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THE RELATIONSHIP BETWEEN ORGANISATIONAL RESOURCES, CAPABILITIES, SYSTEMS AND COMPETITIVE ADVANTAGE

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ABSTRACT

The main objective that business organisations in particular should strive to attain is achieving a competitive advantage position relative to their competitors.. This research empirically examined the importance of and emphasis placed on organisational resources, capabilities and systems in their relationships with competitive advantage. The overall findings indicated significant, positive effects of organisational resources, capabilities and systems collectively on competitive advantage, providing support and corroboration to the resource-based view (RBV). The total variance in competitive advantage accounted for by the multiple linear regression (MLR) model was 56.2%. In short, the findings from this study have not only contributed to the literature on the issue of the relationship between organisational resources, capabilities, systems and competitive advantage, but also provided vital information to both practitioners and policy makers on the subject matter.

Keywords: organisational resources, capabilities, systems and competitive advantage, Resource-Based View (RBV)

INTRODUCTION

The main objective that business organisations in particular should strive to attain is achieving a competitive advantage position relative to their competitors. To attain a competitive advantage level that can match those of their business rivals, business organisations initially must understand their internal strengths and weaknesses and their potential effects on the firm's competitive advantage. With information on the relative internal strengths and weaknesses of their organisation, management can be guided in the process of making strategic business decisions to improve their overall position. This research empirically

examines the importance of and emphasis placed on organisational resources, capabilities and systems in their relationships with competitive advantage.

LITERATURE REVIEW

Past studies have shown that there are significant relationships among organisational resources, capabilities, systems and competitive advantage (Wernerfelt, 1984; Dierickx & Cool, 1989; Barney, 1991; 2001a; 2001b; 2007; Ma, 1999a; 1999b; Priem & Butler, 2001a; 2001b; Wiklund & Shepherd, 2003; Morgan, Kaleka, & Katsikeas, 2004; Santhapparaj, Sreenivasan, & Loong, 2006; King, 2007; Phusavat & Kanchana, 2007; Sirmon, Hitt, & Ireland, 2007). In addition, organisational capabilities are a vital cog in the relationships among organisational resources and competitive advantage because organisational capabilities enhance the resource elements towards attaining competitive advantage. Therefore, organisational resources, capabilities and systems have been conceptualised to explain with significant assurance the level of competitive advantage. A review of the literature on the concept of organisational competitive advantage and the other variables observed (organisational resources, capabilities and systems) is conducted below.

Competitive Advantage

The pursuit of competitive advantage is indeed an idea that is at the heart of 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 of firms' competitive advantage and superior performance are mainly associated with the attributes of their resources and capabilities, which are both 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 exert a significant effect on attaining a level of competitive advantage (Richard, 2000; Arend, 2003; Powell, 2003; Porter & Kramer, 2006). The resource-based view provides an avenue for organisations to plan and execute their organisational 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 perspective of "value and quality", the main elements of which are described as "cost-based", "product-based" and "service-based". Previous studies have shown that there is a significant relationship between cost-based advantage and the performance of organisations. 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 shown that there is a significant relationship between product-based advantage and performance of organisations. 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 organisations. Firms that benefit from service-based competitive advantage compared with their rivals, for example in terms of better and/or higher product flexibility, accessibility, delivery speed, reliability, product line breadth and technical support, have achieved comparatively better performance (Gimenez & Ventura, 2002; Morgan et al., 2004).

The next paragraph addresses the issues of organisational resources.

Organisational 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 organisational 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), examined resources and categorised them as tangible resources, (namely human, physical, organisational and financial), and intangible resources, (namely reputational, regulatory, positional, functional, social and cultural). Out of the categories of resources cited above, human resources (Adner & Helfat, 2003;

Datta, Guthrie, & Wright, 2005; Abdullah, Rose, & Kumar, 2007a; 2007b; Rose & Kumar, 2007) and intangible resources (Oliver, 1997; Makadok, 2001) are deemed to be the more important and critical ones in attaining and sustaining a competitive advantage position because of their natures, which are not only valuable but also hard-to-copy relative to the other types of tangible resources (namely physical and financial). In short, conceptually and empirically, resources are the foundation for attaining and sustaining competitive advantage and eventually superior organisational performance.

