

**Technology and Marketing Capabilities in a Developing
Economic Context: Assessing the Resource-Based View
within a Boundary Condition**

Stern Neill

Orfalea College of Business, California Polytechnic State University, U.S.A.

Gurmeet Singh*

*School of Management & Public Administration, The University of the South
Pacific, Fiji Islands*

Raghuvar Dutt Pathak

Graduate School of Business, The University of the South Pacific, Fiji Islands

Abstract

While prior research confirms a positive relationship between organizational capabilities and performance in more developed and emerging economies, this research investigates technology and marketing capabilities in enterprises operating in a highly constrained economic context. Additionally, this research examines how managerial thinking and action influences the development of technology and marketing capabilities, which has received limited investigation in any economic context. Data were gathered by surveying managers in Fiji, Samoa, and Tonga, representing isolated economies with underdeveloped product markets. Results confirm the capability-performance relationship and also support the positive influence of entrepreneurial and learning orientations on technology and marketing capability development.

Key words: organizational capabilities; business performance; technology and marketing capabilities ; small island developing states

JEL classification:

1. Introduction

Developed in mature economies, the rigors of strategy research have become subjects in the laboratories of emerging markets where unique contexts test the boundaries of theory (Xu and Meyer, 2013; Wright et al., 2005). Domestic firms in less developed economies face unique challenges given that they operate in

*Correspondence to: School of Management & Public Administration, Faculty of Business & Economics, The University of the South Pacific, Suva, Fiji Islands. E-mail: singh_g@usp.ac.fj.

environments of low resource munificence and underdeveloped product markets, which place both intrinsic and extrinsic limitations on firm resources. Small island developing economies represent an acute case due to their remoteness, restricted local markets, high import content, and narrow resource base (Briguglio, 1995). A developing economic context constrains the availability of opportunities, thus creating a less hospitable business environment in which to develop organizational capabilities.

By investigating strategy research within boundary conditions, the robustness and generalizability of theory is tested while revealing the microeconomic foundations that serve as the basis for economic growth and development (Porter, 1990). However, the effect of context remains a gap in our understanding of the organizational capability-performance relationship (Krasnikov and Jayachandran, 2008), which is particularly important in developing economies given that adaptation demands slack resources for organizational capability development. While economic context may differ substantively, the processes that support capability development should remain congruous across context (Teece, 2000); yet the patterns of managerial thinking and action that lead to capability development remain relatively unexplored.

The resource-based view of the firm has long established that competitive advantage is a function of resource capabilities (Barney, 1991; Peteraf, 1993; Wernerfelt, 1984) with a number of empirical studies demonstrating that firm performance is explained by differences in technology and marketing capabilities (Chang, 1996; Krasnikov and Jayachandran, 2008; Lee et al., 2001; Moorman and Slotegraaf, 1999; Ortega, 2010; Song et al., 2005; Vorhies and Morgan, 2005; Yiu et al., 2005; Zhou and Wu, 2010). And yet, these studies have been conducted in countries, particularly western and/or emerging economies, that have experienced rapid economic development and to the near exclusion of studies in less economically developed countries where external resources are relatively constrained and uncertain. To confirm theory in a different economic context, the first objective of this paper is to examine the influence of technology and marketing capabilities on the performance of organizations in more isolated and less economically developed countries.

Researchers have begun to turn attention to the sources for capability development (Ethiraj et al., 2005; Montealegre, 2002). Capability development is an adaptation, as the firm reconfigures organizational resources to achieve congruence with external conditions (Chakravarthy, 1982). Authors have proposed that capabilities evolve from organizational memory (Zollo and Winter, 2002) and cognition (Gavetti, 2005). To provide additional insight into the development of organizational capabilities, the second objective of this study is to examine the effects of managerial thinking and action on technology and marketing capabilities. These effects are not completely understood in any economic context.

This study, therefore, proposes to (i) confirm the capability-performance relationship within a boundary condition and (ii) examine the effects of managerial thinking and action that support technology and marketing capabilities. As such,

this study serves to both confirm and extend theory (Colquitt and Zapata-Phelan, 2007; Tsang and Kwan, 1999) by surveying managers in three Pacific Island countries. The results provide theoretical and managerial implications, which are discussed.

2. Conceptual Background

Capabilities are collective activities through which the firm develops, integrates, and deploys internal and external resources (Day, 1994; Helfat and Peteraf, 2003; Teece et al., 1997). By enhancing the firm's ability to effectively configure resources to better respond in a changing environment (Wu, 2010), capabilities contribute to a firm's ability to build and sustain a competitive advantage (Eisenhardt and Martin, 2000). From this perspective, capability development is contingent on circumstance and history to explain why firms are different. Research has examined the transferability of capabilities between developed and emerging markets demonstrating the relevance of learning and experience on capability development (Xu and Meyer, 2013). Within markets of rapid innovation and economic change, a technological capability supports product innovation which is strengthened by a firm's ability to learn and adapt (Zhou and Wu, 2010). In transitioning political environments, it is internally-developed, market-based resources (i.e., technology and marketing capabilities) that lead to superior performance, rather than governmentally endowed resources that were better suited for a pre-transition context (Yiu et al., 2005).

Given that capabilities are influenced by organizational predispositions to think and act in a particular manner (Gavetti and Levinthal, 2000), this study examines how the thinking and actions of key decision-makers shapes what internal resources the firm will invest, which enables capability development and organizational performance. With capabilities developing through learning processes (Zollo and Winter, 2002) and sustained investment (Ethiraj et al., 2005), the constraints and uncertainties of scarcity place unique demands on managerial thinking and action. This research specifically examines the effect of entrepreneurial orientation, perceived environmental turbulence, and learning orientation on the technology and marketing capabilities of domestic firms operating in developing economies. This study also examines the effects of these two capabilities on organizational performance specifically by examining the practices of firms operating within small island developing states.

