

RESEARCH NOTES AND COMMENTARIES

MARKET ORIENTATION, MARKETING CAPABILITIES, AND FIRM PERFORMANCE

NEIL A. MORGAN,^{1*} DOUGLAS W. VORHIES,² and CHARLOTTE H. MASON³

¹ Kelley School of Business, Indiana University, Bloomington, Indiana, U.S.A.

² School of Business Administration, University of Mississippi, Mississippi, U.S.A.

³ Terry College of Business, University of Georgia, Athens, Georgia, U.S.A.

Drawing on traditional resource-based theory and its recent dynamic capabilities theory extensions, we examine both the possession of a market orientation and the marketing capabilities through which resources are deployed into the marketplace as drivers of firm performance in a cross-industry sample. Our findings indicate that market orientation and marketing capabilities are complementary assets that contribute to superior firm performance. We also find that market orientation has a direct effect on firms' return on assets (ROA), and that marketing capabilities directly impact both ROA and perceived firm performance. Copyright © 2009 John Wiley & Sons, Ltd.

INTRODUCTION

Strategic management (e.g., Dobni and Luffman, 2003; Hult and Ketchen, 2001) and marketing (e.g., Jaworski and Kohli, 1993) researchers posit that a market orientation (MO) provides firms with a source of competitive advantage. A recent meta-analysis supports a positive, significant, and robust link between MO and firm performance (Kirca, Jayachandran, and Bearden, 2005). However, while there is mounting evidence concerning MO possession and firm performance, we have little understanding of how this market-based asset is

deployed to achieve competitive advantage. Here, we draw on resource-based theory and its recent dynamic capabilities (DC) extensions to address this limitation. Specifically, adopting a market information processing perspective, we examine MO as a key market-based asset, and firms' marketing capabilities as a key market-relating deployment mechanism.

Our study makes two main contributions. First, we identify and empirically examine specific market-relating organizational capabilities that enable firms to effectively respond to the market intelligence they generate and disseminate. Our findings provide new insights regarding the process by which MO is connected with firm performance and indicate that an MO requires complementary organizational capabilities if its value to the firm is to be fully realized. Second, we identify how both

Keywords: marketing capabilities; market orientation; firm performance

*Correspondence to: Neil A. Morgan, Kelley School of Business, Indiana University, 1309 E. Tenth St., Bloomington, IN 47405-1701, U.S.A. E-mail: namorgan@indiana.edu

MO and the organizational capabilities through which firms deploy their MO into the marketplace are important sources of competitive advantage. This provides new empirical support for DC theory propositions concerning the importance of market knowledge and market-relating deployment capabilities in enabling firms to execute strategies that match their market environment (e.g., Eisenhardt and Martin, 2000; Makadok, 2001).

THEORY FRAMEWORK

Resource-based theory views heterogeneity among firms in resources—assets tied semipermanently to the firm that allow its managers to conceive and execute value-creating strategies—as fundamental in explaining firm performance (Barney, 1991). However, resource-based theory has been criticized for its inability to explain how resources are developed and deployed to achieve competitive advantage (e.g., Priem and Butler, 2001), and its failure to consider the impact of dynamic market environments (e.g., Lengnick-Hall and Wolff, 1999). Theorists have made a number of recent developments, collectively labeled ‘dynamic capabilities’ theory, addressing these limitations in traditional resource-based theory (Newbert, 2007; Zott, 2003).

DC theory posits that since marketplaces are dynamic, rather than simple heterogeneity in firms’ resource endowments, it is the capabilities by which firms’ resources are acquired and deployed in ways that match the firm’s market environment that explains interfirm performance variance over time (e.g., Eisenhardt and Martin, 2000; Makadok, 2001; Teece, Pisano, and Shuen, 1997). These capabilities involve complex coordinated patterns of skills and knowledge that, over time, become embedded as organizational routines (Grant, 1996) and are distinguished from other organizational processes by being performed well relative to rivals (Bingham, Eisenhardt, and Furr, 2007; Ethiraj *et al.*, 2005). Capabilities are dynamic when they enable the firm to implement new strategies to reflect changing market conditions by combining and transforming available resources in new and different ways (e.g., Teece *et al.*, 1997).

Thus, the literature indicates that while possessing valuable, rare, inimitable, and non-substitutable resources may be beneficial, firms also require complementary capabilities to be able to deploy

available resources in ways that match the market conditions faced in order to drive firm performance (e.g., Teece, 2007; Helfat, 1997). Building on this theoretical perspective, we hereafter develop more detailed and testable hypotheses as represented in Figure 1.

