

# Market Orientation: A Meta-Analytic Review and Assessment of Its Antecedents and Impact on Performance

The authors conduct a meta-analysis that aggregates empirical findings from the market orientation literature. First, the study provides a quantitative summary of the bivariate findings regarding the antecedents and the consequences of market orientation. Second, the authors use multivariate analyses of aggregate study effects to identify significant antecedents of market orientation and the process variables that mediate the relationship between market orientation and performance. In addition, using regression analysis, the authors find that the market orientation–performance relationship is stronger in samples of manufacturing firms, in low power-distance and uncertainty-avoidance cultures, and in studies that use subjective measures of performance. The authors also find that the market orientation–performance correlation is stronger for both cost-based and revenue-based performance measures in manufacturing firms than in service firms. On the basis of the findings, the authors conclude with a discussion of the implications for practice and further research.

**T**he marketing concept, a cornerstone of modern marketing thought, stipulates that to achieve sustained success, firms should identify and satisfy customer needs more effectively than their competitors (Day 1994; Kotler 2002). Much of the prolific market orientation literature examines the extent to which firms behave, or are inclined to behave, in accordance with the marketing concept (Kohli and Jaworski 1990). Market orientation has been conceptualized from both behavioral and cultural perspectives (Homburg and Pflesser 2000). The behavioral perspective concentrates on organizational activities that are related to the generation and dissemination of and responsiveness to market intelligence (e.g., Kohli and Jaworski 1990). The cultural perspective focuses on organizational norms and values that encourage behaviors that are consistent with market orientation (Deshpandé, Farley, and Webster 1993; Narver and Slater 1990). Throughout the past two decades, researchers have investigated several antecedents and consequences of market orientation to better understand its role in organizations, and as we outline next, a thorough quantitative, meta-analytic review of this research stream should benefit both practice and research.

First, the current state of research in market orientation can be evaluated with a meta-analysis by estimating the

mean values and range of effects for its relationships with various antecedents and consequences (see Farley, Lehmann, and Sawyer 1995). Second, individual studies typically examine subsets of the antecedents and consequences of market orientation. Meta-analytic evidence obtained by aggregating empirical findings across studies can be used to assess more comprehensive models of factors that drive the implementation of market orientation and mediate its impact on performance (e.g., Brown and Peterson 1993). Third, prior studies in the market orientation literature exhibit variation in their findings regarding the magnitude and direction of the relationship between market orientation and organizational performance. Although the predominant view is that market orientation is positively associated with performance (Jaworski and Kohli 1993; Slater and Narver 1994a), several researchers have reported nonsignificant or negative effects for this association (e.g., Agarwal, Erramilli, and Dev 2003; Bhuian 1997; Sandvik and Sandvik 2003). In addition, research has obtained disparate findings on the effects of moderators of the relationship between market orientation and performance (e.g., Grewal and Tansuhaj 2001; Slater and Narver 1994a). A meta-analysis can provide insights into these inconsistencies by identifying measurement and sample characteristics that affect the market orientation–performance relationship and can assess the generalizability of the relationship (Brown and Peterson 1993).

Previous attempts to consolidate research findings in the market orientation literature have been qualitative (e.g., Jaworski and Kohli 1996; Lafferty and Hult 2000), designed to examine only the market orientation scale (see Deshpandé and Farley 1999), or narrowly focused and based on small samples (see Cano, Carrillat, and Jaramillo 2004). Therefore, to accomplish the objectives mentioned

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previously, we conduct a meta-analysis of the market orientation literature. First, we present a theoretical framework to guide the meta-analysis. Second, we discuss the development of the database for the meta-analysis. Third, we use the meta-analysis to provide a quantitative summary that documents the mean values and range of effects for the relationships that involve market orientation. Fourth, we use multivariate analyses to reveal the critical antecedents of market orientation. Fifth, we focus on the market orientation–performance relationship and conduct a detailed examination that includes (1) a multivariate analysis to illustrate the paths through which market orientation influences performance, (2) regression analyses to provide insights into sample and measurement characteristics that moderate the market orientation–performance relationship, and (3) a nonparametric assessment of substantive moderators of the market orientation–performance relationship. We conclude with a discussion of managerial and future research implications.

## Theoretical Framework

We developed the conceptual framework shown in Figure 1 on the basis of the extant market orientation and meta-analysis research (Jaworski and Kohli 1993, 1996; Narver and Slater 1990; Szymanski, Bharadwaj, and Varadarajan 1993). The framework depicts the relationships among the most frequently examined antecedents and consequences of market orientation, as well as the relationships involving the effects of measurement and sample characteristics and the substantive moderators on the market orientation–performance relationship. Justification for the associations between market orientation and its antecedents and consequences is based on prior marketing literature, and therefore we only briefly discuss them herein. Theoretical rationale for the moderating effects of measurement and sample characteristics and the substantive moderators on the market orientation–performance relationship appears in the subsequent sections in which we examine the effects.

### *Antecedents of Market Orientation*

Consistent with Jaworski and Kohli's (1993) work, we classify the antecedents of market orientation into three broad categories: top management factors, interdepartmental factors, and organizational systems. Top managers shape the values and orientation of an organization (Webster 1988). As such, top management emphasis on market orientation has a positive impact on the level of an organization's market orientation (Day 1994; Narver and Slater 1990). Interdepartmental factors include interdepartmental connectedness and conflict. Interdepartmental connectedness, or the extent of formal and informal contacts among employees across various departments, enhances market orientation by leading to greater sharing and use of information (Kennedy, Goolsby, and Arnould 2003). Interdepartmental conflict, or the tension between departments that arises from divergent goals, inhibits concerted responses to market needs and thus diminishes market orientation (Jaworski and Kohli 1993).

The third set of antecedents, organizational systems, consists of two structural variables, formalization and cen-

tralization, and two employee-related systems, market-based reward systems and market-oriented training. Formalization, which refers to the definition of roles, procedures, and authority through rules, is inversely related to market orientation because it inhibits a firm's information utilization and thus the development of effective responses to changes in the marketplace (Jaworski and Kohli 1993). Centralization, which refers to a limited delegation of decision-making authority in an organization, negatively affects market orientation, because it inhibits a firm's information dissemination and utilization (Matsuno, Mentzer, and Ozsomer 2002). Market-based reward systems use market-oriented behaviors as metrics to reward employees, thus motivating employee actions that enhance market orientation. Market-oriented training augments employees' sensitivity to customer needs, thus stimulating actions that are consistent with the requirements of market orientation (Ruekert 1992).

### *Consequences of Market Orientation*

The consequences of market orientation are organized into four categories: organizational performance, customer consequences, innovation consequences, and employee consequences (see Jaworski and Kohli 1996). The marketing strategy literature posits that market orientation provides a firm with market-sensing and customer-linking capabilities that lead to superior organizational performance (Day 1994; Hult and Ketchen 2001). Organizational performance consists of cost-based performance measures, which reflect performance after accounting for the costs of implementing a strategy (e.g., profit measures), and revenue-based performance measures, which do not account for the cost of implementing a strategy (e.g., sales and market share).<sup>1</sup> In addition, researchers have also used global measures that assess managers' perceptions of overall business performance, mostly through comparisons of organizational performance with company objectives and/or competitors' performance (e.g., Jaworski and Kohli 1993).

