Achieving Competitive Advantage through Managing Supply Chain Excellence: The Case of Thai Garment Industry

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Abstract. The purpose of this research is to understand the relationship between supply chain enablers and firm performance within the Thai garment industry, which is mediated by competitive advantage. The findings reveal that the proposed model has a significant mediating effect of competitive advantage. In terms of the causal path model, IT capabilities and supply chain integration are the key enablers contributing to firm performance. On the other hand, they reveal that supply chain integration is the only key enabler contributing to competitive advantage. The findings also reveal that, the most critical set of the supply chain enablers contributing to firm performance is a combination of IT capabilities and integration via competitive advantage. This study demonstrates that, firms need to incorporate supply chain orientation into their business strategy and supply chain should be an absolute core of a firm’s business model, in the competitive environment of Thai garment industry.

1. Literature Review

The primary objective of SCM is to increase the value of products and services to customers in the supply chain vis-à-vis improved customer service and quality, and lower inventory carrying costs. The value created by a firm’s SCM efforts clearly supports organizational strategy. Successful SCM can result in lower system inventories, a network of firms that responds more quickly to market changes, and products that more closely match customer expectations. Thus, firms pursuing differentiation, cost leadership, or quick response strategies, or combination of these can all find benefits from the value system or supply chain management (Porter 1985). The SCM concept and its associated activities continue to evolve as new communication technologies and cooperative efforts having emerged to facilitate system-wide process integration. The seminal work by Porter (1980, 1985) has formed the basis for the development of supply chain enablers and their ties to a firm’s competitive advantage and firm performance. Further, Teece, Pisano, and Shuen (1997) provided an explanation of how a firm’s specific asset position and uniqueness shape its competitive advantage. The relevant constructs of this study are defined as follows:

Supply Chain Enablers – These are the drivers that deliver supply chain outcomes (Marien 2000). For the purpose of this research, supply chain enablers are defined as, the underlying factors that influence firm performance.

Firm Performance – The information regarding the processes and products results which allows the evaluation and comparison, in relation to goals, patterns, and past results, with other processes and products. Also, it is important to highlight that a managerial performance evaluation system needs to be focused on results, which should be guided by stakeholders’ interests (Silvio and Carlos 2001).

Information Technology Capabilities – The capability to exchange data in a timely fashion, responsive and usable format (Bowersox Closs, and Stank 1999).

Supply Chain Capabilities – Tangible and intangible assets that are firm specific and created over time through complex interactions among resources (Chang 1995; Teece, et al.,...
Grant (1991) defined capability as ‘a team of resources to perform some tasks or activities.

Supply Chain Integration – It is the capability of entire supply chain to create manufacturing processes and logistics functions seamlessly across the supply chain as an effective competitive weapon that cannot be easily duplicated by competitors (Anderson and Katz, 1998; Birou, et al., 1998; Lummus, et al., 1998; Lee and Billington, 1995).

Supply Chain Strategy – Supply chain strategy is defined as, the pattern of decisions related to suppliers and customers regarding products sourcing, planning capacity, conversion of finished product, deployment of finished product, demand management and communication, and delivery (Lummus and Vokurka 1999). Also, Supply chain strategy is primarily the art of positioning a company in the right place on the value chain; the right business, the right segments, the right products and market segments, and the right value-adding activities (Normann and Ramirez 1993).

Competitive Advantage – Described by Porter (1985) as the value a firm is able to create for buyers that exceeds the firm’s cost of creating it. Numerous studies (e.g., Grant 1990, March 1991, Prahalad and Hamel 1990, Grant 1991, Porter 1980) have helped to explain the relationship between firm performance and competitive advantage in this research. In the same vein, the significance of firm capabilities as sources of sustained competitive advantage and firm performance are related (Amit and Schoemaker 1993, Dierickx and Cool 1989).

Hence, it is seen that the resource-based view (Barney 1991) is the cornerstone of explaining the relationship between firm performance and competitive advantage. The central thrust of resource-based view is that the more firm-specific resources a firm has, the more valuable it is. Then, these valuable resources will create a sustainable competitive advantage for a firm that will later lead to a better performance.

The mediating variable in this study is Competitive Advantage. A better competitive advantage of a firm should result in greater performance gains for the firm (Porter 1980). In this study, Competitive advantage is conceptualized in terms of Marketing Differentiation, Quality Differentiation, and Low-Cost Leadership.