HYPOTHESES

Hult, Ketchen, and Slater (2005) demonstrated the value of a market information processing perspective on MO. This defines MO as the extent to which a firm engages in the generation, dissemination, and response to market intelligence pertaining to current and future customer needs, competitor strategies and actions, channel requirements and abilities, and the broader business environment (e.g., Kohli and Jaworski, 1990). Drawing on traditional resource-based theory, the literature posits that firms with superior MO achieve superior business performance because they have a greater understanding of customers’ expressed wants and latent needs, competitor capabilities and strategies, channel requirements and developments, and the broader market environment than their rivals (e.g., Hult and Ketchen, 2001; Jaworski and Kohli, 1993). This represents a ‘know-what’ advantage that enables the firm to be both more effective and efficient by allowing managers to select the most productive available resource combinations to match market conditions (e.g., Slater and Narver, 1995). The literature therefore suggests that:

Hypothesis 1: A firm’s market orientation is positively associated with its business performance.

Considerably less attention has been paid to the capabilities by which firms deploy their MO into target market(s). Capabilities may be viewed at different levels in the firm, many of which cross different functional areas (e.g., Eisenhardt and Martin, 2000). However, capabilities relating to market resource deployment are usually associated with the marketing function (e.g., Danneels, 2007; Dutta, Zbaracki, and Bergen, 2003). Two interrelated marketing capability areas have been identified: capabilities concerning individual ‘marketing mix’ processes, such as product development and management, pricing, selling, marketing communications, and channel management

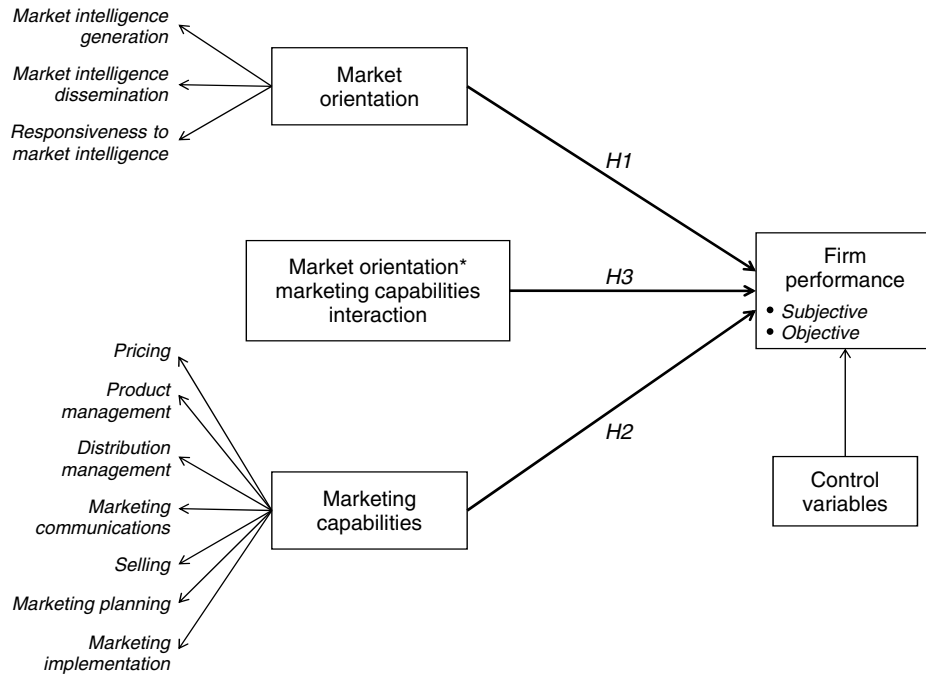


Figure 1. Research model

(e.g., Vorhies and Morgan, 2005), and capabilities concerned with the processes of marketing strategy development and execution (e.g., Morgan *et al.*, 2003). These capabilities may be rare, valuable, non-substitutable, and inimitable sources of advantage that can lead to superior firm performance (e.g., Dutta *et al.*, 2003; Vorhies and Morgan, 2005). Further, as knowledge-based processes that become embedded over time, such capabilities may be difficult for competitors to imitate (e.g., Teece *et al.*, 1997). We therefore hypothesize that:

Hypothesis 2: A firm’s marketing capabilities are positively associated with its business performance.