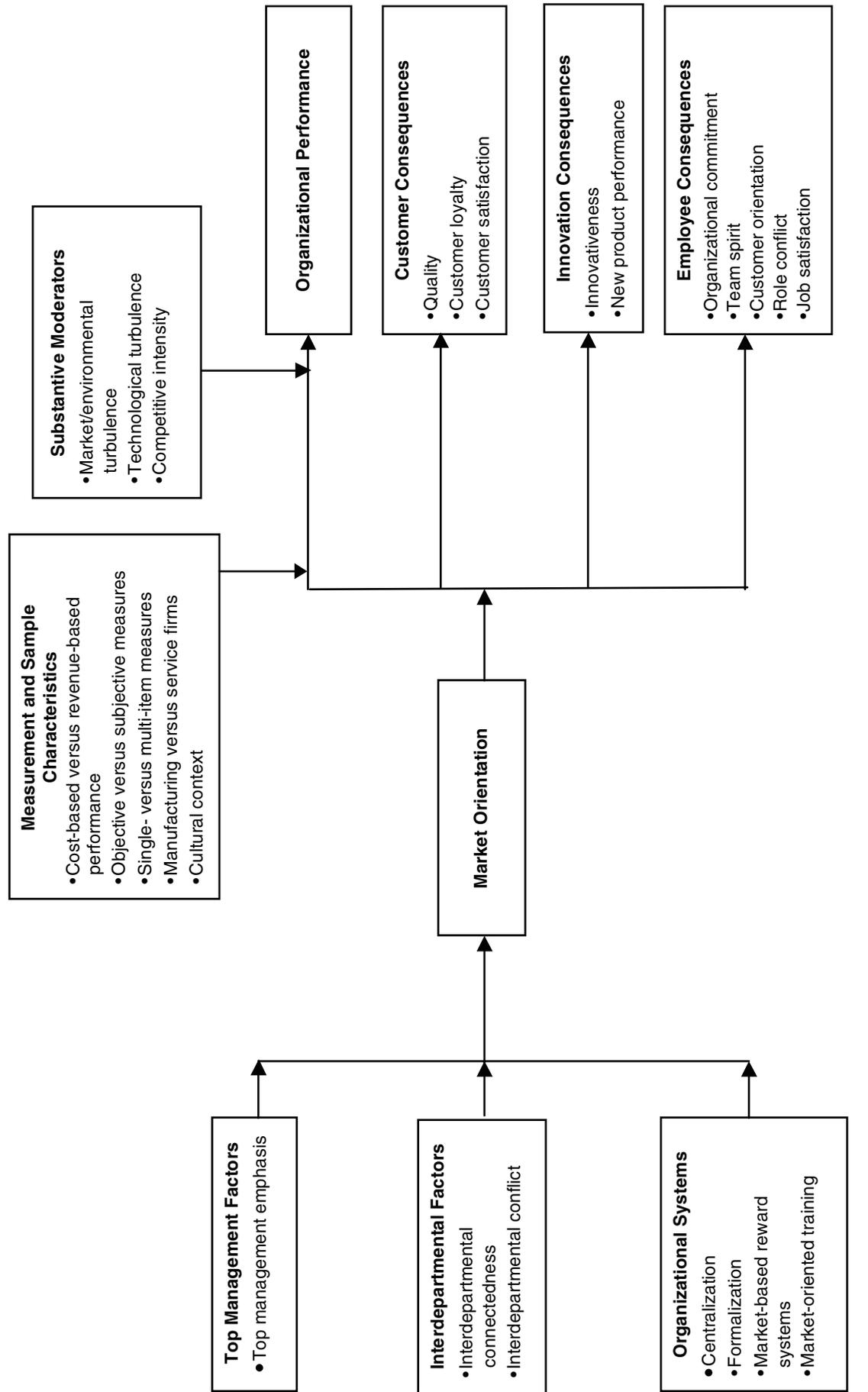
Customer consequences include the perceived quality of products or services that a firm provides, customer loyalty, and customer satisfaction with the organization's products and services (Jaworski and Kohli 1993, 1996). Market orientation proposes to enhance customer-perceived quality of the organization's products and services by helping create and maintain superior customer value (Brady and Cronin 2001). Market orientation enhances customer satisfaction and loyalty because market-oriented firms are well positioned to anticipate customer needs and to offer goods and services to satisfy those needs (Slater and Narver 1994b).

Innovation consequences include firms' innovativeness; their ability to create and implement new ideas, products, and processes (Hult and Ketchen 2001); and new product performance (i.e., the success of new products in terms of market share, sales, return on investment, and profitability) (Im and Workman 2004). Market orientation should enhance an organization's innovativeness and new product performance because it drives a continuous and proactive disposition toward meeting customer needs and it empha-

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<sup>1</sup>We thank an anonymous reviewer for this suggestion.

**FIGURE 1**  
**Conceptual Framework for Meta-Analysis**



sizes greater information use (Atuahene-Gima 1996; Han, Kim, and Srivastava 1998). For employee consequences, Kohli and Jaworski (1990) argue that by instilling a sense of pride and camaraderie among employees, market orientation enhances organizational commitment (i.e., willingness to sacrifice for the organization), employee team spirit, customer orientation (i.e., the motivation of employees to satisfy customer needs), and job satisfaction. In addition, market orientation can reduce role conflict, which Siguaw, Brown, and Widing (1994) define as the incompatibility of communicated expectations that hamper employees' role performance.

## Database Development

To ensure the representativeness and completeness of the database we used in the meta-analysis, we searched the ABI/INFORM, Science Direct, and Wilson Business Abstracts for studies published before June 2004, using the keywords "market orientation," "customer orientation," and "consumer orientation." We also searched the Social Sciences Citation Index for studies that referred to the three most highly cited articles in the market orientation literature (i.e., Jaworski and Kohli 1993; Kohli and Jaworski 1990; Narver and Slater 1990). We examined the references from the market orientation articles identified in these two steps for additional studies. We posted requests on a series of listservs to obtain unpublished research in an effort to address the "file-drawer" problem (Rosenthal 1995).

We selected studies for inclusion in the meta-analysis on the basis of two criteria. First, the meta-analysis included only the studies that reported the *r*-family of effects (i.e., correlation coefficients or its variants; Rosenthal 1994). Second, we included only the articles that measured market orientation at the organizational level so that results from research that had vastly divergent goals were not aggregated (Franke 2001; Hunter and Schmidt 1990). On completion of the search process in June 2004, we had obtained a total of 418 effects from 130 independent samples reported in 114 studies.<sup>2</sup>

We followed procedures employed in other meta-analyses in marketing for the development of the final database (e.g., Brown and Peterson 1993; Henard and Szymanski 2001). We first prepared a coding form that specified the information that was to be extracted from each study to reduce coding error (Lipsey and Wilson 2001; Stock 1994).<sup>3</sup> We then corrected effects obtained from each study

<sup>2</sup>A complete bibliography of the studies included in the meta-analysis is available from the authors. Several studies could not be included because (1) their results were reported only in multivariate models (e.g., Greenley 1995; 46 studies), (2) their results were based on data used in other studies that were already included (16 studies), and (3) they reported relationships that were unique and could not be integrated with those in other studies (e.g., Fahy et al. 2000; 10 studies). The inclusion rate of 61% is comparable to other meta-analyses in marketing by Brown and Peterson (1993; 66%), Szymanski, Bharadwaj, and Varadarajan (1993; 63%), and Szymanski and Henard (2001; 59%).

<sup>3</sup>We revised an initial draft of the coding form on the basis of feedback from three marketing academics who were familiar with the market orientation and meta-analysis literature streams. The final coding form included antecedents and consequences of mar-

ket orientation, sample and measurement characteristics, and the *r*-family of effect size indicators, such as correlation coefficients and indicators that could be converted to correlation coefficients (e.g., Student's *t*, chi-square, *F*-ratios with one degree of freedom, and *p*-values for group comparisons; see Rosenthal 1994). We checked coding quality by having an independent investigator code a random sample of 35% of the studies. Following the procedures that Perreault and Leigh (1989) recommend, we calculated an interjudge reliability index for each of the measurement and sample characteristics. The reliability estimate ranged between .91 and 1.0, suggesting that the reliability of the coding process was high (see Perreault and Leigh 1989, p. 147).

## Antecedents and Consequences: Quantitative Summary of Bivariate Relationships

Table 1 summarizes the bivariate correlations and other statistics for the relationships between market orientation and its antecedents and consequences (see Figure 1). In total, we collected 63 and 355 effect sizes for the antecedents and consequences of market orientation, respectively. Consistent with traditional hypotheses, we obtained significant, positive reliability-corrected mean correlations for the relationships between market orientation and top management emphasis ( $r = .44, p < .05$ ), interdepartmental connectedness ( $r = .56, p < .05$ ), market-based reward systems ( $r = .41, p < .05$ ), and market-oriented training ( $r = .54, p < .05$ ). The evidence also shows significant, negative associations between market orientation and interdepartmental conflict ( $r = -.28, p < .05$ ), centralization ( $r = -.27, p < .05$ ), and formalization ( $r = -.12, p < .05$ ).

