

**Market Orientation and Organizational Performance:
Is Innovation the Missing Link?**

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Abstract

A market-oriented corporate culture has increasingly been considered as prescriptive of superior corporate performance in recent years. Although organization innovativeness has been considered as propelling this market orientation-corporate performance relationship, much of the evidence to date remains anecdotal or speculative. In this context, we propose a systematic framework to test the postulated "market orientation-innovation-performance" chain. To this end, we take a component-wise approach by examining how the three core components of market orientation (customer orientation, competitor orientation, and interfunctional coordination) impact the two core components of organization innovativeness (technical vs. administrative) en route to impacting corporate performance. Using a sample from the banking industry, we empirically test and substantiate innovation's mediator role in the market orientation-corporate performance relationship.

Market Orientation and Organizational Performance:
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There is only one valid definition of business purpose: to create a customer . . .
It is the customer who determines what the business is . . . Because it is its
purpose to create a customer, any business enterprise has two - and only these
two - basic functions: *marketing* and *innovation*.

Peter F. Drucker on the Marketing Concept (p. 37; 1954)

Introduction

The concept of "market orientation" has experienced a renewed interest in recent years as scholars and managers reevaluate the fundamentals of the marketing concept (i.e., Greenley 1995; Kohli and Jaworski 1990; Narver and Slater 1990; Shapiro 1988; Slater and Narver 1994a). As the "first" cornerstone of the marketing concept (Drucker 1954), market orientation establishes three basic tenets for organizational behavior (Narver and Slater 1990): (1) responsiveness towards customers' needs; (2) close monitoring of the competitors' actions; and (3) facilitation of interfunctional coordination - all of which unequivocally make an impact on organizational performance. In line with this reasoning, researchers have ensued the nature of the link between market orientation and performance from rather diverse perspectives: i.e., in terms of direct causality (Narver and Slater 1990; Reukert 1992); via moderated relationship (Day and Wensely 1988; Greenley 1995; Hart and Diamantopoulos 1993; Jaworski and Kohli 1992; Slater and Narver 1994a); and even focusing on market orientation's antecedents (Jaworski and Kohli 1993). Ostensibly, the interest on the assumed relationship between market orientation and performance has remained steadfast for its apparent strategic importance.

Notwithstanding the resurgent interest in the marketing concept, however, the extant literature has yet to address whether *innovations*, the marketing concept's "other" cornerstone, play a part in the chain of influence on organizational performance - as increasingly suggested by the organizational behavior literature on innovation (i.e., Damanpour and Evan 1984; Damanpour,

Szbat, and Evan 1989; Khan and Manopichetwattana 1989; Zahra, de Belardino, and Boxx 1988). The mounting evidence from innovation research has established that a uniformly robust relationship - that is, positive and direct - exists between innovation and performance. As evidenced by reports of return-on-innovation accounting for, i.e., as high as 50% or more of the corporate revenue (Kotler 1991), innovation is becoming increasingly important as a means of survival--and not just growth--in the face of intensifying competition and environmental uncertainty (Grønhaug and Kaufmann 1988). Consequently, innovations have become a commonplace, if not a necessity, in the administrative as well as the technical operations in organizations today.

The significance of focusing on innovation in the context of market orientation is meaningful on both conceptual and strategic grounds. First, albeit the soundness of its theoretical construct, the role of market orientation - whether facilitative or causative - on organizational performance warrant further investigation (Deshpandé, Farley, and Webster 1993). Specifically, Deshpandé, Farley, and Webster suggest that conceivably the most important manifestation of market orientation may be the success of innovations *en route* to the success of an organization. The issue of whether market orientation facilitates an organization's capacity to innovate, however, has yet to be explicitly addressed in the extant literature. Therefore, the incorporation of the organizational innovation construct in the context of market orientation-performance framework would provide a test of the innovation's hypothesized role as the mediator of organizational performance.

Secondly, although the importance of market orientation is acknowledged for its assumed association with organizational performance, the discordant findings on the nature of the market orientation-performance relationship have somewhat limited its strategic value for managers (Greenley 1995). Accordingly, if the inclusion of the innovation construct can contribute to identifying empirical regularities or reconciling irregularities in the supposed market orientation-performance relationship, the utility of the market orientation knowledge would be advanced from a strategic standpoint.

The purpose of this paper, hence, is to investigate how the two cornerstones of the marketing concept - *market orientation* and *innovation* - engage, if at all, in affecting organizational performance. To this end, we explore whether market orientation enhances an organization's capacity to innovate, and if so, the extent of the consequences on the level of organizational performance. In exploring this relationship, we take a component-wise approach: each of market orientation's three core components are examined for their impact on a dichotomy of innovations (technical vs. administrative). Subsequently, each impact of dual-core innovation components are assessed on corporate performance. In addition, environmental variables that have been identified in the past as potential moderators are taken into account so as to identify the contingencies of the framework. In sum, we present an exploratory framework synthesizing knowledge from the market orientation and the organizational behavior literature in understanding the path to organizational performance.

The rest of the paper is organized in the following manner. First, we review the relevant literature on organizational innovation, market orientation, and their link to performance. Secondly, we discuss the model specification, which is followed by a description of the data used for empirical analysis. Subsequently, the general model is estimated. Finally, we discuss some implications of the findings and directions for future research.

Background

Market Orientation

Market orientation, as a corporate culture, characterizes an organization's disposition to continuously deliver superior value to its customers (Slater and Narver 1994). This creation of superior customer value entails an organization-wide commitment to continuous information-gathering and coordination of customers' needs, competitors' capabilities, and the provisions of other significant market agents and authorities (i.e., suppliers and regulators) (Slater and Narver 1994b; Slater and Narver 1995). The result, according to Kohli and Jaworski (1990), is an

integrated effort on the part of the individuals and across departments within an organization, which in turn, gives rise to superior corporate performance.