In this study, particular attention will be paid to resources from the tangible and intangible perspective, the main elements of which are physical, financial, experiential and human resources. The RBV of the firm predicts that certain types of resources it owns and controls have the potential and promise to generate competitive advantage, which eventually leads to superior organisational performance. Physical resources such as the plant, machinery, equipment, production technology and capacity contribute positively towards organisational competitive advantage and eventually result in superior organisational performance (Morgan et al., 2004; Ainuddin et al., 2007). In addition, financial resources such as cash-in-hand, bank deposits and/or savings and financial capital (e.g., stocks and shares) also help explain the level of organisational competitive advantage and performance (Morgan et al., 2004; Ainuddin et al., 2007). Furthermore, experiential resources such as product reputation, manufacturing experience and brand name can account for the variation in organisational competitive advantage and performance (Morgan et al., 2004; Ainuddin et al., 2007). Human resources such as top and middle management, and administrative and production employees were also able to elucidate the extent of organisational competitive advantage and the resulting organisational performance (Adner & Helfat, 2003; Morgan et al., 2004; Datta et al., 2005; Ainuddin et al., 2007; Abdullah et al., 2007a; Rose & Kumar, 2007).

In short, organisational resources are the foundation for attaining and sustaining competitive advantage. The next section is concerned with the issues of organisational capabilities.

Organisational Capabilities

Studies have shown that there is a significant relationship between capabilities and competitive advantage (Prahalad & Hamel, 1990; Grant, 1996; Mascarenhas, Baveja, & Jamil, 1998; Ma, 1999b; Barney, 2001a; 2001b; Colotla, Shi, & Gregory, 2003; Wang & Lo, 2003; Morgan et al., 2004; Ray, Barney, & Muhanna, 2004; King, 2007; Perez-Freije & Enkel, 2007; Sirmon et al., 2007). Capabilities are conceptualised and categorised as, inter alia, organisational skills and collective learning, core competencies, resource development competence,

organisational integration, strategic decision making and alliance-building, product development, relationship-building and informational and technological capabilities (Prahalad & Hamel, 1990; Stalk, Evans, & Shulman, 1992; Cockburn, Henderson, & Stern, 2000; Eisenhardt & Martin, 2000; Helfat & Peteraf, 2003; Hoopes et al., 2003; Mills et al., 2003; Peteraf & Bergen, 2003; Morgan et al., 2004; Mayer & Salomon, 2006). With excellent strategic manufacturing practices and strategic integration, deployment of resources and capabilities, firms can attain competitive advantage and better performance (Schroeder, Bates, & Junttila, 2002; Ketokivi & Schroeder, 2004; Congden, 2005; McEvily & Marcus, 2005; Swink, Narasimhan, & Kim, 2005; Santhapparaj et al., 2006; Phusavat & Kanchana, 2007; Prajogo, 2007; Prajogo et al., 2007; Salaheldin & Eid, 2007). Organisational capabilities are indeed an important element in a firm's strategy (Singh, Ang, & Leong, 2003; Ljungquist, 2007; Pryor, Anderson, Toombs, & Humphreys, 2007), and a firm's knowledge is one of the vital ingredients in attaining competitive advantage and good performance (Kogut & Zander, 1992; Grandori & Kogut, 2002; Szulanski, Cappetta, & Jensen, 2004; Van de Ven & Johnson, 2006; Felin & Hesterly, 2007).

For this particular research, significant attention will be given to capabilities from the perspective of knowledge, skill and ability, the main elements of which are informational, product-development and relationship-building. Previous studies have illustrated that there is a significant relationship between informational capabilities and competitive advantage in organisations, where informational capabilities are measured in terms of human resource training programmes, contact and job rotation among employees (Morgan et al., 2004; Ray et al., 2004). However, research has also shown that there is a significant relationship between product-development capabilities and competitive advantage in organisations, where product-development capabilities are measured in terms of the research and development capacity, adoption of new methods in the manufacturing process and product promotional and marketing activity (Morgan et al., 2004; Ray et al., 2004). Indeed, studies have also shown that there is a significant relationship between organisations' relationship-building capabilities and competitive advantage, where relationship-building capabilities are measured in terms of the networking and relationship between the firms and their suppliers, distributors and customers (Morgan et al., 2004; Ray et al., 2004; Ainuddin et al., 2007).