Among the consequences, the market orientation-performance relationship has been the most frequently examined association. Substantially less attention has been paid to the association between market orientation and customer consequences (only 10% of all effects). Notably, the meta-analysis reveals a positive association between market orientation and performance ( $r = .32, p < .05$ ) that can be categorized as "above medium" (Cohen 1988) and is consistent with Cano, Carrillat, and Jaramillo's (2004) findings. Furthermore, market orientation positively affects various measures of performance, such as overall business performance ( $r = .46, p < .05$ ), profits ( $r = .27, p < .05$ ), sales ( $r = .26, p < .05$ ), and market share ( $r = .31, p < .05$ ).

The evidence summarized in Table 1 also reveals that market orientation is positively associated with various customer consequences, such as perceived quality ( $r = .36, p <$

ket orientation, sample and measurement characteristics, and the *r*-family of effect size indicators, such as correlation coefficients and indicators that could be converted to correlation coefficients (e.g., Student's *t*, chi-square, *F*-ratios with one degree of freedom, and *p*-values for group comparisons; see Rosenthal 1994). We checked coding quality by having an independent investigator code a random sample of 35% of the studies. Following the procedures that Perreault and Leigh (1989) recommend, we calculated an interjudge reliability index for each of the measurement and sample characteristics. The reliability estimate ranged between .91 and 1.0, suggesting that the reliability of the coding process was high (see Perreault and Leigh 1989, p. 147).

**TABLE 1**  
**Overview of Antecedents and Consequences of Market Orientation**

<b>Construct (Traditional Hypothesis)</b>	<b>Number of Effects<sup>a</sup></b>	<b>Total Sample Size</b>	<b>Corrected Mean<sup>b</sup> r</b>	<b>Standard Error</b>	<b>Range of r</b>	<b>Availability Bias<sup>c</sup></b>
<b>Antecedents of Market Orientation</b>	63	14,510				
<i>Top Management Factors</i>						
Top management emphasis (+)	13	4074	.44*	.02	-.13-.57	178
<i>Interdepartmental Dynamics</i>						
Interdepartmental connectedness (+)	20	3282	.56*	.02	.10-.67	353
Interdepartmental conflict (-)	4	530	-.28*	.04	-.59-.09	10
<i>Organizational Systems</i>						
Centralization (-)	9	2062	-.27*	.02	-.43-.07	51
Formalization (-)	9	2185	-.12*	.02	-.36-.30	17
Market-based reward systems (+)	5	1297	.41*	.03	.20-.54	36
Market-oriented training (+)	3	1080	.54*	.03	.43-.57	29
<b>Consequences of Market Orientation</b>	355	61,561				
<i>Organizational Performance</i>						
Overall business performance (+)	214	36,150	.32*	.01	-.15-.79	6535
Profit (+)	69	12,732	.46*	.01	-.08-.79	3125
Sales (+)	69	11,104	.27*	.01	-.13-.46	1812
Sales (+)	58	8735	.26*	.01	-.15-.59	681
Market share (+)	18	3579	.31*	.02	.00-.50	167
<i>Customer Consequences</i>						
Quality (+)	43	6530	.36*	.02	-.07-.71	127
Customer loyalty (+)	16	2361	.36*	.02	.14-.58	170
Customer satisfaction (+)	11	1684	.45*	.02	.01-.69	114
<i>Innovation Consequences</i>						
Innovativeness (+)	60	11,935	.45*	.01	-.09-.60	646
New product performance (+)	30	6013	.36*	.02	.07-.58	329
<i>Employee Consequences</i>						
Organizational commitment (+)	38	6946	.71*	.03	.24-.82	200
Team spirit (+)	12	2203	.51*	.03	.00-.92	74
Customer orientation (+)	8	1254	.25*	.03	.11-.56	28
Role conflict (-)	7	1214	.25*	.03	.11-.56	28
Role conflict (-)	6	1338	-.54*	.03	-.05-.53	58
Job satisfaction (+)	5	937	.61*	.03	.26-.64	47

\* $p < .05$ .

<sup>a</sup>Contains relationships for which at least three effects were available.

<sup>b</sup>The corrected mean correlation coefficients ( $r$ ) are the sample-size-weighted, reliability-corrected estimates of the population correlation coefficients.

<sup>c</sup>Availability bias refers to the number of unpublished studies reporting the null results needed to reduce the cumulative effect across studies to the point of nonsignificance (Lipsey 2001).

.05), customer loyalty ( $r = .35, p < .05$ ), and customer satisfaction ( $r = .45, p < .05$ ). For the relationship between market orientation and innovation consequences, the bivariate results indicate that market orientation has positive associations with both an organization's innovativeness ( $r = .45, p < .05$ ) and new product performance ( $r = .36, p < .05$ ). Finally, the results we obtained with respect to employee consequences reveal that market orientation is correlated with organizational commitment ( $r = .71, p < .05$ ), team spirit ( $r = .51, p < .05$ ), customer orientation ( $r = .25, p < .05$ ), employee role conflict ( $r = -.54, p < .05$ ), and job satisfaction ( $r = .61, p < .05$ ).

Overall, the findings are consistent with the predominant expectations in prior research. The consequences of market orientation, particularly its impact on organizational performance, have received more research attention than its

antecedents. The high numbers for availability bias reported in Table 1 indicate that new or unpublished studies not included in the meta-analysis do not represent serious threats to the validity of the findings for the bivariate relationships we discussed previously (Lipsey and Wilson 2001). On the basis of the aggregate data, we now focus on assessing the relative impact of the antecedents of market orientation.

### **Antecedents of Market Orientation: Multivariate Assessment**

Aggregated study effects obtained from a meta-analysis can be used to assess simultaneously the effects of variables that prior research may not have considered jointly (Geyskens, Steenkamp, and Kumar 1999). For a construct to be

included in such analyses, there must be multiple study effects that relate it to every other construct in the model (Brown and Peterson 1993). This constraint limited us to examining the following antecedents of market orientation: interdepartmental connectedness, top management emphasis, centralization, formalization, market-based reward systems, and interdepartmental conflict. The correlation matrix we used for the multivariate path analysis of market orientation and its antecedents appears in Table 2.

We provided the theoretical rationale for these relationships previously as part of our description of the conceptual model depicted in Figure 1. As we summarize in Table 3, fit indices suggest adequate model fit ( $\chi^2 = .76$ , degree of freedom [d.f.] = 1,  $p = .38$ ; root mean square error of approximation [RMSEA] < .001; adjusted goodness-of-fit index [AGFI] = .96; normed fit index [NFI] = .99; and root mean square residual [RMSR] = .02). The multivariate findings indicate that though interdepartmental connectedness ( $\beta = .36$ ,  $p < .05$ ) has the strongest impact on market orientation, top management emphasis ( $\beta = .25$ ,  $p < .05$ ) and market-based reward systems ( $\beta = .24$ ,  $p < .05$ ) are also important antecedents of market orientation.

Notably, the path coefficients for centralization and formalization are not significant in the multivariate analysis,

though the bivariate results indicate that they significantly correlate with market orientation. The nonsignificant finding regarding formalization is consistent with Kohli and Jaworski's (1993) previous discussion, which posits that the nature of formalized rules may well be more important for market orientation than the extent of formalization because rules can also be designed to enhance market orientation. The nonsignificant result pertaining to centralization in the multivariate analysis could be due to the possibility that interdepartmental connectedness and reward systems counter the tendency of centralization to diminish market orientation by ensuring contact among employees and fostering information flow. We discuss the implications of the latter finding for research and practice subsequently.

