

The Relationship between Organizational Resources and Systems: An Empirical Research

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Abstract

Organizational resources and systems have been conceptualized as to be able to significantly predict the level of competitive advantage. This research empirically examined the importance and emphasis placed on the relationship between organizational resources and systems, especially towards the attainment of firms' competitive advantage. This research was conducted among manufacturers listed in the Federation of Malaysian Manufacturers Directory 2008. A cross-sectional study using structured questionnaire was used to obtain responses from the manufacturers. From the subsequent actual survey, 127 respondents replied and completed the questionnaire (12.7% response rate). The large correlation ($r = 0.72$) implies a strong positive relationship between the organizational resources and systems. As for the variance shared between these two variables, the coefficient of determination ($r^2 = 0.52$) suggests that organizational resources help to account for nearly 52% of the variance in systems, and vice versa. The theoretical implication of this study is that it supports and extends the RBV of competitive advantage by illustrating the need for systematic management of resources towards attaining competitive advantage.

Keywords: Organizational resources, Systems and competitive advantage, Resource-Based View (RBV)

1. Introduction

Studies have shown that there is a significant relationship between organizational resources, systems and competitive advantage (Wernerfelt, 1984; Dierickx & Cool, 1989; Ma, 1999a, 1999b; Wiklund & Shepherd, 2003; Morgan, Kaleka, & Katsikeas, 2004). Empirical studies carried out have also found significant results in

such particular relationships (Morgan et al., 2004; Santhapparaj, Sreenivasan, & Loong, 2006; Phusavat & Kanchana, 2007). Other past studies (Barney, 1991, 2001a, 2001b, 2007; Priem & Butler, 2001a, 2001b; King, 2007; Sirmon, Hitt, & Ireland, 2007) have also put forward the idea of the significant positive relationship between organizational resources, systems and competitive advantage. As such, organizational resources and systems have been conceptualized as to be able to significantly predict the level of competitive advantage. This research empirically examined the importance and emphasis placed on the relationship between organizational resources and systems, especially towards the attainment of firms' competitive advantage.

2. Literature Review

2.1 Competitive Advantage

The pursuit of competitive advantage is indeed an idea that is at the heart of much of the strategic management literature (Burden & Proctor, 2000; Fahy, 2000; Ma, 2000, 2004; Barney, 2001a, 2001b, 2007; Lin, 2003; Fahy, Farrelly, & Quester, 2004; Cousins, 2005; Porter & Kramer, 2006; Liao & Hu, 2007). Understanding sources of sustained competitive advantage has become a major area of study in strategic management (Porter, 1985, 1991; Barney, 1991; Peteraf, 1993; Ma, 1999a, 1999b, 2004; Flint & Van Fleet, 2005; King, 2007). The resource-based view stipulates that in strategic management the fundamental sources and drivers to firms' competitive advantage and superior performance are mainly associated with the attributes of their resources and capabilities which are valuable and costly-to-copy (Barney, 1986, 1991, 2001a; Conner, 1991; Mills, Platts, & Bourne, 2003; Peteraf & Bergen, 2003). Furthermore, other studies support the importance of having a good strategy to attain competitive advantage from the resource-based view (Hult & Ketchen Jr., 2001; Ramsay, 2001; Foss & Knudsen, 2003; Gottschalg & Zollo, 2007). A well formulated and implemented strategy can have significant effect on the attainment of competitive advantage level (Richard, 2000; Arend, 2003; Powell, 2003; Porter & Kramer, 2006). The resource-based view provides an avenue for organizations to plan and execute their organizational strategy by examining the position of their internal resources and capabilities towards achieving competitive advantage (Kristandl & Bontis, 2007; Sheehan & Foss, 2007).

