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Just entrepreneurial enough: the moderating effect of entrepreneurship on the relationship between market orientation and performance

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Abstract

Within the literature of marketing and management, researchers have explored different models that examine the relationships between market orientation, entrepreneurship, and performance. In this paper, we offer a new model that includes curvilinearity in the moderating effect of entrepreneurship on the relationship between market orientation and performance. Utilizing structural equation modeling, we test our proposed model using a sample of 231 not-for-profit hospitals. The proposed model produces the best fit. The theoretical and managerial implications are discussed.

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Keywords: Market orientation; Entrepreneurial orientation; Organizational performance

1. Introduction

For some time, management and marketing scholars have been investigating the nature of the relationship between market orientation and entrepreneurship and its implications for business performance. The first studies were concerned with the issue of whether or not entrepreneurship and market orientation drew from the same conceptual domain (Miles and Arnold, 1991; Morris and Paul, 1987). As researchers became more confident in distinguishing between the two, a range of studies began to investigate the various permutations and combinations of the constructs. Early research considered entrepreneurship as an antecedent to market orientation. The rationale for this was that by searching for product-market prospects, entrepreneurial firms tend to concentrate on customer needs and thereby become market oriented (e.g., Miles and

Arnold, 1991; Morris and Paul, 1987). Subsequent research reconceptualized entrepreneurship as a mediator between a firm's market orientation and performance in an effort to explain inconsistencies in the relationship between the two variables (e.g., Barrett and Weinstein, 1998; Han et al., 1998; Jaworski and Kohli, 1993). Entrepreneurship was considered the means by which market orientation was translated into business performance (e.g., through development of new products, services, production process technology, organizational structure and/or administrative process). More recently, drawing on the resource-based view of the firm, Hult and Ketchen (2001) have suggested that market orientation and entrepreneurship are organizational capabilities that contribute to the creation of a unique resource, 'positional advantage', which positively affects performance. Finally, Atuahene-Gima and Ko (2001) argued that the maximum positive effect on performance is achieved when a firm's market orientation and entrepreneurship are aligned. In other words, performance is optimized when the organization is both highly market oriented and entrepreneurial.

The diversity of approaches in the literature indicates that the combinative effects of market orientation and entrepreneurship on firm performance are undoubtedly complex. Clearly, both orientations are important and potentially

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complementary (Atuahene-Gima and Ko, 2001). Based on developments in the resource-based view of the firm (e.g., Wernerfelt, 1984) and notions of organizational capabilities (Teece et al., 1997), we find the argument for an interactive relationship between the two constructs persuasive.

More recently, the entrepreneurship literature has drawn on a resource-based view to explore the contribution of entrepreneurship to organizational performance. Dess et al. (1999), for example, argue that entrepreneurship is a key driver of organizational transformation and strategic renewal through the creation and combination of organizational resources. Similarly, Zahra et al. (1999, p. 169) suggest that entrepreneurial activities can provide a “foundation for building new competencies or revitalizing existing ones”. Indeed, Stevenson and Gumpert’s (1985) view of entrepreneurs as being skilled in the use of resources (e.g., financial capital, intellectual capital, skills, competencies) is consistent with this emerging perspective. Entrepreneurs, Stevenson argued, are concerned primarily with improving the firm’s ability to use, exploit and/or extract value from available resources.

In this paper, we consider entrepreneurship as an organizational capability, which has a modifying effect on market intelligence processing competence (i.e., market orientation) and its relationship with business performance. As such, we begin to explore the coordinating role of entrepreneurship on the collection and use of organization knowledge that leads to heterogeneous outputs and, ultimately, to a firm’s competitive advantage (Alvarez and Busenitz, 2001).

In the following sections, we provide a more detailed explanation of our theoretical rationale and discuss our hypothesized model in greater depth. We test a proposed model that focuses on the curvilinearity of the moderating effect of entrepreneurship on the market orientation–performance linkage. Finally, we provide a discussion of the results of our analysis and highlight some implications for managerial practice and future research.

2. Theoretical background and hypothesized model

Turning to the central constructs in this study, we adopt Jaworski and Kohli’s (1993) approach to market orientation. This views market orientation as the generation and organizationwide dissemination of market intelligence, and the firm’s responsiveness to this intelligence. This is a widely used approach and has been employed frequently in studies, which have incorporated entrepreneurship (e.g., Atuahene-Gima and Ko, 2001; Barrett and Weinstein, 1998). The market intelligence processes, which are central to a market orientation, we consider, meet the definition of an organizational competence, which describes the skills and assets spanning individuals and groups that enable the performance of distinctive activities (Teece et al., 1997).