A closer look at the market orientation construct reveals two prevalent blueprints to delivering superior customer value. First, Kohli and Jaworski (1990) outline a framework comprising of generation and dissemination of, and responsiveness to market intelligence, where the benefit derived from the information can be enhanced when shared among the functions within an organization. Reinforcing this conceptualization, the definition set forth by Narver and Slater (1990) consists of three behavioral components: (1) customer orientation, (2) competitor orientation, and (3) interfunctional coordination - each of which is engaged in intelligence generation, dissemination, and responsiveness to the collected information. Furthermore, the three core behavioral components are posited as being equally important in their informational value. In sum, market orientation scholars forward market-oriented corporate culture as prescriptive of superior customer value and corporate performance.

As an implementation strategy of the marketing concept, however, market orientation remains incomplete without first understanding the *modus operandi* that gives rise to superior customer value and corporate performance. With the exception of Slater and Narver (1994b), the underlying process has been probed primarily for the strength of market orientation-performance relationship. For example, potential environmental moderators as competitive intensity, market turbulence, and technological turbulence received much of the limelight (Greenley 1995; Jaworski and Kohli 1993; Slater and Narver 1994a) while assigning scarce attention to the actual mechanism responsible for transforming market-oriented behavior into superior corporate performance.

A departure from this practice is a conceptual work by Slater and Narver (1994b), which proposes innovation as one of the "core value-creating capabilities" driving the market orientation - performance relationship. This proposition - that innovation assuming the mediator role - is consistent with Zaltman, Duncan, and Holbek (1973)'s "paradigm of organizational change and innovation." In their seminal work, Zaltman, Duncan, and Holbek (1973) propose the protocol of implementing innovations - after appropriate intelligence-gathering and decision-making have taken

place - as the medium for achieving business performance target. The notion of "market orientation-innovation-performance" chain, though a seemingly a novel concept in marketing, hence has its original conceptual grounding in the organizational literature.

Presently, however, the empirical support for the "market orientation-innovation-performance" chain is available solely in a piecemeal fashion. Specifically, examining for empirical support of the proposed chain identifies two streams of research: one addressing the market orientation-innovation link, and the other the innovation-performance link. As aforementioned, since the market orientation literature has just begun to acknowledge the role of innovation in the context of market orientation, the support for the former link is rather sparse in numbers. For instance, citing Quinn (1986)--who observed a strong market orientation in innovative businesses--as an example, Slater and Narver (1994b, p. 25) reason that "innovation and new product success are more likely to result from being market-driven." Similarly, Deshpandé, Farley, and Webster (1993), after finding performance linked to both market orientation and innovation, speculate a causal relationship of market orientation, innovation, and performance, respectively. Though not a market orientation study, additional support comes from Kitchell (1995) who reports a positive association between "proactive information search" and organization's capacity to innovate. On the whole, despite the emerging interest in innovation in a market orientation context, the evidence thus far has been either anecdotal or deductive. As a result, the first link in the conjectured "market orientation-innovation-performance" chain remains relatively weak in its empirics.

In contrast, the latter link in the chain (that is, the innovation-performance connection) has been examined in a plethora of studies in the field of organizational innovation and has much accumulated evidence of robust and positive findings. For example, Zahra, de Belardino, Boxx (1988) studied 59 manufacturing firms and Capon, Farley, and Hoenig (1990) conducted a meta-analysis consisting of studies of firms from seven different industries, and both research found significant and positive link between innovation and performance.

Therefore, following the cliché that "a chain is as strong as its weakest link," empirical inquiry into the market orientation-innovation relationship remains imperative for a better understanding of the process underlying the assumed market orientation-corporate performance connection. Accordingly, if organizational innovation is to be tested for the role of a mediator in the supposed market orientation-performance link, this first requires a precise definition of the innovation construct, and organizational innovation literature provides such conceptual foundation as discussed in the following section.

Innovation Construct: Technical vs. Administrative

In marketing, the conventional usage of the term "innovation" has largely referred to technology-related breakthroughs. As a result, the innovation focus in marketing literature has been relatively product-intensive. Market orientation, however, is not only concerned with improvements in product-related aspects but also with facilitating the social structure in an organization. This requires studying innovation on a broader scope while making the distinction between technology-related vs. social structure-related innovations. In the organizational innovation literature, this distinction placed on the *technical vs. administrative* innovation dimension prevails as one of the most meaningful innovation dichotomy (Daft 1978; Dalton 1962; Damanpour 1991). Specifically, following Damanpour (p. 560; 1991)'s conceptualization, "technical innovations pertain to products, services, and production process technology; they are related to basic work activities and can concern either product or process. . . ," whereas, "administrative innovations involve organizational structure and administrative process; they are indirectly related to the basic work activities of an organization and are more directly related to its management. . . ." Using the banking industry as an example, the adoption of automatic teller machines vs. computerized book-keeping system would illustrate a case in point for technical vs. administrative innovation, respectively.

As the distinction is based upon technology-related vs. social structure-related criteria, the technical vs. administrative distinction seemingly captures the foremost fundamental dichotomy in

the innovation construct (Evan 1966). Not surprisingly, this innovation dichotomy has been shown to relate unevenly to the same predictor variables (Aiken, Bacharach, and French 1980; Daft 1978; Damanpour 1987) as well as in its impact on organizational performance (Damanpour and Evan 1984; Damanpour, Szabat, and Evan 1989). Hence, investigating how each of the market orientation's core behavioral components (customer orientation, competitor orientation, and interfunctional coordination) impacts this dichotomy of innovations is of particular pertinence to our framework.

