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**THE IMPACTS OF INTELLECTUAL CAPITAL MANAGEMENT
PRACTICES ON MALAYSIAN PUBLIC LISTED COMPANIES**

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Abstract

Malaysia aspired to transform its economy from an industrializing economy into a knowledge-based economy by year 2020. However, the new competitive landscape has presented companies with unprecedented strategic challenges for leveraging and making knowledge more productive as a competitive resource in this complex and unpredictable environment. Competitive success of businesses is depending more on strategic management of intellectual capital (IC) and less on the strategic allocation of physical and financial resources. With this development, companies have begun to recognise the importance of IC. This study investigated IC within an organisational context by examining IC and how it affected company's performance. Data was obtained from a questionnaire survey from 178 Malaysian Public Listed companies from eight sectors. Results indicated that IC is a significant predictor to a company's selected performance measures (ROA, ROE and EPS) except for PE ratio. Thus, IC is regarded as an important organisational capability, which should be considered as a strategic resource in line with the Resource-based and Knowledge-based theories. Despite its limitations, the findings of this research have important implications for the theory of the firm and management practices. It exhibits the practical applications of IC management as a strategic tool to improve company performance.

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Keywords: Intellectual capital, resource-based view, knowledge-based view, company performance, Malaysia.



1. Introduction

Globalization of the market place imposes serious threats to emerging economies of many developing countries such as Malaysia. Technological advancements, trade liberation and global financial crisis have also changed the Malaysian economic landscape tremendously. In order to be competitive and achieve sustainable economic growth, Malaysia has embarked on a mission to develop a knowledge-based society as highlighted in its Third Outline Perspective Plan, 2001-2010 (Economic Planning Unit, 2001). Subsequently, a Knowledge-Based Economy Master Plan was launched in 2002. The Master Plan outlines the various strategies to accelerate the transformation of Malaysia to a knowledge-based economy (ISIS, 2002). The shift to the knowledge-based economy is part of the wider plan to achieve the target of the nation's vision 2020 (Salleh & Selamat, 2007).

According to Salleh and Selamat (2007), in order to remain competitive in the knowledge economy, Malaysia can no longer rely on investment in capital or physical assets; rather growth must be driven by productivity and innovation supported by effective management of both tangible and intangible resources.

As the country's economy is largely driven by private sectors, Malaysian companies must support the Government's development vision for Malaysia to become a knowledge-based economy by year 2020. In the knowledge-based economy, company's core assets are their intellectual capital (IC) made up of the combined knowledge of human, structural and relational resources (Salleh & Selamat, 2007). As more companies begin to realise the value of IC, it has taken the centre stage in company's efforts to create competitive advantages (Kaplan & Norton, 1996) and thus, the management of IC is imperative to the success of these companies.

2. Problem Statement

Intensified market competition in the new millennium has led to a shift from investments in traditional tangible assets to those related to developing and nurturing IC (Nimtrakoon, 2016; Foong & Wong, 2009). In addition, the traditional accountants focus more on the operation and tangible matters of business or organisation while the current and future accountants should focus more on the strategic and intangible matters (Carrington & Tayles, 2011). Hence, there is a dire need to manage IC and track its development as IC is recognised as the key driver of a company's performance.

Furthermore, many believe that IC represents the gap between a company's market value and book value of its net assets (Granstrand, 1999; Rahman, 2012; Sveiby, 1997). However, the market to book differences could be due to the undervaluation of tangible assets (Malhotra, 2000). The omission of IC from the traditional financial statements implies that the true value of a company is not conveyed to the external users (Edvinsson & Malone, 1997; Stewart, 1997; Pulic, 2000). Stakeholders and shareholders are unable to make economic and efficient decisions when they are being deprived of information such as IC value (Huang, Luther, & Tayles, 2007; Mohd Remali, Mat Husin, Mohd Ali, & Alrazi, 2016). As IC is vital in the value creation of companies in the 'new economy', attempts should be made to place a value on IC.