The next section involves the issues of organisational systems.

Organisational 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 business purposes or objectives. Furthermore, business processes can be thought of as the routines or activities that a firm develops to get something done (Porter, 1991). Studies have shown that systems play a significant and vital role in subsequent resource, capability, competitive advantage and performance relationships (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 the RBV have pinpointed that studies on RBV have concentrated more on the attributes of resources and capabilities to build competitive advantage (Priem & Butler; 2001a, 2001b; Wiklund & Shepherd, 2003). RBV research has given less attention to the study of the relationship between firms' resources and capabilities and the way firms are organised (Wiklund & Shepherd, 2003; Ray et al., 2004; Sirmon et al., 2007). As far as organisational systems are concerned, the dearth of information on these relationships creates an opportunity for an empirical study. In other words, by focusing on competitive advantage from the RBV (Barney, 1991), this study will try to fill the gap highlighted by critics and proponents of the resource-based view, namely that the resource-based view research and studies have focused more on the attributes and characteristics of resources to build competitive advantage.

Because this area of organisational competitive advantage has been lacking in empirical research, it would be potentially beneficial to examine the relationship between these variables (organisational resources, capabilities and systems) and competitive advantage. As far as organisational competitive advantage is concerned, it is anticipated that this study will be able to fill in the theoretical and practical knowledge gap that currently exists in the literature as highlighted by critics of the resource-based view. As mentioned above, it is important to examine the magnitude of the relationship between organisational resources, capabilities and systems and their effects on competitive advantage. The findings from such a study will guide organizational decision-making in terms of which related variables should be given priority to gain competitive advantage, thus improving organisational performance. Studies have shown the importance of organisational strategy for attaining good organizational performance (Thomas & Ramaswamy, 1994; Hall Jr., 1995; Kim & Mauborgne, 2005; Rose, Kumar, & Ibrahim, 2007; 2008; Elamin, 2008). Excellent strategies can be implemented with good organisational systems that will bind and coordinate the organisational resources and capabilities towards attaining organisational competitive advantage and performance. This area is explored in this study as far as organisational systems are concerned.

This research pays specific attention to systems, from the internal and external perspectives, the main elements of which are process and interactions. Process

plays a significant role in harnessing organisational 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 play significant and vital roles in the development of organisational resources, capabilities, competitive advantage and performance relationship, where interactions are measured in terms of the emphasis on a teamwork approach, company procurement and logistic efficiency, networking and the relationship between the firms and their suppliers, distributors and customers (Gimenez & Ventura, 2002; Ray et al., 2004).

Hypotheses

This study advances the following hypotheses:

H1: There is a significant positive relationship between organisational resources, capabilities, systems and competitive advantage.

H1a: There is a significant positive relationship between organisational resources and competitive advantage.

H1b: There is a significant positive relationship between organisational capabilities and competitive advantage.

H1c: There is a significant positive relationship between organisational systems and competitive advantage.

METHODOLOGY

This research was conducted among manufacturers listed in the 2008 Federation of Malaysian Manufacturers Directory. A cross-sectional study using a 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 organisational resources (15 items, adapted from Morgan et al., 2004; Ainuddin et al., 2007), capabilities (10 items, adapted from Morgan et al., 2004; Ray et al., 2004; Ainuddin et al., 2007), systems (10 items, adapted from Gimenez & Ventura, 2002; Ray et al., 2004) and competitive advantage (15 items, adapted from Gimenez & Ventura, 2002; Morgan et al., 2004; Ray et al., 2004).