Both resource-based theory and its DC extensions indicate the importance of the interaction between a firm’s ‘know-what’ knowledge resources and its complementary ‘know-how’ deployment capabilities (e.g., Grant, 1996). This suggests that a firm’s MO and marketing capabilities may interact to enable the firm to align its resource deployments with its market environment better than its rivals (e.g., Day, 1994; Eisenhardt and Martin, 2000). There are two main reasons to expect such an interaction. First, resource-based

theory indicates that deployment capabilities offer economies of scope benefits for firms’ investments in their knowledge resources (e.g., Danneels, 2007; Helfat, 1997). Marketing capabilities are viewed in the literature as important market-relating mechanisms by which superior market knowledge may be deployed by firms to generate economic rents (Madhavan and Grover, 1998), making them particularly complementary with firms’ market-based knowledge assets such as MO (Day, 1994).

Second, as MO and marketing capabilities are complementary to one another in ways that generate economic rents, and each may be viewed as an individual source of competitive advantage, the interaction between MO and marketing capabilities possesses the characteristic of ‘asset interconnectedness’ (Teece *et al.*, 1997). This creates causal ambiguity that makes it particularly difficult for competitors to disentangle the source of a firm’s observed performance advantage (Reed and DeFillipi, 1990). It also requires that a rival acquire both the interconnected MO and marketing capabilities of a high-performing firm that bases its strategy on these cospecialized assets to be able to compete away its performance advantage (e.g., Helfat, 1997; Madhavan and Grover, 1998). For these reasons, we expect that:

Hypothesis 3: The interaction between a firm's market orientation and marketing capabilities is positively associated with the firm's business performance.

RESEARCH METHOD

Data collection

Primary data for testing our hypotheses were collected via a mail survey of 748 U.S. firms operating in consumer and business markets offering both services and goods (including durable and nondurables). Within each industry type we randomly selected two three-digit Standard Industrial Classification codes giving us: audio and video appliances; household appliances; canned and frozen foods; soaps and toiletries; insurance; hospitals; process equipment; machine tools and patterns; chemicals, gasses and pigments; packaging; trucking; and, business software services. Given our focus on market information processing and market-related capabilities in a strategic management context (e.g., Hult *et al.*, 2005) the survey was mailed to each firm's top marketing executive.

After eliminating surveys from respondents who rated their relevant knowledge as below five on a seven-point scale, we retained 230 useable surveys—a 31 percent response rate. The mean respondent knowledgeability score of 6.4 for these 230 firms indicates the validity of the key informant data. We were also able to collect return on assets (ROA) data for 108 respondent firms from secondary sources. An extrapolation approach to assess nonresponse bias (Armstrong and Overton, 1977) revealed no significant differences between early and late respondents on any survey constructs. Testing for respondent-nonrespondent differences on the ROA data along with organizational size and firm age, found no differences between the two groups. This suggests that nonresponse bias is unlikely to be present in our dataset.

Measurement

The specific item indicators and questions for each survey measure are contained in the Appendix. Market orientation was measured using the Jaworski and Kohli (1993) scale. Consistent with the prior literature and with the conceptualization of MO as an asset that may be difficult for

managers to directly observe in their rivals, we use a standard Likert-type seven-point scale with anchors of 'strongly disagree' and 'strongly agree.' Seven distinct market-related capabilities (product development, pricing, channel management, marketing communications, selling, market planning, and marketing implementation) were measured using existing scales (Morgan *et al.*, 2003; Vorhies and Morgan, 2005). Consistent with the conceptualization of capabilities as organizational processes performed well relative to competitors (Bingham *et al.*, 2007; Ethiraj *et al.*, 2005), whose manifestations are observable to rivals (Moorman and Slotegraaf, 1999), we use seven-point scales with 'much worse than competitors' and 'much better than competitors' anchors.

Firm performance was measured using two approaches. First, we asked respondents for their subjective assessments of their firm's profitability using a synthesis of items from previous scales, and their firm's market effectiveness using a scale tapping the degree to which the firm's market-related goals (e.g., sales, share) had been achieved (e.g., Morgan *et al.*, 2003). Second, for the 108 respondent firms for which we were able to collect secondary financial information, we calculated the average ROA for the two-year period covering the year of the primary data collection and the following year to allow for lagged effects and to minimize the impact of any short-run unobserved events.