2.1 The Effects of Technology and Marketing Capabilities on Financial Performance

Technology and marketing capabilities are key determinants of a firm's competitive advantage. These capabilities represent the application of superior knowledge and skills in developing new and better ways of conducting business. Rather than administrative innovations that improve internal functioning, a *technology capability* describes a firm's ability to develop and produce technology

relating to goods, services, and production processes (Song et al., 2005), particularly those that might affect customer relationships and/or perceptions of value. The firm's *marketing capability* represents its application of knowledge and skills to understand and relate to the market (Day, 1994) and has been demonstrated to contribute to business success in industrialized markets (Vorhies and Morgan, 2005).

The relationship between technology and marketing capabilities and organizational performance is established in high-income, Western (e.g., Chang, 1996) and emerging (e.g., Song et al., 2008; Zhou and Wu 2010) economies. Meta-analytic results of over 780 effect sizes provides conclusive evidence of the capability-performance relationship for firms that have experienced rapid business growth and industrialization (Krashikov and Jayachandran, 2008); however, as stated by the authors, "other contextual issues are of substantive importance but have not received sufficient attention in the literature" (p. 9). This study capitalizes on the opportunity to confirm the effect of technology and marketing capabilities on the performance of firms operating in less economically-developed countries where resources for capability development are relatively constrained and uncertain. We will test the following hypotheses:

H_{1A}: A firm's technology capability is positively related to its financial performance.

H_{1B}: A firm's marketing capability is positively related to its financial performance.

2.2 The Effects of Managerial Thinking and Action on Technology and Marketing Capabilities

Prior research has demonstrated that capability development is contingent on the availability and application of organizational assets and routines (Morgan et al., 2003; Neill, 2010; Wu, 2007). In addition to being resource-based, capability development is also dependent on cognitions concerning beliefs about the environment and the consequences of organizational engagement (Gavetti, 2005) with prior research demonstrating a positive relationship between a firm's strategic orientation and organizational capabilities (Lisboa et al., 2011; Zhou and Li, 2010). This study examines patterns of managerial thinking and action that promote the application of superior knowledge and skills towards developing new and better ways of conducting business. The specific mechanisms examined relate to patterns of thinking and action—i.e., entrepreneurial orientation, perceived environmental turbulence, and learning orientation—that influence technology and marketing capabilities.

Entrepreneurial orientation. There is considerable research on entrepreneurial orientation, which refers to a predisposition to adopt strategy-making processes that serve as a basis for entrepreneurial decisions and actions (Covin and Slevin, 1989). While an entrepreneurial orientation-performance relationship is well-established in the literature (Rauch et al., 2009), this effect is mediated by a firm's capabilities. The basis for this relationship is that sustained beliefs that promote specific

behaviors will promote the alignment of resources toward the attainment of an organizational capability (Gavetti, 2005).

Entrepreneurially-based beliefs result in technology- and market-based innovations (Zhou et al., 2005), which lead to the establishment and maintenance of requisite assets and routines.

With organizational capabilities accumulating over time based on experiences, entrepreneurial orientation captures those experiences that are based in the practice of innovativeness, proactiveness, and risk-taking (Miller, 1983). With innovativeness, firms have a record of experimentation. With proactiveness, firms have maintained an advantage- and opportunity-seeking predisposition. With risk-taking, firms have a history of bold action and resource commitment. The residual of these entrepreneurial decisions and actions are knowledge and skills in technology and marketing. Therefore, the development of technology and marketing capabilities requires that an organization has established an entrepreneurial orientation at its core. We will test the following hypotheses:

H_{2A}: The greater a firm's entrepreneurial orientation, the stronger its technology capability.

H_{2B}: The greater a firm's entrepreneurial orientation, the stronger its marketing capability.

Perceived environmental turbulence. Managerial beliefs about the environment constitute the organization's interpretation system (Daft and Weick, 1984). Perceived environmental turbulence represents belief in a dynamic business environment, i.e., customer, competitor, and technological considerations (Jaworski and Kohli, 1993). These prevailing beliefs about the environment influence strategic direction and choice (Child, 1972), and belief in an unstable task environment will promote investment in capabilities that support innovation, e.g., new technologies, novel marketing and production solutions, and new products (Miller and Friesen, 1983).

Perceptions have considerable influence on the configuration of organizational resources, even when inaccurate (Sutcliffe and Weber, 2003). Perceiving change in the firm's task environment leads to investment in innovations and the renewal of resources (Neill and York, 2012; Zhou et al, 2005). Over time, these efforts result in a build-up of assets and routines that have allowed the firm to adapt to changing externalities. As such, perceived environmental turbulence will be positively related to technology and marketing capabilities. We will test the following hypotheses:

H_{3A}: The greater a firm's perceived environmental turbulence, the stronger its technology capability.

H_{3B}: The greater a firm's perceived environmental turbulence, the stronger its marketing capability.

Learning orientation. Learning is an adaptive mechanism leading to insights that inform the acquisition and refinement of firm assets and routines. A learning orientation describes beliefs that attach importance to curiosity, inquisitiveness, and exploration (Atuahene-Gima et al., 2005). As new knowledge and insight have the potential to shape firm behavior (Huber, 1991), organizations that value learning should benefit from improved knowledge and experience. Thus, learning is a critical component in the development of organizational capabilities (Crossan et al., 1999; Zollo and Winter, 2002).

