993)
	-	F69	5-14	-	The employees are constantly being checked for rule violations.	Jaworski and Kohli (1993)
	-	F70	5-15	-	People here feel as though they are constantly being watched to see that they obey all the rules.	Jaworski and Kohli (1993)

Appendix II-1 (continued)

Note: * indicates reverse item.

Construct	Pretest Item #	Final Item #	Final Question #	EMO/ MO	Item	Source
Centralization (CENT)	-	F71	5-16	-	There can be little action taken here until a supervisor approves a decision.	Jaworski and Kohli (1993)
	-	F72	5-17	-	A person who wants to make his own decision would be quickly discouraged here.	Jaworski and Kohli (1993)
	-	F73	5-18	-	Even small matters have to be referred to someone higher up for a final answer.	Jaworski and Kohli (1993)
	-	F74	5-19	-	I have to ask my boss before I do almost anything.	Jaworski and Kohli (1993)
	-	F77	5-22	-	Any decision I make has to have my boss' approval.	Jaworski and Kohli (1993)
Departmentali-zation (DEPT)	-	F75	5-20	-	People in one department generally dislike interacting with those from other departments.	Adapted from Jaworski and Kohli 1993 (Interdepartme ntal Conflict)
	-	F76*	5-21	-	Most departments in this business get along well with each other.	Adapted from Jaworski and Kohli 1993 (Interdepartme ntal Conflict)
	-	F78*	5-23	-	Employees from different departments feel that the goals of their respective departments are in harmony with each other.	Adapted from Jaworski and Kohli 1993 (Interdepartme ntal Conflict)
	-	F79	5-24	-	Protecting one's departmental turf is considered to be a way of life in this business unit.	Adapted from Jaworski and Kohli 1993 (Interdepartme ntal Conflict)

Appendix II-1 (continued)

Note: * indicates reverse item.

Construct	Pretest Item #	Final Item #	Final Question #	EMO/ MO	Item	Source
Departmentali-zation (DEPT)	-	F80*	5-25	-	There is little or no interdepartmental conflict in this business unit.	Adapted from Jaworski and Kohli 1993 (Interdepartmental Conflict)
	-	F81*	5-26	-	There is ample opportunity for informal "hall talk" among individuals from different departments in this business unit.	Adapted from Jaworski and Kohli 1993 (Interdepartmental Connectedness)
	-	F82*	5-27	-	In this business unit, employees from different departments feel comfortable calling each other when the need arises.	Adapted from Jaworski and Kohli 1993 (Interdepartmental Connectedness)
	-	F83*	5-28	-	People around here are quite accessible to those in other departments.	Adapted from Jaworski and Kohli 1993 (Interdepartmental Connectedness)
	-	F84*	5-29	-	Junior managers in my department can easily schedule meetings with junior managers in other departments.	Adapted from Jaworski and Kohli 1993 (Interdepartmental Connectedness)
Entry Barrier (ENTRY)	-	F22	2-5	-	The likelihood of a new competitor being able to make satisfactory profits in your business unit's primary market. (primary market: the largest part of your business unit's business)	Adapted from Narver and Slater (1990), Narver and Slater (1991), and Slater and Narver (1994). (1=Very Low; 5=Very High).

Appendix II-1 (continued)

Construct	Pretest Item #	Final Item #	Final Question #	EMO/ MO	Item	Source
Buyer's Bargaining Power (BPOWR)	-	F23	2-6	-	The extent to which buying organizations are able to negotiate lower prices (or higher quality at the same price) from their supplier organizations.	Adapted from Narver and Slater (1990), Narver and Slater (1991), and Slater and Narver (1994). (1=Very Low; 5=Very High).
Supplier's Bargaining Power (SPOWR)	-	F24	2-7	-	The extent to which supplier organizations are able to negotiate higher prices (or lower quality at the same price) from their buyers.	Adapted from Narver and Slater (1990), Narver and Slater (1991), and Slater and Narver (1994). (1=Very Low; 5=Very High).
Market Growth (MGRO)	-	F25	2-8	-	The perceived annual growth rate of total sales in your business unit's primary market.	Adapted from Narver and Slater (1990), Narver and Slater (1991), and Slater and Narver (1994). (1=Very Low; 5=Very High).
Technological Change (TECH)	-	F26	2-9	-	The extent to which the production/service technology in your business unit's primary market has changed.	Adapted from Narver and Slater (1990), Narver and Slater (1991), and Slater and Narver (1994).(1=Very Slow; Very Fast).
Potential Impact of Regulatory Change (REGIMP)	-	F18	2-1	-	The extent to which changes in government regulations would affect the day-to-day operations of your business unit.	Adapted from Dobscha, Mentzer, and Littlefield (1994). (1=Very Low; 5=Very High).

Appendix II-1 (continued)

Construct	Pretest Item #	Final Item #	Final Question #	EMO/ MO	Item	Source
Potential Impact of Regulatory Change (REGIMP)	-	F19	2-2	-	The extent to which changes in government regulations would affect the long-term strategy of your business unit.	Adapted from Dobscha, Mentzer, and Littlefield (1994). (1=Very Low; 5=Very High).
	-	F20	2-3	-	The extent to which changes in government regulations would affect your business unit's profitability.	Adapted from Dobscha, Mentzer, and Littlefield (1994). (1=Very Low; 5=Very High).
	-	F21	2-4	-	The extent to which regulatory changes would affect the intensity of the competition of your business unit's industry.	Adapted from Dobscha, Mentzer, and Littlefield (1994). (1=Very Low; 5=Very High).

Appendix II-1 (continued)

Construct	Pretest Item #	Final Item #	Final Question #	EMO/ MO	Item	Source
Strategy Type - Defender	-	F85	6-Type 1	-	This type of business unit attempts to locate and maintain a secure niche in a relatively stable product or service area. The business unit tends to offer a more limited range of products or services than its competitors, and it tries to protect its domain by offering higher quality, superior service, lower prices, and so forth. Often this business unit 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.	Snow and Hrebiniak (1980) and McDaniel and Kolari (1987) Categorical variable

Appendix II-1 (continued)

Construct	Pretest Item #	Final Item #	Final Question #	EMO/ MO	Item	Source
Strategy Type - Prospector	-	F85	6-Type 2	-	This type of business unit typically operates within a broad product-market domain that undergoes periodic redefinition. The business unit values being "first in" in new product and market areas even if not all of these efforts prove to be highly profitable. This organization responds rapidly to early signals concerning areas of opportunity, and these responses often lead to a new round of competitive actions. However, this business unit may not maintain market strength in all of the areas it enters.	Snow and Hrebiniak (1980) and McDaniel and Kolari (1987) Categorical variable

Appendix II-1 (continued)

Construct	Pretest Item #	Final Item #	Final Question #	EMO/ MO	Item	Source
Strategy Type - Analyzer	-	F85	6-Type 3	-	This type of business unit attempts to maintain a stable, limited line of products or services, while at the same time moving quickly to follow a carefully selected set of the more promising new developments in the industry. This organization is seldom "first in" with new products and services. However, by carefully monitoring the actions of major competitors in areas compatible with its stable product-market base, this business unit can frequently be "second in" with a more cost-efficient product or service.	Snow and Hrebiniak (1980) and McDaniel and Kolari (1987) Categorical variable

Appendix II-1 (continued)

Construct	Pretest Item #	Final Item #	Final Question #	EMO/ MO	Item	Source
Strategy Type - Reactor	-	F85	6-Type 4	-	This type of business unit does not appear to have a consistent product-market orientation. This organization is usually not as aggressive in maintaining established products and markets as some of its competitors, nor is it willing to take as many risks as other competitors. Rather, this type of business unit responds in those areas where it is forced to by environmental pressures.	Snow and Hrebiniak (1980) and McDaniel and Kolari (1987) Categorical variable
Performance - OVERALL	P87	F86	7-1	-	Our business unit's overall performance relative to major competitors last year.	Newly Developed (1 = far below our competitors, 7 = far above our competitors)
Performance - SOM	P88	F87	7-2	-	Our business unit's market share growth in our primary market last year	Newly Developed (1 = far below our competitors, 7 = far above our competitors)
Performance - SGRO	P89	F88	7-3	-	Our business unit's sales growth relative to major competitors last year.	Newly Developed (1 = far below our competitors, 7 = far above our competitors)

Appendix II-1 (continued)

Construct	Pretest Item #	Final Item #	Final Question #	EMO/ MO	Item	Source
Performance - PCTNP	P90	F89	7-4	=	Percentage of sales generated by new products last year relative to major competitors	Newly Developed (1 = far below our competitors, 7 = far above our competitors)
Performance - ROS	P91	F90	7-5	-	Our business unit's return on sales (ROS) relative to major competitors last year	Newly Developed (1 = far below our competitors, 7 = far above our competitors)
Performance - ROA	P92	F91	7-6	-	Our business unit's return on assets (ROA) relative to major competitors last year	Newly Developed (1 = far below our competitors, 7 = far above our competitors)
Performance - ROI	P93	F92	7-7	-	Our business unit's return on investment (ROI) relative to major competitors last year	Newly Developed (1 = far below our competitors, 7 = far above our competitors)

Appendix II-2
Interview Scheme and Summary

Interview Scheme

1. What does the term "market" mean to you? How would you conceptualize and describe "market?"

2. What does the term "market orientation" mean to you? What does it mean to be "market oriented?"

3. Is you organization "market oriented"? Why or Why not?

4. What does a market oriented company do differently than one that is not market oriented? What are some of the activities a market oriented organization engages in?

Appendix II-2 (continued)

Interview Summary

Interview Dates: 2/4/95, 2/9/95, 2/10/95, 3/4/95, 3/5/95

Interviewees:
1. General manager - U.S. Operations, a large consumer electronics manufacturing company
2. Vice president of marketing - Color TV, a large consumer electronics manufacturing company
3. Operations manager, a specialized bulk transportation service company
4. Former C.E.O., consumer products companies
5. President and owner, an advertising and promotional supply company
6. Vice president, a consumer bank

1. What does the term "market" mean to you?

- Market is any place we can logically put and sell our products for consumers
- Opportunities defined by "use system" and needs rather than commodities (it's a picture tube but what is actually sold is "entertainment")
- From the use system perspective, we address different groups of people
- It is evolving; application business or solution business
- IBM and Apple, Compaq see the TV as just a monitor, and they are major threats because, again, it's a use system.
- Technological advancement is quicker, and windows of opportunity are getting shorter; time to get to the market is critical
- Customers
- Internal (people, work force) and external (the customers give us shipment to deliver)
- We don't try to deal with everybody
- We try to select certain shipments (location, equipment)
- Try to make those people [internal customers] happy
- Labor market makes a big market
- I picture a group of people who have some common interest
- I see a piece of a world that has common characteristics for somebody who want to sell them something.
- Market could be defined as a whole world. For others, market is much of the world.