In order to understand the concept of supply chain enablers and their impact on firm performance, a certain number of factors need to be understood. Based on the literature, the following conceptual framework has been derived, where four supply chain enablers have an impact on competitive advantage, and finally all the enablers along with the competitive advantage have an impact on firm performance. This network of relationship among the variables is presented in Figure 1:

Figure 1: Conceptual Model

The conceptual schema of this study is presented in Figure 1 indicating the relationships among supply chain enablers, competitive advantage, and firm performance. The theoretical framework proposed shows the relationship among supply chain enablers (as measured by IT Capabilities, Supply Chain Capabilities, Supply Chain Integration, and Supply Chain Strategy) as the determinants of firm performance (Marien 2000), which is mediated through competitive advantage (Porter 1985, Grant 1991 and Barney 1995). The framework also posits that; supply chain enablers (as measured by IT Capabilities, Supply Chain Capabilities, Supply Chain Integration, and Supply Chain Strategy) are also the determinants of competitive advantage (Walters, 2002 and Teece, et. al., 1997). In other words, this study explores the relationship between supply chain enablers (as measured by IT Capabilities, Supply Chain Capabilities, Supply Chain Integration, and Supply Chain Strategy) as the determinants of competitive advantage and firm performance (Marien, 2000; McGrath et al., 1995) and competitive advantage is a determinant of firm performance (Walters, 2002; Porter, 1980 and 1985; Moingeon and Edmondson 1996; Collis, 1994; Rumelt 1991; Cool and Schendel 1988; Grant, 1991; and Barney, 1995). These relationships are primarily based on theoretical considerations; the model is portrayed in the Figure 1.

Research Hypothesis

H₂: Competitive advantage has a mediating effect on the relationship between supply chain enablers (IT Capabilities, SC Capabilities, SC Integration, and SC Strategy) and firm performance.
2. Research Methodology

This study applied a quantitative research approach. Primarily, this study employed a questionnaire survey method to test the hypothesized relationships between supply chain enablers and firm performance.

Primary data were collected through sample survey with suppliers, manufacturers and retailers from Thai garment industry. The target populations were the logistics and supply chain managers or the equivalent in Thai garment manufacturing firms listed in the Thai Garments Manufacturers’ Association (2003-2004) and TTIS (Thai Textile Institute) Buyer’s Guide (2003). Using a simple random sampling method a group of samples were generated based on the list in the Thai Garment Manufacturers’ Association (TGMA) directory (2003-2004) and TTIS Textile Buyer’s guide (2002-2003). In-person survey interview was conducted with a sample of 390 supply chain managers or the equivalent.

3. Data Analysis

3.1 Respondents’ Profile

In this study 26.2% of the respondents were ready made garment manufacturers, 22.6% were garment manufacturers for export, 20.8% were ladies’ garment manufacturers, 6.7% were general purpose garment, 3.8% were T-shirt/Shirt producers, and the rest 13% were other types of garment manufacturers. Of these samples 256 (65.65%) had less than 500 employees and 134 (34.35%) had more than 500 employees. This diversity in the organizational profile allows greater generalizability of results and is therefore seen as an advantage of this study.

3.2 Reliability Analysis

Construct reliability was assessed using the results from Confirmatory Factor Analysis in LISREL 8.54. In general, all constructs were found to be reliable since all measurement scales ranged between 0.70 and 0.92. Alpha is an index of the reliability of each variable in which the alpha value more than 0.7 will indicate that its measures are reliable (Nunnally, 1978). In this study, Cronbach’s (1951) alpha of all the constructs are presented in Table 1; which justifies that the constructs have satisfactorily met required reliability criteria. The summary of construct reliability is presented in table 1:

3.3 Test of Mediating Effect

To test for mediation effect, three conditions proposed by Baron and Kenny (1986) needs to be met: The first condition is that the predictor variables, including: IT Capabilities, Supply Chain Capabilities, Supply Chain Integration, and Supply Chain Strategy, are significantly correlated with the hypothesized mediator which is competitive advantage. The first condition is met as IT Capabilities, Supply Chain Capabilities, Supply Chain Integration, and Supply Chain Strategy are significantly correlated with competitive advantage as expected (r = 0.45 p<0.01, r = 0.49 p<0.01, r = 0.47 p<0.01, and 0.43 p<0.01 for IT Capabilities, Supply Chain Capabilities, Supply Chain Integration, and Supply Chain Strategy respectively). The second condition to be met is that the mediator variable (as measured by competitive advantage) is significantly correlated with dependent variable (as measured by competitive advantage) and firm performance. The correlation test reveals that this requirement is also met as competitive advantage and firm performance are significantly correlated (r = 0.58, p<0.01 for firm performance and competitive advantage respectively). The third condition is that the previously insignificant effects of IT Capabilities, Supply Chain Capabilities, Supply Chain Integration, and Supply Chain Strategy are either made significant or significantly increased after the inclusion of mediating variable competitive advantage into the analysis. Thus, SEM was conducted to test the effects of IT Capabilities,
Supply Chain Capabilities, Supply Chain Integration, Supply Chain Strategy and Competitive Advantage as a mediating variable. At this time the direct effects of IT Capabilities, Supply Chain Capabilities, Supply Chain Integration, and Supply Chain Strategy on both Competitive Advantage and Firm Performance have been incorporated into the model. As well in this mediating model, the indirect effects of IT Capabilities, Supply Chain Capabilities, Supply Chain Integration, and Supply Chain Strategy on firm performance through competitive advantage have been incorporated.