We define entrepreneurship in terms of three components: innovativeness (i.e., introducing novel goods, services, or technology, and to develop new markets), proactiveness (i.e., seeking novel ways both to bring an entrepreneurial concept to fruition), and constructive risk taking (i.e., making reasonable decisions when faced with environmental uncertainties, systematically mitigating risk factors) (Covin and Slevin, 1991; Miles and Arnold, 1991). We view entrepreneurship as a dynamic capability, which allows the organization to “reconfigure internal and external competencies to address rapidly changing environments” (Teece et al., 1997, p. 516). Miles and Arnold (1991, p. 51) provide support for the view of entrepreneurship as a dynamic capability, suggesting that “without entrepreneurship, business ... would be neither dynamic nor adaptive”. Similarly, Slater and Narver (1995) argue that entrepreneurial values are an important driver of product development and reformulation, innovation in manufacturing and channel design, and new approaches to competitive strategy.

We adopt Covin and Slevin’s (1991) behavioral view of entrepreneurship in preference to alternative cultural frameworks (e.g., Jelinek and Litterer, 1995) and cognitive frameworks (e.g., Shepherd and Krueger, in press) as it fits more securely within both a resource-based view of the firm (Wernerfelt, 1984) and the related concept of organizational capabilities (Teece et al., 1997). Market orientation, as the set of competencies underlying the enactment of the marketing concept, is also consistent with these theories of organizations. Furthermore, we consider it reasonable from a methodological point of view to investigate the interaction between two orientations that describe organizational capabilities (i.e., entrepreneurship orientation) and processes or competencies (i.e., market orientation).

Returning to the dimensions of market orientation described by Jaworski and Kohli (1993), it is apparent that these dimensions capture the amount or degree to which each market intelligence process is undertaken. There is little indication, however, as to whether the market information generated is guided by the firm’s strategic vision or not. Further, there is no indication whether information is selectively distributed (e.g., for a timely market response), or whether the information is ‘filtered’ by the entrepreneur’s perspective on where the firm is heading. In other words, the *quality* with which these processes are performed is unknown. To illustrate, a situation may occur where intelligence is disseminated broadly, but the team or department for whom it is most important is last to receive it. Similarly, organizations that generate large amounts of market data may still only develop incremental product innovations when a more substantial product innovation is required to compete in the market. Knowing what information to seek, and from whom, is more valuable than the capacity to generate simply a greater amount of information than competitors. Atuahene-Gima and Ko (2001, p. 56) contend that “several of the measures of market orientation ... reflect a reactive approach to collecting, disseminating, and responding to market

information”. Consistent with this, Alvarez and Busenitz (2001, p. 762) argue that, unless it is coordinated, organizational knowledge or intelligence “is often dispersed, fragmented, and sometimes even contradictory.” Accordingly, there is a need to attach meaning to, and provide a context for, market orientation processes. Put simply, it is not necessarily the case that ‘more is better’.

We suggest that entrepreneurship provides a filter through which organizations view and direct market intelligence processes. That is, entrepreneurship will influence the way in which what are essentially quantitative market orientation processes are performed. This is consistent with a dynamic capabilities understanding of organizations (Teece et al., 1997) in which the learning between, and the coordination and reconfiguration of, key organizational competencies leads to competitive advantage. The reconfiguring effect of entrepreneurship on market orientation processes may occur in a number of ways. For example, embracing constructive risk taking may drive organizations to continually revise the sources from which their market intelligence is generated. This enables a firm to generate additional insight while managing their exposure to risk (i.e., affecting the quality of intelligence generation). An organization that is proactive in its approach to product development is likely to demonstrate a similar proactive approach in seeking out those within the organization who most require market intelligence (i.e., affecting the quality of intelligence dissemination). Innovativeness will lead organizations to incorporate market intelligence in novel ways (i.e., affecting the quality of intelligence responsiveness). Exactly how entrepreneurship affects the market orientation–business performance relationship is the subject of the following section.