- I think of something I want to go after.
- Exchange currency for needs fulfillment
- I think of market in a context of product
- It's a competition. You get it or someone else gets it.
- A Number of factors drive market change
- International trade (buyers, source, duties, safety regulations, import regulations) is a large part of the market
- Lifestyle (oil crisis, safety, switch to mountain bike) change creates a market
- Product change is driven by style, fashion
- Technology (carbon fiber, composite, welding process, metal fabrication process, robots)

2. What does the term "market orientation" mean to you? What is "being market oriented"?

- We are in the industry that is technologically driven. Engineers figure out how to make it work. With a total disregard of the use. Basically talking to retailers and consumers.
- We [Philips] have advantage in defining what consumers want. Maybe consumers can't tell you what they want, but they can tell you what they like.
- Retailers and consumers may say different things. (picture-in-picture example)
- Stupid things and dumbest thing in the history, just because somebody figured out how to make it work.
- Translating what consumers wants into technology
- Standard was stupid because it was not what consumers want
- Red is found in Coke can, blue is the color of Pacific Ocean
- Make their life more simple, easier; using technology we eliminate your problem
- To me it's just for us to have an equipment to service our shippers.
- Providing excellent equipment. The average age of tractors is less than three years, which is much above the standard average. The average age of trailers is less than 10 years, I believe.
- We redesign our equipment, we test our safety factors, maintenance
- We purchase special equipment for the safety.
- That's basically how I try to get involved in serving market
- Provide the equipment they need to make them more efficient

- Because of our product, safety is the number one factor. Our company always requires safety comes first. We had a situation this week drivers got a limit on hours on service, how many hours they can work before they are required to take a rest. We had a driver just this week just making delivery in Cincinnati, Ohio, he got delayed because of the weather. And he was ten miles from the customer. His legal hours of service is out. Instead of letting the driver drive another 10 miles, we sent him back. We found another truck in the area.
- Safety factor is what they [regulators] grudge you on.
- (Do you have any formal or informal ways to know about your competitors?) Not on my level. Vice president and president may know about competitors.
- I know another company, which is a competitor. They don't have operations in Knoxville. They stopped by yesterday and talked to me. And I took them through to dispatch, and show them. Even though we are competitors, we certainly work together try to serve the same customer. We got to work together. If we need a help in New York, we have to count on them and we need to know them.
- A phrase that describes someone who is seeking to find out what that group of people (market) cares about, what things motivate them in their decision making processes, what motivates them to turn lose their currency in exchange for products or services.
- Customer loyalty; a customer comes back, expecting the same level of service and we meet his expectation
- Regulators have an upper hand; no choice other than to respond
- In one respect, some people say that's the same as customer oriented, but it isn't really because I perceive customer oriented as being those people who are customers, but market oriented is a much broader term, it encompasses all the potential people
- Market oriented is caring about, really understanding how people buy things, desire things, make choice between things.
- I am looking at whole universe I defined, I am outside oriented, not inside oriented. Market*ing* oriented is inside oriented.
- Stakeholders ... people who have a stake in it; not all the people don't have a stake; nice word but an evasive word
- Capitalize market change or ignore/deny
- Survivors capitalize on change; use it as a point of leverage; Proactive -- understand, think, adaptive capability
- Ignore/deny -- wait until it's gone

3. Is your organization market oriented?

- We are very much struggling on, trying hard to be market oriented, but it's difficult
- Organizational culture after several mergers and acquisitions
- So far engineers on the board, marketing people on the board, manufacturing people on the board, sales people ... it's a question mark.
- Sale people are hard, because they are not part of the product development
- Sales people have different culture; they are traditionally rewarded for the unit volume not profit
- We need to talk about actions; not fluffy stuff. We have to communicate each other what precisely needs to be done.
- They go for the price because that's what retailers expect from us and our competitive brand -- dull brands (price fixing is over; retailer can do whatever they want in terms of pricing);
- Sales people don't attend to consumers needs
- We are trying to balance profit and volume for sales people
- Trying to be market oriented; as far as we try, we will survive
- Things that had the greatest impact on the job and organization (Service, Safety, Labor market)
- Balancing service, safety and labor market pressures -- a "catch 22" situation
- Service and safety are due to competitive pressure
- I train my people well so they can replace me anytime, because I can't be everywhere. They need to cover my customers like I would do.
- We [customers and I] chat a lot about their business. I'm not afraid of telling my ideas, and they seem to like it. That way, they can actually help me to get ahead of other people who are asking for the same business.
- Maybe customer-oriented; needs more work to be market-oriented
- Everybody is trying to be market oriented; being market oriented doesn't give you an edge; something you need to have it.
- When a customer needs to compete, he needs us. He'd better to know how good or bad we are.

Appendix II-3
Profile of 3,300 Companies (population), 300 Companies (pretest sample), and 1,000 Companies (final sample)

Population Profile

Employee Size	Count	%	Annual Sales Volume	Count	%
1 - 4	0		- $500,000	0	0.00%
5 - 9	0		$500,000 - $1 MIL)	0	0.00%
10 - 19	0		$1 - 2.5 MIL	0	0.00%
20 - 49	13	0.39%	$2.5 - 5 MIL	0	0.00%
50 - 99	46	1.39%	$5 - 10 MIL	0	0.00%
100 - 249	1715	52.00%	$10 - 20 MIL	499	15.12%
250 - 499	1021	30.96%	$20 - 50 MIL	1667	50.52%
500 - 999	352	10.67%	$50 - 100 MIL	683	20.70%
1,000 - 4999	145	4.40%	$100 - 500 MIL	417	12.64%
5,000 - 9,999	4	0.12%	$500 MIL - 1 BIL	23	0.70%
10,000+	2	0.06%	$1 BIL +	11	0.33%
Total	3298		**Total**	3300	

Appendix II-3 (continued)

Pretest Sample Profile

Employee Size	Count	%	Annual Sales Volume	Count	%
1 - 4	0	0.00%	- $500,000	0	0.00%
5 - 9	0	0.00%	$500,000 - $1 MIL)	0	0.00%
10 - 19	0	0.00%	$1 - 2.5 MIL	0	0.00%
20 - 49	1	0.33%	$2.5 - 5 MIL	0	0.00%
50 - 99	3	1.00%	$5 - 10 MIL	0	0.00%
100 - 249	145	48.33%	$10 - 20 MIL	51	17.00%
250 - 499	89	29.67%	$20 - 50 MIL	137	45.67%
500 - 999	37	12.33%	$50 - 100 MIL	62	20.67%
1,000 - 4999	24	8.00%	$100 - 500 MIL	45	15.00%
5,000 - 9,999	1	0.33%	$500 MIL - 1 BIL	4	1.33%
10,000+	0	0.00%	$1 BIL +	1	0.33%
Total	300		**Total**	300	

Appendix II-3 (continued)

Final Sample Profile

Employee Size	Count	%	Annual Sales Volume	Count	%
1 - 4	0		- $500,000	0	0.00%
5 - 9	0		$500,000 - $1 MIL)	0	0.00%
10 - 19	0		$1 - 2.5 MIL	0	0.00%
20 - 49	3	0.30%	$2.5 - 5 MIL	0	0.00%
50 - 99	10	1.00%	$5 - 10 MIL	0	0.00%
100 - 249	520	52.05%	$10 - 20 MIL	147	14.70%
250 - 499	323	32.33%	$20 - 50 MIL	530	53.00%
500 - 999	109	10.91%	$50 - 100 MIL	199	19.90%
1,000 - 4999	32	3.20%	$100 - 500 MIL	118	11.80%
5,000 - 9,999	1	0.10%	$500 MIL - 1 BIL	3	0.30%
10,000+	1	0.10%	$1 BIL +	3	0.30%
Total	999		**Total**	1000	

Appendix II-4
Pretest Cover Letters

THE UNIVERSITY OF TENNESSEE
KNOXVILLE

Department of Marketing, Logistics and Transportation
College of Business Administration
310 Stokely Management Center
Knoxville, Tennessee 37996-0530
(423) 974-5311
Fax = (423) 974-1932

DATE

«CONTACT»
VICE PRESIDENT - MARKETING
«CO_NAME»
«ADDRESS»
«CITY», «STATE» «ZIP»

Dear Marketing Executive:

I NEED YOUR HELP! The enclosed questionnaire is part of my doctoral dissertation research on how businesses manage their marketing information. This study's objective is to understand how business managers collect and use market information. The findings should be of interest to a broad range of managers.

I would appreciate your filling out this questionnaire, giving honest opinions about how your business unit manages its marketing information. Your organization is one of a small number in which managers are being asked to give their subjective judgments on these matters. In order for the results to truly represent today's management practice, it is important that each questionnaire be completed and returned. Thus, your participation is vital for the success of this study and the completion of my graduate work.

The questionnaire is designed to be completed in about 25 minutes, with most questions requiring you only to circle the appropriate response. **All responses will be held in strict confidentiality.** The code number assigned to this questionnaire is for mailing purposes only, so that we can remove your name from the mailing list as soon as your response is received. The results will be tabulated and analyzed only in aggregate form, so that anonymity is assured.

If you are interested in receiving an executive summary report of this survey later, please enclose your business card with the completed questionnaire in the return envelope. I will separate them when the envelope is opened so that your response will remain confidential. Your comments are important and are greatly appreciated. Thank you very much for your time!

Sincerely yours,

Ken Matsuno
Ph. D. Candidate
The University of Tennessee, Knoxville

enclosures

Appendix II-4 (continued)

THE UNIVERSITY OF TENNESSEE
KNOXVILLE

Department of Marketing, Logistics and Transportation
College of Business Administration
310 Stokely Management Center
Knoxville, Tennessee 37996-0530
(423) 974-5311
Fax • (423) 974-1932

DATE

«CONTACT»
VICE PRESIDENT - MARKETING
«CO_NAME»
«ADDRESS»
«CITY», «STATE» «ZIP»

Dear Marketing Executive:

Several weeks ago, I sent you a questionnaire as part of my doctoral dissertation research on how businesses manage their marketing information. If you have already completed the questionnaire and returned it to me, please disregard this letter and accept my greatest appreciation for your cooperation. Thank you very much for your time.

If you have not yet completed the questionnaire, please do so today. Your organization is one of a small number in which managers are being asked to give their subjective judgments on these matters. In order for the results to truly represent today's management practice, it is important that each questionnaire be completed and returned. Thus, your participation is vital for the success of this study and the completion of my graduate work. In case the questionnaire has been misplaced, an extra copy of the questionnaire is enclosed along with a self-addressed, stamped envelope for returning the completed questionnaire to me.

Let me remind you that **your response will be held in strict confidentiality**. Neither your company nor you will be identified. Only aggregate data will be analyzed and reported.

If you would like to receive an executive summary report of this survey, please include your business card with the completed questionnaire. I will separate them when the envelope is opened so that your response will remain confidential.

Once again, thank you for your help.

Sincerely yours,

Ken Matsuno
Ph. D. Candidate
The University of Tennessee, Knoxville

enclosures

Appendix II-5
Pretest Descriptive Statistics

Note: * indicates reverse item.