A firm that predisposes itself to learning by challenging assumptions and considering alternatives has a greater chance of investing in capabilities that exploit innovation (Hult et al., 2004). There is some evidence of a relationship between learning orientation and capability development for US metal part producers (Celuch et al., 2002). Therefore, the degree to which the firm develops capabilities is a function of its learning orientation, and a firm with a strong predisposition to learning should develop its technology and marketing capabilities. We will test the following hypotheses:

H_{4A}: The greater a firm's learning orientation, the stronger its technology capability.

H_{4B}: The greater a firm's learning orientation, the stronger its marketing capability.

3. Methodology

To test the hypotheses, data were gathered from business executives representing firms' operation in three South Pacific island countries. To measure each construct, established scales were used or adapted. Measurement reliability was evaluated using exploratory factor analysis and scale item analyses. Structural equation modeling, using LISREL XIII, was used to test the hypotheses. The proposed model was assessed based on fit of the conceptual model with the observed model, significance of path estimates (representing the study hypotheses), and explained variance of the endogenous variables (technology and marketing capabilities and financial performance). Additional tests were performed to confirm the mediating effects.

3.1 Data Collection

Data were gathered from managers representing a cross-section of enterprises operating in the South Pacific, which provided an important field site for this study. South Pacific island countries confront acute economic challenges given their "[s]mall size, limited natural resources, narrowly based economies, large distances to major markets, and vulnerability to exogenous shocks" (World Bank, 2012, para. 4). Three South Pacific island countries were selected: Fiji, Samoa, and Tonga.

The national culture of the three study countries would best be described as both hierarchal (ascribed roles that reinforce unequal distribution of power and resources) and embedded (reinforcement of the status quo and restraint of action

that might disrupt solidarity and order) (Schwartz 2004), which translates into firms that are comparably low in entrepreneurial values (Neill et al., 2009). While each island nation presents a unique demographic and regulatory context, the three countries share a common socioeconomic profile (World Bank 2008, 2009; United Nations, 2008), as described in Table 1. The Registrar of Companies in Fiji and the Chambers of Commerce in Samoa and Tonga maintain directories of registered business operations. Complete lists of businesses were collected from these agencies and random sampling was used to select a broad representation of firms within each country.

Table 1. Institutional Context of Fiji, Samoa, and Tonga

| | Fiji | Samoa | Tonga |
|--|-------------|--------------|--------------|
| <i>Gross Domestic Product per Capita Rank</i> (World Bank 2009) | 147 | 169 | 173 |
| <i>Human Development Index Rank</i> (United Nations 2008) | 103 | 96 | 85 |
| <i>Ease of Doing Business Rank</i> (World Bank 2009) | 39 | 64 | 43 |

The instrument was a structured survey questionnaire, which was pre-tested on 15 South Pacific respondents, after which minor changes were made. During data collection, the questionnaire was personally administered by trained research assistants in Fiji, Samoa, and Tonga. Contacts were made of 330 potential respondents (140 from Fiji, 120 from Samoa, and 70 from Tonga), with each respondent acting as a key informant for his/her organization by reporting on the business as a whole. Some respondents were unable or unwilling to disclose information. In total, 230 surveys were completed (77 from Fiji, 107 from Samoa, and 46 from Tonga).

To be included in the study, respondents had to indicate having at least a year of experience working at the firm and moderate involvement in the firm's strategic decisions (indication of four or higher on a seven-point scale). Given these requirements, 34 respondents were removed from the study (14 for non-response on the experience and involvement questions), leaving 185 usable responses (65 from Fiji, 85 from Samoa, and 35 from Tonga). The remaining informants were predominately senior- and mid-level managers (36% general manager/CEO/president, 23% deputy general manager/vice president, 34% middle management, and 7% staff) with an average of five years of experience and considerable involvement in strategic decisions (average of 5.5 on a seven-point scale) with the target organization. To test for common methods bias, a Harman's one-factor test was performed (cf., Podsakoff and Organ, 1986). The test did not indicate a common source of variance, as the factor structure is confirmed with the first factor accounting for 16.42% of the variance. The sample represented a mix of organizations from a variety of industries (see Table 2). It should be noted that a

recent meta-analysis indicated that firm size and industry do not influence the capability-performance relationship (Krasnikov and Jayachandran, 2008).

Table 2. Organizational Demographics by Country

| | | Fiji | Samoa | Tonga |
|----------------------------|--|-------------|--------------|--------------|
| Total Annual Sales | Less than \$100,000 | 2% | 5% | 14% |
| | \$100,000 to 500,000 | 11% | 29% | 28% |
| | \$500,000 to \$1 million | 13% | 15% | 17% |
| | \$1 million to \$5 million | 28% | 25% | 14% |
| | \$5 million to \$10 million | 25% | 8% | 17% |
| | \$10 million to \$20 million | 9% | 13% | 7% |
| | \$20 million to \$50 million | 6% | 1% | 3% |
| | \$50 million or more | 6% | 4% | 0% |
| Number of Employees | 1–4 | 2% | 1% | 3% |
| | 5–9 | 3% | 4% | 12% |
| | 10–19 | 6% | 15% | 38% |
| | 20–49 | 6% | 25% | 24% |
| | 50–99 | 13% | 25% | 12% |
| | 100–249 | 9% | 12% | 6% |
| | 250–499 | 16% | 4% | 6% |
| | 500–749 | 14% | 11% | 0% |
| | 750–999 | 19% | 3% | 0% |
| | 1,000 or more | 13% | 0% | 0% |
| Industry | Agriculture, Forestry, and Fishing | 2% | 6% | 3% |
| | Building and Construction | 8% | 6% | 6% |
| | Community, Social, and Personal Services | 0% | 18% | 0% |
| | Communications | 8% | 6% | 3% |
| | Finance, Insurance, Real Estate, and Business Services | 13% | 14% | 9% |
| | Hotels, Restaurants, and Cafes | 13% | 20% | 15% |
| | Public Services (electricity, water, or other) | 2% | 4% | 0% |
| | Manufacturing (e.g., sugar, food, garment, or other) | 13% | 5% | 15% |
| | Mining and Quarrying | 0% | 0% | 3% |
| | Wholesale and Retail Trade | 26% | 12% | 36% |
| | Transport and Storage | 8% | 6% | 6% |
| | Other | 8% | 2% | 3% |

3.2 Measurement

Multi-item scales were used for each of six constructs. Each measure is based on an established scale. Table 3 contains the items for this study's measures including source and content.