In this research, specific focus will be given to "competitive advantage" from the dimension of "value and quality", the main elements of which consist of "cost-based, product-based and service-based". Other previous studies have shown that there is a significant relationship between cost-based advantage and the performance of organizations. Firms that enjoy cost-based competitive advantage over their rivals, for example in terms of relatively lower manufacturing or production costs, lower cost of goods sold, and lower-price products, have been shown to exhibit comparatively better performance (Gimenez & Ventura, 2002; Morgan et al., 2004). Furthermore, it has also been identified that there is a significant relationship between product-based advantage and performance of organizations. Firms that experience product-based competitive advantage over their rivals, for example in terms of better and/or higher product quality, packaging, design and style, have been shown to achieve relatively better performance (Gimenez & Ventura, 2002; Morgan et al., 2004). Similarly, research has further illustrated that there is a significant relationship between service-based advantage and performance of organizations. Firms that benefit from service-based competitive advantage compared to their rivals, for example in terms of better and/or higher product flexibility, accessibility, delivery speed, reliability, product line breadth and technical support, have accomplished comparatively better performance (Gimenez & Ventura, 2002; Morgan et al., 2004).

2.2 Organizational Resources

As mentioned, the resource-based view (RBV) of the firm predicts that certain types of resources owned and controlled by firms have the potential and promise to generate competitive advantage which eventually leads to superior firm's performance (Wernerfelt, 1984, 1995; Dierickx & Cool, 1989; Barney, 1991, 1995, 2001a, 2001b; Peteraf, 1993; Chaharbaghi & Lynch, 1999; Fahy, 2000; Priem & Butler, 2001a, 2001b; Miller & Ross, 2003; Morgan et al., 2004; King, 2007; Sirmon et al., 2007; Ainuddin et al., 2007). Eisenhardt and Martin (2000), Harrison, Hitt, Hoskisson, and Ireland (2001), Hoopes, Madsen, and Walker (2003), Ireland, Hitt, and Sirmon (2003), Mills et al. (2003) and Morgan et al. (2004), following Wernerfelt (1984, 1995) and Barney (1986, 1991), have examined and categorized resources into tangible resources i.e. human, physical, organizational, financial; and intangible resources i.e. reputational, regulatory, positional, functional, social and cultural.

From the categories of resources cited above, the human resources (Adner & Helfat, 2003; Datta, Guthrie, & Wright, 2005; Haslinda Abdullah, Raduan Che Rose, & Naresh Kumar, 2007a, 2007b; Raduan Che Rose & Naresh Kumar, 2007) and the intangible resources (Oliver, 1997; Makadok, 2001) are deemed to be the more important and critical resources in attaining and sustaining competitive advantage position because of their nature, being not only valuable but also hard-to-copy relative to the other types of tangible resources (i.e.

physical and financial resources). In short, conceptually and empirically, resources are the foundation for attaining and sustaining competitive advantage and eventually superior firm's performance.

In this study, particular attention will be afforded to "resources" from the dimension of "tangible and intangible", the main elements of which consist of "physical, financial, experiential and human". The resource-based view (RBV) of the firm predicts that certain types of resources owned and controlled by firms have the potential and promise to generate competitive advantage which eventually leads to superior firm's performance. Physical resources such as the plant, machinery, equipment, production technology and capacity have contributed positively towards organizational competitive advantage and eventually result in superior firm's performance (Morgan et al., 2004; Ainuddin et al., 2007). In addition, financial resources such as the cash-in-hand, bank deposits and/or savings and financial capital (stocks and shares) have also contributed positively towards organizational competitive advantage and eventually result in superior firm's performance (Morgan et al., 2004; Ainuddin et al., 2007). Further, experiential resources such as product reputation, manufacturing experience and brand-name have contributed positively towards organizational competitive advantage and eventually result in superior firm's performance (Morgan et al., 2004; Ainuddin et al., 2007). Human resources such as the top and middle management, administrative and production employees also contribute positively towards organizational competitive advantage which eventually result in superior firm's performance (Adner & Helfat, 2003; Morgan et al., 2004; Datta et al., 2005; Ainuddin et al., 2007; Haslinda Abdullah et al., 2007a; Raduan Che Rose & Naresh Kumar, 2007).