Hypotheses on Market Orientation, Innovation, and Performance

Customer Orientation

Although some consider customer orientation *as* important as competitor focus and interfunctional coordination (i.e., Slater and Narver 1990), others consider it the most fundamental aspect of a corporate culture (i.e., Deshpandé, Farley, and Webster 1993; Lawton and Parasuraman 1980). The rationale underlying the high-profiling of customer focus is the marketing concept, which promotes putting customer the interest of customers' first. Accordingly, as customer orientation places the highest priority on continuously finding ways to provide superior customer value, an increased commitment to customer orientation should witness an "increased boundary-spanning activity" beyond the status quo (Pierce and Delbecq 1977). In other words, customer orientation advocates a continuous proactive disposition towards meeting the exigencies of the customers. A focus on total customer satisfaction, thereby, should lead to a focus on continuous innovation (Peters 1984).

In line with this reasoning, Deshpandé, Farley, and Webster (1993) do show a positive correlation between customer orientation and innovative firms, but they do not make the distinction as to whether the firms are innovative in terms of technical vs. administrative aspects. Organizations committed to superior customer value, however, have been shown to innovate *throughout* their entire business system as opposed to solely on products or services (Parsons

1991). Although business system re-engineering (which is a form of administrative innovation) occurs less frequently than its product/service counterparts (which is a form of technical innovation), Parsons posits the former to be equally significant (and perhaps even more so for an enterprise in a service industry) in delivering superior value to customers.

This notion of a customer-focused culture facilitating organizational innovativeness in both technical and administrative areas is consistent with the marketing concept's long-term orientation. Specifically, as the marketing concept advocates a business enterprise to be forward-looking, a customer-oriented business is likely to be more concerned with the long-term business outlook (vs. short-term profits) (Felton 1959). In other words, both types of innovations (technical and administrative) represent a long-term investment to an organization, hence, one is more likely to encounter a greater capacity to innovate in a customer-oriented culture vis-a-vis a less customer-focused one (i.e., a firm with a myopic profit-seeking goal). For instance, Kitchell (1995) found that future-oriented firms are in general more innovative. We, therefore, expect a customer-oriented business culture to exhibit a positive effect on an organization's capacity to innovate--both technical- and administrative-wise. Stated formally

H1: Customer orientation has a positive impact on organizational capacity to innovate: on both technical and administrative types of innovation.

Competitor Orientation

Customer focus may play a key part in the strategy to create superior customer value, but an effective strategy requires more than simply customer-centered methods. A complete reliance on customer orientation can often lead to incompleteness in business strategy, which leaves an organization prone to a reactive posture (as opposed to a proactive disposition) in coping with competitors' strategies (Day and Wensley 1988). On the other hand, an unbalanced focus toward competitors is also not desirable since exclusive attention on the competition can lead to the neglect for the exigencies of its customers (Deshpandé, Farley, and Webster 1993). Therefore, Day and

Wensley (1988) propose a balanced mix of customer and competitor orientation as a requisite for maintaining a competitive advantage in the marketplace - which is consistent with Narver and Slater (1990)'s equal weighting of market orientation's core components.

Essentially, competitor orientation centers around the following questions: (1) who the competitors are; (2) what technologies do they offer; and (3) whether they represent an attractive alternative (to yours) from the perspective of the target customers (Slater and Narver 1994b). On the whole, competitor orientation entails gathering intelligence on these three question, where the core methodology typically consists of measuring itself directly against its target competitors (Day and Wensley 1988).

With respect to the target rivals as a frame of reference, competitor-oriented firms seek to identify their own strengths and weaknesses. Although such an approach often yields helpful insights into one's relative standing in the marketplace, judgments rendered by managers typically exhibit a bias towards placing disproportionate weight on "hard" evidence (i.e., tangible and visible factors) (Barnes 1984). Such a bias underscores the role of technical innovations over the administrative ones, because former--relating to technology--offers both tangibility and visibility, whereas the latter--relating to social structure--offers neither. Furthermore, Stevenson (1976) found that managers base their judgments of strengths and weaknesses primarily on the technical and marketing attributes of product/service offerings. Marketing attributes--not to mention technical ones--are clearly visible in technical innovations but generally such is not the case in the administrative types.

The implication is that, as the objective of competitor-centered methods is to keep pace with or even stay head of the rest of the field, one would expect a competitor-oriented corporate culture to facilitate innovations. However, as the competitor assessments generally yield partiality towards the consideration of "hard" evidences (i.e., technical and marketing attributes), one would expect competitor orientation to facilitate innovations of the technical type, but no measurable impact on the administrative type. Stated formally:

H2a: Competitor orientation has a positive impact on organizational capacity to innovate in technical areas.

H2b: Competitor orientation has no measurable impact on organizational capacity to innovate in administrative areas.

Interfunctional Coordination

Interfunctional coordination represents the third in the series of core market orientation components identified by Narver and Slater (1990). For the marketing concept to be implemented properly, Felton (1959) insists on integrating all other functions of business with those of marketing. *Circa* several decades after the advent of the marketing concept, there are indications that practitioners are acknowledging the responsibility of market orientation as beyond scope of the marketing department alone. In field interviews with a number of enterprises, senior management has often noted that various department being cognizant of the market intelligence was not sufficient, but that the coordinated effort among various functions as being instrumental in the firm's responsiveness to the customer's needs (Kohli and Jaworski 1990).

Zaltman, Duncan, and Holbek (1973) offer an explanation on how openness in communication across functions facilitates responsiveness to customers. As functions are integrated across departments in an organization, the problem-solving capabilities are potentially enhanced by individuals working toward the common goal; however, if personnel in different departments do not open up to each other, they are more likely conform to their routine mode of problem-solving and less likely to be creative and take risks. Zaltman, Duncan, and Holbek further proceed to relate openness in communication to organizational capacity to innovate.