3.4 Analysis of the Structural Model

Table 2 and Figure 2 present the results of the overall model fit of the proposed structural model.

Table 2: Model Fit for Mediating Effect

<table>
<thead>
<tr>
<th>MODELS</th>
<th>2 (df)</th>
<th>2</th>
<th>Sig</th>
<th>2</th>
<th>GFI</th>
<th>AGFI</th>
<th>RMSEA</th>
<th>CFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nested Model</td>
<td>152.05</td>
<td>-</td>
<td>-</td>
<td>0.88</td>
<td>0.82</td>
<td>0.061</td>
<td>0.96</td>
<td></td>
</tr>
<tr>
<td>Mediating Model</td>
<td>145.22</td>
<td>6.83</td>
<td>P&lt;0.01</td>
<td>0.98</td>
<td>0.94</td>
<td>0.050</td>
<td>0.97</td>
<td></td>
</tr>
</tbody>
</table>

The chi-square test statistic is significant (p<0.01) and thus supports the model proposed. However, the chi-square index is sensitive to sample size (Bollen and Long 1993) and may lead to incorrect interpretation. Multiple criteria are hence used to reduce the measuring biases inherent in different measures. In this case, other indices accept the RMSEA, such as GFI = 0.98, AGFI = 0.94, RMR = 0.013, NNFI = 0.96 and CFI = 0.97.

3.5 Study Findings

Based on the parameter estimates presented in Figure 2, six causal paths specified in the model were found to be statistically significant (t-value > ±1.96). These paths reflected the impact of: (a) Supply Chain Integration on Competitive Advantage (t-value=3.10, p<0.01), which means the extent of integration of the firm within its supply chain will form the strength of its competitive advantage; in other words the stronger the integration within the supply chain, the greater the competitive advantage over the industry rivals will be. This links well with the literature. (b) IT Capabilities and Supply Chain Integration on Firm Performance (t-value=3.16, p<0.01)

and t-value=3.44, p<0.01; respectively). This finding is quite obvious because IT is a key facilitator for efficient integration, this also links well with the literature: The better the IT Capabilities of a firm, the greater its integration facilities and hence its performance will be. (c) Competitive Advantage on Firm Performance (t-value=5.68, p<0.01), this finding is in line with the previous studies and has been confirmed once again in this study. Finally, (d) the correlations between exogenous constructs: (1) IT Capabilities and Supply Chain Integration (t-value=10.83, p<0.01), this finding is in line with the above results which means the better a firms’ IT Capabilities, the more efficient its supply chain integration will be; and (2) Supply Chain Capabilities and Supply Chain Strategy (t-value=-13.08, p<0.01), this finding suggests that the stronger the supply chain capabilities, the lesser the effort needed for supply chain strategy. This is because they complement each other. That means the stronger the supply chain capabilities (e.g., customer focused capabilities, delivery capability and distribution flexibility) the lesser the focus on supply chain strategy needed (customer relationship, supplier relationship, and SCM strategies) in Thai garment industry, because a stronger capability will facilitate a firm to be more responsive to demand and hence will facilitate its strategy implementation or an efficient strategy will provide unmatched capability and vice versa. Hence, the firms do not need to invest their
valuable resources unnecessarily in (both capability and strategy development) crafting different strategies if they have efficient capabilities or if they possess a successful strategy in place, they don’t need to invest in building new capabilities; doing so will redundant as the firms operate with limited resources. An additional insight for supply chain strategy not being substantiated is, based on qualitative findings it has been found that Thai garment managers still don’t realize the importance of supply chain strategy.

4. Research Implications

The Thai garment industry should enhance production efficiency and create value-added garment products. Anecdotal evidence based on interviews with industry practitioners suggests that, competitiveness of the Thai garment supply chain largely depends on the ability of the firms to create value for the customers and the supply chain partners. Hence, supply chain strategy must be driven by value to create and fulfill customer needs. The central objective of this value creation process will be attaining customer satisfaction, which should be transmitted throughout the firm as well as the supply chain. Hence, to remain competitive in the face of global competition, it is important to strengthen and build flexibility into the links in the supply chain. This means crafting formal and informal relationships between trading partners that can evolve overtime and adapt to market changes.

5. Conclusion

The mediating effect of competitive advantage suggested that the sources of competitive advantage are critical to firm performance. This finding is in line with the extant literature stating in competitive industries, greater the resources a firm has will result in a superior performance. The more a firm is integrated with its upstream and downstream supply chain partners, the more they can be responsive to the demand and hence will gain a superior competitive advantage over the rival firms.

6. References