Variable	Count	Mean	Min.	Max.	Std. Dev.	Kurtosis	Skewness
P1	92	4.21	1	5	1.04	2.16	-1.55
P2	92	3.48	1	5	1.21	-0.68	-0.58
P3	92	3.13	1	5	1.22	-1.03	-0.11
P4*	92	3.65	1	5	0.97	0.49	-0.82
P5	92	3.26	1	5	1.42	-1.24	-0.38
P6	92	3.30	1	5	1.40	-1.03	-0.51
P7	92	4.01	1	5	0.88	3.20	-1.49
P8	92	3.16	1	5	1.16	-1.09	-0.28
P9*	92	3.86	1	5	0.93	0.94	-0.96
P10	92	3.53	1	5	0.91	0.20	-0.82
P11	92	3.04	1	5	1.23	-1.12	0.02
P12	92	2.95	1	5	1.39	-1.30	-0.05
P13	92	3.01	1	5	1.22	-1.03	-0.13
P14	92	2.27	1	5	1.12	-0.20	0.74
P15	92	3.74	1	5	0.90	1.68	-1.21
P16	92	3.58	1	5	1.02	-0.13	-0.66
P17	92	3.74	2	5	0.81	0.12	-0.63
P18*	92	3.25	1	5	1.26	-0.98	-0.29
P19	92	2.97	1	5	0.91	-0.58	-0.12
P20	92	3.47	1	5	1.04	0.16	-0.80
P21	92	3.54	1	5	1.00	-0.09	-0.60
P22	92	3.93	1	5	0.81	1.99	-1.14
P23	92	3.82	1	5	0.74	2.63	-1.23
P24*	92	2.98	1	5	1.18	-1.22	0.08

Appendix II-5 (continued)

Note: * indicates reverse item.

Variable	Count	Mean	Min.	Max.	Std. Dev.	Kurtosis	Skewness
P25*	92	3.20	1	5	1.03	-0.51	-0.03
P26	92	3.56	1	5	0.91	-0.16	-0.73
P27	92	3.54	1	5	1.20	-0.18	-0.89
P28	92	3.79	1	5	1.03	0.45	-0.98
P29	92	3.85	1	5	1.11	0.97	-1.23
P30	92	4.13	1	5	0.93	0.96	-1.11
P31	92	3.36	1	5	1.11	-0.95	-0.22
P32*	92	3.98	1	5	0.98	0.77	-1.02
P33*	92	3.78	2	5	0.92	-0.38	-0.58
P34	92	2.78	1	5	1.05	-0.63	0.10
P35	92	3.41	1	5	1.10	-0.43	-0.73
P36	92	2.69	1	5	1.12	-1.06	0.16
P37	92	2.63	1	5	1.12	-0.80	0.25
P38	92	3.05	1	5	1.09	-0.73	-0.06
P39*	92	3.91	1	5	0.83	0.54	-0.55
P40*	92	3.42	1	5	1.03	-0.10	-0.69
P41	92	3.92	2	5	0.67	1.10	-0.60
P42	92	3.30	1	5	0.87	-0.53	-0.24
P43*	92	3.13	1	5	1.04	-0.88	-0.45
P44*	92	3.96	1	5	1.00	0.50	-0.94
P45	92	3.32	1	5	1.11	-0.73	-0.31
P46*	92	3.82	1	5	1.03	-0.20	-0.80
P47	92	3.88	2	5	0.71	1.15	-0.77
P48*	92	3.24	1	5	1.09	-1.07	-0.13

Appendix II-5 (continued)

Note: * indicates reverse item.

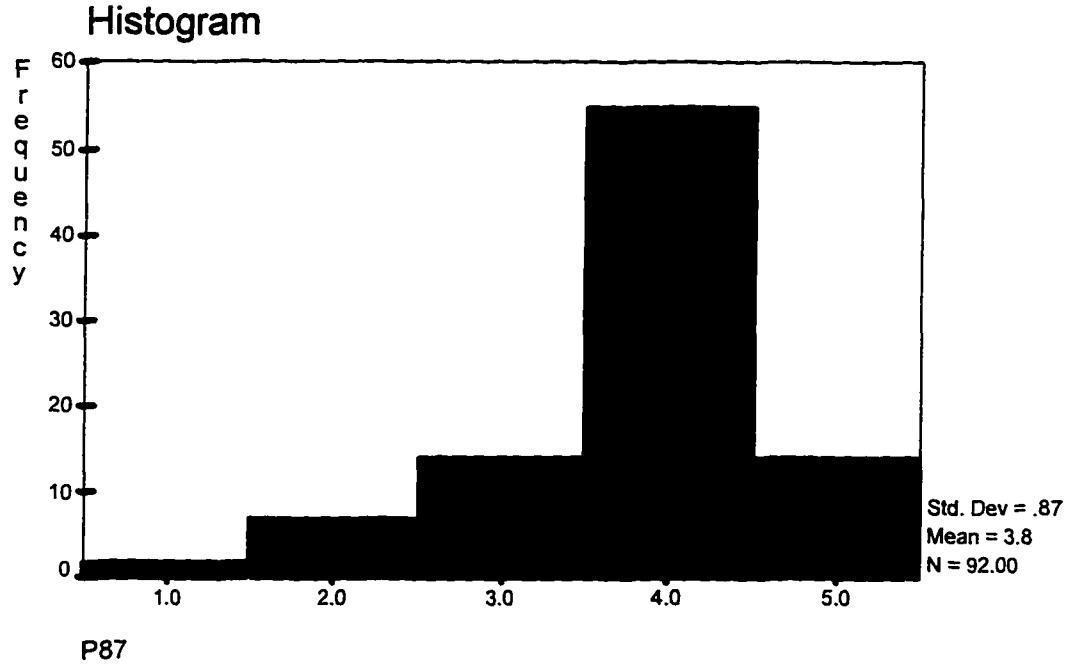
Variable	Count	Mean	Min.	Max.	Std. Dev.	Kurtosis	Skewness
P49	92	3.45	1	5	1.02	0.25	-0.93
P50*	92	3.93	1	5	1.15	-0.16	-0.90
P51	92	3.46	1	5	0.90	0.48	-0.59
P52	92	3.67	1	5	0.91	0.64	-0.84
P53*	92	3.77	1	5	1.06	0.09	-0.83
P54*	92	3.12	1	5	0.82	0.17	-0.35
P55*	92	3.26	1	5	1.07	-0.87	-0.32
P56	92	3.54	1	5	1.13	-0.42	-0.74
P57	92	3.85	1	5	0.97	0.50	-0.86
P58	92	3.24	1	5	0.99	-0.26	-0.43
P59*	92	4.17	1	5	0.91	1.20	-1.16
P60*	92	3.63	1	5	1.05	-0.49	-0.55
P61	92	3.64	1	5	1.00	-0.22	-0.57
P62	92	3.88	1	5	0.98	0.20	-0.90
P63	92	3.86	2	5	0.78	0.62	-0.75
P64	92	3.85	2	5	0.84	-0.52	-0.28
P65	92	3.72	2	5	0.80	-0.04	-0.48
P66	92	3.08	2	5	0.76	-0.16	0.33
P67	92	3.65	1	5	0.93	-0.26	-0.42
P68*	92	3.82	1	5	0.97	0.67	-1.02
P69*	92	3.68	1	5	0.77	1.90	-0.72
P70	92	3.90	1	5	0.71	3.63	-1.35
P71	92	3.73	1	5	0.90	2.28	-1.44
P72	92	3.41	1	5	0.86	-0.25	-0.35

Appendix II-5 (continued)

Note: * indicates reverse item.

Variable	Count	Mean	Min.	Max.	Std. Dev.	Kurtosis	Skewness
P73	92	3.61	1	5	0.93	-0.15	-0.67
P74	92	3.70	2	5	0.81	-0.04	-0.53
P75*	92	3.18	1	5	0.96	-0.63	-0.23
P76	92	3.02	1	5	0.95	-1.02	-0.28
P77	92	3.20	1	5	0.99	-0.89	-0.34
P78*	92	3.18	1	5	1.08	-0.97	-0.33
P79*	92	3.05	1	5	0.98	-1.01	-0.26
P80	92	3.75	1	5	0.96	0.63	-1.02
P81	92	3.07	1	5	1.00	-0.32	-0.27
P82	92	3.60	2	5	0.80	-0.14	-0.59
P83	92	3.07	1	5	0.84	0.17	-0.12
P84	92	3.57	1	5	0.95	-0.04	-0.66
P85*	92	3.22	1	5	0.94	-0.84	-0.04
P86	92	3.27	1	5	0.97	-0.66	-0.14
P87	92	3.78	1	5	0.87	1.44	-1.07
P88	92	3.67	1	5	0.89	0.68	-0.73
P89	92	3.74	1	5	0.94	0.49	-0.77
P90	91	3.36	1	5	1.05	0.14	-0.48
P91	90	3.63	1	5	0.92	0.29	-0.54
P92	90	3.52	1	5	0.97	-0.28	-0.40
P93	90	3.58	1	5	0.95	-0.07	-0.35

Appendix II-6
Pretest Histograms - Economic Performance



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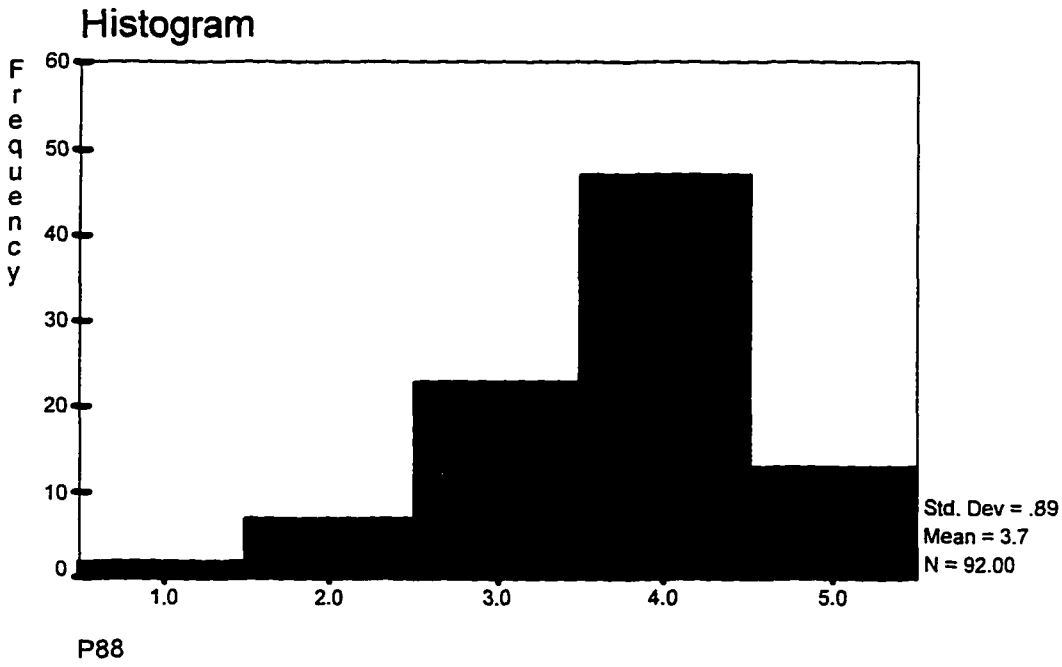