2.3 Organizational Systems

Systems can be defined as "business processes and procedures" (Ray et al., 2004). According to Ray et al. (2004), business processes are actions that firms engage in to accomplish some business purpose or objective. Further, business processes can be thought of as the routines or activities that a firm develops in order to get something done (Porter, 1991). Studies have shown that systems play a significant and vital role in the ensuing resources, capabilities, competitive advantage and performance relationship (Porter & Millar, 1985; Gimenez & Ventura, 2002; Wiklund & Shepherd, 2003; Winter, 2003; Bowen & Ostroff, 2004; Ray et al., 2004; Voss, 2005; Neely, 2005; Franco-Santos et al., 2007; Perez-Freije & Enkel, 2007).

Critics of resource-based view have pinpointed that studies on resource-based view have been concentrating more on the attributes of resources and capabilities to build competitive advantage. RBV study has been paying less attention on the study of the relationship between firms' resources and capabilities and the way firms are organized. As far as organizational systems are concerned, this creates an opportunity for an empirical study. As such, it will be potentially beneficial to examine the ensuing relationship between these variables (organizational resources, capabilities and systems) and competitive advantage that has been lacking in empirical research.

Studies have shown the importance of organizational strategy for attaining good performance for the firm (Thomas & Ramaswamy, 1994; Hall Jr., 1995; Kim & Mauborgne, 2005; Raduan Che Rose, Naresh Kumar, & Hazril Izwar Ibrahim, 2007, 2008; Elamin, 2008). Excellent strategies can be implemented with good organizational systems that will bind and coordinate the organizational resources and capabilities towards attaining competitive advantage and performance for the firm. This is an area that is explored in this study as far as organizational systems are concerned.

This research pays specific attention to "systems" from the dimension of "internal and external", the main elements of which consist of "process and interactions". Process plays a significant role in harnessing organizational resources, capabilities, competitive advantage and performance relationship, where process is measured in terms of the emphasis on company vision, mission, policy and procedure deployment (Gimenez & Ventura, 2002; Ray et al., 2004). Moreover, interactions also play significant and vital roles in the development of organizational resources, capabilities, competitive advantage and performance relationship, where interactions are measured in terms of the emphasis on teamwork approach, company procurement and logistic efficiency, networking and relationship between the firms and their suppliers, distributors and customers (Gimenez & Ventura, 2002; Ray et al., 2004).

2.4 Hypothesis

Studies have shown that there is a significant relationship between organizational resources and systems (Wernerfelt, 1984; Porter & Millar, 1985; Barney, 1991, 2001a, 2001b; Chaharbaghi & Lynch, 1999; Priem & Butler, 2001a, 2001b; Miller & Ross, 2003). Research results have indeed illustrated empirically that organizational resources help to significantly explain the variance in organizational systems, and vice versa (Gimenez & Ventura, 2002; Colotla, Shi, & Gregory, 2003). Other researchers have also put forward the conceptual notion of the significant relationship between resources and systems especially towards improving firms' performance (Mascarenhas, Baveja, & Jamil, 1998; Ma, 1999b; Wiklund & Shepherd, 2003).

Based on these conceptual and empirical studies and findings, the hypothesis forwarded is as follows:

H1: There is a significant positive relationship between organizational resources and systems.

3. Methodology

This research was conducted among manufacturers listed in the Federation of Malaysian Manufacturers Directory 2008. A cross-sectional study using structured questionnaire was used to obtain responses from the manufacturers. Specifically, this particular research questionnaire was developed based on a modification, extension and combination of past studies on organizational resources – 15 items (Morgan et al., 2004; Ainuddin et al., 2007), systems – 10 items (Gimenez & Ventura, 2002; Ray et al., 2004) and competitive advantage – 15 items (Gimenez & Ventura, 2002; Morgan et al., 2004; Ray et al., 2004). A pilot study was initially conducted to establish the reliability of the questionnaire scales and measurements (which was based on a five-point Likert-scale). The result of the pilot test shows that the Cronbach's alpha coefficients for the variables are well above the minimum required alpha coefficient value of 0.70 (Nunnally, 1978; Ray et al., 2004). As such, the research instrument is considered reliable and can be applied to measure the variables pertaining to the research.