Moreover, studies have demonstrated that IC does exist at Malaysian company's level (Ousama, Fatima, & Hafiz Majidi, 2011; Mohd Remali et al. 2016). Hence, there is a strong need to develop a more comprehensive valuation method across all components of IC for these companies (Hurwitz, Lines, Montgomery, & Schmidt, 2002). As IC has become an important source of sustainable competitive

advantage, internal and external audiences such as management, investors and analysts are looking for more information on IC (Sullivan, 1998). Thus, IC measures should help managers and stakeholders make better-informed decisions that improves performance (Marr, 2008). Furthermore, Carrington & Tayles (2011) and Sullivan (1998) predicts that the future for the reporting of IC activities is dependent on the ability of companies to measure IC and their management of it.

This study, therefore, is examining the impacts of IC in developing the gaps that existed in Malaysian companies and how much IC affected the company's performance.

3. Literature Review

IC research in Malaysia started with Bontis, Keow, and Richardson (2000) who studied the IC practices for service and non-service industries by extending Bontis's (1998) model (Dumay, 2013). Subsequently, there were many IC researches carried out by the Malaysian researchers. For example, Goh (2005) used Value Added Intellectual Capital (VAIC) to measure the IC efficiency in commercial banks in Malaysia for the period 2001 to 2003. Moreover, Salleh and Selamat (2007) conducted a survey of the practice of IC management in Malaysian services and manufacturing industries. Similarly, Hazlina and Zubaidah (2008) used the correlation analysis to find out the relationship of IC and the firm's profitability for companies listed on the Bursa Malaysia Main Board for the period 2005 to 2006. Next, Ting and Lean (2009) followed by Goh (2005) examining the IC and financial performance of financial institutions in Malaysia for the period 1999 to 2007. In addition, Ting et al. (2009) carried out a research on the IC contribution to the efficiency performance of the Malaysian politically connected general insurance companies. Recently, Khalique and Pablos (2015) investigated the integrated intellectual capital model (IICM) on the small and medium enterprises (SMEs) in Malaysia.

In summary, based on the analysis done by Dumay (2009), the Malaysian researchers are the "biggest consumers" of the Journal of Intellectual Capital (JIC). This study is, therefore, timely and contributes to the IC research since one of the objectives of the study is to examine the IC management practices in the Malaysian public listed companies and how are the effects on the company's performance.

3.1. Definition/classification of IC.

Stewart (1997, p. 75) defines IC as a composition of human capital, structural capital and customer capital. Roos et al. (1997), on the other hand, classify IC into structural capital and human capital which represents "thinking" and "non-thinking" assets. This distinction acknowledges different management methods for human capital and structural capital. Other researchers such as Sullivan and Sullivan (2000), Chen et al. (2004) argue that innovation is becoming a key factor for a company to keep its long-term competitive excellence in the new millennium and the knowledge economy. Accordingly, Chen, Zhu and Xie (2004) view that economic growth in developed countries has been driven by innovation rather than by investment. In their empirical research, Chen and her colleagues proved that innovation capital is the pivotal link of IC for the samples studied in China.

In line with researchers such as Chen et al. (2004), Sullivan and Sullivan (2000) and Sullivan (1998), the present study undertakes "innovation" as one of the important components in IC conceptualisation particularly in the knowledge-based and emerging economy such as Malaysia. Having reviewed the various

literature and their analysis, this study classifies IC into four essential components – human capital (HC), structural capital (SC), customer capital (CC) and innovation capital (InC). InC is separated from the other three components of IC in order to highlight its significance to Malaysian companies and economy.

Generally, HC refers to such factors as employees' knowledge, skill, capability, and attitudes in relation to fostering performances, which customers are willing to pay for and the company's profit comes from (Chen et al. 2004). SC deals with the mechanism and structure of an enterprise that can help support employees in their quest for optimum intellectual performance, and the overall business performance can thereupon be achieved. A broad definition of this component is to include suppliers, distributors, related industry associations and other players who can contribute to the value chain. CC (or sometimes known as relational capital) concerns with the networking of associates (internally or externally) which includes loyalty and satisfaction of these associates with the organisation. InC refers to meaningful changes made to improve products, processes, or organisational effectiveness and to create new value for stakeholders. InC is the competence of organising and implementing research and development, unremittingly bringing forth the new technology and the new product to meet the demands of customers. With the increasing importance of knowledge, innovation capital has become the core of IC providing a powerful drive for a company's continuous development (Sullivan, 1998).