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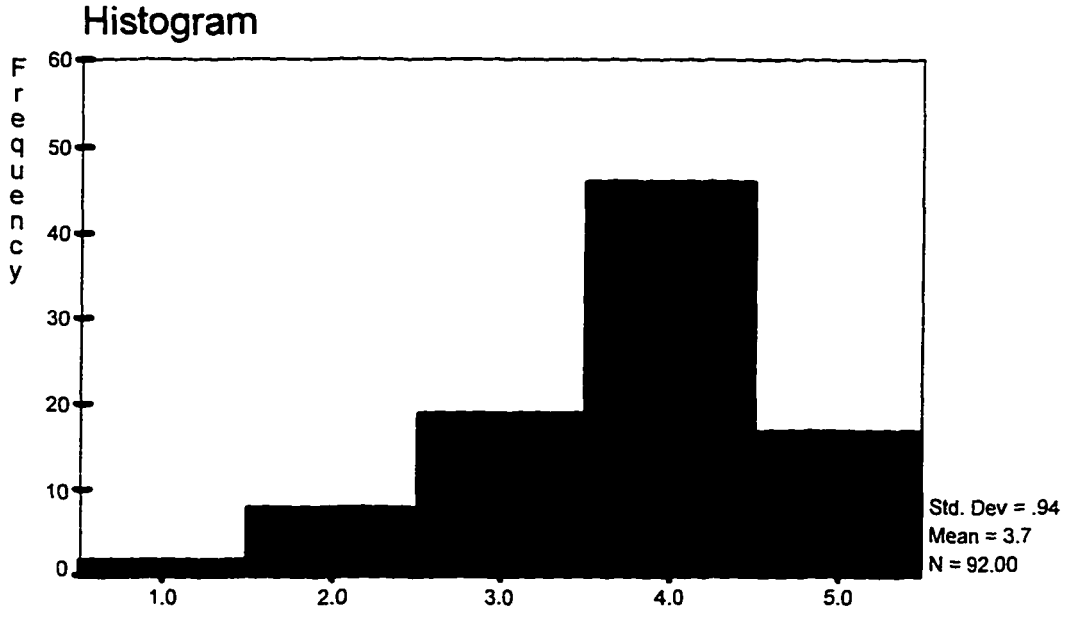

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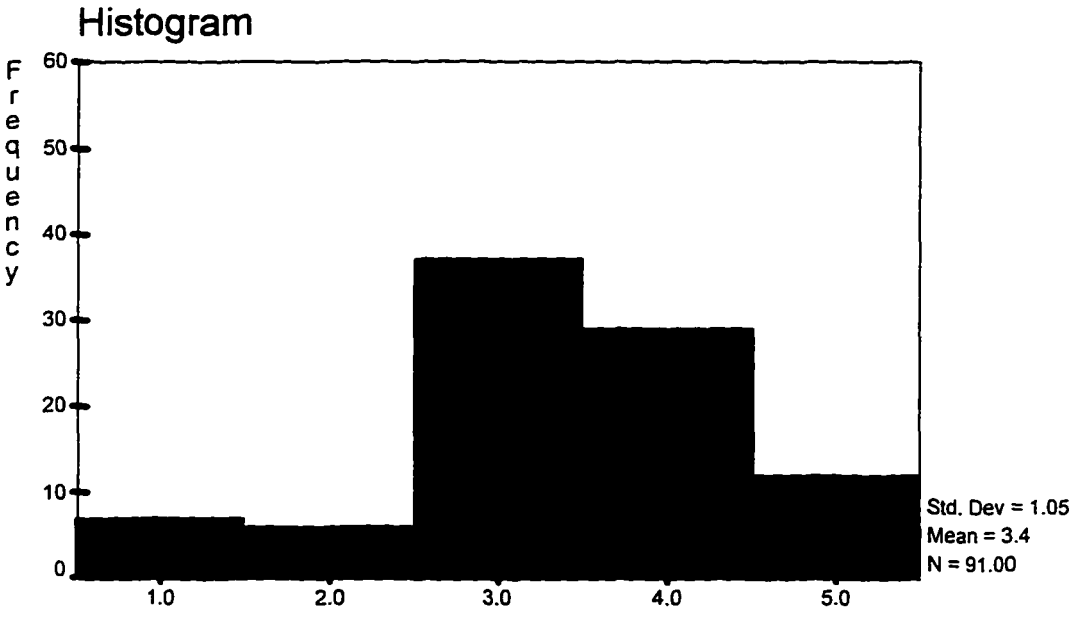

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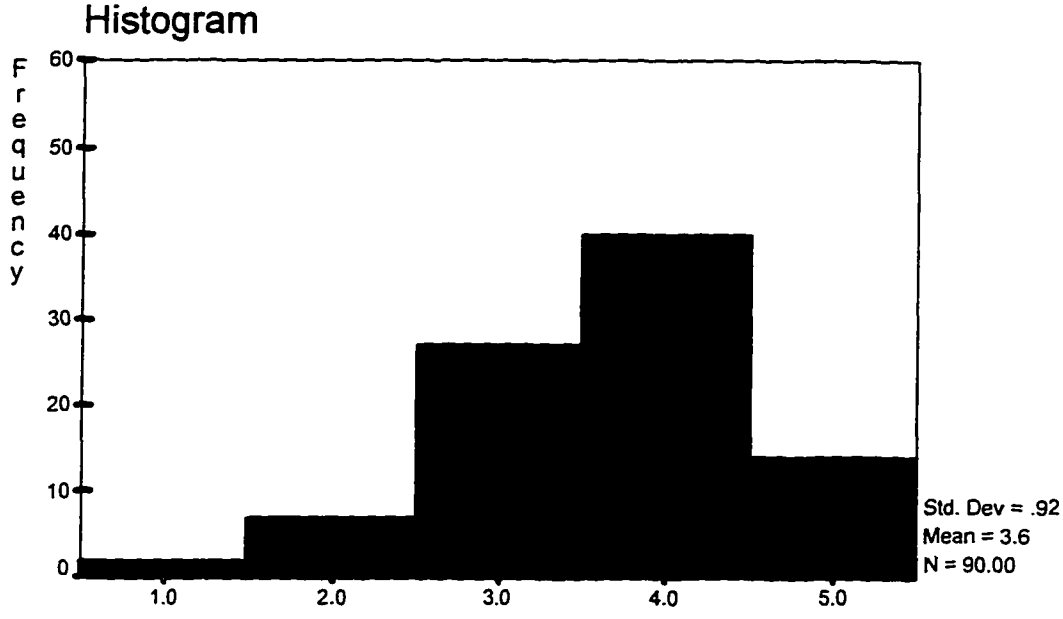
Appendix II-6 (continued)



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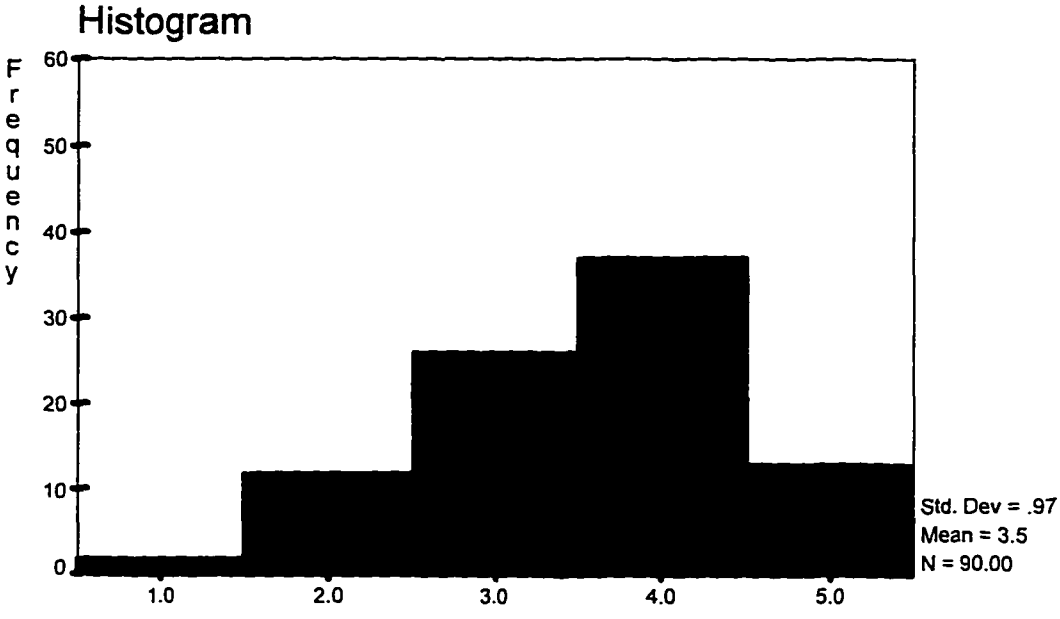
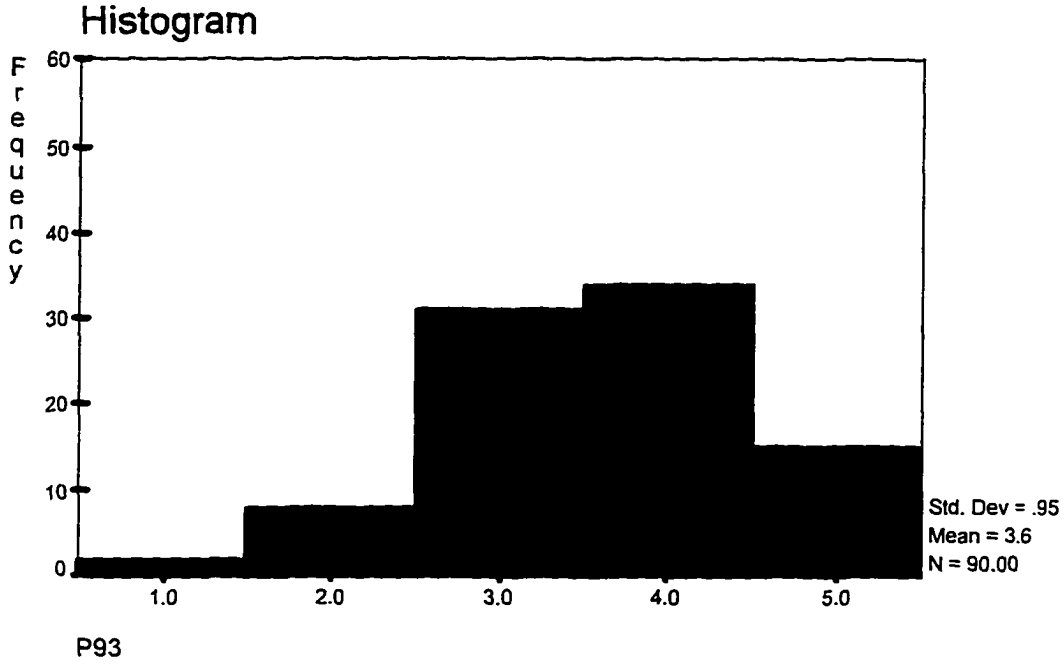


P92

Appendix II-6 (continued)



Appendix II-7
Final Questionnaire

D-

Marketing Information Management Survey

I NEED YOUR HELP!! To complete my graduate degree in business, I am conducting research on how business managers collect and use market information. Your response to this questionnaire is critical to the completion of this research. This questionnaire asks you about various aspects of the management of market information at your business unit.

Your organization is one of a small number in which managers are being asked to give their subjective judgments on these matters. In order for the results to truly represent today's management practice, it is important that each questionnaire be completed and returned. Thus, your participation is vital for the success of this study.