For this particular study, 1000 manufacturers or samples were randomly selected from the FMM Directory 2008 (the sampling frame) to be the effective unit of analysis on the basis of being convenient, offering unrestricted choice, having the least bias and offering the most generalizability (Sekaran, 2005). As for the simple random sampling procedure or method, its choice was justified since such a sampling method has been adopted and applied previously in other earlier empirical studies concerning manufacturers in particular (Morgan et al., 2004; Ruzita Jusoh et al., 2008; Ruzita Jusoh & Parnell, 2008). In short, given the financial and time constraints faced by the researcher in conducting this study, the choice of the sampling frame and the simple random sampling procedure can be justified. From the subsequent actual survey, 127 respondents replied and completed the questionnaire (12.7% response rate). The Cronbach's alpha coefficients for the variables based on the actual survey registered values well above the minimum required alpha coefficient value of 0.70 (i.e. resources = 0.87, systems = 0.94 and competitive advantage = 0.86). This reflects the reliability and internal consistency of the research instrument's scale of measurement. Exploratory data analysis was initially conducted to ensure there is no violation of the assumptions of normality, linearity and homogeneity of variance, which are amongst the conditions needed in the multivariate data analysis.

4. Results and Discussions

Bivariate correlation was applied to test hypothesis 1. The main application of the Pearson product-moment correlation coefficients is to describe the association between these variables. Based on Cohen (1988), the guidelines to interpret the correlation coefficients (r) strength are as follows:

Small correlation	$r = 0.10$ to 0.29
Medium correlation	$r = 0.30$ to 0.49
Large correlation	$r = 0.50$ to 1.00

The relationship between organizational resources (as measured by resources) and organizational systems (as measured by systems) is investigated using Pearson product-moment correlation coefficient. Preliminary analyses are conducted to ensure there is no violation of the assumptions of normality, linearity and homoscedasticity. There is a strong, positive correlation between the two variables, $r = 0.72$, $n = 127$, $p < 0.01$, with high levels of resources associated with high levels of systems. Figure 1 below illustrates the relationship between the two variables under observation.

The result implies that the more resources are utilized in the organizations, the better the systems that are generated. The large correlation ($r = 0.72$) also suggests a strong positive relationship between resources and systems. As for the variance shared between the two variables, the coefficient of determination ($r^2 = 0.52$) indicates that resources help to explain nearly 52% of the variance in systems, and vice versa. This is a significant amount of variance. As such, this finding lends support to hypothesis 1. There is indeed a significant positive and linear relationship between organizational resources and systems.

The result suggests that the more resources are employed in the organizations, the better the systems that are initiated. The large correlation ($r = 0.72$) also implies a strong positive relationship between the organizational resources and systems. As for the variance shared between these two variables, the coefficient of determination ($r^2 = 0.52$) suggests that organizational resources help to account for nearly 52% of the variance in systems, and vice versa. This is a considerable amount of variance.

This result is conceptually in tandem with other previous research findings and such an outcome is anticipated based on the conceptual studies by Mascarenhas et al. (1998) and Ma (1999b) involving relationship between organizational resources and systems.

Mascarenhas et al. (1998) in particular emphasize the importance of having technical know-how, reliable process and close external relationship (systems) to develop a firm's core competency and its resources, which are significantly important for developing strategy towards attaining competitive advantage. Whereas Ma (1999b) argues that to achieve and sustain competitive advantage, a firm needs to creatively and proactively exploit the three generic sources of competitive advantage (i.e. ownership-based, access-based and proficiency-based), which are basically referring to the firm's resources (assets), systems (process) and capabilities (competencies).

Empirically, this result supports the findings of the study by Gimenez and Ventura (2002) concerning the performance and competitive advantage of manufacturers of food and perfumery-detergent products in Spain. Using mail questionnaires sent out to 199 manufacturers sampled from the *Fomento de la Produccion Espana 25.000* database, they attract 64 (or 32.2%) manufacturers to respond and provide the data for analysis. They analyze the relationship between internal (resources) and external (systems) integration processes, and their significant effect on firms' performance and competitive advantage. Their result confirms that internal (resources) and external (systems) integration processes are significantly and positively correlated ($r = 0.796$, $n = 64$, $p < 0.05$), and that both the resources and systems significantly lead to a better firm's performance.