Table 3. Scale Content and Sources

| Construct | Content of Scale Items | Source |
|---|--|----------------------------|
| Financial Performance ¹ | Profit; overall profitability; return on assets; return on investment | Song et al., 2005 |
| Technology Capabilities ¹ | Technology development capabilities; manufacturing processes; new product development capabilities | Song et al., 2005 |
| Marketing Capabilities ¹ | Customer-linking capabilities; market-sensing capabilities; channel-bonding capabilities | Song et al., 2005 |
| Entrepreneurial Orientation ² | Emphasis on R&D, technological leadership and innovations; high-risk projects; bold, aggressive posture; many new lines of products; dramatic changes in product and service lines; initiates actions; first to introduce new products/services; adopts a competitive posture; bold, wide-ranging acts | Covin and Slevin, 1989 |
| Perceived Environmental Turbulence ³ | Changing customer preferences; customers seek new products; new customers with different needs; technological changes provide opportunities; new technological breakthroughs; frequent technological changes; cutthroat competition; readily matched offering; price competition | Jaworski and Kohli, 1993 |
| Learning Orientation ³ | Challenging work is important; prefer tasks that force us to learn; always exploring and learning; best when working on difficult and challenging tasks; strive to extend the range of our abilities; not afraid to reflect critically; continually questions our perceptions | Atuahene-Gima et al., 2005 |

Notes: ¹ Eleven-point much-worse/much-better than others in industry over past year. ² Seven-point agree/disagree scale. ³ Eleven-point agree/disagree scale.

4. Results

4.1 Measurement Results

For each measure, unidimensionality was assessed by examining the interrelations among each scale's items using item-to-scale correlations, exploratory factor analysis, and Cronbach's alpha. Item-to-scale correlations were examined for each construct to assess that all items exceeded 0.40. Each measure was then subjected to exploratory factor analyses to ensure that all items loaded on the first factor, which was confirmed in each case. No items were removed based on this analysis. Finally, Cronbach's alpha was calculated to gauge the reliability of the individual constructs. All scales exhibited acceptable reliabilities. To determine that each measure was empirically distinct, discriminant validity was assessed and supported in all cases, as the square of the parameter estimate (ϕ) between each pair of constructs was less than the mean of the pair's average variance extracted

(AVE) estimates (Fornell and Larcker, 1981). Table 4 presents the internal consistency estimates, summary statistics, and correlations among constructs.

Table 4. Measurement and Structural Results

| Internal Consistency and Descriptive Statistics | | | | | | |
|--|---------------------------|---------------------------|-------------------------|------------|------|------|
| | Mean | Standard Deviation | Cronbach's Alpha | AVE | | |
| Financial Performance | 6.54 | 2.19 | 0.97 | 0.90 | | |
| Technology Capabilities | 6.57 | 1.95 | 0.92 | 0.80 | | |
| Marketing Capabilities | 7.45 | 1.65 | 0.85 | 0.71 | | |
| Entrepreneurial Orientation | 4.59 | 0.72 | 0.70 | 0.21 | | |
| Perceived Environ. Turbulence | 6.86 | 1.46 | 0.85 | 0.38 | | |
| Learning Orientation | 7.71 | 1.43 | 0.95 | 0.72 | | |
| Correlations Among Constructs | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 |
| (1) Financial Performance | 1.00 | | | | | |
| (2) Technology Capabilities | 0.52 | 1.00 | | | | |
| (3) Marketing Capabilities | 0.53 | 0.67 | 1.00 | | | |
| (4) Entrepreneurial Orientation | 0.17 | 0.37 | 0.32 | 1.00 | | |
| (5) Perceived Environ. Turbulence | 0.51 | 0.58 | 0.59 | 0.29 | 1.00 | |
| (6) Learning Orientation | 0.48 | 0.58 | 0.59 | 0.26 | 0.46 | 1.00 |
| Structural Model Results | | | | | | |
| χ^2 | df | SRMR | TLI | CFI | | |
| 25.36 | 4 | 0.04 | 0.88 | 0.97 | | |
| Explained Variance in Endogenous Constructs | | | | | | |
| Endogenous Constructs | Explained Variance | | | | | |
| Financial Performance | .37 | | | | | |
| Technology Capabilities | .62 | | | | | |
| Marketing Capabilities | .66 | | | | | |
| Completely Standardized Path Estimates | | | | | | |
| Hypotheses: Path | Estimate | T-value | | | | |
| H _{1A} : Technology Capabilities → Financial Performance | 0.28 | 3.14 | | | | |
| H _{1B} : Marketing Capabilities → Financial Performance | 0.40 | 4.46 | | | | |
| H _{2A} : Entrepreneurial Orientation → Technology Capabilities | 0.21 | 2.73 | | | | |
| H _{2B} : Entrepreneurial Orientation → Marketing Capabilities | 0.13 | 1.75 | | | | |
| H _{3A} : Perceived Environmental Turbulence → Technology Capabilities | 0.45 | 5.95 | | | | |
| H _{3B} : Perceived Environmental Turbulence → Marketing Capabilities | 0.49 | 6.47 | | | | |
| H _{4A} : Learning Orientation → Technology Capabilities | 0.32 | 4.72 | | | | |
| H _{4B} : Learning Orientation → Marketing Capabilities | 0.36 | 5.31 | | | | |

Note: AVE = average variance extracted; df = degrees of freedom; SRMR = standardized root mean square residual; TLI = Tucker-Lewis index; CFI = comparative fit index. T-values of 1.65 or greater are significant at the 0.05 level; t-values of 2.33 or greater are significant at the 0.01 level.