3. Hypothesized model

Our hypothesized model explores the moderating effect of entrepreneurship on a firm’s market orientation and its relationship with business performance—an effect we expect to be curvilinear. More specifically, our model predicts that the effect of a firm’s market orientation on business performance is highest when the firm’s entrepreneurial activities are at a moderate level. At both low and high levels of entrepreneurship, the effect of market orientation on performance will be weaker than when the level of entrepreneurship is moderate (see Fig. 1).

Atuahene-Gima and Ko’s (2001) study explores an interactive relationship between market orientation and entrepreneurship, viewing them complementary organizational resources that need to be ‘aligned’ for optimum firm performance. Firms should seek to balance the emphasis on market *altering* activities (i.e., entrepreneurship orientation) and market *responsiveness* (i.e., market orientation). The coexistence of both orientations, they argue, is ideal for organizations seeking competitive advantage through both adaptability and management of their market environment. Based on this rationale, they specify a linear moderating effect of entrepreneurship on the market orientation–business performance relationship.

As our earlier arguments suggest, we take a slightly different position on the nature of the interaction between entrepreneurship and market orientation. Drawing on the resource-based view of the firm, we consider entrepreneurship as an organizational capability (Teece et al., 1997) that affects the competency with which a firm’s market intelligence processes are performed and, hence, their relation-

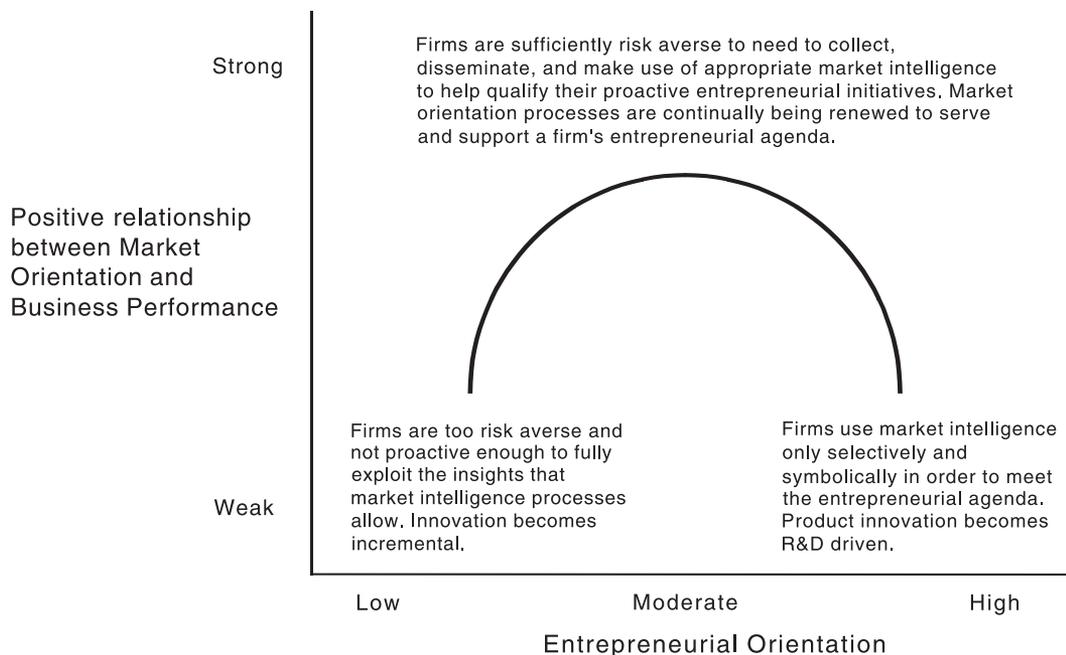


Fig. 1. The effect of entrepreneurship on the market orientation–performance relationship.

ship with firm performance. We suggest, however, that this relationship is curvilinear. To a certain point, increasing a firm's level of entrepreneurship will have positive implications for the relationship between market orientation and business performance. Increasing the level of a firm's entrepreneurship beyond this point, however, will begin to weaken the positive relationship between market orientation and performance. The resource-based literature suggests that capabilities and processes that become firmly entrenched within the organization can become a source of strategic inertia (White et al., 1994). Chandler (1996) provides empirical support for this conjecture, finding that a moderate emphasis on certain organizational capabilities is optimal for new venture success.