Evidence supporting how interfunctional integration and openness in communication relate to organizational innovativeness is on hand from a vast number of research focusing on organizational characteristics and their implications. For instance, in a meta-analysis with a sample of 782 studies, Damanpour (1991) reports a positive association between *internal communication*

(which reflects the extent of cross-functional communication and coordination) and organizational innovativeness. The correlation between interfunctional coordination and organizational capacity to innovate is brought about as an outcome of interfunctional relationship fostering both trust and dependence among the cross-functional personnel (Argyris 1962; Gupta, Raj, and Wilemon 1986; Olson, Walker, and Ruekert 1995; Ruekert and Walker 1987; Zaltman, Duncan, and Holbek 1973). That is, Argyris argues that organizational participants typically face uncertainty in dealing with innovations, which is coupled with absence of pre-established rules or procedures to follow. In such situations, interfunctional integration and openness in communications provide the bridgework in mitigating distrust and conflicts among the separate functional units. This, in turn, provides an environment that is more receptive towards innovations.

The manner in which the extent of interfunctional coordination is made pervasive in a business culture can be managed through various integration mechanisms: i.e., the frequency of committee meetings (Aiken and Hage 1971; Kim 1980); the number of face-to-face contacts in horizontal and vertical relationships (Aiken, Bacharach, and French 1980); and the degree to which units share decisions (Hull & Hage 1982). In general, as most mechanisms of interfunctional coordination--inclusive of the aforementioned--succor in allaying mistrust while building confidence among the disparate departments, we expect interfunctional coordination to be conducive to an innovative disposition in areas of improving the current technology as well as advancing the incumbent social structure. Hence, we hypothesize the following:

H3: Interfunctional coordination has a positive impact on organizational capacity to innovate: on both technical and administrative types of innovation.

Innovation and Performance

The link between organizational innovativeness and performance stands as the most consensually documented part of the postulated "market orientation-innovation-performance" chain. The rationale behind organizational innovativeness showing a strong, positive influence on

corporate performance is ascribed to innovations serving to accommodate the uncertainties (i.e., competitive intensity, technological turbulence, and market turbulence) that a firm faces in its entrepreneurial environment (Ettle and Bridges 1982).

Although most studies looking into innovation's influence on performance exclusively assume either a technical or administrative innovation focus, the ones that concurrently look at the effects of both technical and administrative innovations advocate the adoption of both for an optimal organizational performance (Damanpour and Evan 1984; Damanpour, Szabat, and Evan 1989; Kimberly and Evanisko 1981). For example, Damanpour, Szabat, and Evan illustrate this point with a bank which offers a new service as requiring a new set administrative mechanisms to evaluate and control its performance. Moreover, they emphasize the point that technical innovations do not necessarily always prompt administrative innovations. The reverse may be the case, for instance, when an organizational administrative component which is more open to new ideas may be a prerequisite to the adoption of technical innovations. A one-to-one correspondence in the adoption of technical vs. administrative innovations, however, is not advised; rather a balanced adoption which will ensure the equilibrium between the technical system and the social structure is advocated (Trist 1981). Damanpour and Evan (1984) posit that, although administrative innovations do not occur as frequently or as visibly as their technical counterparts, their impact on corporate performance may be equally as important - directly and indirectly.

Hence, taking the synergistic relationship between the two innovation types into account, we propose the following set of hypotheses:

H4a: Technical innovations have a positive direct impact on organizational performance.

H4b: Technical innovations have a positive indirect impact on organizational performance via administrative innovations.

H5a: Administrative innovations have a positive direct impact on organizational performance.

H5b: Administrative innovations have a positive indirect impact on organizational performance via technical innovations.

Environmental Moderators

Past research has acknowledged that potentially external environmental factors can moderate the extent of market orientation's effects on business performance (Greenley 1995; Jaworski and Kohli 1993; Slater and Narver 1994a). In particular, turbulences in the market and the technology have been identified as such factors. Typically, the turbulences in the market and the technology are generated due to heterogeneity in consumer preferences or due to irresolution of industry technological standard, respectively.

For exploratory purposes, we propose to examine whether the same environmental factor also moderate the market orientation-innovation portion of the postulated "market orientation-innovation-performance" chain. For an insight into the market orientation-innovation link in the context of environment uncertainty, we briefly review the roles of both market orientation and innovation as follows.

For organizations, innovations often represent a means to deal with the turbulence in the external environment (Ettle and Bridges 1982; Gupta, Raj, and Wilmon 1986; Weiss and Heide 1993). As we forward the premise that a market-oriented business culture facilitates organizational innovativeness, we expect the relationship to show up even stronger in turbulent environmental settings. The reason being that, at the core of market orientation is the market intelligence - which entails generation of, dissemination of, and responsiveness to market information (Kohli and Jaworski 1990). In turbulent environmental settings, firms with superior market information (which parallels a market-oriented corporate culture) will exhibit superior responsiveness (typically

via organizational innovativeness) in dealing with the turbulences in the external environment.

Hence, we conjecture that:

H6: Environmental uncertainty moderates the strength of the market orientation - innovation relationship.

Research Design

The Sample

The sample consists of 134 banks from a midwestern state. The banking industry was selected as the recent deregulation in this industry has given the banks autonomy with respect to the types of services offered to customers and also the type of environment to provide such services (Miller 1995). Hence, banks can manage various aspects of their operations as technical innovations - i.e., in the form of technology acquisitions - and administrative innovations - i.e., in the form of business-systems redesign - with substantially less governmental restrictions under the terms of deregulation. Moreover, the industry fits the criteria of having multiple markets with varying levels of environmental dynamism - a condition consummate for observing firms making strategic decisions regarding innovate activities (Miller and Friesen 1986).