To control for industry and firm heterogeneity, we also collected data on competitive intensity using Jaworski and Kohli's (1993) scale, dummy-coded each firm as primarily a service or manufacturing business, and used total employee numbers as an indicator of firm size. For the subset of firms for which secondary financial data is available we also collected data on the prior year's cash flows as an indicator of the firm's available financial resources.

Measure reliability and validity

Summary scale statistics are reported in Table 1. We assessed the measurement properties of our scales via confirmatory factor (CFA) and reliability analyses. To maintain adequate sample size-to-parameter ratios, we divided our measures into three subsets of theoretically related variables. In each CFA model the constructs in our hypotheses represent a second-order factor, with

Table 1. Descriptive statistics, average variance extracted, composite reliabilities,^a and construct intercorrelations^b

	Mean (S.D.)	AVE	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13
X1 Intelligence generation	4.75 (1.08)	63%	0.91												
X2 Intelligence dissemination	5.20 (1.16)	54%	0.59**	0.85											
X3 Responsiveness	5.50 (0.99)	51%	0.36**	0.55**	0.86										
X4 Pricing capabilities	4.73 (1.03)	53%	0.12†	0.22**	0.38**	0.82									
X5 Product capabilities	4.72 (1.07)	50%	0.28**	0.31**	0.39**	0.31**	0.80								
X6 Distribution capabilities	4.91 (1.13)	67%	0.28**	0.17**	0.26**	0.28**	0.28**	0.89							
X7 Marketing communication capabilities	4.29 (1.20)	51%	0.19**	0.16*	0.10	0.14*	0.32**	0.23**	0.81						
X8 Selling capabilities	4.81 (1.07)	65%	0.27**	0.35**	0.41**	0.42**	0.33**	0.55**	0.28**	0.92					
X9 Marketing planning capabilities	4.62 (1.09)	68%	0.31**	0.31**	0.30**	0.37**	0.43**	0.43**	0.59**	0.61**	0.89				
X10 Marketing implementation capabilities	4.66 (1.09)	70%	0.25**	0.46**	0.48**	0.44**	0.45**	0.43**	0.33**	0.62**	0.68**	0.90			
X11 Market effectiveness	5.12 (1.01)	69%	0.28**	0.28**	0.39**	0.38**	0.41**	0.39**	0.13†	0.47**	0.44**	0.46**	0.90		
X12 Profitability	4.89 (1.27)	82%	0.18**	0.25**	0.29**	0.30**	0.29**	0.26**	0.06	0.36**	0.39**	0.40**	0.61**	0.95	
X13 Objective ROA	0.08 (0.20)	N/A	0.11	0.07	0.15†	0.17†	0.15†	0.02	0.27**	0.13	0.30**	0.08	0.15†	0.22*	N/A

^a Composite reliabilities are shown on the diagonal

^b N = 204 for all correlations except objective ROA, where N = 108

† p < 0.10

* p < 0.05

** p < 0.01

the observed survey items representing first-order factors that in turn represent a second-order factor. All three measurement models fit well with the data as seen in the fit statistics for the market orientation ($\chi^2_{(116)} = 217.86$, $p < 0.001$, CFI = 0.956, RMSEA = 0.067, NNFI = 0.945), overall marketing capability ($\chi^2_{(370)} = 549.95$, $p < 0.001$, CFI = 0.954, RMSEA = 0.046, NNFI = 0.950), and subjective performance ($\chi^2_{(19)} = 30.10$, $p < 0.052$, CFI = 0.993, RMSEA = 0.052, NNFI = 0.989) models.

All items loaded significantly on their designated first-order constructs, which in turn all loaded onto the designated second-order factors, with no evidence of any cross-loading. Across our measurement models, factor and item loadings all exceeded 0.56, with all t-values greater than 11.56, providing evidence of convergent validity among our measures. We also examined the average variance extracted (AVE) of each construct and compared this with the shared variances among our constructs (Anderson and Gerbing, 1988). As shown in Table 1, the AVE values range from 50–82 percent while the shared variances range from 0–46 percent, indicating discriminant validity among our constructs. We also assessed discriminant validity using two-factor CFA models involving each possible pair of constructs, with the correlation between the two constructs first freely estimated and then constrained to one. In all cases, the χ^2 value of the unconstrained model was significantly lower than that of the constrained model, indicating discriminant validity between all of our constructs (Bagozzi, Yi, and Phillips, 1991). All measures exhibit strong reliability with composite reliabilities ranging from 0.80 to 0.95 (see Table 1). Overall, our constructs therefore exhibit good measurement properties.