4.2 Structural Model Results

To control for measurement error, each loading estimate (lambda) was fixed as the square root of the reliability estimate, and the error term (theta) was set to one minus the reliability (Hair et al., 2006). Table 4 contains the structural equation model results. The overall fit of the structural model was acceptable and all paths were statistically significant ($p < 0.05$). The structural equations account for over a

third of the variance in financial performance and approximately two-thirds of the variance in technology and marketing capabilities.

While these results suggested a good fit that supports the mediating effects of technology and marketing capabilities, post-hoc analyses were performed to support the mediating function. Based on a series of steps (Hair et al., 2006) which included the addition of direct effects between the antecedents (entrepreneurial orientation, perceived environmental turbulence, and learning orientation) and financial performance, full mediation effects for entrepreneurial orientation and learning orientation were confirmed. This was evidenced by the direct effects being equal to zero and no significant improvements in model fit based on chi-square difference tests ($p > 0.05$). However, mediation is not supported for perceived environmental turbulence, as the direct effect remains statistically significant and relatively unchanged ($\beta = 0.27$, $p < 0.05$) with the addition of each mediating effect, and the fit of the model significantly improves ($\Delta\chi^2 = 6.07$; $p < 0.01$). A post-hoc analysis of mediating effects is summarized in Table 5.

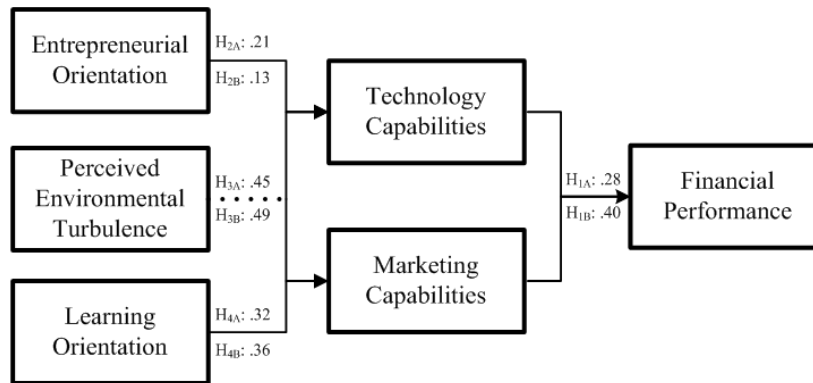
Table 5. Post-hoc Analysis of Mediating Effects

| Model | $\chi^2(df)$ | $\Delta\chi^2(\Delta df)$ | SRMR | TLI | CFI |
|--|--------------|---------------------------|------|------|------|
| Alt1: Entrepreneurial Orientation | 24.62(3) | 0.74(1) | 0.03 | 0.85 | 0.97 |
| Alt2: Perceived Environmental Turbulence | 19.29(3) | 6.07(1) | 0.03 | 0.87 | 0.97 |
| Alt4: Learning Orientation | 22.59(3) | 2.77(1) | 0.04 | 0.85 | 0.97 |

Note: ALT = alternative model. $\Delta\chi^2$ values of 3.84 or greater are significant at the 0.05 level.

In summary, the first hypothesis (H_1) indicated that a firm's technology and marketing capability is positively related to its financial performance, which is supported. The results also support that organizations develop stronger technology and marketing capabilities with greater entrepreneurial and learning orientations, supporting the second and fourth hypotheses (H_2 and H_4). The results suggest that a direct path between perceived environmental turbulence and financial performance is positive and significant; therefore, technology and marketing capabilities do not mediate this relationship, and the third hypothesis (H_3) is not confirmed based on a post-hoc analysis. These results are summarized in Figure 1.

Figure 1. Hypotheses Test Results: Completely Standardized Path Estimates



Note: All paths are significant at $p < 0.05$. Post-hoc analyses confirm mediation effects for hypothesis 2 and 4 but not hypothesis 3, as designated by a dotted line.

5. Discussion

Decades of research has greatly increased our knowledge of the role organizational capabilities perform in both explaining and predicting firm performance; however, understanding of the factors that support organizational capabilities is formative. This research offers both a generalization and extension of resource-based view theory by confirming the capability-performance relationship in the context of small island developing states and explaining how managerial thinking and action account for capability attainment. Results support that organizational capabilities (i.e., technology and marketing) mediate the effect of entrepreneurial and learning orientations, but not perceived environmental turbulence, on the firm's financial performance. Rather than directly affecting performance, entrepreneurial- and learning-oriented patterns of thinking and action support the capabilities that drive financial performance.

Prior research suggests that capabilities evolve over time (Montealegre, 2002) and are a product of both learning and direct strategic investment. This study sheds additional light on how the firm's predisposition to think and act in a particular manner supports organizational capabilities, thus expanding our understanding of the causal mechanisms that underlie capability development. Development of technology and marketing capabilities, two potentially underutilized resources in less developed economic contexts, establishes a foundation for the pursuit of market opportunities and attainment of superior performance. Ultimately, the development of these capabilities serves as a source for a sustainable competitive advantage.