Using a 5-point Likert-scale, competitive advantage is measured based on an interval scale (non-categorical variable) (Sekaran, 2005), namely from 1 (very

low) to 5 (very high). The basis of measurement for competitive advantage is the total score of the 15 items in the questions. The main elements included cost-based advantage (2 items, namely lower manufacturing costs and lower-price products), product-based advantage (6 items, namely product differentiation, packaging, design, style, product quality and accessibility) and service-based advantage (7 items, namely product line breadth, reliability, flexibility, product innovation, delivery speed, technical support and value for the customer) (Gimenez & Ventura, 2002; Morgan et al., 2004; Ray et al., 2004). Similarly, organisational resources are measured based on an interval scale (non-categorical variable) (Sekaran, 2005), namely from 1 (very low) to 5 (very high). A total score of the 15 items in the questions is the basis of measurement for organisational resources, the main elements of which include physical resources (4 items, namely the production technology, machinery or equipment, production capacity availability and flexibility), financial resources (4 items, namely financial capital availability, accessibility, liquidity and focus), experiential resources (3 items, namely the manufacturing experience, reputation and brand name) and human resources (4 items, namely size, percentage, skill and employee loyalty) (Morgan et al., 2004; Ainuddin et al., 2007). Organisational capabilities are also measured based on an interval scale (non-categorical variable) (Sekaran, 2005), namely from 1 (very low) to 5 (very high). A total score of the 10 items in the questions is the basis of measurement for organisational capabilities, the main elements of which include informational capabilities (3 items comprising the human resources training programme, contact and job rotation among employees), product-development capabilities (3 items comprising the research and development capacity, adoption of new methods in the manufacturing process and product promotional and marketing activity) and relationship-building capabilities (4 items comprising the networking and contact between the firms and their competitors, suppliers, customers and distributors) (Morgan et al., 2004; Ray et al., 2004; Ainuddin et al., 2007). Finally, organisational systems are measured based on an interval scale (non-categorical variable) (Sekaran, 2005), namely from 1 (very low) to 5 (very high). A total score of the 10 items in the questions is the basis of measurement for organisational systems, the main elements of which include process (5 items comprising the emphasis on company vision and mission, policy, activity and standard operating procedure deployment, and key performance indicators adoption) and interactions (5 items comprising the emphasis on the teamwork approach, company procurement and logistic efficiency, networking and contact between the firms and their suppliers and distributors) (Gimenez and Ventura, 2002; Ray et al., 2004). A pilot study was initially conducted to establish the reliability of the questionnaire scales and measurements. The result of the pilot study shows that the Cronbach's alpha (CA) coefficients for the variables are well above the minimum required alpha coefficient value of 0.70 (Nunnally, 1978; Ray et al., 2004). Exploratory and

confirmatory factor analyses (EFA and CFA) were carried out and basically the results show that the item number (CA = 15, resources = 15, capabilities = 10, systems = 10), the factor number (CA = 4, resources = 4, capabilities = 2, systems = 1) and the percentage of explained variance (CA = 69.54, resources = 65.95, capabilities = 57.80, systems = 65.58) were statistically acceptable and that the overall research model fit the data and supported the reliability and validity of the pilot study.

For this particular study, 1,000 manufacturers (i.e., the sampling frame) were randomly selected from the 2008 FMM Directory to be the effective unit of analysis on the basis of being convenient, offering unrestricted choice, having the least bias and offering the most generalisability (Sekaran, 2005). With regard to the simple random sampling procedure or method, its choice was justified since such a sampling method was adopted and applied previously in other empirical studies concerning manufacturers in particular (Morgan et al., 2004; Jusoh & Parnell, 2008; Jusoh, Ibrahim, & Zainuddin, 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. Regarding the subsequent actual survey, 127 respondents replied and completed the questionnaire (a 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, (namely resources = 0.87, capabilities = 0.86, systems = 0.94 and competitive advantage = 0.86). These Cronbach's alpha coefficient values reflects the reliability and internal consistency of the research instrument's scale of measurement. Exploratory data analysis was initially conducted to ensure there was no violation of the assumptions of normality, linearity, homogeneity of variance, multicollinearity and homoscedasticity, which are amongst the conditions needed in the multivariate data analysis.