RESULTS OF HYPOTHESES TESTING

We test our hypotheses using two complementary approaches. First, following Ping (1995) we use structural equation models (SEM), with each hypothesis tested separately for each of the two performance dependent measures. To assess Hypotheses 1 and 2, we estimated a main effects model with direct paths from our second-order MO and marketing capabilities factors to the second-order subjective performance factor (first model) and

Table 2. Second order main effects and interaction effects on business performance

Subjective performance main effects model:			Coefficient	t-value	Overall model fit	
<i>Paths modeled:</i>						
Market orientation	→	Performance	0.16	1.15	χ^2	72.10, 71 d.f., p = 0.44
Marketing capabilities	→	Performance	0.76	5.19	CFI	0.98
Competitive intensity	→	Performance	0.10	1.61	RMSEA	0.04
Organization size (log)	→	Performance	0.05	0.86	NNFI	0.97 Delta 2 0.98
Subjective performance interaction model:			Coefficient	t-value	Overall model fit	
<i>Paths modeled:</i>						
Market orientation	→	Performance	0.33	1.47	χ^2	85.05, 81 d.f., p = .036
Marketing capabilities	→	Performance	0.94	4.09	CFI	0.98
Market orientation × marketing capabilities	→	Performance	0.24	2.26	RMSEA	0.04
Competitive intensity	→	Performance	0.07	1.38	NNFI	0.97 Delta 2 0.98
Organization size (log)	→	Performance	0.05	0.79		
Objective ROA main effects model:			Coefficient	t-value	Overall model fit	
<i>Paths modeled:</i>						
Market orientation	→	ROA	0.45	2.15	χ^2	78.64, 69 d.f., p = 0.01
Marketing capabilities	→	ROA	0.38	2.01	CFI	0.96
Competitive intensity	→	ROA	0.17	1.83	RMSEA	0.06
Organization size (log)	→	ROA	-0.02	-0.25	NNFI	0.93 Delta 2 0.96
Financial resources	→	ROA	0.43	4.98		
Objective ROA interaction model:			Coefficient	t-value	Overall model fit	
<i>Paths modeled:</i>						
Market orientation	→	ROA	0.66	2.36	χ^2	86.80, 78 d.f., p = 0.03
Marketing capabilities	→	ROA	0.54	2.03	CFI	0.96
Market orientation × marketing capabilities	→	ROA	0.25	2.11	RMSEA	0.06
Competitive intensity	→	ROA	0.13	1.30	NNFI	0.93 Delta 2 0.96
Organization size (log)	→	ROA	-0.03	-0.30		
Financial resources	→	ROA	0.41	4.55		

to objective ROA (second model).¹ To assess Hypothesis 3, we estimated two interaction models in which we added the MO × marketing capabilities interaction term with a direct path to each performance measure. For the interaction term, the MO and marketing capability measures were first centered and then a single item indicator representing the product of the two measures was calculated (Ping 1995). Firm size and competitive intensity were included as control variables with direct paths to the performance dependent in each model, and financial resources were also added in the ROA models.

The results of our SEM analyses are presented in Table 2. Given the parameters in our models and a threshold-level of model fit as a RMSEA of 0.08, we clearly have adequate sample size to provide sufficient statistical power to have confidence in our results. Table 2 also reports model fit statistics, each of which suggest better than adequate model fit, and very good model fit for our full interaction models.² In the two subjective performance models, the path coefficients support both Hypothesis 2 linking marketing capabilities and Hypothesis 3 linking the interaction of MO and marketing capabilities with performance. However, no support is

¹ Summated scores for each of the first-order constructs were used as indicators of the second-order constructs.

² In the commonly used χ^2 test, more insignificant p values indicate better model fit.