3.2. The relationship between IC and performance.

Employees may be considered by most companies to be their greatest assets but employees alone do not make an organisation. Strategic human resource practices developed to support an organisation's strategic plan and objectives in achieving its goals may be more purposive and context specific compared to the traditional human resource practices, but a company still needs to have structural, technological (innovation) and customer (relational) support to enable human resources to function optimally (Wright & McMahon, 1992). In order to successfully achieve its organisational goals, the company's HC must be able to interact or build a relationship with its SC, InC and CC. The culmination of these resources builds the organisation and gives it a certain personality or identity. Therefore, to analyse what organisations are, should be based on the understanding of what they know how to do (Kogut & Zander, 1992) from the resources available to them. What companies know how to do is their explicit knowledge, which is documented in their SC, as well as the tacit knowledge stored in the minds of their HC, or shared informally among members through CC, while InC helps improving the processes involved in the other capitals. Knight (1999) and Chen et al. (2004) who affirms that the interaction or relationship of the IC components can create better financial performance, which then leads to increased market value, support such view. These interactive activities, in fact, occur in a continuous cycle; where a decision to invest in the right HC results in the company having a pool of competent and capable people to develop better SC by which they can create CC and improve the delivery or productions of product and services via InC which would be reflected in increased performance.

The preceding discussions suggest that the interaction among the various components of IC would have synergistic effects on company performance. Prior studies on IC generally revealed consistent empirical findings on the relationships between IC and company's performance, particularly in developed economies (Nimtrakoon, 2016). Research by Sullivan (1998), for example, identified a positive relationship

between IC investment and financial performance based on 500 US companies. Meanwhile, Riahi-Belkaoui (2003), reported a positive association between IC and financial performance based on US multinational firms.

3.3. Conceptual framework and empirical schema.

The conceptual framework and the Empirical Schema are developed according to the IC perspective strategic stream, which focuses on the use of knowledge and the strategic contribution of knowledge and how it leverages into values or company's performance. Among the basic explanatory principles of the perspective of IC is the idea that IC enhances the performance of a company through the leveraging of intangible resources to result in company-specific attributes. The primary emphasis of this research is on IC and how it affects company performance. IC, therefore, makes up the independent variable influencing the performance of a company. Each individual component that comprises IC can independently affect performance but the issue is which component creates the greatest effects on performance. The current study is measuring the impact of IC on company performance based on the accounting and market measures.

This study applies the Resource-based View (RBV) theory in an attempt to explain how knowledge-based resources embedded in IC influence company performance. The fact that RBV holds that to achieve sustainable competitive advantage, the resources must have unique criteria i.e. being valuable, rare, imperfectly inimitable and difficult to substitute. These criteria are included as part of IC measurement.

The RBV is applicable to assess the importance of IC because the theory ascertains factors inside the company that drive competitive advantage (Juma, 2005). IC which comprises human, structural and customer capital meets the qualification of RBV, which forms company resources. The interrelationships and synergistic effects derive from the combination of IC are the intellectual capabilities which lead to competitive advantage.

The RBV holds that resources will achieve sustainable competitive advantage if they possess four outstanding criteria, which is being valuable (ability to neutralise threats and exploit opportunities), rare (monopolistic or oligopolistic markets), imperfectly imitable (not easily replicable) and difficult to substitute (not easily transferable or tradeable) (Barney, 1991; Grant, 1991; Juma, 2005). In RBV, the companies' unique, inimitable and immobile resources are considered essential to superior performance as they generate economic rent. Once companies possess these resources, then superior performance ensues (Barney, 1991).

4. Research questions

The study shall investigate the impact of IC on company performance. Thus, the prevailing research questions for these objectives are:

- What is the level of IC management practice in the companies listed on the Main Market of Bursa Malaysia
- What are the impacts of IC on the company performance based on the identified measures?

5. Purpose of the study

The main objective of this study is to know the level of IC management practices for companies listed on the Main Market of Bursa Malaysia

5.1. Hypothesis Development

IC researchers allege that the four IC components (human, structural, innovation and customer) will mutually “share, promote and grow” interactively and thus, value of the organisation enhances through the reciprocity of IC performance (Chen, Cheng & Hwang, 2005). An organisation that manages to continually increase its IC strengthens its long-term growth (Chen et al., 2005). Wang and Chang (2005) found that performance of information technology industry in Taiwan has directly affected the customer capital, innovation capital and process capital. Similarly, a positive association was observed in U.S. multinational firms (Riahi-Belkaoui, 2003); the hotel industry, the service and non-service industries (Bontis et al., 2000) and in the banking industry (Goh, 2005).