All responses will be held in strict confidentiality. If you wish to comment on any questions or qualify your answers, please feel free to use the space in the margins. If you are interested in receiving an executive summary report of this survey later, please enclose your business card with the completed questionnaire in the return envelope. Your business card will be separated from the completed questionnaire to maintain the anonymity.

Your comments are important and will be greatly appreciated. Thank you for your time!

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Appendix II-7 (continued)

INTRODUCTION

This entire questionnaire refers to a **BUSINESS UNIT.** A business unit is defined here as a relatively autonomous organizational unit with a defined business strategy and sales and profit responsibility. If you are responsible for multiple business units, please select the one unit that is most representative of those business units and answer all the questions with regard to the selected business unit.

Section 1: How does your BUSINESS UNIT collect market information?

To what extent does each statement below accurately describe the way market information is collected in your BUSINESS UNIT? Please indicate the degree of accuracy by indicating your agreement or disagreement with each statement.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. In this business unit, we meet with customers at least once a year to find out what products or services they will need in the future.	1	2	3	4	5
2. Individuals from our manufacturing department interact directly with customers to learn how to serve them better.	1	2	3	4	5
3. In this business unit, we do a lot of in-house market research.	1	2	3	4	5
4. We are slow to detect changes in our customers' product preferences.	1	2	3	4	5
5. We poll end users at least once a year to assess the quality of our products and services.	1	2	3	4	5
6. We often talk with or survey those who can influence our end users' purchases (e.g., retailers, distributors).	1	2	3	4	5
7. We collect industry information through informal means (e.g., lunch withindustry friends, talks with trade partners).	1	2	3	4	5
8. In our business unit, intelligence on our competitors is generated independently by several departments.	1	2	3	4	5
9. We are slow to detect fundamental shifts in our industry (e.g., competition, technology, regulation).	1	2	3	4	5
10. We periodically review the likely effect of changes in our business environment (e.g., regulation) on customers.	1	2	3	4	5
11. In this business unit, we frequently collect and evaluate general macro economic information (e.g., interest rate, exchange rate, GDP, industry growth rate, inflation rate).	1	2	3	4	5
12. In this business unit, we maintain contacts with officials of government and regulatory bodies (e.g., Department of Agriculture, FDA, FTC, Congress) in order to collect and evaluate pertinent information.	1	2	3	4	5
13. In this business unit, we collect and evaluate information concerning general social trends (e.g., environmental consciousness, emerging lifestyles) that might affect our business.	1	2	3	4	5

Appendix II-7 (continued)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
14. In this business unit, we spend time with our suppliers to know more about various aspects of their business (e.g., manufacturing process, industry practices, clientele).	1	2	3	4	5
15. In this business unit, we ask trade people or resellers regularly for their assessment of our product/service quality.	1	2	3	4	5
16. We collect end-user information through informal means (e.g., chat with end-users at conventions, talks with others in the industry).	1	2	3	4	5
17. In our business unit, only a few people are collecting competitor information.	1	2	3	4	5

Section 2: How would you describe your BUSINESS UNIT's industry environments?

The following items deal with some aspects of business organization's industry environments. How would you characterize your **BUSINESS UNIT's** industry environments?

Please indicate your judgment of industry environment by circling a number from one (1) to five (5) on the scales to the right of each statement.

	Very Low	Low	Moderate	High	Very High
1. The extent to which changes in government regulations would affect the day-to-day operations of your business unit.	1	2	3	4	5
2. The extent to which changes in government regulations would affect the long-term strategy of your business unit.	1	2	3	4	5
3. The extent to which changes in government regulations would affect your business unit's profitability.	1	2	3	4	5
4. The extent to which regulatory changes would affect the intensity of the competition of your business unit's industry.	1	2	3	4	5
5. The likelihood of a new competitor being able to make satisfactory profits in your business unit's primary market. (primary market: the largest part of your business unit's business)	1	2	3	4	5
6. The extent to which buying organizations are able to negotiate lower prices (or higher quality at the same price) from their supplier organizations.	1	2	3	4	5
7. The extent to which supplier organizations are able to negotiate higher prices (or lower quality at the same price) from their buyers.	1	2	3	4	5
8. The perceived annual growth rate of total sales of your business unit's primary market.	1	2	3	4	5
	Very Slow	Slow	Neither Slow Nor Fast	Fast	Very Fast
9. The extent to which the production/service technology in your business unit's primary market has changed.	1	2	3	4	5

Appendix II-7 (continued)

Section 3: How do the people in your BUSINESS UNIT share information?

The following statements represent some aspects of information sharing in business organizations. To what extent does each statement below accurately describe the way market information is shared in your BUSINESS UNIT?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. A lot of informal "hall talk" in this business unit concerns our competitors' tactics or strategies.	1	2	3	4	5
2. We have interdepartmental meetings at least once a quarter to discuss market trends and developments.	1	2	3	4	5
3. Marketing personnel in our business unit spend time discussing customers' future needs with other functional departments.	1	2	3	4	5
4. Our business unit periodically circulates documents (e.g., reports, newsletters) that provide information on our customers.	1	2	3	4	5
5. When something important happens to a major customer or market, the whole business unit knows about it in a short period.	1	2	3	4	5
6. Data on customer satisfaction are disseminated at all levels in this business unit on a regular basis.	1	2	3	4	5
7. There is minimal communication between marketing and manufacturing departments concerning market developments.	1	2	3	4	5
8. When one department finds out something important about competitors, it is slow to alert other departments.	1	2	3	4	5
9. We have cross-functional meetings very often to discuss market trends and developments (e.g., customers, competition, suppliers).	1	2	3	4	5
10. We regularly have interdepartmental meetings to update our knowledge of regulatory requirements.	1	2	3	4	5
11. Technical people in this business unit spend a lot of time sharing information about technology for new products with other departments.	1	2	3	4	5
12. Market information spreads quickly through all levels in this business unit.	1	2	3	4	5

Section 4: How is your BUSINESS UNIT operated?

The following statements represent some of the possible ways that business organizations are operated. To what extent does each statement below accurately describe the way your BUSINESS UNIT is operated?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. It takes us forever to decide how to respond to our competitors' price changes.	1	2	3	4	5
2. The principles of market segmentation drive new product development efforts in this business unit.	1	2	3	4	5

Appendix II-7 (continued)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
3. For one reason or another, we tend to ignore changes in our customers' product or service needs.	1	2	3	4	5
4. We periodically review our product development efforts to ensure that they are in line with what customers want.	1	2	3	4	5
5. Our business plans are driven more by technological advances than by market research.	1	2	3	4	5
6. Several departments get together periodically to plan a response to changes taking place in our business environment.	1	2	3	4	5
7. The product lines we sell depend more on internal politics than real market needs.	1	2	3	4	5
8. We are slow to start business with new suppliers even though we think they are better than existing ones.	1	2	3	4	5
9. If a major competitor were to launch an intensive campaign targeted to our customers, we would implement a response immediately.	1	2	3	4	5
10. The activities of the different departments in this business unit are well coordinated.	1	2	3	4	5
11. Customer complaints fall on deaf ears in this business unit.	1	2	3	4	5
12. Even if we came up with a great marketing plan, we probably would not be able to implement it in a timely fashion.	1	2	3	4	5
13. We are quick to respond to significant changes in our competitors' pricing structures.	1	2	3	4	5
14. When we find out that customers are unhappy with the quality of our service, we take corrective action immediately.	1	2	3	4	5
15. When we find that customers would like us to modify a product or service, the departments involved make concerted efforts to do so.	1	2	3	4	5
16. If a special interest group (e.g., consumer group, environmental group) were to publicly accuse us of harmful business practices, we would respond to the criticism immediately.	1	2	3	4	5
17. We tend to take longer than our competitors to respond to a change in regulatory policy.	1	2	3	4	5

Section 5: How would you describe your BUSINESS UNIT's internal working environment?

The following statements describe some aspects of a business organization's internal working environment. To what extent does each statement below accurately describe your BUSINESS UNIT's working environment?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Members of this business unit are receptive to change and innovation.	1	2	3	4	5

Appendix II-7 (continued)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
2. When it comes to problem solving, we value creative new solutions more than the solutions of conventional wisdom.	1	2	3	4	5
3. We firmly believe that a change in market creates a positive opportunity for us.	1	2	3	4	5
4. We value the orderly and risk-reducing management process much more highly than leadership initiatives for change.	1	2	3	4	5
5. Members of this business unit tend to talk more about opportunities rather than problems.	1	2	3	4	5
6. Top managers here encourage the development of innovative marketing strategies, knowing well that some will fail.	1	2	3	4	5
7. Top managers in this business unit like to "play it safe."	1	2	3	4	5
8. Top managers around here like to implement plans only if they are very certain that they will work.	1	2	3	4	5
9. I feel that I am my own boss in most matters.	1	2	3	4	5
10. A person can make his own decisions without checking with anybody else.	1	2	3	4	5
11. How things are done around here is left up to the person doing the work.	1	2	3	4	5
12. People here are allowed to do almost as they please.	1	2	3	4	5
13. Most people here make their own rules on the job.	1	2	3	4	5
14. The employees are constantly being checked for rule violations.	1	2	3	4	5
15. People here feel as though they are constantly being watched to see that they obey all the rules.	1	2	3	4	5
16. There can be little action taken here until a supervisor approves a decision.	1	2	3	4	5
17. A person who wants to make his own decision would be quickly discouraged here.	1	2	3	4	5
18. Even small matters have to be referred to someone higher up for a final answer.	1	2	3	4	5
19. I have to ask my boss before I do almost anything.	1	2	3	4	5
20. People in one department generally dislike interacting with those from other departments.	1	2	3	4	5
21. Most departments in this business get along well with each other.	1	2	3	4	5
22. Any decision I make has to have my boss' approval.	1	2	3	4	5
23. Employees from different departments feel that the goals of their respective departments are in harmony with each other.	1	2	3	4	5

Appendix II-7 (continued)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
24. Protecting one's departmental turf is considered to be a way of life in this business unit.	1	2	3	4	5
25. There is little or no interdepartmental conflict in this business unit.	1	2	3	4	5
26. There is ample opportunity for informal "hall talk" among individuals from different departments in this business unit.	1	2	3	4	5
27. In this business unit, employees from different departments feel comfortable calling each other when the need arises.	1	2	3	4	5
28. People around here are quite accessible to those in other departments.	1	2	3	4	5
29. Junior managers in my department can easily schedule meetings with junior managers in other departments.	1	2	3	4	5

Section 6: About your BUSINESS UNIT's characteristics....

Which one of the following descriptions most closely describes your business unit compared to others in the industry? **Please choose only one type by placing a check (✓) mark** to the left of that type. Note none of these types is inherently right or wrong.

___ **TYPE 1.** This type of business unit attempts to locate and maintain a secure niche in a relatively stable product or service area. The business unit tends to offer a more limited range of products or services than its competitors, and it tries to protect its domain by offering higher quality, superior service, lower prices, and so forth. Often this business unit 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.

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

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

___ **TYPE 4.** This type of business unit does not appear to have a consistent product-market orientation. This organization is usually not as aggressive in maintaining established products and markets as some of its competitors, nor is it willing to take as many risks as other competitors. Rather, this type of business unit responds in those areas where it is forced to by environmental pressures.