A low level of entrepreneurship within an organization does not noticeably affect the firm's market-orientation–business performance relationship. The level of entrepreneurship is too weak to offer a qualitative or interpretive influence on the performance of market intelligence processes. Weakly entrepreneurial firms—characterized by a high aversion to risk, and low levels of proactiveness and innovation—are unlikely to fully exploit new ideas that emerge from market-orientation processes. This means that opportunities to meet unarticulated customer needs may be missed (Slater and Narver, 1995). In other words, firms low in entrepreneurship do not use market intelligence processes to their fullest to serve their entrepreneurial initiatives. There is little dynamic interaction between the processes.

A moderate level of entrepreneurship, on the other hand, has the most synergistic effects with market orientation. Moderately entrepreneurial organizations—characterized by a moderate risk profile and moderate proactiveness and innovation—will optimally modify and maintain the firm's market orientation resource to serve the firm's entrepreneurial endeavors. To illustrate, we turn to the information processing literature (e.g., Deshpandé, 1982; Menon and Varadarajan, 1992). Menon and Varadarajan (1992) describe a widely used typology of knowledge or information use within organizations, in which information use can be *instrumental* (the direct application of information to solve a problem), *conceptual* (more indirect use, such as expanding the managerial knowledge base), and *symbolic* (misusing knowledge to confirm a predetermined position). Both instrumental and conceptual uses of information are more likely to lead to positive outcomes for the organization than symbolic use. Moderately entrepreneurial firms will seek to direct their intelligence-gathering efforts in order to decrease the firm's exposure to risk, help resolve problems in entrepreneurial activities, as well as (potentially) suggest future directions for the organization. In other words, market intelligence will be used instrumentally or conceptually in moderately entrepreneurial organizations.

As the entrepreneurship orientation increases beyond moderate levels, it has a reduced effect on the market orientation–business performance relationship. For such firms, market intelligence processes cease to be used con-

structively. The firm's activities are driven increasingly by its entrepreneurial agenda. The market intelligence generated under these conditions is likely to be used symbolically to support predetermined positions (Menon and Varadarajan, 1992). Atuahene-Gima and Ko (2001) classify such firms as essentially technology-driven rather than market-driven. Such firms are likely to compete on the basis of their technological and engineering skills, believing that successful innovation is R&D-driven rather than market-driven. Atuahene-Gima and Ko (2001, p. 56) suggest that an “an unbridled entrepreneurship orientation may blind the firm into the erroneous belief that technological superiority is a sufficient condition for new product success.” Our view is that organizations with such high levels of entrepreneurship will assign a low priority to collecting information to help solve problems (i.e., instrumental use) and/or attain a broad understanding of markets (i.e., conceptual use). They are more likely to trust their internal R&D competence than market intelligence. Consequently, they are less likely to provide meaningful direction to the firm's market orientation processes. On the basis of the preceding arguments and despite evidence suggesting a linear relationship we hypothesize that:

H1: The synergistic effect of market orientation and entrepreneurship on performance will be greatest at the moderate level of entrepreneurship, such that the relationship between market orientation and business performance across low, medium, and high levels of entrepreneurship is \cap -shaped.

4. Research methodology

4.1. Research context

We argue that hospitals provide an appropriate context for our research on the interrelationship and interdependence of market orientation and entrepreneurship, and their effects on performance. In general, the health care environment has evolved to become as dynamic and competitive as most other business environments (McConnell, 2000). As a consequence, both academicians and practitioners have increasingly been adopting management and marketing frameworks and techniques in order to address the challenges faced by health care providers, such as, hospitals (Naidu et al., 1999; Wood et al., 2000).

4.2. Pretests and measures

Because of the shortcomings in previously developed scales of *market orientation* and their limited application across industries (for a discussion, see Kohli et al., 1993), we adopted and modified the scales of Jaworski and Kohli (1993) and Narver and Slater (1990). Our scale consisted of 14 items, all on Likert format. We adopted a three-dimen-

sional scale (i.e., innovativeness, constructive risk taking, and proactiveness) of entrepreneurship (11 items) from [Miller and Friesen \(1983\)](#), and [Morris and Paul \(1987\)](#). Following past research, we opted for a nine-item judgmental measure of performance ([Jaworski and Kohli, 1993](#); [Naidu et al., 1999](#); [Narver and Slater, 1990](#); [Pearce et al., 1987](#)). To measure *competitive intensity*, we used an eight-item scale adopted from [Downey et al. \(1975\)](#). *Long- and short-term competitive threats* were both measured with a two-item scale adopted from [Negandhi and Reimann \(1972\)](#). Finally, demand uncertainty was measured with a two-item scale adopted from [Bhuiyan \(1992\)](#).