As we noted previously, the market orientation–performance relationship is the most frequently examined association in the market orientation literature (i.e., 51% of all effects). Therefore, and also because of the managerial importance of the market orientation–performance relationship, in the next three sections, we focus on examining (1) the mediators of the market orientation–performance relationship, (2) the variance in the market orientation–performance relationship that is associated with measurement and sample characteristics, and (3) the substantive

**TABLE 2**  
**Antecedents: Intercorrelations Among Constructs**

	1	2	3	4	5	6	7
1. Market orientation	.83						
2. Interdepartmental connectedness	.46	.82					
3. Top management emphasis	.36	.32	.76				
4. Centralization	-.23	-.27	-.17	.88			
5. Formalization	-.10	.01	-.02	.30	.82		
6. Market-based reward systems	.30	.22	.13	-.07	-.15	.65	
7. Interdepartmental conflict	-.20	-.14	-.04	.30	.19	-.06	.78

Notes: Off-diagonal entries represent the average sample-size-weighted correlation ( $r$ ) values. Entries on the diagonal reflect sample-size-weighted mean reliabilities (Cronbach's  $\alpha$ ).

**TABLE 3**  
**Model Estimation Results: Antecedents of Market Orientation**

	Hypothesized Model	
	Path Coefficient	t-Value
Interdepartmental connectedness–market orientation	.36	3.27*
Top management emphasis–market orientation	.25	2.55*
Centralization–market orientation	-.02	-.24
Formalization–market orientation	-.02	-.25
Market-based reward systems–market orientation	.24	2.21*
Interdepartmental conflict–market orientation	-.14	-1.50
	$\chi^2$ (d.f.) = .76(1) RMSEA = .00 AGFI = .96 NFI = .99 RMSR = .02	

\* $p < .05$ .

Notes: Error variances for each construct indicator were fixed at  $(1 - \alpha)$ , where  $\alpha$  is the sample-size-weighted average reliability across studies (see Geyskens, Steenkamp, and Kumar 1998), and the median sample size across studies ( $n = 147$ ) was used for estimation purposes (see Henard and Szymanski 2001).

moderators of the market orientation–performance relationship.

## Mediators of the Market Orientation–Performance Relationship: Multivariate Assessment

Explicating the mediators of the market orientation–performance relationship has emerged as a topic of interest in the marketing literature. Although a few studies have directly focused on the routes through which market orientation affects performance (see Han, Kim, and Srivastava 1998; Noble, Sinha, and Kumar 2002), a more thorough examination of mediating effects is possible with the aggregate data. Toward this objective, we employ customer- and innovation-related mechanisms as process variables that mediate the market orientation–performance relationship (Han, Kim, and Srivastava 1998; Hurley and Hult 1998). As we show in Table 4 and Figure 2, Panel A, we could test a correlation matrix that includes four mediating factors (i.e., customer loyalty, customer satisfaction, quality, and innovativeness) with the available data. We could not include new product performance and employee consequences in the path analyses because of the absence of study effects relating them to every other construct in the model.

We previously provided justification for the positive relationship between market orientation and the mediating constructs. Therefore, to elucidate the process effects, we now focus on the influence of the mediating variables on performance. Customer loyalty and satisfaction should have positive associations with organizational performance because they increase repeat purchase behavior and are associated with lower levels of customer complaints and negative word of mouth (Szymanski and Henard 2001). Quality and customer loyalty can influence performance through higher prices, higher market share, and/or lower costs (e.g., Fornell 1992; Slater and Narver 1994b). By enhancing competitive advantage, innovativeness should have a positive effect on performance (Han, Kim, and Srivastava 1998; Hurley and Hult 1998). Therefore, market orientation can improve an organization’s performance by enhancing the satisfaction and loyalty of its customers, the quality of its products and services, and its innovativeness.

In estimating the model, the inclusion of customer satisfaction in the analysis was precluded by multicollinearity. Before estimating this model, as Baron and Kenny (1986)

recommend, we used regression analysis to confirm the mediating effects of customer loyalty, customer satisfaction, quality, and innovativeness on the market orientation–performance relationship. As Table 5 summarizes, analysis of the initial consequences model did not result in adequate model fit ( $\chi^2 = 48.37$ , d.f. = 4,  $p < .001$ ; RMSEA = .27; AGFI = .58; NFI = .71; and RMSR = .12). Therefore, and consistent with the modification indices, we revised the model as shown in Figure 2, Panel B. The goodness-of-fit indices and path coefficients that we report in Table 5 suggest an acceptable fit for the revised model ( $\chi^2 = 2.97$ , d.f. = 4,  $p = .44$ ; RMSEA = .00; AGFI = .97; NFI = .98; and RMSR = .03). Notably, subsequent evaluation of prior literature support for the revised model. Market orientation affects a firm’s innovativeness (e.g., Han, Kim, and Srivastava 1998), and new products enable the organization to meet the evolving needs of customers, thus influencing loyalty and the perceived quality of its products and services (Slater and Narver 1994b). Subsequent analyses of the total ( $\beta = .30$ ,  $p < .05$ ) and indirect effects ( $\beta = .13$ ,  $p < .05$ ) of market orientation on performance also suggest that innovativeness, customer loyalty, and quality account for a substantial portion of the total effect of market orientation on performance, thus demonstrating partial mediation of this relationship through customer- and innovation-related mechanisms. Finally, the direct path between market orientation and performance suggests that market orientation has an impact on performance beyond the mediated effects that we examined ( $\beta = .17$ ,  $p < .10$ ). We discuss implications of the findings for research and practice subsequently.

## Market Orientation–Performance Relationship: Sample and Measurement Characteristics as Moderators

We examined the homogeneity of effects for the market orientation–performance relationship using the procedures that Hedges and Olkin (1985) recommend. The statistically significant chi-square value ( $\chi^2_{173} = 2172.9$ ;  $p < .01$ ) reveals variability across effect sizes and supports the need to examine theoretically relevant sample and measurement characteristics that explain the variance (Hunter and Schmidt 1990). Therefore, we examined the moderating effects of measurement characteristics (i.e., cost-based versus revenue-based, objective versus subjective, and single-versus multi-item measures of performance) and sample

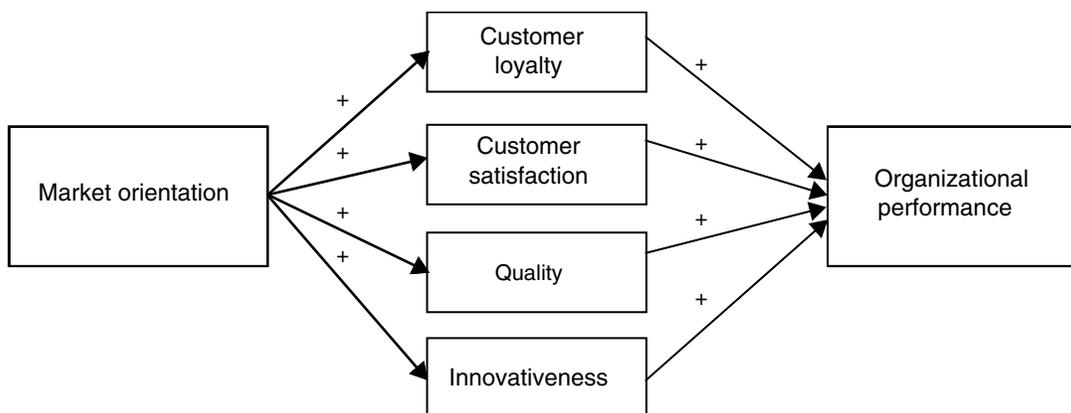
**TABLE 4**  
**Consequences: Intercorrelations Among Constructs**

	1	2	3	4	5	6
1. Market orientation	.83					
2. Organizational performance	.27	.81				
3. Customer loyalty	.27	.33	.85			
4. Customer satisfaction	.35	.35	.68	.82		
5. Innovativeness	.35	.29	.40	.26	.78	
6. Quality	.28	.29	.22	.67	.50	.78

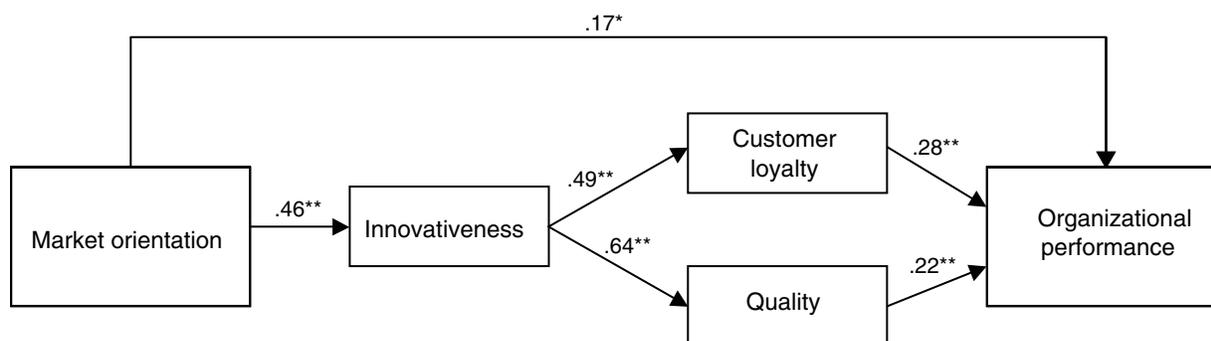
Notes: Off-diagonal entries represent the average sample-size-weighted correlation ( $r$ ) values. Entries on the diagonal reflect sample-size-weighted mean reliabilities (Cronbach’s  $\alpha$ ).