Empirically, the result of this study also supports the finding of the study by Colotla et al. (2003). They empirically study the significant relationship between international factory and network capabilities and their impact on operational performance. Their study uses a case-based methodology that combined multiple interviews and ethnographic research at two (2) international manufacturing networks comprising eight (8) factories in six (6) different countries. The manufacturers are involved in the refrigeration components (*RefriCo*) and hydraulic valves (*ValveCo*) products manufacturing activities respectively. The empirical case study data suggest that superior structural resources or superior resource deployment activities result in firms obtaining competitive advantage. This case study example suggests the existence of significant interdependencies between firms' resources and systems.

The findings of the significant interaction between resources and systems in this study not only support other earlier empirical results (Gimenez & Ventura, 2002; Colotla et al., 2003) but it also supports the conceptual notion of the significant relationship between resources and systems especially towards improving firms' performance (Mascarenhas et al., 1998; Ma, 1999b; Wiklund & Shepherd, 2003). Wiklund and Shepherd (2003) study the significant relationship between resources, entrepreneurial orientation (systems) and performance. Indeed, systems have contributed towards the improvement of the resource elements in order to achieve competitive advantage.

5. Conclusion and Implications

This study examines and analyzes the relationship between organizational resources and systems. The specific theoretical and empirical contribution of this study to the literature is conceptually and empirically exhibiting a significant positive relationship between organizational resources and systems ($r = 0.72$), especially towards the attainment of firms' competitive advantage. As such, the overall contribution of this research to the literature is that it has managed to further extend and strengthen the theoretical discourse on the RBV of competitive advantage in particular by empirically illustrating the extent or magnitude of the relationship between the organizational resources and systems as perceived by Malaysian manufacturers. In other words, this study shows the essence and strength of the relationship between organizational resources and systems in their pursuit of competitive advantage and performance. The theoretical implication of this study is that it supports and extends the RBV of competitive advantage by illustrating the need for systematic management of resources towards attaining competitive advantage.

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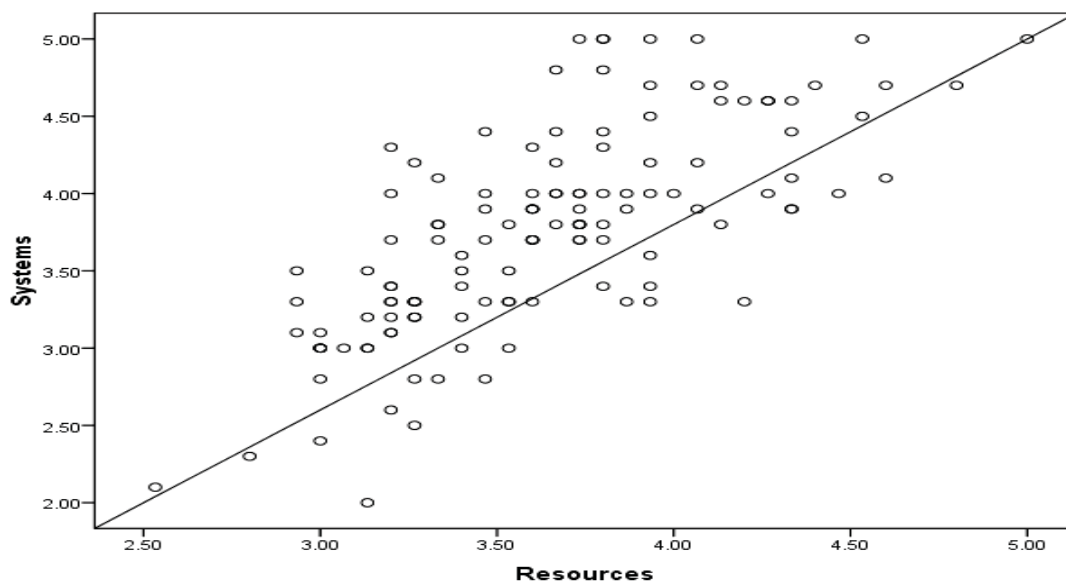


Figure 1. Correlation between Resources and Systems