We conducted a series of pretests. First, a randomly selected 15 senior managers from four hospitals located in the southwestern metropolitan area evaluated the content and meaningfulness of the items. Next, we contacted four academics for their comments on the utility of the scale items and revised the questionnaire according to their feedback.

4.3. Control variables

Previous research in the health care industry identified numerous environmental and organizational variables as correlates of market orientation. To control their effects, we included the environmental variables of competitive intensity, long- and short-term competitive threat, and demand uncertainty that were previously found negatively related to performance ([Wood et al., 2000](#)). Our organizational variable is *number of beds*—a proxy for organizational size. Size may have an association with performance due to the fact that bigger hospitals are often burdened with extremely high overheads that can contribute to inefficiencies causing stress on performance.

4.4. Sample and data collection

A sample of 1000 hospitals (every third hospital) was drawn from a list of about 3000 hospitals listed in the Directory of the American Hospital Association. A questionnaire, a letter of endorsement from the president of a hospital system, and a cover letter was sent to the administrators of the hospitals in the sample. This mailing, and two successive waves of postcard reminders, yielded 231 usable questionnaires. After adjusting for nondeliverables in the total sample (32%), the response rate was 35%. To test for the nonresponse bias, the responses received before the second wave of mailing were compared with the responses received after the second wave. Analysis of *t* test showed no significant differences at the .05 level, indicating that no problems existed with nonresponse bias ([Armstrong and Overton, 1977](#)).

Seventy-four percent of the sample consisted of top executives (e.g., CEOs) of hospitals. Sixty-one percent of respondents held undergraduate degrees in business and 83% had 11 years or more experience in the health-care industry. The profiles indicated that, as expected, our key

informants were drawn from top management levels who had overall responsibilities for organizational decision making within their hospitals. Further, 86% of hospitals had a senior management team of 10 or fewer members. That is, respondents were likely to be cognizant of the opinions of top management team members. Sixty-four percent hospitals had 200 or fewer beds, indicating that the effect of hospital size effect was minimal. Sixty-nine percent of hospitals' market areas had 1000 or fewer beds in total; thus minimizing market size bias.

5. Analysis and results

5.1. Measurement assessment procedures

We followed [Anderson and Gerbing's \(1988\)](#) two-step procedure to assess the validity, unidimensionality, and reliability of the measures. Our first step was to conduct an exploratory factor analysis (EFA) that assessed the underlying factor structure of the scale items. To do so, the data were divided randomly into two halves. The first half of the data (115 hospitals) was used to purify the scale items through an iterative process. We removed the items that did not load heavily on the primary factor (i.e., $< .40$) and items that had significant cross loading(s). This resulted in a removal of 14 items. The remaining items were factor analyzed again. Results revealed 11 factors with eigenvalues greater than 1.0, which accounted for 76% of the total variance. Further, the results of Harman's one-factor method revealed that the first factor did not account for the majority of the variance (only 12%) and there was no general factor in the unrotated factor structure. At this point, we had enough evidence from the first-half sample to conclude that common-method bias was not a likely threat ([Podsakoff and Organ, 1986](#)).

The purified scales were cross validated using the hold-out sample (116 hospitals). This step was used to ensure that the purified scales developed in the first stage did not provide model fit randomly. For each sample, the reliability and validity of the remaining items and scales were tested using confirmatory factor analysis (CFA). Because of limited sample sizes, we estimated three measurement models by dividing the model's constructs into the three theoretically plausible groups (i.e., Model 1: three dimensions of market orientation; Model 2: three dimensions of entrepreneurship; and Model 3: organizational performance, competitive intensity, long-term competitive threat, short-term competitive threat).

The CFAs provided acceptable fit for both the first-half sample [Model 1: $\chi^2(41)=51.93$, $P<.001$, GFI=.93; CFI=.98, RMSEA=.06; Model 2: $\chi^2(24)=32.44$, $P<.01$, GFI=.95; CFI=.98, RMSEA=.07; Model 3: $\chi^2(59)=115.23$, $P<.001$, GFI=.88; CFI=.92, RMSEA=.09] and the holdout sample [Model 1: $\chi^2(41)=61.14$, $P<.001$, GFI=.92; CFI=.96, RMSEA=.07; Model 2: $\chi^2(24)=45.14$, $P<.01$,

GFI=.93; CFI=.96, RMSEA=.10; Model 3: $\chi^2(59)=111.68$, $P<.001$, GFI=.88; AGFI=.82, CFI=.93, RMSEA=.09]. In addition, there was no need to delete any items due to low factor loadings (lower than .40), high residuals (i.e., normalized residuals >2.58), and modification indices (>3.84).