Data Collection

The a random sample of 225 banks were drawn from the banking association list of a midwestern state. The person in charge of the marketing function at the CEO level within each bank was identified, and following Huber and Power (1985)'s guideline for single informant data collection, efforts were made to ensure that the responses of the key informant were as representative of the true situation as possible.

In a single wave of mailing, responses were obtained from 134 banks out of 225 contacted - a response rate of 59.5%. The average asset size was \$72.3 million and the full-time equivalent personnel of 38 per bank. Non-response bias was tested based on the differences between respondents and non-respondents on these two factors, which proved to be insignificant at 0.05 level.

Measures

Market Orientation. The extent of an organization's market orientation was assessed by precisely employing the procedures of Narver and Slater (1990). For each market orientation component, its measure was derived by taking the mean value of all the items listed under the component. As shown in Table 1a, the Cronbach alpha coefficients of the three core behavioral components--customer orientation (0.8259), competitor orientation (0.7850), and interfunctional coordination (0.7904)--surpass the 0.7 threshold recommended by Nunnally (1978) for the test of scale reliability.

Innovation. Measures of technical and administrative innovations are operationalized based on the absolute number of innovations implemented in the respective categories for each bank (Damanpour and Evan 1984; Damanpour, Szabat, and Evan 1989).¹

Performance. Business performance measures were assessed criteria based on growth and profitability (McKee, Varadarajan, and Pride 1989). For objective measures, the financial reports on the net income growth and return on asset were obtained. Also, as a face-validity check on the respondent reliability, their self-reported measures on relative growth and profitability of their banks were assessed.²

Environmental Turbulence. The respondents indicated the extent of environmental turbulences--pertaining to the market and the technology--for which they encounter in their business environment (i.e., Greenley 1995; Jaworski and Kohli 1993). Moreover, several additional items related to the two types of turbulences were assessed to increase confidence in the measures. A total of four and five questions covering market and technological turbulences were

assessed, respectively, and the reliability of the market turbulence and the technological scales follows the recommended criteria (Nunnally 1978) as follows: 0.7920 and 0.6745, respectively (See Table 1b).

The Model Specification

$$(1) \quad \text{TECH} = \beta^i_0 + \beta^i_1 (\text{MKOR}_i) + \beta^i_2 (\text{MKOR}_i * \text{MKTB}) + \beta^i_3 (\text{MKOR}_i * \text{TCTB}) + \varepsilon^i_1$$

for $i = 1$ to 3 ;

$$(2) \quad \text{ADMN} = \beta^i_4 + \beta^i_5 (\text{MKOR}_i) + \beta^i_6 (\text{MKOR}_i * \text{MKTB}) + \beta^i_7 (\text{MKOR}_i * \text{TCTB}) + \varepsilon^i_2$$

for $i = 1$ to 3 ;

$$(3) \quad \text{TECH} = \beta_8 + \beta_9 (\text{ADMN}) + \varepsilon_3;$$

$$(4) \quad \text{ADMN} = \beta_{10} + \beta_{11} (\text{TECH}) + \varepsilon_4;$$

$$(5) \quad \text{PERF} = \beta_{12} + \beta_{13} (\text{TECH}) + \varepsilon_5;$$

$$(6) \quad \text{PERF} = \beta_{14} + \beta_{15} (\text{ADMN}) + \varepsilon_6;$$

where,

TECH = technical innovation,

ADMN = administrative innovation,

MKOR₁ = customer orientation,

MKOR₂ = competitor orientation,

MKOR₃ = interfunctional coordination,

MKTB = market turbulence,

TCTB = technological turbulence,

PERF = business performance,

all the ε 's = disturbance terms for the respective equations.

Model Estimation

The system of equations illustrated in Figure 1 was estimated using three-stage least squares (3SLS) analysis (Judge et al. 1985). We use each of the three market orientation components and its interactions with the two environmental turbulences as instrumental variables. To incorporate the Chow-test for these interaction effects (that is, between market orientation components and environmental turbulences), we use dummy variable analyses (Kennedy 1989) by classifying each environmental turbulence (market turbulence and technological turbulence) into high vs. low levels using the average values of turbulence variable. In the following section, the results of the 3SLS estimation are reported in the order of as presented in Table 2.

Results

Customer Orientation and Organizational Innovation

H1 suggests that there is generally a positive relationship between customer orientation and organizational capacity to innovate. This relationship is supported as the customer orientation parameters, β^1_1 in the case of technical innovation and β^1_5 for administrative innovation, are both positive and significant: ($\beta^1_1 = 0.53$; $p < 0.001$) and ($\beta^1_5 = 1.11$; $p < 0.001$). H1 therefore is fully supported. Moreover, we postulated that the strength of this relationship is moderated by environmental uncertainties in general (H6). For customer orientation, H6 is supported in the case of technical turbulence but with market turbulence: the interaction between customer orientation and technological turbulence is evident in the context of both technical ($\beta^1_2 = 0.19$; $p < 0.001$) and administrative ($\beta^1_6 = 0.39$; $p < 0.001$) innovations; however, the interaction between customer orientation and market turbulence is not significant for either the technical ($\beta^1_3 = 0.03$; $p = 0.59$) or the administrative ($\beta^1_7 = 0.06$; $p = 0.61$) innovation cases.

Competitor Orientation and Organizational Innovation

Competitor orientation is posited to facilitate technical innovations (H2a) but to have no measurable impact on administrative innovations (H2b). Contrary to the prediction, the parameter estimate for competitor orientation is not statistically significant for technical innovations ($\beta^2_1 = 0.13$; $p = 0.33$), hence rejecting H2a. However, H2b is supported as the parameter estimate for

competitor orientation is also not statistically significant for administrative innovations ($\beta^2_5 = 0.32$; $p = 0.32$).