RESULTS

A standard multiple linear regression (MLR) using the enter method is used to assess the ability of three variables (resources, capabilities and systems) to explain variation in competitive advantage. According to the guidelines recommended by Tabachnick and Fidell (2007), all Independent Variables (IVs) in the standard MLR model enter the equation at once, and each one is assessed as if it had entered the regression after all other IVs had entered. Further, based on Tabachnick and Fidell (2007), each IV is evaluated in terms of what it adds to difference in predictability between the Dependent Variable (DV) and all the other IVs. The stepwise multiple regression method was not chosen because of the potential problems associated with this approach (Pallant, 2007) in addition to

some controversies associated with this procedure, in which the order of the entry of variables is based solely on statistical criteria (Tabachnick & Fidell, 2007). Preliminary analyses were conducted to ensure there was no violation of the assumptions of normality, linearity, multicollinearity and homoscedasticity. The model explains 56.2% (Table 1) of the variance in perceived competitive advantage, where F (3, 123) = 52.61, $p < 0.001$ (Table 2). As shown in Table 3, only two variables (systems and capabilities) are statistically significant, with systems recording a higher beta value (beta = 0.40, $p < 0.001$) than capabilities (beta = 0.30, $p < 0.05$). Tables 1 to 4 and Figures 1 to 4 illustrate the detailed results of the multiple linear regression analysis.

Table 1
Model summary[b]

Model	*R*	*R-square*	*Adjusted R-square*	*Std. Error of the Estimate*
1	.750[a]	.562	.551	.30526

a. Predictors: (Constant), Systems, Resources, Capabilities

b. Dependent Variable: Competitive Advantage

Table 2
ANOVA[b]

Model		*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
1	Regression	14.706	3	4.902	52.607	.000[a]
	Residual	11.461	123	.093		
	Total	26.168	126			

a. Predictors: (Constant), Systems, Resources, Capabilities

b. Dependent Variable: Competitive Advantage

Table 3
Coefficients[a]

Model		*Unstandardized Coefficients*		*Standardized Coefficients*	*t*	*Sig.*	*Collinearity Statistics*	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.414	.219		6.443	.000		
	Resources	.114	.093	.115	1.235	.219	.409	2.446
	Capabilities	.243	.087	.295	2.782	.006	.317	3.150
	Systems	.274	.071	.399	3.864	.000	.333	3.001

a. Dependent Variable: Competitive Advantage

Table 4
Collinearity Diagnostics[a]

Model	*Dimension*	*Eigenvalue*	*Condition Index*	*Variance Proportions*			
				(Constant)	Resources	Capabilities	Systems
1	1	3.974	1.000	.00	.00	.00	.00
	2	.016	15.586	.57	.00	.04	.19
	3	.005	26.963	.21	.12	.51	.81
	4	.005	29.197	.23	.88	.45	.00