The convergent validity of the scales was supported; all the estimated coefficients of all the indicators were significant ($t>2.0$) (Gerbing and Anderson, 1988). All the estimates for the average variance extracted (AVE) were equal to, or higher than, .50 except: intelligence generation, intelligence dissemination, proactiveness, and organizational performance (Bagozzi and Yi, 1988). Further, all the tests for discriminant validity were supportive. That is, no confidence intervals of the correlations for the constructs (ϕ values) included 1.0 ($P<.05$) (Anderson and Gerbing, 1988), and the square of the intercorrelations between two constructs, ϕ^2 , was less than the AVE estimates of the two constructs for all pairs of constructs (Fornell and Larcker, 1981). In addition, we assessed discriminant validity by comparing the unconstrained model with the constrained model in which the correlation between two constructs was set to one. For every pair of constructs, we found a significant chi-square difference, providing evidence of discriminant validity.

5.2. Measurement equivalence test

We used CFA to check the measurement equivalence across the first-half and holdout samples. We compared a constrained model (i.e., equal factor loadings across the two samples) with an unconstrained model (i.e., variant factor loadings across samples) for the three models mentioned above. The chi-square difference tests showed

no statistically significant differences in the factor loadings, supporting construct equivalence for the three groups of models across the two samples (Model 1: $\Delta\chi^2=34.98$, $\Delta df=18$; Model 2: $\Delta\chi^2=20.97$, $\Delta df=14$; Model 3: $\Delta\chi^2=30.54$, $\Delta df=15$). Consequently, we combined both samples for further analysis. Table 1 shows the descriptive statistics, intercorrelations, and reliabilities for the constructs.

5.3. Higher-order confirmatory factor analyses

Since we used a higher-order construct of market orientation (e.g., Jaworski and Kohli, 1993), we ran a higher-order factor analysis via LISREL (Jöreskog and Sörbom, 1996). The CFA resulted in a good fit to the data [$\chi^2(41)=111.30$, $P<.001$, GFI=.92; CFI=.94, RMSEA=.09]. We found that intelligence generation (standardized loading=.96, $t=9.93$, $P<.001$, $R^2=.87$), intelligence dissemination (standardized loading=.81, $t=8.80$, $P<.001$, $R^2=.66$), and responsiveness (standardized loading=.75, $t=7.55$, $P<.001$, $R^2=.57$) were indeed first-order indicators of the higher order construct of market orientation.

We employed risk taking, innovativeness, and proactiveness as positive first-order indicators of the higher-order factor of entrepreneurial orientation (e.g., Zahra, 1991). The CFA resulted a good fit to the data [$\chi^2(24)=78.67$, $P<.001$, GFI=.93; CFI=.96, RMSEA=.10]. We found that risk taking (standardized loading=.59, $t=7.30$, $P<.001$, $R^2=.35$), innovativeness (standardized loading=.99, $t=8.00$, $P<.001$, $R^2=.88$), and proactiveness (standardized loading=.94, $t=7.45$, $P<.001$, $R^2=.98$) were indeed first-order indicators of the higher order construct of entrepreneurial orientation.