However, organizational capabilities require cognitive representations that promote development and learning systems that retain experience. Results from this study indicate that entrepreneurial and learning orientations support technology and

marketing related capabilities. In construing the environment, firms that are attuned to external change would appear to have higher financial performance, but this perception does not necessarily lead to stronger organizational capabilities, suggesting some other mechanism by which environmental perceptions influence performance. Therefore, these results suggest that capability development benefits from a predisposition that favors entrepreneurship and learning, but perceptions of a turbulent task environment would likely not lead to technology or marketing capability development. It is important to note that an entrepreneurial orientation alone will not support both technology and marketing capabilities; rather, the firm must also appreciate the value of new knowledge.

5.1 Opportunities for Future Research and Limitations

By confirming the capability-performance relationship within a resource constrained economic context, the results demonstrate the robustness of the resource-based view to explain differences in firm performance. While the capability-performance relationship is confirmed for technology and marketing capabilities, the effect of financial, operations, information technology, and other organizational capabilities on differing performance metrics (e.g., technology, customer, efficiency) and in differing economic context demands further validation. The results also offer an explanation for capability development based on patterns of managerial thinking and action, which also open up future research opportunities. Entrepreneurial and learning orientations give rise to technology and marketing capabilities; however, the results do not confirm a similar role for perceived environmental turbulence. Perceptions may represent a proximal condition of allocated organizational attention (Ocasio, 1997), which give rise to those predispositions favoring innovativeness and inquisitiveness. While technology and marketing capabilities do not mediate the relationship between environmental perceptions and performance, this effect needs to be cross-validated. In general, the role of managerial perceptions in explaining the allocation of attention and firm interactions with its environment lead to additional opportunities to examine the role of cognition on organizational capability development and maintenance. For example, an examination of the role of executive beliefs (i.e., how firm resources are conceptualized) on organizational capabilities warrants further research (Danneels, 2011).

While the current study extends our understanding of capability development, consideration of additional mechanisms (e.g., organizational leadership, internal support systems, as well as external social networks) presents possible avenues of research that might provide a fuller understanding of capability development and its consequence. More broadly, comparative studies on how capability configurations might differ based on national institutional environment (e.g., cultural cognitive, social normative, and political regulative) would also make a contribution to the literature (Burgess and Steenkamp, 2006; Meyer and Peng, 2005; Oliver, 1998). While studies have begun to emerge (Meyer, 2007; Song et al., 2008), future research might explicitly compare the role of institutional context in the selection

and retention of organizational capabilities and in the attenuation of the capability-performance relationship.

Though the study hypotheses are mostly supported, it is important to note limitations. First, reliance on cross-sectional data warrants caution in interpreting the results. While sampling from a broad set of industries strengthens generalizability, the technology capability scale items are tailored for manufacturing-based companies. A second limitation is the reliance on single informants. While efforts were undertaken to ensure that respondents were qualified, prior research (Krasnikov and Jayachandran, 2008) concludes that subjective evaluations of the capability-performance relationship are significantly higher than research based on objective data. This implies either that biases are introduced based on the selective perception of individual respondents or that secondary data sources do not adequately measure organizational capabilities.

5.2 Managerial Implications

Recent research has begun to focus on the so called ‘bottom of the pyramid’ (Prahalad, 2005), as a means for business to profitably serve consumers in low income countries. Rather than prescribe strategies for global businesses to make inroads into poor countries, this research informs indigenous organizations in the development of capabilities that might translate into improved access to local goods and services in domestic markets. In other words, this research improves our understanding of how business in lower income countries can become more competitive by understanding the managerial thought and action that support capability development. Ultimately, these results inform managers of both private and state-owned firms on the development of technology and marketing capabilities to better serve local markets and continue to develop these abilities to target adjacent markets based on specialization and competitive advantage.

6. Conclusion

This paper takes an additional step in understanding the development and importance of organizational capabilities. By conducting this research in a boundary condition with intrinsic and extrinsic resource constraints, this study provides contextual variation that supports the robustness of the capability-performance relationship that is necessary to transform organizations into competitive entities. This study also increases awareness of rather allusive levers to capability development. Capabilities are dependent on organizational mechanism relating to patterns of thinking and action, specifically those that focus on entrepreneurship and learning, which in turn support two key ingredients to competitive advantage. The results of this research serve to test the rigor of strategy theory and broaden understanding of the role managerial thought and action perform in the development of technology and marketing capabilities.