a. Dependent Variable: Competitive Advantage

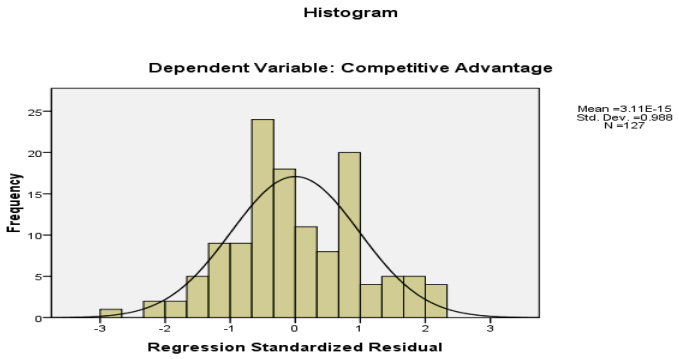

Figure 1: Histogram

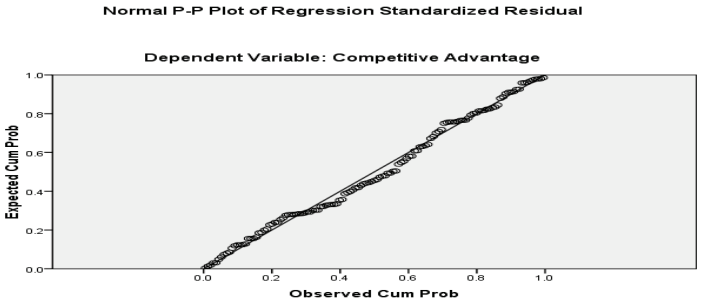

Figure 2: Normal P-P Plot of regression standardized residual

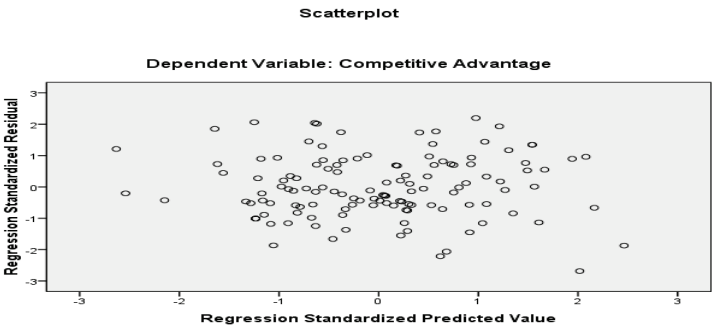

Figure 3: Scatterplot of the standardized residuals

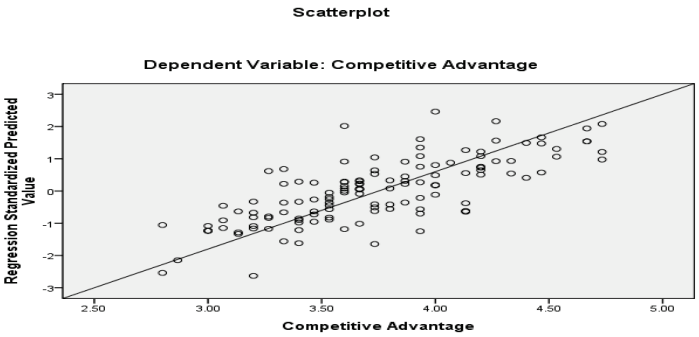

Figure 4: Scatterplot of the standardized predicted values against observed values

Table 3 illustrates that based on collinearity statistics, there is no multicollinearity among the predictor variables as the tolerance values are all above the minimum 0.10 level and the variance inflation factor (VIF) statistics are all below the 10.0 critical level (Pallant, 2007). Based on the collinearity diagnostic table obtained (Table 4), none of the model dimensions had a condition index equal to or above the threshold value of 30.0. With regard to the outliers among the predictor variables, the Mahalanobis distance maximum value of 10.69 is below the critical value of 16.27 at an alpha level of 0.001, according to the guidelines recommended by Tabachnick and Fidell (2007) for detecting the critical value for outliers, (namely, a critical value of 16.27 for three independent variables). This means that there are no outliers among the independent variables that might affect the result of the regression analysis. Figure 1 (histogram) shows that after regression, the standardised residual for competitive advantage is normally distributed (i.e., a bell-shaped distribution line or curve). Figure 2 (Normal P-P Plot of regression standardised residual for competitive advantage) further illustrates that all the points lie in a reasonably straight diagonal line from bottom left to top right, which suggests that there are no major deviations from normality. Figure 3 (Scatterplot of the standardised residuals) also exhibits that

the residuals are roughly rectangularly distributed, with most of the scores concentrated in the centre (along the zero point). The scatterplot as depicted in Figure 4 (standardised predicted values against observed values, namely competitive advantage) indicates that the relationship between the dependent variable and the predictors was linear and the residual variances were approximately equal or constant.

Therefore, the above results indicate that there are no problems with or violations of the assumptions of multicollinearity, normality, linearity, homoscedasticity and equality of variance. Hence, it is reasonable to state that the standard multiple regression model above is stable and good in explaining the variance in competitive advantage. The model implies that there is a significant positive relationship between organisational resources, capabilities, systems and competitive advantage. The total variance in competitive advantage explained by the model as a whole is 56.2% (Table 1), where F (3, 123) = 52.61, $p < 0.001$ (Table 2). These findings support H1.

As for the individual dimension, as shown in Table 3, only two independent variables (systems and capabilities) are statistically significant, with systems recording a higher beta value (beta = 0.40, $p < 0.001$) than capabilities (beta = 0.30, $p < 0.05$). This means only two hypotheses are fully supported: H1b, that there is a significant positive relationship between organisational capabilities and competitive advantage; and H1c, that there is a significant positive relationship between organisational systems and competitive advantage. The individual dimension result does not provide full support for H1a, which means there is no significant relationship between organisational resources and competitive advantage.