Appendix II-7 (continued)

Section 7: Performance of your BUSINESS UNIT....

In your judgment, how does your BUSINESS UNIT perform ***relative to its major competitors*** with respect to each criteria?

	Far Below Competitors		Slightly Below	Same	Slightly Above		Far Above Competitors
1. Our business unit's overall performance relative to major competitors last year.	1	2	3	4	5	6	7
2. Our business unit's market share growth in our primary market last year	1	2	3	4	5	6	7
3. Our business unit's sales growth relative to major competitors last year.	1	2	3	4	5	6	7
4. Percentage of sales generated by new products last year relative to major competitors	1	2	3	4	5	6	7
5. Our business unit's return on sales (ROS) relative to major competitors last year	1	2	3	4	5	6	7
6. Our business unit's return on assets (ROA) relative to major competitors last year	1	2	3	4	5	6	7
7. Our business unit's return on investment (ROI) relative to major competitors last year	1	2	3	4	5	6	7

Section 8: About your BUSINESS UNIT....

We would like to ask you a few questions for classification purposes only.

A. How would you describe the industry of your BUSINESS UNIT? Please choose the most appropriate one that describes your *primary* business (i.e., the largest part of the business).

1. Consumer products manufacturing
2. Industrial products manufacturing
3. Consumer service
4. Industrial service
5. Government and public service
6. Other (please specify)_____

B. What was your BUSINESS UNIT's approximate total sales and ROS (return on sales) last year?

$_____Million ROS:_____%

C. Approximately how many people are employed (full-time) in your BUSINESS UNIT

Approximately_____ Full-time Employees

D. The number of locations of your BUSINESS UNIT's operations? _____locations

E. How many BUSINESS UNITS are you responsible for? _____units

Thank you for your cooperation!
If you are interested in receiving an executive summary report of this study later, please enclose your business card with the completed questionnaire in the return envelop.

Appendix II-8
Final Data Descriptive Statistics

Note: * indicates reverse item.

Variable	Count	Mean	Min.	Max.	Std. Dev.	Kurtosis	Skewness
F1	364	4.35	1	5	0.94	3.12	-1.84
F2	359	3.57	1	5	1.22	-0.76	-0.53
F3	364	3.36	1	5	1.08	-0.70	-0.29
F4*	364	3.71	1	5	0.92	0.16	-0.70
F5	364	3.29	1	5	1.32	-1.16	-0.22
F6	360	3.63	1	5	1.26	-0.57	-0.70
F7	364	4.06	1	5	0.84	2.72	-1.30
F8	364	3.35	1	5	1.10	-0.70	-0.46
F9*	363	3.90	1	5	0.89	0.54	-0.85
F10	363	3.61	1	5	0.89	0.39	-0.78
F11	363	3.07	1	5	1.15	-0.82	-0.23
F12	363	2.92	1	5	1.21	-1.11	0.04
F13	364	3.15	1	5	1.06	-0.73	-0.29
F14	364	3.84	1	5	0.87	0.86	-0.86
F15	362	3.70	1	5	0.96	0.35	-0.72
F16	364	3.98	1	5	0.86	1.51	-1.07
F17*	363	3.02	2	5	1.24	-1.21	0.00
F18	363	3.18	1	5	1.11	-0.63	-0.11
F19	363	3.48	1	5	1.02	-0.13	-0.47
F20	363	3.45	1	5	1.02	-0.47	-0.28
F21	363	3.15	1	5	1.08	-0.74	-0.06
F22	364	2.75	1	5	1.03	-0.31	0.36
F23	363	3.27	1	5	0.95	-0.20	-0.21
F24	361	2.78	1	5	0.93	-0.18	0.00
F25	361	3.00	1	5	0.86	0.10	0.03
F26	363	3.22	1	5	0.93	-0.45	-0.12
F27	364	3.45	1	5	0.99	-0.48	-0.37
F28	364	3.67	1	5	1.08	-0.50	-0.60
F29	364	3.87	1	5	0.85	0.90	-0.86
F30	363	3.69	1	5	1.03	0.18	-0.83
F31	363	4.16	1	5	0.84	1.79	-1.19
F32	364	3.47	1	5	1.05	-0.58	-0.35

Appendix II-8 (continued)

Note: * indicates reverse item.

Variable	Count	Mean	Min.	Max.	Std. Dev.	Kurtosis	Skewness
F33*	364	3.75	2	5	1.03	-0.35	-0.63
F34*	362	3.78	1	5	.87	0.18	-0.71
F35	364	3.43	1	5	1.02	-0.68	-0.39
F36	363	2.80	1	5	1.06	-0.70	0.13
F37	363	3.07	1	5	0.98	-0.49	-0.25
F38	364	3.46	1	5	.91	-0.30	-0.51
F39*	364	3.90	1	5	0.93	0.82	-0.98
F40	363	3.37	1	5	0.91	-0.34	-0.27
F41*	364	4.02	2	5	0.81	1.49	-1.05
F42	364	3.88	1	5	0.78	1.64	-0.95
F43*	363	3.14	1	5	1.03	-0.75	-0.17
F44	362	3.40	1	5	0.87	-0.09	-0.72
F45*	362	3.98	1	5	0.97	0.48	-0.97
F46*	364	3.30	1	5	1.00	-0.60	-0.37
F47	364	3.84	2	5	0.98	-0.05	-0.72
F48	363	3.23	1	5	0.94	-0.38	-0.37
F49*	364	4.12	1	5	0.94	1.84	-1.31
F50*	364	3.63	1	5	0.98	-0.13	-0.64
F51	363	3.59	1	5	0.93	-0.23	-0.48
F52	364	4.08	1	5	0.75	1.47	-0.85
F53	364	3.93	2	5	0.72	0.49	-0.55
F54	364	3.98	1	5	0.82	0.05	-0.56
F55*	363	3.69	1	5	0.86	-0.51	-0.16
F56	364	3.60	1	5	0.93	0.02	-0.68
F57	364	3.42	1	5	0.84	-0.40	-0.14
F58	364	3.73	2	5	0.75	-0.06	-0.32
F59*	362	3.14	1	5	0.89	-0.57	-0.14
F60	364	3.11	1	5	0.94	-0.67	-0.19
F61	363	3.38	1	5	0.98	-0.44	-0.55
F62*	362	3.12	1	5	1.02	-0.83	-0.17
F63*	362	3.01	2	5	0.96	-1.06	-0.02
F64*	363	2.22	2	5	0.96	0.49	0.86
F65*	364	3.12	2	5	0.94	-0.80	0.04
F66*	363	3.10	2	5	0.94	-0.78	0.10

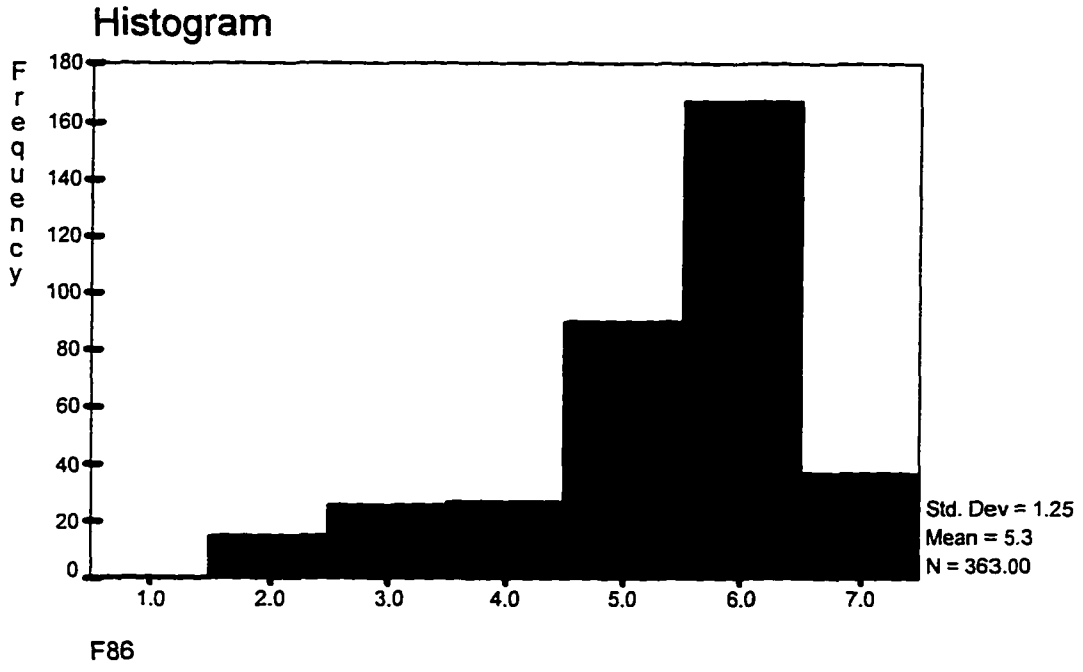
Appendix II-8 (continued)

Note: * indicates reverse item.

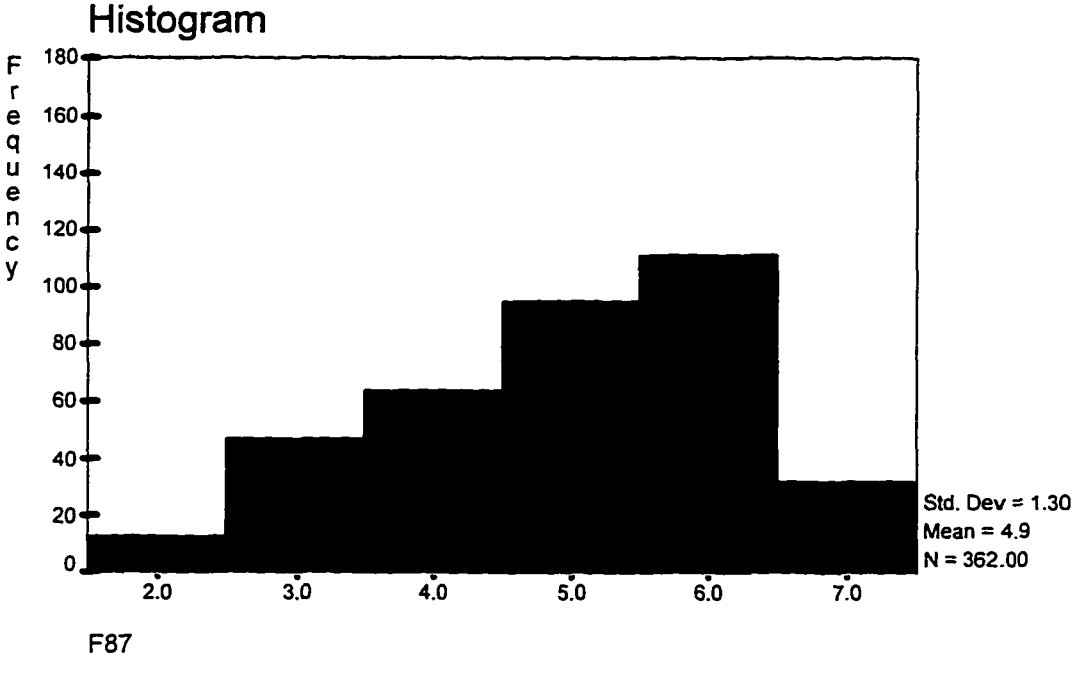
Variable	Count	Mean	Min.	Max.	Std. Dev.	Kurtosis	Skewness
F67*	362	3.82	1	5	0.83	0.23	-0.64
F68*	364	3.82	1	5	0.85	0.47	-0.72
F69	363	2.20	1	5	0.89	0.36	0.73
F70	364	2.09	1	5	0.92	0.60	0.90
F71	364	2.60	1	5	1.02	-0.65	0.35
F72	364	2.24	1	5	0.89	0.32	0.67
F73	364	2.22	1	5	0.95	0.61	0.94
F74	363	1.89	2	5	0.90	1.92	1.28
F75	364	2.31	1	5	0.98	-0.05	0.62
F76*	364	2.24	1	5	0.78	0.98	0.82
F77	363	2.04	1	5	0.91	1.48	1.14
F78*	364	2.77	1	5	0.83	-0.52	0.32
F79	364	2.65	1	5	0.99	-0.49	0.41
F80*	362	3.11	1	5	0.89	-0.86	-0.05
F81*	363	2.17	1	4	0.67	1.81	1.10
F82*	363	1.99	2	4	0.65	1.52	0.68
F83*	364	2.00	1	5	0.69	2.14	0.95
F84*	362	2.04	1	4	0.73	0.85	0.71
F86	363	5.31	1	7	1.25	0.83	-1.12
F87	362	4.94	2	7	1.30	-0.63	-0.40
F88	361	4.97	2	7	1.29	-0.54	-0.49
F89	359	4.71	1	7	1.40	-0.48	-0.31
F90	354	4.89	1	7	1.39	-0.36	-0.58
F91	349	4.89	1	7	1.35	-0.36	-0.46
F92	350	4.98	1	7	1.36	-0.18	-0.61