References

- Atuahene-Gima, K., S. F. Slater, and E. M. Olson, (2005), "The Contingent Value of Responsive and Proactive Market Orientations for New Product Program Performance," *Journal of Product Innovation Management*, 22(6), 464-482.
- Barney, J., (1991), "Firm Resources and Sustained Competitive Advantage," *Journal of Management*, 17(1), 99-120.
- Briguglio, L., (1995), "Small Island Developing States and Their Economic Vulnerabilities," *World Development*, 23(9), 1615-1632.
- Burgess, S. M. and J. E. M. Steenkamp, (2006), "Marketing Renaissance: How Research in Emerging Markets Advances Marketing Science and Practice," *International Journal of Research in Marketing*, 23(4), 337-356.
- Celuch, K. G., C. J. Kasouf, and V. Peruvemba, (2002), "The Effects of Perceived Market and Learning Orientation on Assessed Organizational Capabilities," *Industrial Marketing Management*, 31(6), 545-554.
- Chakravarthy, B. S., (1982), "Adaptation: A Promising Metaphor for Strategic Management," *Academy of Management Review*, 7(1), 35-44.
- Chang, T., (1996), "Cultivating Global Experience Curve Advantage on Technology and Marketing Capabilities," *International Marketing Review*, 13(6), 22-42.
- Child, J., (1972), "Organizational Structure, Environment and Performance: The Role of Strategic Choice," *Sociology*, 6(1), 1-22.
- Colquitt, J. A. and C. P. Zapata-Phelan, (2007), "Trends in Theory Building and Theory Testing: A Five-Decade Study of the Academy of Management Journal," *Academy of Management Journal*, 50(6), 1281-1303.
- Covin, J. G. and D. P. Slevin, (1989), "Strategic Management of Small Firms in Hostile and Benign Environments," *Strategic Management Journal*, 10(1), 75-87.
- Crossan, M. M., H. W. Lane, and R. E. White, (1999), "An Organizational Learning Framework: From Intuition to Institution," *Academy of Management Review*, 24(3), 522-537.
- Daft, R. L. and K. E. Weick, (1984), "Toward a Model of Organizations as Interpretation Systems," *Academy of Management Review*, 9(2), 284-295.
- Danneels, E., (2011), "Trying to Become a Different Type of Company: Dynamic Capability at Smith Corona," *Strategic Management Journal*, 32(1), 1-31.
- Day, G. S., (1994), "The Capabilities of Market-Driven Organizations," *Journal of Marketing*, 58(4), 37-52.
- Eisenhardt, K. M. and J. A. Martin, (2000), "Dynamic Capabilities: What Are They?" *Strategic Management Journal*, 21(10-11), 1105-1121.
- Ethiraj, S. K., P. Kale, M. S. Krishnan, and J. V. Singh, (2005), "Where Do Capabilities Come from and How Do They Matter? A Study in the Software Services Industry," *Strategic Management Journal*, 26(1), 25-45.
- Fornell, C. and D. F. Larcker, (1981), "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error," *Journal of Marketing Research*, 18(1), 39-50.

- Gavetti, G., (2005), "Cognition and Hierarchy: Rethinking the Microfoundations of Capabilities' Development," *Organization Science*, 16(6), 599-617.
- Gavetti, G. and D. Levinthal, (2000), "Looking Forward and Looking Backward: Cognitive and Experiential Search," *Administrative Science Quarterly*, 45(1), 113-137.
- Hair, J. F., B. Black, B. J. Babin, R. E. Anderson, and R. L. Tatham, (2006), *Multivariate Data Analysis*, Upper Saddle River, NJ: Prentice Hall.
- Helfat, C. E. and M. A. Peteraf, (2003), "The Dynamic Resource-Based View: Capability Lifecycles," *Strategic Management Journal*, 24(10), 997-1010.
- Huber, G. P., (1991), "Organizational Learning: The Contributing Processes and the Literatures," *Organization Science*, 2(1), 88-115.
- Hult, G. T. M., R. F. Hurley, and G. A. Knight, (2004), "Innovativeness: Its Antecedents and Impact on Business Performance," *Industrial Marketing Management*, 33(5), 429-438.
- Jaworski, B. J. and A. K. Kohli, (1993), "Market Orientation: Antecedents and Consequences," *Journal of Marketing*, 57(3), 53-70.
- Krasnikov, A. and S. Jayachandran, (2008), "The Relative Impact of Marketing, Research-and-Development, and Operations Capabilities on Firm Performance," *Journal of Marketing*, 72(4), 1-11.
- Lee, C., K. Lee, and J. M. Pennings, (2001), "Internal Capabilities, External Networks, and Performance: A Study on Technology-Based Ventures," *Strategic Management Journal*, 22(6-7), 615-640.
- Lisboa, A., D. Skarmeas, and C. Lages, (2011), "Innovative Capabilities: Their Drivers and Effects on Current and Future Performance," *Journal of Business Research*, 64(11), 1157-1161.
- Meyer, K. E., (2007), "Contextualising Organisational Learning: Lyles and Salk in the Context of Their Research," *Journal of International Business Studies*, 38(1), 27-37.
- Meyer, K. E. and M. W. Peng, (2005), "Probing Theoretically into Central and Eastern Europe: Transactions, Resources, and Institutions," *Journal of International Business Studies*, 36(6), 600-621.
- Miller, D., (1983), "The Correlates of Entrepreneurship in Three Types of Firms," *Management Science*, 29(7), 770-791.
- Miller, D. and P. H. Friesen, (1983), "Strategy-Making and Environment: The Third Link," *Strategic Management Journal*, 4(3), 221-235.
- Montealegre, R., (2002), "A Process Model of Capability Development: Lessons from the Electronic Commerce Strategy at Bolsa de Valores de Guayaquil," *Organization Science*, 13(5), 514-531.
- Moorman, C. and R. J. Slotegraaf, (1999), "The Contingency Value of Complementary Capabilities in Product Development," *Journal of Marketing Research*, 36(2), 239-257.
- Morgan, N. A., S. Zou, D. W. Vorhies, and C. S. Katsikeas, (2003), "Experiential and Informational Knowledge, Architectural Marketing Capabilities, and the Adaptive Performance of Export Ventures: A Cross-National Study," *Decision Sciences*, 34(2), 287-321.