Table 1
Descriptive statistics, intercorrelations, and reliabilities

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Intelligence generation	–													
2 Intelligence dissemination	.65	–												
3 Intelligence responsiveness	.63	.53	–											
4 Market orientation	.88	.85	.85	–										
5 Innovativeness	.48	.37	.61	.57	–									
6 Risk taking	.32	.30	.39	.40	.52	–								
7 Proactiveness	.53	.39	.59	.59	.75	.48	–							
8 Entrepreneurial orientation	.52	.42	.62	.60	.88	.81	.86	–						
9 Organizational performance	.35	.33	.51	.46	.44	.33	.34	.43	–					
10 Competitive intensity	–.06	–.05	.01	–.04	–.07	–.08	–.09	–.09	.10	–				
11 Long-term competitive threat	–.09	–.06	–.14	–.11	–.07	–.11	–.06	–.10	–.17	.08	–			
12 Short-term competitive threat	–.14	–.06	–.12	–.12	–.07	–.18	–.10	–.14	–.03	.11	.45	–		
13 Demand uncertainty	–.14	–.09	–.17	–.16	–.10	–.02	–.12	–.09	–.28	–.02	.34	.09	–	
14 No. of beds in the hospital ^a	–.11	–.04	–.24	–.15	–.13	–.05	–.19	–.14	–.21	–.07	.15	.12	.21	–
Mean	2.49	2.62	2.95	2.69	2.40	2.42	2.67	2.50	2.44	2.32	2.42	2.87	2.45	3.13
S.D.	.68	.75	.77	.63	.80	.97	.81	.72	.69	1.05	.98	1.03	1.11	1.64
Cronbach's alpha	.67	.73	.81	.87	.80	.80	.72	.88	.75	.90	.72	.78	–	–
Composite reliability	.68	.74	.82	.88	.82	.81	.73	.89	.76	.91	.74	.79	–	–
AVE	.41	.49	.50	.71	.55	.84	.49	.74	.41	.73	.58	.65	–	–

Correlations at .11 and above are significant at $P<.05$ (one-tailed).

^a Categorical variable (1 = 50 and below; 2 = 51–100; 3 = 101–200; 4 = 201–300; 5 = 301–400; 6 = 401 and above).

5.4. Hypotheses tests

We tested our hypotheses via moderated hierarchical regression analysis. We mean-centered all the variables to minimize the threat of multicollinearity in equations where we included interaction terms (Aiken and West, 1991). We tested for collinearity among any variables by calculating the variance inflation factor (VIF) for each of the regression coefficients. The VIF ranged from a low of 1.182 to a high of 2.815, well below the cutoff of 10 recommended by Neter et al. (1985).

As Table 2 shows, we estimated four regression models to investigate the unique contribution that each subset of predictors made toward both the explanation of the dependent variable and individual parameter estimates. We found that that interaction effect of market orientation and squared term of entrepreneurship was statistically significant. This finding supported our hypothesis that the synergistic effect of market orientation and entrepreneurship on performance was greatest at the moderate level of entrepreneurship, such that the relationship between market orientation and business performance across low, medium, and high levels of entrepreneurship is \cap -shaped.

Further, parameter estimates (based on the results of four models) showed that market orientation and entrepreneurship were positively and significantly related to performance. The Chow test revealed that there was no statistically significant difference between market orientation and entrepreneurship orientation as determinants of performance

[$t(230) = 1$, ns]. Long-term competitive threat and demand uncertainty were negatively and marginally related to performance. No other statistically significant relationship was observed (Table 2).

6. Discussion and conclusion

Consistent with both the strategic management and marketing literature (e.g., Christensen and Bower, 1996; Slater and Narver, 1995), our findings confirm that market orientation and entrepreneurship are two key elements in organizational success. However, contrary to the recent view that a high-market/high-entrepreneurship orientation is optimal (Atuahene-Gima and Ko, 2001), our study finds that the best combination is high-market/moderate-entrepreneurship orientation. In other words, market orientation is most effective when the firm maintains a moderate level of entrepreneurship orientation. For highly entrepreneurial firms, the process of gathering and disseminating market intelligence may be done out of obligation or habit rather than as a prudent and meaningful business practice. This finding is consistent with contingency views of entrepreneurship, which suggest that a high degree of entrepreneurship is not always desirable in certain market and structural conditions (e.g., Slevin and Covin, 1990).

The notion that firms can be *too* entrepreneurial is intriguing. In recent decades, businesses have been presented with the seemingly endless array of opportunities stemming from globalization and the revolution in e-com-

Table 2
Results of hierarchical regression predicting organizational performance for proposed model