Table 3. Hierarchical regression results^a

Predictor variables	Subjective performance dependent			Objective ROA dependent		
	Model fit	Coefficient	t-value	Model fit	Coefficient	t-value
<i>Step 1: Control variables</i>						
Competitive intensity		-0.03	-0.39		0.14	1.49
Organization size (Log)		-0.08	-1.06		-0.01	-0.09
Financial resources		<i>n/a</i>	<i>n/a</i>		0.24	2.51
Industry type		-0.04	-0.59		0.04	0.37
	$R^2 = 0.01$ $F = 0.48$			$R^2 = 0.10$ $F = 2.73^*$		
<i>Step 2: Main effects—add MO</i>						
Market orientation (MO)		0.31	4.59		0.27	2.88
Competitive intensity		-0.01	-0.14		0.16	1.69
Organization size (Log)		-0.12	-1.74		-0.01	-0.15
Financial resources		<i>n/a</i>	<i>n/a</i>		0.24	2.56
Industry type		-0.03	-0.49		0.07	0.69
	$R^2 = 0.10$ $F = 5.67^{**}$			$R^2 = 0.17$ $F = 3.99^{**}$		
<i>Step 3: Main effects—add MC</i>						
Market orientation (MO)		0.02	0.30		0.13	1.26
Marketing capabilities (MC)		0.50	7.02		0.28	2.75
Competitive intensity		-0.03	-0.53		0.15	1.70
Organization size (Log)		-0.10	-1.60		-0.02	-0.21
Financial resources		<i>n/a</i>	<i>n/a</i>		0.25	2.75
Industry type		-0.05	-0.78		0.02	0.15
	$R^2 = 0.27$ $F = 15.43^{**}$			$R^2 = 0.23$ $F = 4.81^{**}$		
<i>Step 4: Interaction effects—add MO × MC</i>						
Market orientation (MO)		0.07	0.97		0.27	2.77
Marketing capabilities (MC)		0.47	6.54		0.20	2.07
MO × MC interaction		0.14	2.25		0.40	4.56
Competitive intensity		-0.05	-0.75		0.13	1.62
Organization size (log)		-0.09	-1.54		0.03	0.29
Financial resources		<i>n/a</i>	<i>n/a</i>		0.21	2.46
Industry type		-0.05	-0.87		0.03	0.33
	$R^2 = 0.29$ $F = 16.95^{**}$			$R^2 = 0.36$ $F = 7.92^{**}$		

^a All R^2 changes between steps in the hierarchical regressions are statistically significant.

* $p < 0.05$; ** $p < 0.01$

found for Hypothesis 1 linking MO directly with performance, since the path coefficient, while in the hypothesized direction, is not significant in either the main effects or the interaction model. The path coefficients in the models using objective ROA performance support Hypotheses 1, 2, and 3. Among the control variables we find that available financial resources are positively associated with ROA, while competitive intensity and organization size are not significant in either the subjective or the objective performance models.

Second, we also tested our hypotheses using hierarchical regression analyses which, while not allowing us to control for measurement error,

offer some complementary benefits to SEM, in particular: to more easily control for the manufacturing vs. services industry of respondent firms; to easily assess differences between nested models; and to calibrate the relative impact of the interaction between MO and marketing capabilities in Hypothesis 3. As seen in Table 3, for each of the subjective and objective firm performance dependent variables in turn, we estimated four hierarchical regressions: (i) including just the control variables; (ii) adding MO; (iii) adding marketing capabilities; and (iv) adding the MO × marketing capabilities interaction. The largest variance inflation factor in any of our hierarchical regressions

was 1.65, suggesting no multicollinearity concerns. The regression results mirror those of the SEM analysis, and indicate that the relationships we hypothesize are not significantly affected by competitive intensity and services vs. goods industry controls or by the firm size control. As expected, however, in all four models using ROA, we see that the availability of financial resources within the firm is associated with firms' ROA performance. In addition, the relatively high R^2 values observed—particularly for the Step 3 and 4 models, which range between 0.23 and 0.36—indicate the importance of our main effect and interaction variables in explaining firm performance. Our results also show significant positive changes in R^2 between each of the regression models for both subjective and objective performance, and provide a calibration of the relative impact of the interaction between MO and marketing capabilities, with an $R^2\Delta$ of 0.02 (to 0.29) in the subjective performance model and $R^2\Delta$ of 0.13 (to 0.36) in the objective ROA model.

DISCUSSION AND IMPLICATIONS

Overall, our results support resource-based theory linking MO directly with performance in terms of ROA, but not with subjectively perceived performance.³ However, consistent with resource-based and DC theory positions that interfirm performance variations can be explained by heterogeneity in organizational capabilities, our results reveal a significant direct relationship between firms' marketing capabilities and both subjectively and objectively assessed performance. While the notion that market-relating capabilities are key to understanding firm performance is central to DC theory, it has not received much empirical attention (Newbert, 2007). Our results indicate that this aspect of DC theory can be empirically supported using direct measures of organizational capabilities across different industries.