- Neill, S. and J. L. York, (2012), "The Entrepreneurial Perceptions of Strategy Makers: Constructing an Exploratory Path in the Pursuit of Radical Growth," *Journal of Business Research*, 65(7), 1003-1009.
- Neill, S., (2010), "Decomposing the Effects of Organizational Memory on Marketing Implementation," *Marketing Letters*, 21(2), 135-147.
- Neill, S., R. D. Pathak, and N. Reddy, (2009), "Marketing Concept Manifestations in Fiji Enterprises: Confirming the Link to Organizational Competitiveness," *Journal of Global Marketing*, 22(1), 43-52.
- Ocasio, W., (1997), "Towards an Attention-Based View of the Firm," *Strategic Management Journal*, 18(S1), 187-206.
- Oliver, C., (1997), "Sustainable Competitive Advantage: Combining Institutional and Resource-Based Views," *Strategic Management Journal*, 18(9), 697-713.
- Ortega, M. J. R., (2010), "Competitive Strategies and Firm Performance: Technological Capabilities' Moderating Roles," *Journal of Business Research*, 63(12), 1273-1281.
- Peteraf, M. A., (1993), "The Cornerstones of Competitive Advantage: A Resource-Based View," *Strategic Management Journal*, 14(3), 179-191.
- Podsakoff, P. M. and D. W. Organ, (1986), "Self-Reports in Organizational Research: Problems and Prospects," *Journal of Management*, 12(4), 531-544.
- Porter, M. E., (1990), *The Competitive Advantage of Nations*, New York: Free Press.
- Prahalad, C. K., (2005), *The Fortune at the Bottom of the Pyramid*, Upper Saddle River, NJ: Wharton School Publishing.
- Rauch, A., J. Wiklund, G. Lumpkin, and M. Frese, (2009), "Entrepreneurial Orientation and Business Performance: An Assessment of Past Research and Suggestions for the Future," *Entrepreneurship Theory and Practice*, 33(3), 761-787.
- Schwartz, S. H., (2004), "Mapping and Interpreting Cultural Differences around the World," in *Comparing Cultures: Dimensions of Culture in a Comparative Perspective*, H. Vinken, J. Soeters, and P. Ester eds., Liden, Netherlands: Brill, 43-73.
- Song, M., C. Droge, S. Hanvanich, and R. Calantone, (2005), "Marketing and Technology Resource Complementarity: An Analysis of Their Interaction Effect in Two Environmental Contexts," *Strategic Management Journal*, 26(3), 259-276.
- Song, M., R. Nason, and C. Benedetto, (2008), "Distinctive Marketing and Information Technology Capabilities and Strategic Types: A Cross-National Investigation," *Journal of International Marketing*, 16(1), 4.
- Sutcliffe, K. M. and K. Weber, (2003), "The High Cost of Accurate Knowledge," *Harvard Business Review*, 81(5), 74-82.
- Tsang, E. W. K. and K. Kwan, (1999), "Replication and Theory Development in Organizational Science: A Critical Realist Perspective," *Academy of Management Review*, 24(4), 759-780.
- Teece, D. J., (2000), "Firm Capabilities and Economic Development: Implications for Newly Industrializing Economies," in *Technology, Learning, and*

- Innovation: Experiences of Newly Industrializing Economies*, L. Kim and R. R. Nelson eds., Cambridge University Press, 105-128.
- Teece, D. J., G. Pisano, and A. Shuen, (1997), "Dynamic Capabilities and Strategic Management," *Strategic Management Journal*, 18(7), 509-533.
- United Nations, (2008), Statistics of the Human Development Report, <http://hdr.undp.org/en/statistics/>.
- Vorhies, D. W. and N. A. Morgan, (2005), "Benchmarking Marketing Capabilities for Sustainable Competitive Advantage," *Journal of Marketing*, 69(1), 80-94.
- Wernerfelt, B., (1984), "A Resource-Based View of the Firm," *Strategic Management Journal*, 5(2), 171-180.
- World Bank, (2012), Pacific Islands Overview, <http://www.worldbank.org/en/country/pacificislands/overview>.
- World Bank, (2009), World Development Indicators Database, http://siteresources.worldbank.org/DATASTATISTICS/Resources/GDP_PPP.pdf.
- World Bank, (2008), World Bank Group Entrepreneurship Survey 2008, <http://go.worldbank.org/T8G73Z9ZM0>.
- Wright, M., I. Filatotchev, R. E. Hoskisson, and M. W. Peng, (2005), "Guest Editors' Introduction: Strategy Research in Emerging Economies: Challenging the Conventional Wisdom," *Journal of Management Studies*, 42(1), 1-33.
- Wu, L., (2010), "Applicability of the Resource-Based and Dynamic-Capability Views under Environmental Volatility," *Journal of Business Research*, 63(1), 27-31.
- Wu, L., (2007), "Entrepreneurial Resources, Dynamic Capabilities and Start-Up Performance of Taiwan's High-Tech Firms," *Journal of Business Research*, 60(5), 549-555.
- Xu, D. and K. E. Meyer, (2013), "Linking Theory and Context: 'Strategy Research in Emerging Economies' after Wright et al. (2005)," *Journal of Management Studies*, 50(7), 1322-1346.
- Yiu, D., G. D. Bruton, and Y. Lu, (2005), "Understanding Business Group Performance in an Emerging Economy: Acquiring Resources and Capabilities in Order to Prosper," *Journal of Management Studies*, 42(1), 183-206.
- Zhou, K. Z. and C. Li, (2010), "How Strategic Orientations Influence the Building of Dynamic Capability in Emerging Economies," *Journal of Business Research*, 63(3), 224-231.
- Zhou, K. Z. and F. Wu, (2010), "Technological Capability, Strategic Flexibility, and Product Innovation," *Strategic Management Journal*, 31(5), 547-561.
- Zhou, K. Z., C. K. Yim, and D. K. Tse, (2005), "The Effects of Strategic Orientations on Technology-and Market-Based Breakthrough Innovations," *Journal of Marketing*, 69(2), 42-60.
- Zollo, M. and S. G. Winter, (2002), "Deliberate Learning and the Evolution of Dynamic Capabilities," *Organization Science*, 13(3), 339-351.