In 2015, Nimtrakoon (2016) explored the level of IC among different ASEAN countries as well as examined the association between IC and both financial and market performance, in the technology sector. It was revealed that the proportion of total IC is not significantly different across countries. However, different IC components have contributed to total IC in different proportions that is the profile of IC differs across countries (Nimtrakoon, 2016). The research further revealed a significant effect of IC on both firms’ market value and selected financial performance measures. Specifically, a positive relationship between IC and two traditional financial measures, profit margin and Return on Assets (ROA), have been identified.

Therefore, based on the above discussion, it can be summed that if IC is the most valuable value creation asset of the business, it will then contribute towards enhancing company performances (Khalique & de Pablos, 2015; Nimtrakoon, 2016; Ting & Lean, 2009; Tan et al. 2007). Hence, the current study infers that the creation and accumulation of IC should enhance company performance. Thus, this study posits the following hypothesis:

H1: There is a significant relationship between intellectual capital and company performance.

6. Research Methods

6.1. Sample.

The population frame of this study is the companies listed on the Main Market of Bursa Malaysia on 1st April 2011. The list excluded companies, which were classified under PN4 and PN17 by the Bursa Malaysia. Certain industries such as Mining, Real Estate Investment Trust (REIT) and Finance were also excluded from the study due to their specialised nature and the additional requirements imposed on the financial sector. As a result, the total population for this study is 803 companies.

6.2. Data collection.

This study employed mixed methods in deriving to the research objectives. Besides interview, the questionnaire survey played a vital role in the data collection for this study. Questionnaires were adapted from prior research such as Huang et al. (2007). The data collection period for this study was from April to

August 2011 (five months). In April 2011, questionnaires were mailed to 803 companies directed to the top management (Chief Executive Officer/Chief Operating Officer/Chief Financial Officer/Managing Director) with a cover letter and a reply-paid envelope. Respondents were given three weeks to return the completed questionnaires to the designated address. During the first three weeks after sending out the questionnaires, 105 respondents returned the questionnaires. Subsequently, a follow up letter “calling for response” was sent out one week after the due date. After all these efforts (reminders, phone calls and e-mails), an additional 74 questionnaires were received by the third week of May. A final total of 179 questionnaires were received (out of 2,409 questionnaires sent out).

7.3 Reliability.

Assessment the reliability of responses is an important aspect of questionnaire design. Reliability analysis of a measurement instrument determines the consistency with which the instrument is measuring the concept (Nunally & Bernstein 1994). In this study, reliability was operationalised as internal consistency, which is the degree of inter-correlation among items which measure the same concept (Sekaran, 2003). The 65 IC statements examined that were grouped in the four components of IC were tested for their reliability. The results of the Cronbach’s Alpha test (see Table 01) show that all the factors for the different categories of IC are consistent. Their Cronbach’s Alphas are above 0.70. As the values of Cronbach’s Alpha are above the accepted threshold level, no item of IC was eliminated.

Table 01. Reliability test based on the Cronbach Alpha

IC Components	Number of items	Cronbach Alpha
Human Capital	22	0.877
Structural Capital	19	0.744
Innovation Capital	11	0.829
Customer Capital	13	0.850
Total	65	

For this study, two main performance measures selected, namely, the accounting-based measures that consist of Return on Assets (ROA) and Return on Equity (ROE) and the market-based measures, which comprise of Earnings per Share (EPS) and Price Earning (PE) ratio. Theoretically, the accounting measures reflect the past or short-term financial performance and the market measures reflect the future or long-term financial performance (Hoskisson et al., 1994; Keats & Hitt, 1988). The business performance data were extracted from Data Stream. The financial data were extracted in July 2011.

This study tested the relationship between one dependent variable, which is performance, and four independent variables, namely, HC, SC, InC and CC. According to Hair, Black, Babib, and Anderson (2010), the most appropriate statistical technique to analyse the relationship between a single dependent variable and several independent variables is the regression analysis.

7. Findings

Prior to details analysis is carried out, the variables were checked for linearity and outliers. Further checking upon the model adequacy shows that the normal probability plot and histogram of standardized

residuals indicates a relatively normal distribution for all the significant variables. The results indicated that no outlying cases for all variables except for PE ratio. Thus, with the exception of PE ratio, it is assumed that there exists linear correlation between IC and other performance measures (ROA, ROE and EPS).