**FIGURE 2**  
**Consequences of Market Orientation**

**A: Hypothesized Model**



**B: Revised Model**



\* $p < .10$ .  
\*\* $p < .05$ .

characteristics (i.e., manufacturing versus service firms and cultural context) on the market orientation–performance relationship using regression analysis (see Brown and Peterson 1993; Szymanski, Bharadwaj, and Varadarajan 1993). Such an investigation also provides an opportunity to address inconsistencies in previous research with the market orientation–performance relationship. Consistent with the approach that Tellis (1988) follows, we now present hypotheses to guide the moderator analyses.

**Hypothesized Effects**

*Cost-based versus revenue-based performance measures.* As we noted previously, organizational performance can be classified into measures that account for the costs involved in implementing a strategy versus measures that emphasize revenues that do not reflect costs. Thus, we examine whether the impact of market orientation on performance varies between measures of cost-based performance (i.e., profits) and revenue-based performance (i.e., sales and market share) (Harris 2001; Jaworski and Kohli 1996). Jaworski and Kohli (1993) argue that though market orientation enhances sales performance, the cost of its

implementation might reduce profits. Market orientation may also be more consistent with a revenue emphasis that targets the expansion of the sales and market share of the firm than with a cost emphasis that focuses more on the efficiency of the firm’s processes (Rust, Moorman, and Dickson 2002). Thus:

H<sub>1</sub>: The market orientation–performance relationship is stronger for revenue-based performance measures than for cost-based performance measures.

*Objective versus subjective and single- versus multi-item performance measures.* The strength of the relationship between market orientation and organizational performance that we assessed using subjective evaluations of performance might differ from relationship tests based on objective measures of performance (Harris 2001). Common methods variance may strengthen the correlation between market orientation and performance when research uses subjective measures to capture both constructs (Doty and Glick 1998). The use of multi-item measures of performance should also be associated with higher market orientation–performance correlations than the use of single-

**TABLE 5**  
**Model Estimation Results: Mediating Effects on the Market Orientation–Performance Relationship**

	Hypothesized Model		Revised Model	
	Path Coefficient	t-Value	Path Coefficient	t-Value
Market orientation–customer loyalty	.37	4.07**	—	—
Market orientation–quality	.41	4.34**	—	—
Market orientation–innovativeness	.50	5.42**	.46	5.03**
Customer loyalty–organizational performance	.30	3.28**	.28	2.98**
Quality–organizational performance	.23	2.47**	.22	2.27**
Innovativeness–organizational performance	.12	1.28	—	—
Innovativeness–customer loyalty	—	—	.49	5.53**
Innovativeness–quality	—	—	.64	7.18**
Market orientation–organizational performance	—	—	.17	1.78*
	$\chi^2(\text{d.f.}) = 48.37(4)$		$\chi^2(\text{d.f.}) = 2.97(4)$	
	RMSEA = .27		RMSEA = .00	
	AGFI = .58		AGFI = .97	
	NFI = .71		NFI = .98	
	RMSR = .12		RMSR = .03	

\* $p < .10$ .

\*\* $p < .05$ .

Notes: Error variances for each construct indicator were fixed at  $(1 - \alpha)$ , where  $\alpha$  is the sample-size-weighted average reliability across studies (see Geyskens, Steenkamp, and Kumar 1998), and the median sample size across studies ( $n = 157$ ) was used for estimation purposes (see Henard and Szymanski 2001).

item measures because multi-item measures are more capable of capturing various facets of complex constructs (Churchill 1979; Clark and Watson 1995; Henard and Szymanski 2001). Thus:

H<sub>2</sub>: The market orientation–performance relationship is stronger for subjective measures of performance than for objective measures of performance.

H<sub>3</sub>: The market orientation–performance relationship is stronger for multi-item measures of performance than for single-item measures of performance.

*Manufacturing versus service firms.* Services are less tangible, less separable in production and consumption, and more perishable than manufactured goods (Parasuraman, Zeithaml, and Berry 1985). Because market orientation focuses on meeting customer needs, the fulfillment of customer needs involves a higher degree of customization in service firms than in manufacturing firms (Anderson, Fornell, and Rust 1997). Therefore, the implementation of market orientation could entail a higher degree of customization in service firms than in manufacturing firms, which implies that the correlation of market orientation with organizational performance might vary between manufacturing and service firms. Specifically, the relatively higher levels of customization that service firms must use to implement market orientation imply the need to target smaller customer segments, thereby constraining service firms' ability to increase sales and market share (revenue-based performance measures) to the same extent as manufacturing firms. Higher degrees of customization in services could also result in higher costs due to lower production efficiency and the hiring and training of qualified employees (see Anderson, Fornell, and Rust 1997). In turn, such higher costs should generate lower levels of profit (i.e., cost-based performance) for service firms than for manufacturing firms. Thus:

H<sub>4</sub>: The market orientation–performance relationship is stronger in manufacturing firms than in service firms.

H<sub>4a</sub>: The market orientation–performance relationship is stronger for revenue-based performance measures in manufacturing firms than in service firms.

H<sub>4b</sub>: The market orientation–performance relationship is stronger for cost-based performance measures in manufacturing firms than in service firms.

*Cultural context.* The magnitude of the market orientation–performance relationship may also be country or region specific because of differences in cultural values (Grewal and Tansuhaj 2001; Harris 2001). To examine this variation, we used Hofstede's (2001) dimensions of national culture (i.e., power distance, uncertainty avoidance, individualism, masculinity, and long-term orientation) as moderators of the market orientation–performance relationship. Specifically, using Hofstede's country scores, we arranged countries for which data were collected from low to high for each cultural dimension and used median splits to classify the countries as either low or high on each dimension. We based median splits on the entire set of countries in Hofstede's (2001) work because of the preponderance of U.S.-based studies in the sample. The meta-analysis included studies conducted in the United States, the United Kingdom, Australia, Hong Kong, New Zealand, the Netherlands, China, Finland, Spain, Israel, Japan, Greece, Korea, Saudi Arabia, Taiwan, Zimbabwe, France, Germany, India, Indonesia, Malta, Poland, Slovenia, Thailand, and Turkey. We did not include studies that were conducted across regions spanning multiple countries, such as the European Union, in the analysis.

According to Hofstede (2001), the power-distance dimension of national culture represents the degree to which social inequalities, such as wealth, status, and power,

are natural and acceptable among members of a society. The individualism dimension focuses on how people relate to others. Whereas individualist societies tend to prefer loosely knit social frameworks in which individuals are primarily responsible for themselves and exhibit greater self-determination, collectivist cultures tend to prefer greater collaboration and group orientation. Uncertainty avoidance reflects the tendency to seek stability and predictability; masculinity represents the focus on achievement, assertiveness, and material success; and long-term orientation is a cultural disposition that emphasizes values of persistence, thrift, and loyalty.

Employees in low-power-distance cultures, compared with those in high-power-distance cultures, are likely to be more comfortable with and productive in the less-hierarchical structures that are supportive of market orientation (Nakata and Sivakumar 2001). Similarly, employees in countries that rank low on uncertainty avoidance, compared with those in countries that rank high, should be more effective and productive in the less-formalized structures that are associated with market-oriented organizations (see Hofstede 2001). Therefore, firms might implement market orientation more effectively in countries that score low on either power distance or uncertainty avoidance, and market orientation should have a stronger impact on performance in such contexts.