A recent meta-analysis, which finds that the MO-firm performance relationship is stronger when using subjective firm performance measures (Kirca *et al.*, 2005), suggests a potential explanation for the differing results above. Namely,

³ Subsequent analysis revealed similar relationships between market orientation and each of the individual market effectiveness and profitability scales that comprise the perceptual measure of business performance.

a possible 'demand effect' for marketing capabilities⁴ could occur if respondents hypothesize about normatively 'correct' or 'desired' answers to questions, which then impacts their responses. If respondents view marketing capabilities as normatively more tightly connected with firm performance, a simple demand effect may heighten the strength of the relationship between marketing capabilities and subjectively assessed firm performance. This may dampen any underlying relationship between MO and subjective performance—which is indicated by the significant positive coefficient for MO in Step 2 that drops to near zero when marketing capabilities are added in Step 3 of the regression analyses (Table 3). By definition, the ROA models in our analyses cannot suffer from such demand effects since the ROA data is independent of the survey.

Irrespective of this possibility, the significant interaction terms in our SEM and regression analyses and the increased R^2 values observed in Table 3 support resource-based and DC theory predictions concerning the impact of 'economies of scope' and 'asset complementarity' effects of relationships between resources and capabilities on firm performance. This indicates that firms' market-based knowledge assets such as MO and their market-relating organizational capabilities such as marketing capabilities, complement one another in important ways that contribute to explaining firm performance. There are good reasons to expect bidirectional 'cospecialization' relationships between these variables since the literature indicates both that market knowledge may be required to build individual marketing capabilities (e.g., Dutta *et al.*, 2003), and that individual capabilities such as marketing planning, pricing, and selling generate market intelligence that can enhance a firm's MO (e.g., Day, 1994; Morgan *et al.*, 2003). From this perspective our results suggest that complementary capabilities may help firms to both acquire an MO and to more fully unlock its value-creating potential.

Our findings offer two substantive contributions. First, while recognizing that MO is important in any resource-based understanding of firm performance (e.g., Dobni and Luffman, 2003; Hult and Ketchen, 2001), researchers have not examined the role played by complementary organizational resources and capabilities. Yet, as recently

⁴ We thank an anonymous reviewer for this suggestion.

highlighted by Ketchen, Hult, and Slater (2007) ‘... current portrayals of the RBV make clear that strategic resources only have *potential* value, and that realizing this potential requires alignment with other important organizational elements’ (Ketchen *et al.*, 2007: 962, italics in original). Our findings support this viewpoint and indicate that market-based knowledge assets such as MO require complementary organizational capabilities if their value to the firm is to be fully realized. Our SEM and regression results indicate the importance of such complementary capabilities in understanding the role of MO in firm performance.

Second, emerging DC theory has a relatively weak empirical base (e.g., Newbert, 2007). As conceptualized and assessed in our study, a firm’s marketing capabilities are not inherently dynamic. However, DC theory focuses particular attention on the ways in which firms configure and deploy their resources to reflect the needs of the market environment (e.g., Eisenhardt and Martin, 2000; Makadok, 2001). MO, as a key market-based knowledge asset, and marketing capabilities, as important market-relating capabilities, would both seem to be fundamental elements in enabling firms to acquire and deploy resources in ways that reflect their market environment (cf. Teece, 2007). Thus, while not necessarily being *sufficient* characteristics for dynamic capabilities, both MO and marketing capabilities would logically constitute *necessary* conditions for a firm’s dynamic capabilities. Our study therefore provides some needed (if indirect) support for DC theory.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

Several limitations in our study arise from trade-off decisions made in our research design. First, we test our hypotheses using U.S. data which may lead to stronger MO-firm performance relationships being observed (Kirca *et al.*, 2005). It is therefore important to test our results in different national culture contexts to be able to establish global generalizability. Second, we adopt a singular market information processing view, which limits our ability to fully delineate firms’ MO as it relates to their marketing capability deployment mechanisms. Third, in common with almost all MO studies, we rely on survey data for our main

independent variables, which leaves open the possibility of self-serving bias in our data.