In order to determine whether significant linear correlation exists between IC and each of the selected measures, correlation analyses were carried out by using Pearson Correlation test since the variables are assumed to have a normal distribution. Again, with the exception of PE ratio, the correlation matrix results show that IC has a significant linear correlation with the rest of the variables. Once it was confirmed that there is a significant linear correlation exists between IC and the said variables, further test was carried out by performing simple regression. Simple regression was used since it involved only one independent variable (total score of IC) and one dependent variable (each of the performance measures selected). In determining the strength of the relationship between the variables, the study uses Cohen's (1988, pp.79-81) which suggests the following guidelines:

- Small : $r = 0.10$ to 0.29
- Medium : $r = 0.30$ to 0.49
- Large : $r = 0.50$ to 1.0

Table 02 shows the results from the correlation matrix between IC and selected performance measures. The correlation matrix results indicate that IC has a significant positive linear correlation with all the selected performance measures except PE ($r=-0.078$, $p\text{-value} > 0.05$). The strongest (large) correlation is between IC and EPS ($r = 0.826$) while the weakest (medium) correlation is between IC and ROA ($r=0.349$). Meanwhile, the relationship between IC and ROE is considered moderate with r -value is 0.544 .

Table 02. Results from the correlation matrix between IC and performance

	ROE	EPS	ROA	PE
Pearson Correlation	0.544**	0.826**	0.349**	-0.078
Sig. (2-tailed)	0.000	0.000	0.000	0.298
N	178	178	173#	178

** Correlation is significant at the 0.01 level (2-tailed)

Five (5) companies with missing/unavailable data.

Table 03 shows the summarised results of the relationship between IC and each of the performance measures after performing simple linear regression test. The results show that IC is a significant predictor to the accounting-based measures such as ROA and ROE. However, for the market-based measures, the results indicate that IC is a significant predictor only for EPS but not to PE ratio.

Table 03. Summarized results of the relationship between IC and performance

	Accounting-based Measures		Market-based Measures	
	ROA	ROE	EPS	PE
B	0.315	0.593	0.020	-0.078
SE	0.065	0.069	0.001	0.212
T	4.865	8.591	19.431	-1.043

Sig.	0.000	0.000	0.000	0.298
R-square	0.122	0.295	0.682	0.006
DF	1,171	1,176	1,176	1,176
F	23.668	73.811	377.50	1.088

For the accounting-based measures, in terms of IC and ROA, the results show a significant relationship between IC and ROA [DF1,171=23.668, $p < 0.05$]. It reveals that the predictor (IC) explains 12.2% variance or changes in ROA ($R^2 = 0.122$). The beta value for IC is 0.315, which means that when there is a 1-unit change in IC, the outcome variable (ROA) changes by 0.315 units. The results also indicate that there is a positive connection between IC and ROA, which means that the higher IC would result in higher/better ROA. Meanwhile, the results also show that IC is a significant predictor to ROE. The results for ROE are [DF1,176=73.811, $p < 0.05$]. It means that the predictor variable (IC) has been able to explain 29.5% variance or changes in ROE ($R^2 = 0.295$) while B value ($b=0.593$) explains that for every one unit of change in IC, the ROE will increase by 0.593. The positive linkage between IC and ROE indicates that the higher IC practices (in companies) bring about higher/better ROE.

On the contrary, for the market-based measures, the results are varies depending on the indicators selected. For example, for this study EPS and PE were the selected indicators to represent market-based measures. From the analysis, the results suggest that IC is a significant factor to EPS [DF1,176 =377.5, $p < 0.05$] but not the PE ratio. The findings indicate that IC is a significant determinant for EPS whereby p-value is less than 0.05. From Table 7.2, it shows that IC explains the 68.2% ($R^2 = 0.682$) variance or changes in EPS. The beta value for IC is 0.02, indicating that when there is 1 unit change in IC; the EPS will increase by 0.02 units. However, in terms of IC and PE ratio, the results from the correlation matrix show that the correlation is not significant between IC and PE ratio (see Table 7.1). Hence, no further test was carried out.