Collectivist cultures should support greater collaboration within the organization, thereby enhancing information dissemination and use and enabling a more effective implementation of market orientation (Nakata and Sivakumar 2001). As such, we posit that market orientation has a stronger association with performance in countries that rank low rather than high on individualism. We also predict that the relationship between market orientation and performance is stronger in countries that rank high rather than low on masculinity because a firm can implement market orientation more effectively in highly masculine societies in which dominant values such as challenge and material success drive a focus on competing successfully through meeting customer needs (Nakata and Sivakumar 2001). Finally, because market orientation promotes durable relationships with customers (Slater and Narver 1994b), it might be more effective and demonstrate higher correlations with performance in more long-term-oriented cultures. Thus:

- H<sub>5</sub>: The market orientation–performance relationship is stronger in low-power-distance cultures than in high-power-distance cultures.
- H<sub>6</sub>: The market orientation–performance relationship is stronger in low-uncertainty-avoidance cultures than in high-uncertainty-avoidance cultures.
- H<sub>7</sub>: The market orientation–performance relationship is stronger in collectivist cultures than in individualist cultures.
- H<sub>8</sub>: The market orientation–performance relationship is stronger in high-masculinity cultures than in low-masculinity cultures.
- H<sub>9</sub>: The market orientation–performance relationship is stronger in long-term-oriented cultures than in short-term-oriented cultures.

*Regression analysis.* We used dummy-variable regression to test the hypotheses (e.g., Tellis 1988). We dummy coded and used measurement and sample characteristics as independent variables in the following regression model:

$$Z_{MO,P} = \beta_0 + \beta_1 X_1 + \beta_{1a} X_{1a} + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \epsilon_1$$

where  $Z_{MO,P}$  is the z-transformed value of the corrected correlation between market orientation and performance,  $\beta$ s are parameter estimates, and  $X_i$  are the following categorical variables (with the reference level [the level dummy coded '0'] presented first for each  $X_i$ ):

- $X_1$  = cost-based performance versus revenue-based performance,
- $X_{1a}$  = cost-based performance versus overall business performance,
- $X_2$  = objective versus subjective performance measures,
- $X_3$  = single- versus multi-item performance measures,
- $X_4$  = manufacturing versus service firms,
- $X_5$  = low versus high power distance,
- $X_6$  = low versus high uncertainty avoidance,
- $X_7$  = low versus high individualism,
- $X_8$  = low versus high masculinity, and
- $X_9$  = low versus high long-term orientation.

*Regression results.* The regression analysis results, which we summarize in Table 6, demonstrate that the proposed model is significant ( $F_{(9, 73)} = 9.53, p < .01$ ) and that the hypothesized moderators account for 54% of the variance in market orientation–performance correlations (cf. Geyskens, Steenkamp, and Kumar 1998: 63%; Sultan, Farley, and Lehmann 1990: 39%, 45%, and 53%; Tellis 1988: 29%). Moreover, the regression model is free of multicollinearity (max variance inflation factor = 2.72) after the exclusion of long-term orientation (variance inflation factor = 17.32).<sup>4</sup>

The regression results indicate that the strength of the relationship between market orientation and organizational performance does not vary across cost-based versus revenue-based performance measures, contrary to the prediction in H<sub>1</sub> ( $\beta = -.04, t\text{-value} = .46$ ). H<sub>2</sub> predicts that subjective measures of performance yield higher market orientation–performance correlations than those obtained when objective measures are used. The results support this hypothesis ( $\beta = .33, t\text{-value} = 3.08$ ). However, the use of single- versus multi-item performance measures does not affect the strength of the market orientation–performance relationship ( $\beta = .06, t\text{-value} = .49$ ). Thus, the results do not support H<sub>3</sub>. Because we made adjustments for measurement reliability by using reliability-corrected correlations in the regression analysis, this finding implies that the use of

<sup>4</sup>We included dummy variables for the type of market orientation scale (i.e., Narver and Slater's [1990] MKTOR versus Kohli, Jaworski, and Kumar's [1993] MARKOR), journal quality (i.e., top tier versus second tier versus other journals based on Baumgartner and Pieters [2003]), date of publication (1990–1996 versus 1997–1999 versus 2000–2004), and business cycles in preliminary analyses as control variables. These variables were not significant, and thus we excluded them from further analyses.

**TABLE 6**  
**Variance in the Market Orientation-Performance Relationship: Test of Hypotheses**

Predictor Variables (Reference Level Stated First)	Model 1		Model 2		Model 3	
	Hypotheses	$\beta^a$ (t-Value)	Hypotheses	$\beta^a$ (t-Value)	Hypotheses	$\beta^a$ (t-Value)
<b>Performance Measure Type</b>						
Cost-based versus revenue-based performance	H <sub>1</sub>	-.04 (.46)				
Cost-based versus overall business performance <sup>b</sup>	—	.12 (1.17)				
<b>Other Measurement Characteristics</b>						
Objective versus subjective performance measures	H <sub>2</sub>	.33 (3.08)**		.34 (3.02)**		.34 (3.02)**
Single- versus multi-item performance measures	H <sub>3</sub>	.06 (.49)		.04 (.32)		.04 (.32)
<b>Sample Characteristics</b>						
Manufacturing versus service firms	H <sub>4</sub>	-.43 (4.81)**				
Manufacturing revenue-based performance versus service revenue-based performance	—	—	H <sub>4a</sub>	-.31 (3.03)**		
Manufacturing cost-based performance versus service cost-based performance	—	—	—	—	H <sub>4b</sub>	-.30 (2.94)**
<b>Cultural Context</b>						
Low versus high uncertainty avoidance	H <sub>5</sub>	-.18 (1.91)*		-.17 (1.75)*		-.17 (1.75)*
Low versus high power distance	H <sub>6</sub>	-.29 (2.39)**		-.25 (1.96)*		-.25 (1.96)*
Low versus high individualism	H <sub>7</sub>	-.10 (.85)		-.07 (.60)		-.07 (.60)
Low versus high masculinity	H <sub>8</sub>	.14 (1.28)		.08 (.66)		.08 (.66)
Low versus high long-term orientation	H <sub>9</sub>	—		—		—
F-statistic		9.53**		7.32**		7.32**
Degrees of freedom		9, 73		10, 72		10, 72
R <sup>2</sup>		.54		.50		.50

\* $p < .10$ .\*\* $p < .05$ .<sup>a</sup>Standardized coefficients.<sup>b</sup>Overall business performance refers to performance measures that cannot be disaggregated into cost-based and revenue-based measures as shown in Table 1.

multi-item performance measures does not necessarily enhance market orientation–performance correlations beyond inherent reliability differences (Churchill 1979). Thus, apart from the impact of subjective performance measures, the market orientation–performance relationship is largely robust across various measurement characteristics.

The results also reveal that the market orientation–performance relationship is stronger for manufacturing firms than for service firms, as we predict in  $H_4$  ( $\beta = -.43$ ,  $t$ -value = 4.81). To test  $H_{4a}$  and  $H_{4b}$ , we ran two additional regression analyses that incorporated four categorical variables that represent combinations of the industry context (i.e., manufacturing and service) and the type of performance measure (i.e., cost-based and revenue-based performance). The additional regression models also incorporated all the other variables that appear in Table 6 except for manufacturing versus service firm and cost-based versus revenue-based performance dichotomous variables (i.e.,  $X_1$  and  $X_4$ ), which are redundant when the combination variables are entered into the new equations (see Wooldridge 2003). For all the other independent variables, the results of the additional regressions are similar (see Models 2 and 3 in Table 6).

To test  $H_{4a}$ , revenue-based performance in manufacturing firms was the reference category in Model 2 (see Table 6). As we predicted, the results show that the correlation between market orientation and revenue-based performance is lower in service firms than in manufacturing firms ( $\beta = -.31$ ,  $t$ -value = 3.03). For  $H_{4b}$ , manufacturing firms' cost-based performance was the reference category, which enabled comparisons with service firms' cost-based performance. As we expected, the correlation between market orientation and cost-based performance is lower in service firms than in manufacturing firms ( $\beta = -.30$ ,  $t$ -value = 2.94). Thus, manufacturing firms, as compared with service firms, generate higher profits and appeal to larger markets when they implement market orientation, possibly because of the lower levels of required customization.