Therefore, in mathematical terms, the MLR model equation can be depicted as follows:

$$Y\,(\mathrm{CA}) = a + b1X1 + b2X2 + b3X3 + e$$

where:

Y = Competitive advantage (CA)
$X1$ = Organisational resources
$X2$ = Organisational capabilities
$X3$ = Organisational systems
a = Constant
e = Error terms

Based on the MLR result above (Table 3), the estimated MLR equation is as below:

$$CA = 1.414 + 0.243\ (X2) + 0.274\ (X3) + e$$

The result for the regression coefficient for resources ($X1$) is not statistically significant (beta = 0.12, $p > 0.05$).

DISCUSSION

The findings from this study are parallel to those of Santhapparaj et al. (2006) which analyse the competitive factors of semiconductor manufacturers in Malaysia. Data were collected and analysed from self-administered questionnaires distributed to a total of 200 managers from 10 different companies operating within 2 Free Trade Zones (FTZ) located in Ulu Klang and Sungei Way, Malaysia, respectively. Their study observes that there is a significant relationship between organisational resources, capabilities, systems and competitive advantage. Organisational resources (i.e., human capital development and manufacturing flexibility), capabilities (i.e., product quality improvement and technical skill development) and systems (i.e., integrated network and efficient daily operations) are identified as critical factors in achieving competitive advantage.

In another study by Phusavat and Kanchana (2007) on the issue of competitive priorities of manufacturing firms in Thailand, it was discovered that there is a significant relationship between organisational resources, capabilities, systems and competitive advantage. Ten (10) manufacturers responded to a survey that found that resources (i.e., product quality and flexibility), capabilities (i.e., know-how and innovativeness) and systems (i.e., customer service and delivery) are the major priorities in attaining competitive advantage. The results of the study were also in tandem with that of Morgan et al. (2004), who discovered that the available resources (beta = 0.26, t-value = 2.69, $p < 0.05$) and capabilities (beta = 0.56, t-value = 4.63, $p < 0.05$) are significantly and positively related to competitive advantage.

As far as the independent variable's individual dimension is concerned, only two independent variables (organisational systems and capabilities) are found to be statistically significant in our study. The results indicate that systems register a higher beta value (beta = 0.40, $p < 0.001$) compared with capabilities (beta = 0.30, $p < 0.05$). This result supports the finding in the study by Morgan et al. (2004) with regard to the significant positive relationship between capabilities and competitive advantage. However, the individual dimension results of our

study do not provide full support for the study by Morgan et al. (2004), which indicates that there is no significant relationship between organisational resources and competitive advantage.

A reasonable explanation for this inconsistent finding is that when these three independent variables (resources, capabilities and systems) are pooled together, their separate, individual effects are somewhat obscured relative to the aggregate effects. The relative strength of the resources' individual statistical significance seems to be reduced when it is examined together with the other two variables (capabilities and systems). This reduction is understandable because although all the independent variables register positive beta values, the relative strength of their coefficients varies from one variable to another. The results indicate that systems register a higher beta value (beta = 0.40, $p < 0.001$) compared with capabilities (beta = 0.30, $p < 0.05$) and resources (beta = 0.12, $p > 0.05$) in their relationship with competitive advantage. This implies that when the independent variables (resources, capabilities and systems) are pooled together in the MLR model, they generate significant, overlapping effects collectively. However, when examined individually, it is possible that a lot of shared variance is statistically removed, thus reducing the variable's individual statistical significance. It seems that the organisational resources score is not relatively high enough to consequently support a significant competitive advantage level.

In addition, according to Tabachnick and Fidell (2007), in standard multiple regression, it is possible for an IV such as organisational resources to appear unimportant in the solution when it actually is highly correlated with the DV (organisational competitive advantage). If the area of the correlation is whittled away by other IVs, the unique contribution of organisational resources is often very small despite a substantial correlation with the DV (organisational competitive advantage). For this reason, Tabachnick and Fidell (2007) suggested that both the full correlation and the unique contribution of the IV (organisational resources) need to be considered in interpretation.

Overall, the results of this study provide empirical support for other studies (Barney, 2001a; 2001b; 2007; Priem & Butler, 2001a; 2001b; King, 2007; Sirmon et al., 2007) based on the notion of the significant positive relationship between organisational resources, capabilities, systems and competitive advantage.