Our study suggests three future research avenues that may hold particular promise. First, we identify and calibrate the importance of one element of the firm’s MO ‘system’—the firm’s marketing capabilities, but what other kinds of resources and capabilities are complementary to an MO? Second, given the value-creating potential of marketing capabilities revealed in our study, it is important to know how such capabilities are developed and how they help to build as well as deploy a firm’s market knowledge resource. Third, our findings suggest that in addition to the *level* of responsiveness observed, firms’ *ability* to respond to market intelligence is also a key determinant of the value of firms’ investments in building market knowledge. This suggests the potential value of examining the *quality* as well as the *level* of MO within the firm.

ACKNOWLEDGEMENTS

The authors gratefully acknowledge insightful comments in the development of this research note from Ajay Kohli, Christine Moorman, and William D. Perreault.

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Appendix: Measurement Scales

Please indicate how much you agree or disagree with each of the following statements. *Seven-point scale with 1 (strongly disagree) to 7 (strongly agree) scale anchors.*

Market intelligence generation	<p>In this business unit we meet with customers at least once a year to find out what products/services they will need in the future</p> <p>In this business unit, we do a lot of in-house market research</p> <p>We poll end-users at least once a year to assess the quality of our products/services</p> <p>We often talk with or survey those who can influence our end-users' purchases (e.g., retailers or distributors)</p> <p>In this business unit, intelligence on our competitors is generated independently by several departments</p> <p>We periodically review the likely effect of changes in our business environment (e.g., regulations) on customers</p>
Market intelligence dissemination	<p>We have interdepartmental meetings at least once a quarter to discuss market trends and developments</p> <p>Marketing personnel in our business unit spend time discussing customers' future needs with other functional departments</p> <p>Our business unit periodically circulates documents (e.g., reports, newsletters) that provide information on our customers</p> <p>When something important happens to a major customer or market, the whole business unit knows about it in a short time</p> <p>Data on customer satisfaction are disseminated at all levels in this business unit on a regular basis</p>
Responsiveness to market intelligence	<p>It takes us forever to decide how to respond to competitor price changes (R)</p> <p>For various reasons, we tend to ignore changes in our customers' product/service needs (R)</p> <p>We periodically review our product/service development efforts to ensure that they are in line with what customers want</p> <p>If a major competitor were to launch an intensive campaign targeted at our customers, we would implement an immediate response</p> <p>Customer complaints fall on deaf ears in this business unit (R)</p> <p>Even if we came up with a great marketing plan, we probably would not be able to implement it in a timely fashion (R)</p>

Please rate your business unit, *relative* to your major competitors in terms of its marketing capabilities in the following areas. *Seven-point scale with -3 (much worse than competitors) to +3 (much better than competitors) scale anchors.*

Pricing capabilities	<p>Using pricing skills and systems to respond quickly to market changes</p> <p>Knowledge of competitors' pricing tactics</p> <p>Doing an effective job of pricing products/services</p> <p>Monitoring competitors' prices and price changes</p>
Product capabilities	<p>Ability to develop new products/services</p> <p>Developing new products/services to exploit R&D investment</p> <p>Successfully launching new products/services</p> <p>Ensuring that product/service development efforts are responsive to customer needs</p>
Distribution capabilities	<p>Strength of relationships with distributors</p> <p>Attracting and retaining the best distributors</p> <p>Adding value to our distributors' businesses</p> <p>Providing high levels of service support to distributors</p>
Marketing communication capabilities	<p>Developing and executing advertising programs</p> <p>Advertising management and creative skills</p> <p>Public relations skills</p> <p>Brand image management skills and processes</p>
Selling capabilities	<p>Giving salespeople the training they need to be effective</p> <p>Sales management planning and control systems</p> <p>Selling skills of salespeople</p> <p>Sales management skills</p> <p>Providing effective sales support to the salesforce</p>
Marketing planning capabilities	<p>Marketing planning skills</p> <p>Ability to effectively segment and target market</p>

(Continued)

Marketing implementation capabilities	Developing creative marketing strategies Thoroughness of marketing planning processes Allocating marketing resources effectively Organizing to deliver marketing programs effectively Translating marketing strategies into action Executing marketing strategies quickly
Please evaluate the performance of your major line of business over the past year <i>relative</i> to your major competitors. <i>Seven-point scale with -3 (much worse than competitors) to +3 (much better than competitors) scale anchors.</i>	
Market effectiveness	Market share growth relative to competition Acquiring new customers Increasing sales to current customers Growth in sales revenue
Profitability	Business unit profitability Return on investment (ROI) Return on sales (ROS) Reaching financial goals

(R) Denotes reverse coded items