Two of the four cultural dimensions affect the market orientation–performance relationship. In support of  $H_5$ , the regression results suggest that market orientation–performance correlations are higher in low-uncertainty-avoidance cultures than in high-uncertainty-avoidance cultures ( $\beta = -.18$ ,  $t$ -value = 1.91). In support of  $H_6$ , market orientation–performance correlations are higher in low-power-distance cultures than in high-power-distance cultures ( $\beta = -.29$ ,  $t$ -value = 2.39). The estimates for individualism ( $H_7$ ) and masculinity ( $H_8$ ) as moderators of the market orientation–performance association are not significant.

The findings also enable a qualitative assessment of studies that provide negative or nonsignificant associations between market orientation and performance. Although the grand mean of the correlation between market orientation and performance is positive (i.e.,  $r = .32$ ), the extant literature includes several studies that report a negative or nonsignificant association for this relationship (e.g., Agarwal, Erramilli, and Dev 2003; Au and Tse 1995; Bhuian 1997; Greenley 1995; Sandvik and Sandvik 2004; Sargeant and Mohamad 1999). On the basis of the results from the

regression analysis, we examined the sample and measurement characteristics of these specific studies. We found that, except for Greenley (1995), these studies typically have at least two of the following three sample and measurement characteristics that significantly affect the market orientation–performance correlation: a service industry sample, data collected in countries that rank high on power distance, and objective measures of performance. Thus, it appears that when a study design combines sample and measurement characteristics that dampen the market orientation–performance correlation, a negative association or no association between these variables may materialize.

In summary, the results of the regression analyses indicate that the variance in the strength of the market orientation–performance relationship can be partially attributed to systematic differences in several theoretically expected sample and measurement characteristics. We discuss the managerial and research implications of these results after the analysis of three substantive moderators of the market orientation–performance relationship.

## Market Orientation–Performance Relationship: Substantive Moderators

Although consistent with prior meta-analyses, the focus on measurement and sample characteristics as moderators of the market orientation–performance relationship leaves one issue unresolved. Specifically, the overall impact of three previously investigated substantive moderators (i.e., market/environmental turbulence, technological turbulence, and competitive intensity) on the market orientation–performance relationship also warrants consideration (e.g., Grewal and Tansuhaj 2001; Slater and Narver 1994a). Prior research has proposed that market and technological turbulence in the environment, as well as competitive intensity, moderates the strength of the relationship between market orientation and performance (Harris 2001; Slater and Narver 1994a). We expect market turbulence and competitive intensity to enhance the impact of market orientation on performance because market responsiveness is likely to become more important when an organization is faced with an evolving mix of customers and aggressive competitors (Jaworski and Kohli 1993). In contrast, the extant literature predicts that technological turbulence is likely to diminish the impact of market orientation on performance because when technology is changing rapidly, research and development–driven innovation becomes more important to a firm's performance than does the customer-focused innovation that results from market orientation (Grewal and Tansuhaj 2001; Kohli and Jaworski 1990).

A limited number of effects precluded detailed quantitative analyses of the substantive moderators. Therefore, we used a vote-counting procedure in which we categorized prior studies on the basis of the direction and significance of the findings (Bottomley and Holden 2001; Capon, Farley, and Hoening 1990). As Bushman (1994, p. 195) details, we used a nonparametric "sign test," which tests the hypothesis that the effect sizes from a collection of  $k$  independent stud-

ies are all zero (null hypothesis,  $H_0: \pi = .5$ ). This procedure investigates the probability of obtaining results that confirm the proposed hypotheses greater than .5 (alternative hypothesis,  $H_A: \pi > .5$ ). Accordingly, we categorized studies that explore the moderators of the market orientation–performance relationship into “supportive,” “opposite,” and “nonsignificant effects” (see Table 7) on the basis of the significance and direction of the results. Next, we counted the number of studies that confirm the hypotheses, and we calculated and evaluated an estimate of  $\pi$  (i.e., the proportion of statistically significant results that support the proposed hypotheses in the population) using critical values from the binomial distribution.

In 5 of 14 studies, market/environmental turbulence was found to moderate the market orientation–performance relationship such that the strength of the relationship between market orientation and performance is stronger in turbulent markets. Using the sign test described previously, the estimate of  $\pi$  is  $p = .36$  (or 5/14), which corresponds to a cumulative probability of .79 from a binomial table. Thus, the nonparametric sign test results indicate that there is insufficient empirical evidence to conclude that market/environmental turbulence is a significant moderator of the relationship between market orientation and performance.

Similarly, sign tests did not support the moderating roles of competitive intensity and technological turbulence on the market orientation–performance relationship.

## Discussion and Implications

The meta-analysis reported in this study provides a quantitative summary of bivariate relationships that involve market orientation to document research in this substantial literature stream. The multivariate analyses reveal that internal processes have a greater influence than organizational structure variables in implementing market orientation and that market orientation affects performance through innovativeness, customer loyalty, and quality. An examination of the variance in the market orientation–performance relationship with regression analyses demonstrates that manufacturing firms exhibit higher market orientation–performance associations than do service firms, assesses the generalizability of the relationship across various cultural contexts, and provides research guidance on the effects of performance-measure-related issues. A nonparametric assessment of prior research into the substantive moderators of the market orientation–performance relationship indicates that the extant research provides limited support for the effects of

**TABLE 7**  
**Substantive Moderators and the Market Orientation–Performance Relationship**

Moderator	Supportive	Opposite	Nonsignificant
Market/ environmental turbulence	Appiah-Adu (1997) Diamantopoulos and Hart (1993) Harris (2001) Kumar, Subramanian, and Yauger (1998) Pulendran, Speed, and Widing (2000)	Greenley (1995) Slater and Narver (1994a)	Becherer and Maurer (1997) Cadogan, Diamantopoulos, and Siguaw (2002) Gray et al. (1999) Jaworski and Kohli (1993) Rose and Shoham (2002) Subramanian and Gopalakrishna (2001) Tay and Morgan (2002)
Competitive intensity	Bhuian (1998) Diamantopoulos and Hart (1993) Grewal and Tansujah (2001) Harris (2001) Kumar, Subramanian, and Yauger (1998)		Appiah-Adu (1997) Appiah-Adu (1998) Cadogan, Cui, and Li (2003) Gray et al. (1999) Jaworski and Kohli (1993) Kwon and Hu (2000) Slater and Narver (1994a) Perry and Shao (2002) Tay and Morgan (2002) Pulendran, Speed, and Widing (2000) Rose and Shoham (2002) Subramanian and Gopalakrishna (2001)
Technological turbulence	Rose and Shoham (2002)	Grewal and Tansuhaj (2001) Slater and Narver (1994a)	Appiah-Adu (1997) Bhuian (1998) Cadogan, Cui, and Li (2003) Harris (2001) Gray et al. (1999) Greenley (1995) Jaworski and Kohli (1993) Pulendran, Speed, and Widing (2000)

Notes: Other less frequently studied moderators of the market orientation–performance relationship that we found in the literature include market growth, buyer power, demand uncertainty, supplier power, and extent of entry barriers.

environmental factors on the market orientation–performance relationship.

In this regard, this study extends prior attempts to summarize the extant market orientation literature by employing a considerably larger number of effect sizes and investigating more comprehensive models. Specifically, previous attempts to consolidate research findings in the market orientation literature include qualitative reviews (e.g., Jaworski and Kohli 1996; Lafferty and Hult 2000) and a meta-analysis focused on the market orientation–performance relationship (see Cano, Carrillat, and Jaramillo 2004). In contrast to our study, Cano, Carrillat, and Jaramillo’s (2004) meta-analysis provides a quantitative summary of the market orientation–performance relationship alone, and using subgroup analysis, it offers some preliminary evidence of how this relationship varies across sample and measurement characteristics. Apart from the broader scope of our study, which also has a considerably larger database, we examine the impact of a larger set of sample and measurement characteristics, such as cost-based and revenue-based performance, and multiple dimensions of culture. By doing so, we are able to infer well-supported managerial implications and several interesting research implications. In addition, the use of multiple regression rather than subgroup analysis enables us to limit the problems associated with omitted-variable bias by employing several control variables, such as the type of market orientation scale, journal quality, and business cycles. For example, although a bivariate analysis shows that the type of market orientation scale would have a significant impact on the market orientation–performance correlation, this association vanishes in the presence of other sample and measurement characteristics.