Variables	Model 1		Model 2		Model 3		Model 4	
	<i>b</i>	<i>t</i> value	<i>b</i>	<i>t</i> value	<i>b</i>	<i>t</i> value	<i>b</i>	<i>t</i> value
Constant	2.454	16.501***	2.482	17.452***	2.614	18.006***	2.551	17.502***
Control variables								
Environmental variables								
Competitive intensity	.182	2.550**	.161	2.349**	.122	1.784*	.103	1.511 ⁺
Long-term competitive threat	-.200	-2.358**	-.130	-1.584 ⁺	-.126	-1.565 ⁺	-.105	-1.315
Short-term competitive threat	-.159	1.970*	-.126	1.621 ⁺	-.104	1.366 ⁺	-.109	1.450 ⁺
Demand uncertainty	-.096	1.374 ⁺	-.056	.831	-.051	.765	-.072	1.098
Organizational variable								
No. of beds	-.101	-1.464 ⁺	-.103	-1.552 ⁺	-.066	-1.000	-.075	-1.151
No. of beds-squared	-.095	-1.363 ⁺	-.081	-1.217	-.075	-1.160	-.061	-.942
Main effects								
Market orientation (MO)			.295	4.715***	.157	2.071*	.236	2.901***
Entrepreneurial orientation (EO)					.276	3.335***	.372	4.110***
EO-squared					-.168	-2.464**	-.091	-1.225
Interaction effect								
MO × EO-square							-.247	-2.483**
<i>R</i> ²	.077		.160		.206		.227	
F-model	3.097**		6.082***		6.359***		6.743***	
ΔR^2	–		.084		.045		.022	
ΔF -model	–		22.230***		6.314***		6.173**	

* $P < .05$ (one-tailed test).

** $P < .01$ (one-tailed test).

*** $P < .001$ (one-tailed test).

⁺ $P < .10$ (one-tailed test).

merce. Until recent events, the suggestion that firms should moderate their entrepreneurial zeal in the face of such opportunities would have been ridiculed. It seemed that even the most improbable business proposal found willing backers during the ‘tech bubble’. Yet, if anything, the failure of many new-style entrepreneurial ventures has focused organizations’ interest on the more conservative metrics of business performance such as cash flow, market share, and customer retention. Far from explaining the bursting of the tech bubble, our findings do suggest nonetheless that businesses pay close attention to organizational values and capabilities (such as entrepreneurship) for their potential influence on other activities and processes.

While most would consider entrepreneurship as an inherently ‘outward-looking’ phenomenon, the view of entrepreneurship as a dynamic capability forces management to consider the *internal* implications of strong entrepreneurial values. Competencies in market intelligence generation, dissemination, and responsiveness need to be critically evaluated and maintained over time. Potentially entrepreneurial values can contribute to this process. Managers should look for opportunities to improve the way in which intelligence is generated (e.g., deriving information from multiple sources, using different channels in obtaining market information) in order to more reliably inform its entrepreneurial activities. Similarly, management might revise the way in which market intelligence is disseminated throughout the organization, such as prioritizing those to whom information is most relevant. We would also recommend that equal attention be paid to the possible impact of the level of entrepreneurial orientation on the performance of other key organization activities and processes (e.g., channel and customer relationship management, administrative systems and routines, commercialization of innovation).

We recognize the limitations of using a cross-sectional study conducted within the bounds of a single industry. Specifically, our study context of nonprofit hospitals is unique. Many consider that because the current health care environment is complex and evolving (McConnell, 2000), the applicability of conventional organizational theories in the health care arena is suspect. For instance, recently, Boisot and Child (1999) argued that complexity absorption responses (i.e., complex strategies) are more effective in complex environments such as health care. This is opposed to the conventional view that simple strategies are the appropriate responses for complex and turbulent environments. Indeed, our finding that a combination of a high market orientation and a moderate entrepreneurship (a complex strategy) is most effective in the nonprofit health care industry is consistent with the complexity absorption response view. Whether this view will hold in other contexts is not known. We recommend that explorations of this relationship in other contexts should be undertaken.

Although used widely, our view of entrepreneurship based on Covin and Slevin’s (1989) conception is poten-

tially limiting. Some suggest that this behavioral-based measure fails to capture aspects of climate and culture that are at the very heart of organizational entrepreneurship (e.g., Jelinek and Litterer, 1995). Shepherd and Krueger’s (in press) intention-based model offers yet another perceptive on entrepreneurship. Clearly, further replications incorporating alternative views of organizational entrepreneurship are necessary and for this reason we remain circumspect about making generalizations based on our findings.

At the very least, however, our study flags the possibility that the vigorous pursuit of entrepreneurial activities without regard for the effect on other organizational activities could be suboptimal. Organizational learning researchers have recently conceded that higher-level or generative style learning for some organizations is, at best, of no benefit and, at worst, costly (e.g., Bell et al., 2002). The results of this study hint that the same could be true for entrepreneurship. Indeed, a moderate level of entrepreneurship might be *just enough*.

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