F85	Response	Frequency %
1	77	21.2%
2	133	36.5%
3	130	35.7%
4	18	4.9%
non-response	6	1.6%
Total	364	100%

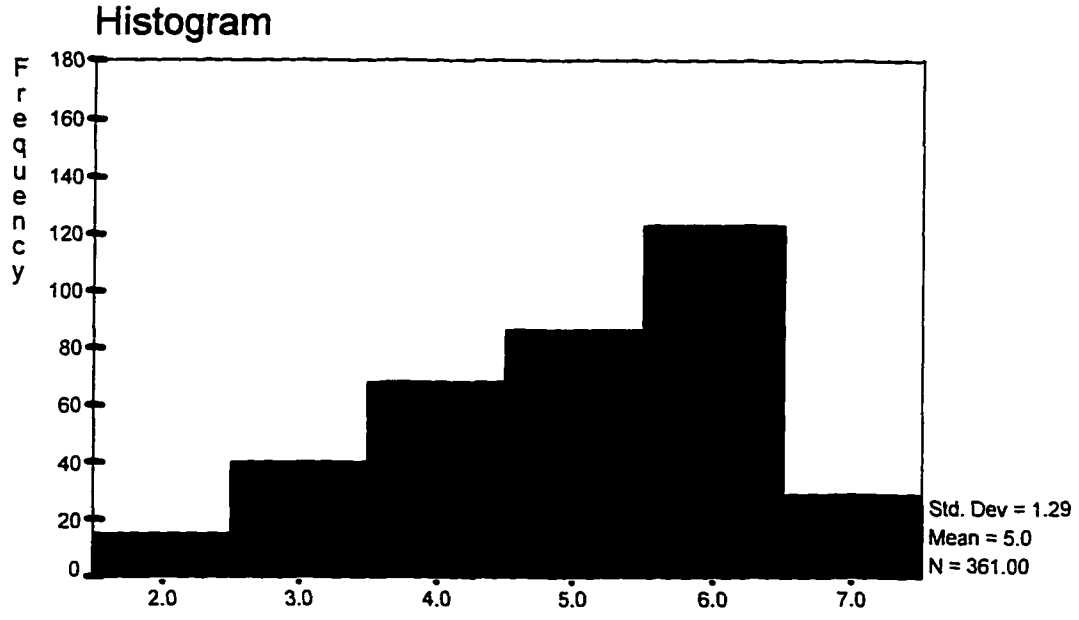
Appendix II-9
Final Data Histograms - Economic Performance