The examination of the interaction effect between competitor orientation and environmental uncertainties on organizational innovativeness reveals a similar pattern of findings as in the customer orientation component situation. That is, the interaction between the competitor orientation component and the technological turbulence term is robust in the context of both technical ($\beta^2_2 = 0.21$; $p < 0.001$) and administrative ($\beta^2_6 = 0.53$; $p < 0.001$) innovations; however, the interaction between customer orientation and market turbulence is not significant for either the technical ($\beta^2_3 = 0.13$; $p = 0.78$) or the administrative ($\beta^2_7 = 0.05$; $p = 0.78$) innovation cases. Therefore, H6 in the context of competitor orientation is supported for technological but not market turbulence.

Interfunctional Coordination and Organizational Innovation

H3 predicts that there is generally a positive relationship between interfunctional coordination and organizational capacity to innovate. The relationship is supported if the interfunctional coordination parameters β^3_1 in the case of technical innovation and β^3_5 in the case of administrative innovation, are both positive and significant and positive. However, neither of the parameters approach a level of statistical significance: ($\beta^3_1 = 0.13$; $p = 0.50$) in the technical innovation case and ($\beta^3_5 = 0.27$; $p = 0.50$) in the administrative innovation case.

Both types of environmental uncertainties appear to moderate the impact of interfunctional coordination on organizational innovativeness in general. The interaction between the interfunctional coordination component and the technological turbulence term is significant on both technical ($\beta^3_2 = 0.15$; $p < 0.01$) and administrative ($\beta^3_6 = 0.31$; $p < 0.01$) innovations. Moreover, the interaction between the interfunctional coordination component and the market turbulence term is significant on both technical ($\beta^3_3 = 0.09$; $p < 0.01$) and administrative ($\beta^3_7 = 0.19$; $p < 0.01$) innovations. Therefore, H6 in the context of interfunctional coordination is fully supported for both types of environmental uncertainties.

Organization Innovation and Performance

H4a and H5a propose that technical and administrative innovations will have a positive direct impact on organizational performance, respectively. Both hypotheses are fully supported as the parameter estimates for technical ($\beta_{13} = 0.09; p < 0.001$) and administrative ($\beta_{15} = 0.09; p < 0.0001$) innovations indicate positive significance. Moreover, H4b and H5b both postulate that one type of organizational innovation directly affects the other and vice versa, thereby making an indirect impact on organizational performance via the other type of innovation as well. Again, both hypotheses are fully supported as the parameter estimates reveal a synergistic relationship between technical ($\beta_9 = 2.07; p < 0.0001$) and ($\beta_{11} = 0.46; p < 0.0001$) administrative innovations.

Discussion

The key objective of this study was to examine the role that organizational innovations play in the context of the relationship between market orientation and business performance. In general, we do find some evidence of market orientation facilitating an organization's capacity to innovate, which in turn, positively influences its business performance. At the component level of analysis, we find the customer orientation component as the dominant factor responsible for this phenomenon: the main effect of customer orientation was highly significant on organizational innovativeness, but those of competitor orientation and interfunctional coordination did not approach a level of significance. This finding is consistent with the study by Deshpandé, Farley, and Webster (1993) who found corporate performance linked to both customer orientation and organizational innovativeness. Moreover, the results are in line with the interpretation of the market concept forwarded by Lawton and Parasuraman (1980) - who place the highest priority on customer orientation while still assigning adequate considerations to competitor-related and intraorganizational aspects. Our results also lend some credence to Peters (1984)'s claim that superior corporate performance is derived from a commitment to total customer satisfaction, which can be brought about by continuous innovation.

The results of the main effect, however, does not signify that the other two components of market orientation are unimportant. On the contrary, competitor orientation may be just as

important and interfunctional coordination even more so under conditions of relatively high levels of environmental uncertainty. Our results indicate that all three components of market orientation is conducive to facilitating both technical and administrative innovations when the level of technological turbulence in the business environment is relatively high. Our results, however, run counter to the findings from previous research: Jaworski and Kohli (1993) did not report any significant effects of technological turbulence while Slater and Narver (1994a) found technological turbulence to negatively moderate the strength of the market orientation-performance relationship.

The conflicting findings may be explained by the industry differences in the time-lagged relationship (Greenley 1995). Banking, as a service industry, and in particular, as the nature of business entails dealing directly with money, the time-lag between the implementation of innovations and its impact on performance is typically shorter than that of the manufacturing sector. Hence, depending on the length of the time lag required between implementation innovation and its return, innovations--in accounting sense--can have a positive or a negative impact on performance (Capon, Farley, Lehmann, and Hulbert 1992). Nonetheless in the long-run, our results are consistent with the notion that innovations represent the most effective means to deal with the turbulence in the external environment (Ettle and Bridges 1982; Gupta, Raj, and Wilmon 1986; Weiss and Heide 1993).

Under conditions of high market turbulence, however, interfunctional coordination is the only market orientation component exhibiting significant facilitating effect on innovations of either kind. As market turbulence pertains to the heterogeneity of customers preferences and its rate of change, it is especially surprising that the other two components, customer orientation in particular, did not prove to be significant. One explanation for such findings is that our data on innovations captured the implementation stage of innovations. Customer orientation is more likely assume a larger role in the adoption stage, whereas, in the implementation stage, the cooperation across functions may be more instrumental in the success of adopted innovations.

The results on the innovation-performance link not only underscore the separate contributions of technical and administrative innovations to corporate performance but also lend

support to synergies among the two types of innovations enhancing overall corporate performance. Our findings reinforce Trist (1981)'s recommendation that an organization take a balanced approach to innovations for optimal results.