However, this research has several limitations that are common to other meta-analyses in the marketing literature. First, we could not include all studies and constructs in the market orientation literature because of a lack of information necessary for the calculation of effect sizes. Second, the number of variables that we could include in the multivariate models was limited because we used only the constructs that yielded a full correlation matrix in the analyses. Third, the study was limited to the examination of moderators that we could code from existing studies. Regardless, the findings from this meta-analysis could be useful to managers in their efforts to implement market orientation and to understand its impact on performance. The results could also help researchers assess the state of market orientation literature and design further research.

### **Managerial Implications**

Managers are concerned about four issues pertaining to market orientation. First, how can market orientation be implemented? Second, what is its impact on performance? Third, how does the market orientation–performance relationship vary across cultural and business contexts? Fourth, what are the processes through which market orientation enhances performance? The meta-analysis provides insights into each of these issues.

*Implementing market orientation.* The results from the multivariate analysis of antecedents of market orientation demonstrate the importance of top management emphasis,

interdepartmental connectedness, and market-based reward systems for the implementation of market orientation (Ruekert 1992). Notably, we find that centralization may not hamper market orientation, which implies that an organization with a centralized decision-making structure can prevent that structure from impeding the information flow that is critical for market orientation by focusing on top management emphasis, interdepartmental connectedness, and appropriate reward systems. That is, by ensuring top management emphasis, interdepartmental connectedness, and appropriate reward systems, market orientation can be effectively implemented even in organizations with centralized decision-making structures.

*Market orientation–performance relationship.* Overall, the results demonstrate that market orientation has a positive impact on organizational performance. Although this conclusion is consistent with several studies in the market orientation literature (see Jaworski and Kohli 1993; Narver and Slater 1990), the present meta-analysis provides managers with a mean value for the expected effect ( $r = .32$ ). More important, the results help focus managers’ attention that market orientation enhances profits ( $r = .27$ ), which is a cost-based performance measure that accounts for the cost of implementing market orientation, and not merely revenue-based performance measures ( $r = .26$ ). Although Rust, Moorman, and Dickson (2002) note that market orientation may not be entirely consistent with a focus on cost reduction, our results show that it does enhance profits. In other words, even though the implementation of market orientation may demand resources, it generates profits over and above the costs involved in its implementation while growing revenues.

*Impact of industry and cultural contexts.* The association of market orientation with performance is lower in service firms than in manufacturing firms ( $r = .26$  versus  $.37$ , respectively), possibly because of the higher levels of customization that service firms require. This result varies from Cano, Carrillat, and Jaramillo’s (2004) study, in which through the use of subgroup analysis, they report a higher market orientation–performance correlation for service firms. However, the use of a larger database (47 versus 15 effects for service firms and 76 versus 23 effects for manufacturing firms in this study versus Cano, Carrillat, and Jaramillo’s) and a more rigorous multiple regression analysis rather than subgroup analysis suggests that, on the aggregate, the relationship between market orientation and performance is stronger in manufacturing firms than in service firms. Furthermore, the extant theory in marketing, as documented by Anderson, Fornell, and Rust (1997), also supports the current findings.

This result is noteworthy because research designed directly to compare market orientation in service firms with that in manufacturing firms is scarce. However, this finding does not necessarily imply that market orientation should receive a greater emphasis in manufacturing than in service firms. We note that this result refers to the strength of the market orientation–performance association in manufacturing and service firms and not to the level of market orientation. Market orientation might be more integral to service firms because of the greater necessity of direct firm–

customer interactions. Therefore, market orientation could be viewed as a failure-prevention approach (a “hygiene” factor) in service firms and a success-inducing approach in manufacturing firms (see Varadarajan 1985). In other words, market orientation may be imperative to ensure survival in service firms and may provide a greater competitive advantage that leads to superior performance in manufacturing firms.

Managers should also note that the association between market orientation and performance varied across two of the four national culture dimensions that we tested in the moderator analyses. Specifically, we found market orientation to be more positively associated with performance in countries that are low rather than high on power distance ( $r = .33$  versus  $.27$ ). In addition, we found market orientation to be more positively associated with performance in countries that are low rather than high on uncertainty avoidance ( $r = .34$  versus  $.27$ ). Therefore, managers should implement market orientation in accordance with local cultural sensitivities as power distance and uncertainty avoidance describe.

*Mediating processes of the market orientation–performance relationship.* From a managerial perspective, the explication of the routes through which market orientation influences performance is vital. We examine a more comprehensive model of the mechanisms that mediate the market orientation–performance relationship than those tested in the extant literature (e.g., Han, Kim, and Srivastava 1998; Matsuno, Mentzer, and Ozsomer 2002), and we provide managers with more detailed insights into market orientation’s influence on performance. Our findings suggest that measures of the mediating variables—innovativeness, customer loyalty, and quality—may be useful for tracking the impact of market orientation on performance for managers who implement strategic process-measurement frameworks, such as the Balanced Scorecard (see Kaplan and Norton 1993).

### **Research Implications**

Based on the evidence from the meta-analysis, research has made significant progress toward the understanding of the market orientation construct and its nomological network. However, despite the progress, there are several gaps in knowledge about the implementation of market orientation and the market orientation–performance relationship, thus suggesting avenues for further research.

*Implementing market orientation.* The findings from the meta-analysis about the antecedents of market orientation suggest the following directions for further research: First, researchers must examine how the antecedents of market orientation interact and impact its implementation. Thus, complex relationships, such as the interaction of centralization and market-based reward systems or interdepartmental connectedness and the impact on implementation of market orientation, are fertile topics for further research.

Second, the extant literature needs a better understanding of how the impact of the antecedents of market orienta-

tion varies across different business and cultural contexts. Thus, further research should identify profiles of best practices to implement market orientation both in service and manufacturing firms and in different cultural contexts.

Third, the use of customer relationship management technology enables organizations to discover or anticipate continuously what customers need and to fulfill those needs with customized products and services (Bradley and Nolan 1998). Therefore, the use of customer relationship management technology can facilitate more efficient and effective realization of market orientation, and it represents an important topic for further research.

*Explicating the market orientation–performance relationship.* Our results suggest that research into the following four topics would help enhance knowledge about the market orientation–performance relationship: First, the variance in the market orientation–performance correlations across service and manufacturing contexts is attributed to the higher levels of customization that service firms require and to the subsequent costs involved (Anderson, Fornell, and Rust 1997). To provide further insights into this area, a study examining how customization affects the market orientation–performance relationship would be useful. Researchers could conduct such a study across organizations that offer products or services that require varying degrees of customization.

Second, studies that showed a negative association between market orientation and performance had the following characteristics: service industry sample, high-power-distance culture, and objective performance measure. To further enhance the understanding of the combinations of conditions that limit the effectiveness of market orientation in improving performance, a study with a  $2$  (service/manufacturing)  $\times 2$  (high/low power distance) design with multiple types of performance measures would be beneficial.

Third, prior research has suggested that reducing role conflict enhances quality and, consequently, performance (e.g., Hartline and Ferrell 1996). Because studies have shown market orientation to reduce role conflict, it is likely that its impact on performance is mediated through role conflict. Data limitations prevented us from examining the mediating role of role conflict, other employee-related consequences, and customer satisfaction on the market orientation–performance relationship. Examining the mediating role of employee-related consequences and customer satisfaction might help further clarify the processes that mediate the market orientation–performance relationship.

Fourth, multicollinearity prevented us from assessing the impact of long-term orientation on the market orientation–performance relationship. Therefore, further research is warranted in which variation is accomplished across long-term orientation and other dimensions of culture while estimating the market orientation–performance relationship.

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