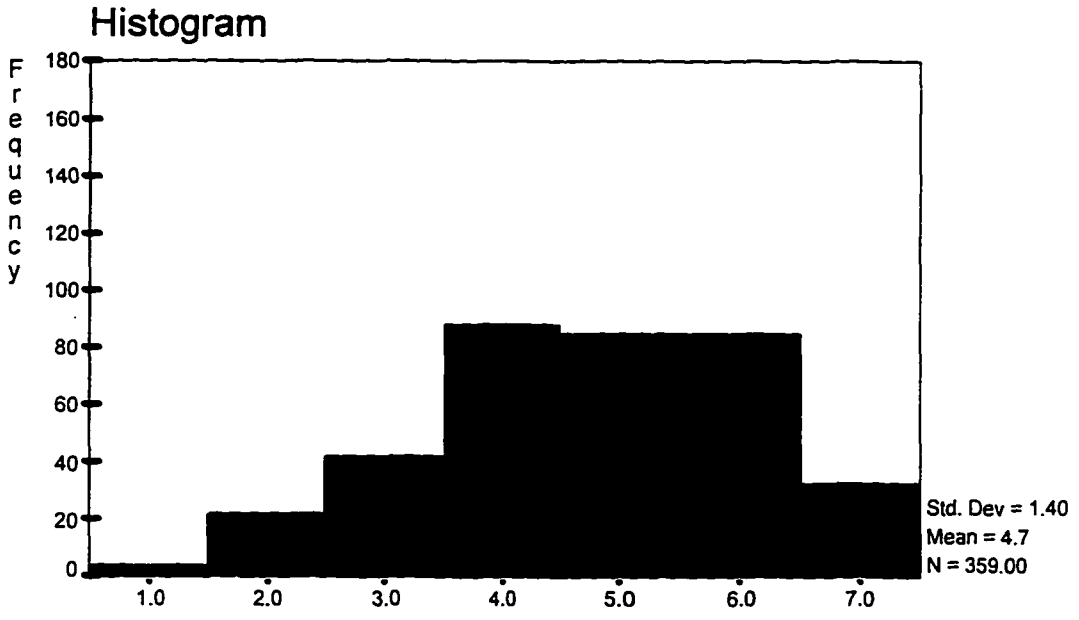
F86



F87

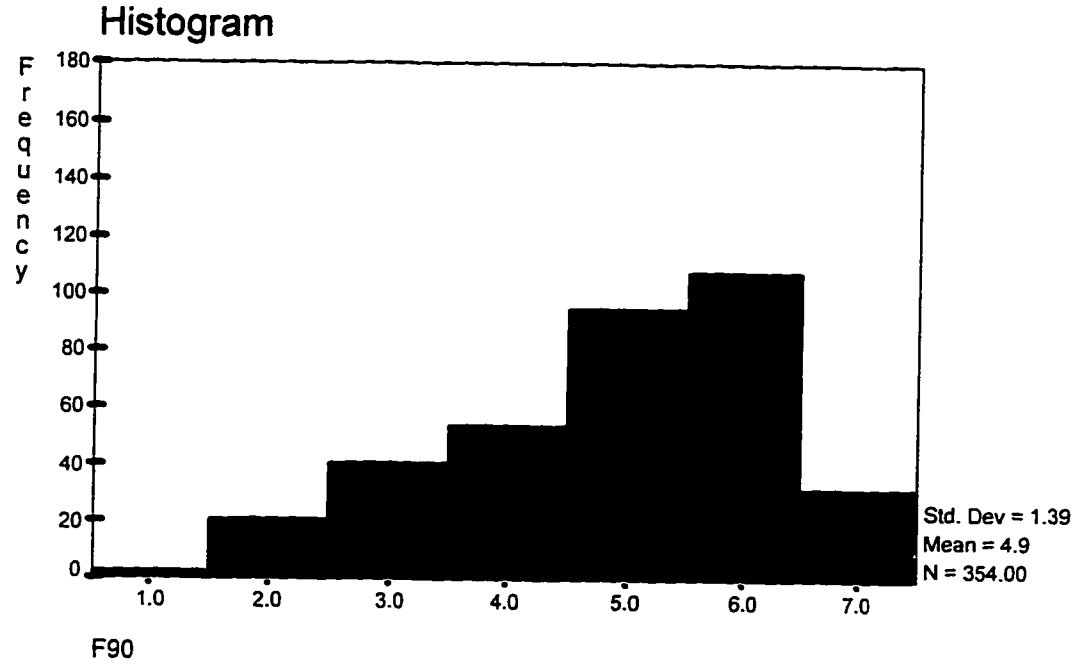


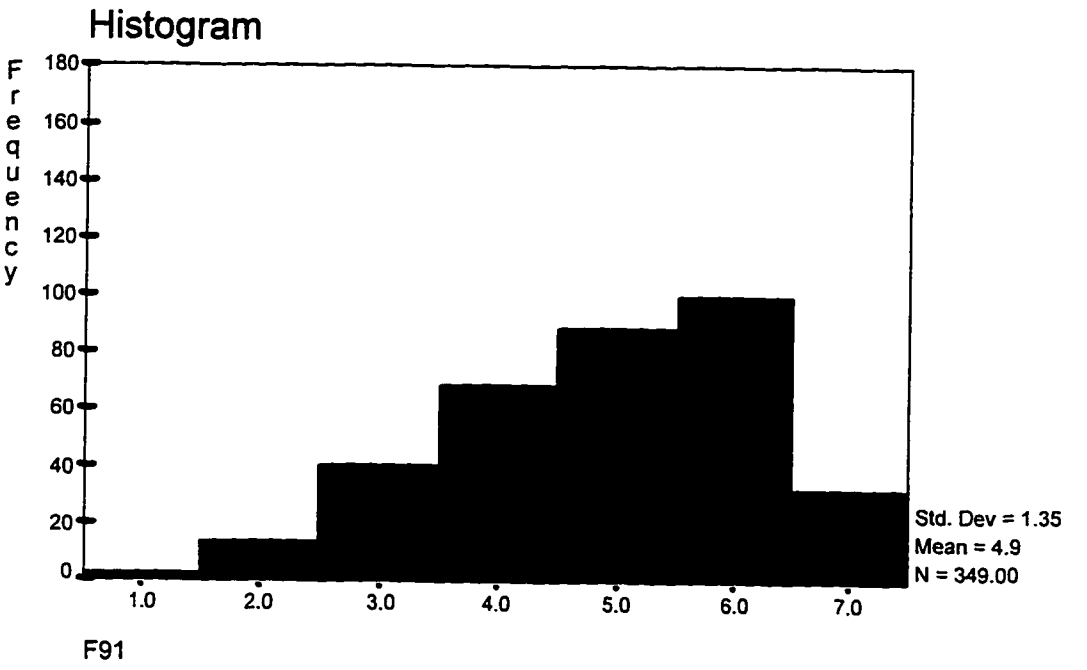
F88



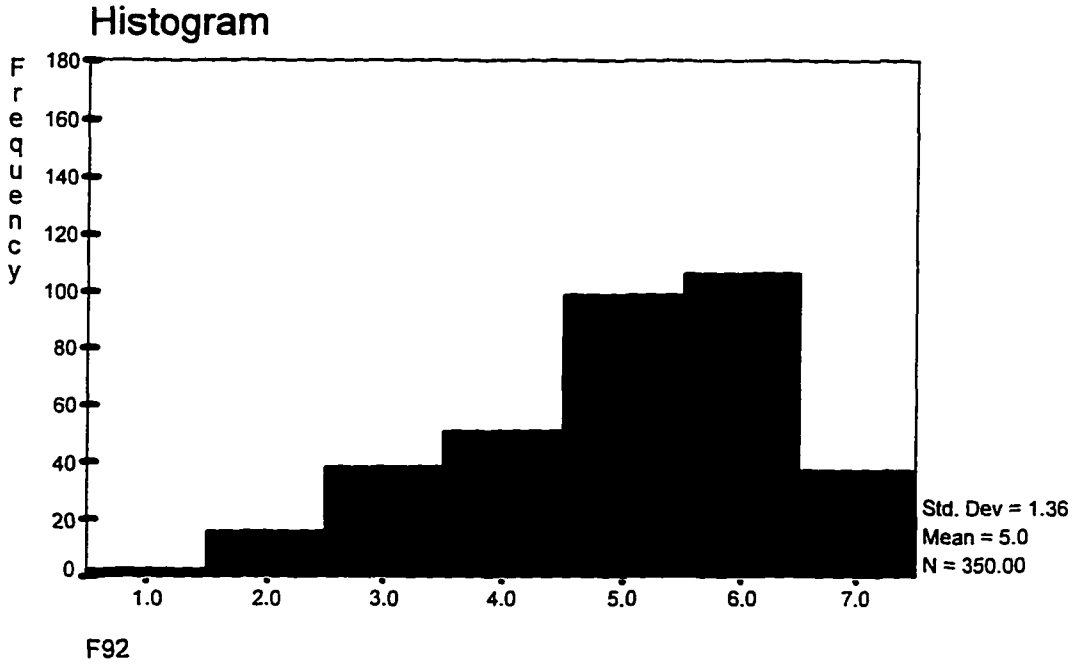
F89

Appendix II-9 (continued)





Appendix II-9 (continued)



Appendix II-10
MANOVA Results on Non-response Bias

Effect: WAVE (number of mailings sent before receiving response)

Multivariate Tests of Significance

Test Name	Value	Approx. F	Hypoth. DF	Error DF	Sig. of F
Pillai's Criterion	.02011	.49336	14.00	680.00	.937
Hotelling's Trace	.02034	.49098	14.00	676.00	.939
Wilks' Lambda	.97998	.49217	14.00	678.00	.938
Roy's GCR	.01332				

Note: F statistic for Wilks' Lambda is exact.

Univariate F-tests with (2,345) Degrees of Freedom.

Variable	Hypoth. SS	Error SS	Hypoth. MS	Error MS	F	Sig. of F
F86	.29667	548.53953	.14834	1.58997	.09330	.911
F87	1.32455	584.91396	.66227	1.69540	.39063	.677
F88	.21015	589.75249	.10508	1.70943	.06147	.940
F89	1.26700	689.59220	.63350	1.99882	.31694	.729
F90	2.00706	671.67972	1.00353	1.94690	.51545	.598
F91	1.28318	632.11912	.64159	1.83223	.35017	.705
F92	1.28318	632.11912	.64159	1.83223	.35017	.705

Appendix II-11
Post-hoc Multiple Regression Analysis
Internal Antecedents

* * * * M U L T I P L E R E G R E S S I O N * * * *

Listwise Deletion of Missing Data

	Mean	Std Dev	Label
EMO	76.346	10.744	
ADAPT	26.415	5.140	
CENT	11.061	3.929	
DEPT	19.380	4.708	
FORM	14.510	3.241	

N of Cases = 347

Correlation, 1-tailed Sig:

	EMO	ADAPT	CENT	DEPT	FORM
EMO	1.000	.498	-.333	-.500	-.078
	.	.000	.000	.000	.074
ADAPT	.498	1.000	-.536	-.580	-.317
	.000	.	.000	.000	.000
CENT	-.333	-.536	1.000	.598	.604
	.000	.000	.	.000	.000
DEPT	-.500	-.580	.598	1.000	.348
	.000	.000	.000	.	.000
FORM	-.078	-.317	.604	.348	1.000
	.074	.000	.000	.000	.

Appendix II-11 (continued)

* * * * M U L T I P L E R E G R E S S I O N * * * *

Equation Number 1 Dependent Variable.. EMO

Descriptive Statistics are printed on Page 2
Block Number 1. Method: Enter ADAPT CENT DEPT FORM

Variable(s) Entered on Step Number
1.. FORM
2.. ADAPT
3.. DEPT
4.. CENT

Multiple R	.58135
R Square	.33796
Adjusted R Square	.33022
Standard Error	8.79251

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	4	13497.06063	3374.26516
Residual	342	26439.44081	77.30831

F = 43.64686 Signif F = .0000

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	Tolerance	VIF	T
FORM	.607540	.183108	.183284	.634368	1.576	3.318
ADAPT	.681634	.117957	.326096	.607885	1.645	5.779
DEPT	-.761245	.135680	-.333560	.547678	1.826	-5.611
CENT	-.188233	.182597	-.068842	.434066	2.304	-1.031
(Constant)	66.360199	5.312388				12.492

Appendix II-11 (continued)

------ in -------

Variable	Sig T
FORM	.0010
ADAPT	.0000
DEPT	.0000
CENT	.3033
(Constant)	.0000

Collinearity Diagnostics

Number	Eigenval	Cond Index	Variance Proportions Constant	ADAPT	CENT	DEPT	FORM
1	4.81213	1.000	.00034	.00089	.00197	.00127	.00127
2	.12494	6.206	.00450	.08510	.14764	.01394	.00255
3	.03498	11.729	.00295	.00848	.13131	.55293	.20914
4	.02231	14.688	.00029	.10615	.71559	.04676	.71275
5	.00565	29.184	.99193	.79938	.00349	.38510	.07429

End Block Number 1 All requested variables entered.

* *

Appendix II-12
Post-hoc Multiple Regression Analysis
External Antecedents

* * * * M U L T I P L E R E G R E S S I O N * * * *

Listwise Deletion of Missing Data

	Mean	Std Dev	Label
EMO	76.605	10.744	
ENTRY	2.763	1.018	
BPOWR	3.274	.938	
SPOWR	2.785	.940	
MGRO	2.992	.863	
TECH	3.220	.926	
REGIMP	13.302	3.641	

N of Cases = 354

Correlation, 1-tailed Sig:

	EMO	ENTRY	BPOWR	SPOWR	MGRO	TECH	REGIMP
EMO	1.000	.031	.081	.162	.192	.224	.171
	.	.280	.065	.001	.000	.000	.001
ENTRY	.031	1.000	.196	.216	.204	.125	.055
	.280	.	.000	.000	.000	.009	.150
BPOWR	.081	.196	1.000	.369	.122	.123	.055
	.065	.000	.	.000	.011	.010	.153
SPOWR	.162	.216	.369	1.000	.137	.087	.075
	.001	.000	.000	.	.005	.051	.079
MGRO	.192	.204	.122	.137	1.000	.257	.051
	.000	.000	.011	.005	.	.000	.168
TECH	.224	.125	.123	.087	.257	1.000	.048
	.000	.009	.010	.051	.000	.	.183
REGIMP	.171	.055	.055	.075	.051	.048	1.000
	.001	.150	.153	.079	.168	.183	.

Appendix II-12 (continued)

* * * * M U L T I P L E R E G R E S S I O N * * * *

Equation Number 1 Dependent Variable.. EMO

Descriptive Statistics are printed on Page 10

Block Number 1. Method: Enter
ENTRY BPOWR SPOWR MGRO TECH REGIMP

Variable(s) Entered on Step Number
1.. REGIMP
2.. TECH
3.. SPOWR
4.. ENTRY
5.. MGRO
6.. BPOWR

Multiple R	.33129
R Square	.10975
Adjusted R Square	.09436
Standard Error	10.22435

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	6	4472.14543	745.35757
Residual	347	36274.48733	104.53743

F = 7.13005 Signif F = .0000

* * * * M U L T I P L E R E G R E S S I O N * * * *

Equation Number 1 Dependent Variable.. EMO

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	Tolerance	VIF	T
REGIMP	.438685	.150215	.148651	.990208	1.010	2.920
TECH	2.072143	.612272	.178633	.920890	1.086	3.384

Appendix II-12 (continued)

SPOWR	1.479293	.633590	.129379	.835489	1.197	2.335
ENTRY	-.567622	.561402	-.053801	.906071	1.104	-1.011
MGRO	1.643181	.666352	.132007	.895264	1.117	2.466
BPOWR	-.032299	.632432	-.002819	.841963	1.188	-.051
(Constant)	56.734032	3.516450				16.134

------ in -------

Variable	Sig T
REGIMP	.0037
TECH	.0008
SPOWR	.0201
ENTRY	.3127
MGRO	.0141
BPOWR	.9593
(Constant)	.0000

Collinearity Diagnostics

Number	Eigenval	Cond Index	Variance Proportions Constant	ENTRY	BPOWR	SPOWR	MGRO	TECH
1	6.60673	1.000	.00054	.00227	.00138	.00182	.00149	.00151
2	.09777	8.220	.00576	.65701	.00336	.05782	.02656	.09335
3	.09248	8.452	.00011	.26486	.09899	.43586	.06174	.05498
4	.07302	9.512	.00244	.03983	.00730	.02271	.13681	.16975
5	.05728	10.740	.00026	.01230	.19269	.10386	.57474	.32279
6	.05300	11.165	.00091	.00811	.59318	.36417	.11013	.24083
7	.01972	18.305	.98997	.01562	.10309	.01376	.08853	.11679

	REGIMP
1	.00148
2	.10047
3	.00019
4	.58016
5	.00768
6	.00854
7	.30146

End Block Number 1 All requested variables entered.

* *

VITA

Kenichi "Ken" Matsuno was born in Osaka, Japan on May 21, 1960. He spent his first twenty two years of life in Japan and graduated with the Bachelor of Economics degree in March 1983 from Aoyama Gakuin University, a Methodist university in Tokyo, Japan. In August of 1983, he came to the United States to enter the Second Baccalaureate Degree Program in marketing at University of Oregon. In August of 1984, he graduated from University of Oregon with the Bachelor of Science in marketing. He returned to Japan and worked for a marketing consulting firm in Osaka, Japan from 1985 until 1989. From September 1989 through May 1991, he attended the MBA program at the University of Virginia as the Rotary International Graduate Scholar. After receiving his MBA, he worked for Eli Lilly & Co. and held a variety of marketing positions. In August 1992, he entered the University of Tennessee to pursue the Doctor of Philosophy degree in business administration. In September 1996, he accepted an Assistant Professor position at Babson College in Wellesley, Massachusetts. The doctoral degree was awarded in December 1996.

He is an active member of several professional organizations including the American Marketing Association and the Academy of Marketing Science. He has authored and co-authored articles for several academic conference proceedings and a journal.