To summarize, we have explored role of organizational innovations in the assumed market orientation-performance relationship. In the process, we have reaffirmed that innovations - as a vital component of business performance, warrant organization-wide attention for successful implementation of both technical and administrative kinds. This requires a committed, market-oriented corporate culture that will facilitate organizational innovativeness, which is becoming increasingly a key factor in delivering superior corporate performance. Also, it may be useful to take a component-wise approach to the market orientation construct, because the roles of different market orientation components may vary contingent upon the type of innovation and the type of turbulences present in the environment.

Managerial Implications

The precept that market orientation facilitates the furtherance of corporate performance has already gained a wide-recognition among the practitioners today. However, the manner in which to go about implementing this process remains somewhat unclear. Our study has provided some support that innovations indeed facilitate the conversion of market-oriented business philosophy into superior corporate performance. For many years, firms have been taking this lead by focusing on organizational innovations - primarily the technical type of innovations. Moreover, in recent years, there is a growing trend toward focusing attention on administrative type of innovations - such as business-system redesign. Today, the independent potentials of the two innovations types are becoming evident to the managers, however, the emphasis on a balanced adoption and implementation of the two types does not appear as prevalent. The results of our study reinforces this notion of "balance" between technical and administrative innovations is instrumental as the synergistic process between the two yields added benefit vis-a-vis separate effects of each type of innovation. Hence, organizations should coordinate future innovation plans by considering the

two types of innovations in tandem as to come up with a combination that will yield optimal levels of corporate performance.

Market orientation has been found to be more effective in impacting performance contingent upon the business environmental conditions the firm faces in prior research (Narver and Slater 1994a). Analogously, the results of our study suggest that market orientation is conducive to providing an innovation-friendly environment which is also contingent upon the factors in the business environment. As Jaworski and Kohli (1993) and Slater and Narver (1994a) concur, market orientation - as a complex process - entails substantial financial and resource commitment on the part of the organization. This study indicates that different market orientation components differentially interact with various environmental variables in facilitating innovations. Therefore, organizations looking to enhance corporate performance through innovations should consider the following steps for an efficient allocation of its resources: (1) determine the current business environmental conditions the firm faces; and (2) allocate its resources disproportionately more on the market orientation component most effective under the identified condition. However, whether continuous fine-tuning market orientation with respect to the changing environmental conditions is another issue. In line with Slater and Narver (1994a)'s recommendation, this guideline should be considered in the context of the long-term costs and benefits attached to continuous adjustment of this complex process.

Limitations and Directions for Future Research

There are several key factors beyond the scope of this study which we leave for future investigation. First, our study emphasized the importance of administrative innovations at parity with that of the technical type. Our findings should be considered in the light of the fact that the sample was a single industry case - the banking sector. In the banking industry, as a service sector, administrative innovation may assume a relatively equal importance with its technical counterpart in influencing performance as compared to its role in a manufacturing sector data. The prior studies (Damanpour and Evan 1984; Damanpour, Szabat, and Evan 1989), which also

advocated the equal importance of the dichotomous innovative impact on performance, also utilized data from a service sector as well - the public library system. However, studies in the past using a sample from the manufacturing sector typically carried technical-innovation focus (Kimberly and Evanisko 1981). Whether this technical disposition is due to the higher visibility or the result of actual greater importance in the manufacturing sector has yet to be clarified. Hence, future studies should look into the relative importance of the technical-administrative innovation dichotomy in other industries - manufacturing sector in particular.

Another limitation of the study is that the study's innovation data provides information regarding the implementation stage (as opposed to the adoption phase). Zaltman, Duncan, and Holbek (1973) posit that organizational dimensions as formalization, centralization, and departmentalization may relate unevenly to the different stages of innovation: adoption and implementation. Moreover, these organizational dimensions have been identified as potential antecedents of market orientation (Kohli and Jaworski 1990). Therefore, future research should look into the contingent effects the market orientation components at the different stages of innovation.

Finally, the assessment of organizational performance has centered around primarily its financial profitability measures. Future studies should consider inclusion of other measures for more insight into the organizational dynamics. For example, employee satisfaction assessment can shed light on the cross-functional aspects of market orientation and changes in productivity; efficiency measures (i.e., cost savings) can provide a more direct assessment of the innovational impact, hence, perhaps being less susceptible to time-lag effect between innovation implementation and its return on profitability. Also, as customer vs. firm perspectives vary on various dimensions of the organization (Despandé, Farley, and Webster 1993), an assessment from the customer perspective of a firm's market orientation and innovativeness can perhaps an invaluable aid in closing the performance gap.

Endnotes

1. Relative measure of innovation (Damanpour 1984) using the percentage of total innovation was also assessed, but the results of the study did not change with this measure.

2. The four performance measures (objective and self-reported measures of growth and return-on-assets) produced similar results with respect to the hypotheses. Hence, we only report the objective measure of growth in the study.

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TABLE 1a
Market Orientation Component Reliability Analysis

MARKET ORIENTATION COMPONENT	ITEM-TO-TOTAL CORRELATION	CRONBACH ALPHA
Customer Orientation		0.8259
Customer commitment	0.5601	
Create customer value	0.5805	
Understand customer needs	0.5559	
Customer satisfaction objectives	0.6556	
Measure customer satisfaction	0.5416	
After-sales service	0.6361	
Competitor Orientation		0.7850
Salespeople share competitor information	0.6608	
Respond rapidly to competitors' actions	0.7847	
Top managers discuss competitors' strategies	0.8527	
Target opportunities for competitive advantage	0.8214	
Interfunctional Coordination		0.7904
Interfunctional customer calls	0.6562	
Information shared among functions	0.4165	
Functional integration in strategy	0.5787	
All functions contribute to customer value	0.5875	
Share resources with other business units	0.5547	