In summary, the accounting-based performance measures indicate that IC is a significant predictor to company's performance. For this study, ROA and ROE were selected as proxies for the accounting-based measures. These accounting-based measures were used to reflect the past performance of the companies. For both ROA and ROE, the diagnostic checks reveal that the regression model is adequate as the residuals have a normal distribution with constant variance. The results are consistent with the findings by earlier researchers such as Chen et al. (2005); Wang and Chang (2005); and Kalkan, Bozkurt and Arman (2014). According to Chen et al. (2005), the results of their research support the hypothesis that firms' IC has a positive impact on market value and financial performance, and may be an indicator for future performance.

The market-based performance measures are used to measure the future performance of companies. For this study, EPS and PE ratio were adopted to represent the market-based measures for the companies. As highlighted above, IC is a significant predictor to EPS but not for the PE ratio. The findings are consistent with the study by Firer and Williams (2003) on the publicly traded firms in South Africa since their findings also gave the mixed results. However, Firer and Williams (2003) was using EPS and return on investment (ROI) in measuring the corporate or market-based performance. Besides ROI and EPS (market-based measures), they also used productivity as another measure of company performance.

The next set of hypotheses was developed to determine whether the individual IC components, when acting independently, could explain additional variance in performance than they would if acting together. The results of the individual effects are discussed in the next sub-sections. Prior to the regression analyses, steps have been taken to ensure that all the assumptions underpin the usage of regression have been met in terms of sample size, outliers, normality and multi-collinearity. This study is using the stepwise regression approach in predicting the factors (IC components) that influence the ROA, ROE, EPS and PE.

The results of this research provide a strong support for the arguments that IC significantly impact company performance. Both the main and individual or interactive effects contribute the significant effects from the four components of IC, human, structural, innovation and customer capitals. Table 04 summaries the results of the relationships. For the main effect, with the exception of PE, the results show that all performance measures, regardless of whether accounting or market-based, have significant relationships with IC (aggregated). This implies that IC has certain financial impacts to the company's past performance as indicated by the accounting measures and have certain future implications as indicated by the market measure (EPS). Nevertheless, since the future performance involves uncertainties such as the share price and other economic factors, the impact may not be so certain, as indicated by PE.

Table 04. Summary of the relationships between IC components and performance

Intellectual Capital Components	Accounting-based Measures		Market-based Measures	
	ROA	ROE	EPS	PE
Intellectual capital (Aggregated)	Significant	Significant	Significant	No
Human capital	No	No	Significant	No
Structural capital	No	Significant	Significant	No
Innovation capital	Significant	Significant	Significant	No
Customer capital	Significant	Significant	Significant	No

However, the results of the individual effect varies by the type of the performance measures. Results of the interaction effects, as summarized in Table 04, indicate that both accounting-based measures (ROA and ROE) recorded significant interactions with certain IC components. ROE, for example, recorded significant relationships with all IC components except for human capital. As for ROA, only CC and InC show significant relationships. The market-based measures, on the other hand, produced an extreme scenario. While EPS recorded the highest interaction effects which saw the interactions with all the four IC components; PE, nevertheless, revealed that there was no interactions at all with any of the IC components.

8. Conclusion

The thrust of this research is to evaluate the effect of IC and its components (human, structural, innovation and customer capitals) on company performance. The Resource-based View (RBV) theory as well as the Knowledge-based View (KBV) theory underlie the development of the research conceptual framework and the hypothesised relationships. In assessing the company performance, this study employed two type of performance measures – the accounting-based measures and the market-based measures.

Overall, the results of this research provide a strong support for the arguments that IC significantly affect company performance. For the main effect, with the exception of PE, the results show that all performance measures, regardless of whether accounting or market-based, have significant relationships

with IC. This implies that IC has certain financial impacts to the company's past performance as indicated by the accounting measures and also have certain future implications as indicated by the market measure (EPS). Nevertheless, since the future performance involves uncertainties such as the share price and other economic factors, the impact may not be so certain, as indicated by PE.

Findings generated from this research have several significant implications to both theory and practice. Overall, the results are able to justify the theoretical underpinnings of the core theory, namely the Resource-based View and the Knowledge-based View, used in this study. However, since these theories were developed to explain the nature of tangible resources in the industrial economy, it requires some modifications and adaptations to explain the dynamic elements of intangible resources relevant to the knowledge economy. Similarly, the results also have wide implications on the way managers should be managing their total resources and business strategies so that it would result in a creation of value to the company.

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