CONCLUSION, IMPLICATIONS AND LIMITATIONS

The overall findings indicated a significant positive effect of organisational resources, capabilities and systems collectively on competitive advantage,

providing support to and extension of the resource-based view (RBV). The total variance in competitive advantage accounted for by the MLR model was 56.2%. Therefore, the overall contribution of this research to the "literature" is that it has further extended and strengthened the theoretical discourse on the RBV of competitive advantage, in particular by empirically illustrating the extent or magnitude of the relationships among the organisational resources, capabilities, systems and competitive advantage as perceived by Malaysian manufacturers. In other words, this study shows the relative effects of organisational resources, capabilities and systems on competitive advantage. From the "practical" aspect, the findings from this research have contributed to organisational management in terms of providing valuable input to and awareness of the factors or variables to consider with regard to attaining competitive advantage. The research illustrates, with empirical evidence, that it is vital for organisations to have sound work systems to organise both their internal capabilities and their resources to achieve competitive advantage. In other words, to attain competitive advantage, firms must improve their research and development (R&D) and product promotion capabilities and also enhance their work systems, specifically the manufacturing process and standard operating procedures (SOP). In addition, organisations need to further enhance their aggregate resources, especially physical and human resources. They should also encourage healthy teamwork among their employees and adopt key performance indicators (KPI) in their operations. Strengthening the organisations' networking or interactions with their suppliers and distributors is also important. In terms of the firm's "policy", the findings from this study could help policy makers in making decisions concerning internal attributes that should be given more attention or priority relative to others. For example, the firm needs to enhance its work systems, manufacturing or production systems and HRM policies relative to its organisational financial policy to improve its overall organisational competitive advantage and performance. Furthermore, firms also need to strengthen their R&D policy and public relations to attain a better competitive advantage position over their business rivals.

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 and capabilities to attain competitive advantage. Our research supports the significance of the organising factor in the VRIO (value, rarity, imitability and organisation) framework of the RBV of competitive advantage. At the same time, it illustrates that by examining these variables (resources, capabilities and systems) in the aggregate, their individual statistical significance might diminish in their relationships with competitive advantage (i.e., the resources variable was found to be statistically non-significant). However, the implications of these findings do not mean that the organisational resources are not important factors and/or elements in attaining competitive advantage. Rather, they specifically reflect the perceived priorities of the Malaysian manufacturers as far as the

importance and ranking of these particular variables (resources, capabilities and systems) individually. In other words, the findings illustrate the magnitude of importance placed upon the organisational resources, capabilities and systems in their relationships with competitive advantage. This suggests possible policy intervention by the government through fiscal measures, tax incentives or financial initiatives as a way to improve the perceived magnitude of importance of organisational resources in their relationship with competitive advantage. Nonetheless, any forms of Malaysian government policy intervention would be similar and uniform across the board and industrial sectors. Therefore, government intervention would not guarantee sustainable competitive advantage for individual firms per se, although it might help the Malaysian manufacturing sector in general. Many government fiscal policies, tax incentives and financial initiatives are initiated with the intention of providing strong financial support or backing for the general masses. It is up to the individual firms or companies to try to use or attain the best benefits from government policy or initiatives. It is almost impossible to cater to the needs of each firm per se. In the author's humble opinion, financial initiatives might help the Malaysian manufacturing sector in general and this is, indeed, a step in the right direction.

The study has several limitations. First, this cross-sectional study is limited to Malaysian manufacturers listed in the 2008 FMM Directory. Therefore, manufacturers that are non-members of the FMM are not included in the sampling frame. The generalisability of the study's findings must be made with caution. Nonetheless, to gather information and results more specific to a particular industrial sector, other future studies should consider applying a single sector industry listing instead. Second, this research is considered to be a cross-sectional study using the quantitative approach. It is only able to capture the perception of a single respondent (i.e., top management) per manufacturer at a single point in time. The multivariate data analysis approach is used to obtain results and findings that adopt the hypothetico-deductive method (Sekaran, 2005). This cross-sectional study using the quantitative approach was selected because it is the most appropriate method available to address the issues of time and financial constraints. Therefore, future studies should consider other avenues that may be available. A longitudinal research study and/or making use of the qualitative approach can be considered, given available time and financial resources.

In short, the findings from this study not only contributed to the literature on the issue of the relationship between organisational resources, capabilities, systems and competitive advantage, but also provided vital information to both practitioners and policy makers on the subject matter.

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