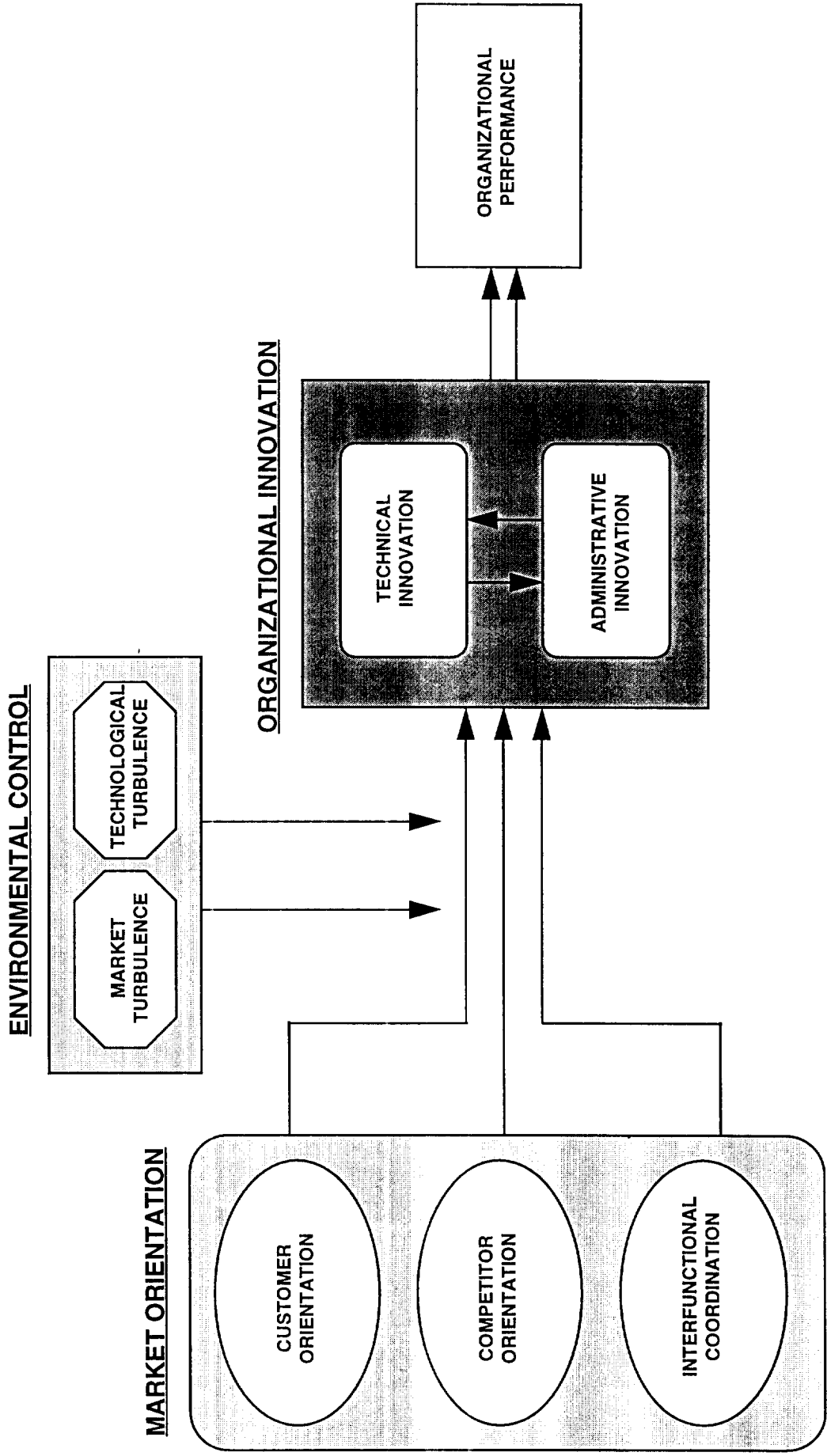
TABLE 1b
Environmental Turbulence Reliability Analysis

ENVIRONMENTAL TURBULENCE	ITEM-TO-TOTAL CORRELATION	CRONBACH ALPHA
Market Turbulence		0.7920
Extent of market turbulence in the environment	0.6235	
Frequent changes in customer preferences	0.6731	
Having the ability to reduce market uncertainty	0.4999	
Having the ability to respond to market opportunities	0.5927	
Technological Turbulence		0.6745
Extent of technological turbulence in the environment	0.5502	
Leadership in product/process innovation	0.7224	
Impact of new technology on operations	0.4885	
Allocating resources to research and planning	0.6013	
Allocating resources to environmental scanning	0.5627	

Table 2
Model Estimation Results of the "Market Orientation - Innovation - Performance" Chain

INDEPENDENT VARIABLE	INTERACTION WITH ENVIRONMENT		DEPENDENT VARIABLE	
	β	P	β	P
Customer Orientation:	0.53	0.001	Market Turbulence	0.596
			Techn. Turbulence	0.001
Competitor Orientation:	1.11	0.001	Market Turbulence	0.610
			Techn. Turbulence	0.001
Competitor Orientation:	0.13	0.335	Market Turbulence	0.783
			Techn. Turbulence	0.001
Competitor Orientation:	0.32	0.328	Market Turbulence	0.783
			Techn. Turbulence	0.001
Interfunctional Coordination:	0.13	0.509	Market Turbulence	0.002
			Techn. Turbulence	0.007
Interfunctional Coordination:	0.27	0.509	Market Turbulence	0.002
			Techn. Turbulence	0.003
Technical Innovation:	2.07	0.0001		Administrative Innovation
Administrative Innovation:	0.46	0.0001		Technical Innovation
Technical Innovation:	104.03	0.001		Performance
Administrative Innovation:	50.13	0.0001		Performance

FIGURE 1
Hypothesized Mediator Role of Innovation on the Market Orientation - Performance Relationship



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