



INTELLECTUAL CAPITAL AND FIRM PERFORMANCE OF COMMERCIAL BANKS IN MALAYSIA

Malina Hanum Mohd Kamal¹
Rosfatihah Che Mat²
Najihah Abdul Rahim³
Norhusniyati Husin⁴
Irwan Ismail⁵

ABSTRACT

Intellectual capital is an important element of the theory explaining firm performance. The purpose of this paper is to determine the relationship between the level of intellectual capital efficiency in terms of Human Capital, Capital Employed and Structural Capital (VAIC) with the commercial banks performance in Malaysia from the traditional accounting based perspective that comprises of ROA and ROE. Overall results revealed the relationship between intellectual capitals with performance of 18 commercial banks in Malaysia. Additionally, the results showed significance impact of intellectual capital variables namely Value Added Capital Employed (VACA), Value Added Human Capital (VAHU) towards bank performance. It is suggested that intellectual capital do matters and should be linked to firm productivity. The study implies that the importance of intellectual capital should be emphasized not only to the commercial banks but also to the emerging market of Islamic banks in Malaysia or any other industries for future research.

Key Words: Intellectual Capital, Firm Performance, Value Added Intellectual Coefficient, Commercial Banks, Malaysia

JEL Codes: C11, J1

INTRODUCTION

The recent financial crisis has caused mayhem in the global financial market and affects most of the countries worldwide. Many sectors such as manufacturing, operating and services faced a downfall in terms of its performance. As one of the service sector, the banking institution has become one of the major contributors towards the development of financial system not only in Malaysia but also global financial market. In Malaysia, the financial system can be divided into two group namely financial market and financial institution. The financial institution can be

¹ Faculty of Hotel and Tourism Management, Universiti Teknologi MARA (UiTM) Terengganu, 23000 Dungun, Terengganu, Malaysia

² Faculty of Business Management, Universiti Teknologi MARA (UiTM) Terengganu, 23000 Dungun, Terengganu, Malaysia

³ Faculty of Business Management, Universiti Teknologi MARA (UiTM) Terengganu, 23000 Dungun, Terengganu, Malaysia

⁴ Faculty of Business Management, Universiti Teknologi MARA (UiTM) Terengganu, 23000 Dungun, Terengganu, Malaysia

⁵ Faculty of Business Management, Universiti Teknologi MARA (UiTM) Terengganu, 23000 Dungun, Terengganu, Malaysia

reviewed as the institution that collects funds from the public and places them in financial assets, such as deposits, loans, and bonds, rather than tangible property. Focusing only on the banking sector as one of the main financial institution, the research will provide an appropriate result based on the specific methodology to measure the financial performance of the firm. The banking sector, comprising commercial banks, investment banks, and Islamic banks, is the primary mobilizer of funds and the main sources of financing to support economic activities in Malaysia.

The Asian financial crisis which occurs in 1997 has laid an impact towards banking sector in most South East Asia countries including Malaysia. During the crisis, there are numerous sectors and industry affected by the crisis. Banking system is named as one of the sector that badly affected. In reviewing the Asian financial crisis that took place in 1997, it does give a massive impact towards Malaysian banking system. Throughout the years, most of the banks in Malaysia faced problem and lead to an aggressive decision of retrenchment of employees and saw few of the banks eventually collapsed.

At the end of 1997, the licensed banking system in Malaysia consists of 35 commercial banks in which 22 are local or domestic bank while the remaining 13 are foreign banks who invest in Malaysia. Currently, there are only 22 commercial banks, 13 foreign banks and 9 domestic banks operating in Malaysia. With the significant reduction of commercial banks and domestic banks, it is crucial for the banking system in Malaysia to review its system in a way to identify the main problem faced while achieving the desired performance based on the model chosen. Therefore, it is vital for the banks to study on the financial performance of its banking system. The Association of Banks in Malaysia has signified that Malaysia banking sector will remain strong and well capitalized despite the turmoil in the global financial markets. Due to this reason, it is still important for the bank to study on the factors that contribute its financial performance. This is crucial for the bank to see and keep track on their performance since it can help the banks in identifying the appropriate sections that need to be enhanced. This paper aims to investigate empirically the relationship between the level of intellectual capital efficiency in terms of Human Capital, Capital Employed and Structural Capital (Value Added Intellectual Coefficient) with banks performance in Malaysia from the traditional accounting based perspective that comprises of Return on Asset (ROA) and Return on Equity (ROE).

LITERATURE REVIEW

Intellectual Capital

Intellectual capital management has been the core of the enterprise operation in knowledge era (Zhang *et al*, 2006). Consequently, the intellectual capital more or less exclusively used by theorists in seeking ways to make systems or groups cooperate without relying on pre-existing social trust involving research into measuring reputation, zero knowledge protocols, and authentication. Burgman *et al* (2005) has viewed intellectual capital, as an asset, represents all the stocks of what matters to the creation of enterprise value of an enterprise that is not represented on its traditional balance sheet as monetary or physical assets. Additionally, intellectual capital is the sum of everything everybody in the company knows that gives a competitive edge in the market place. Huang and Hsueh (2007) study on intellectual capital in consulting firms also signify intellectual capital to the summation of all knowledge and capabilities of every employee that brings about performance and creates wealth for the enterprises. Lonnqvist *et al*. (2009) also examined that the role of intellectual capital management in ensuring the alignment of the change content with the strategic goals of the organization.

Furthermore, intellectual capital consists of the non-physical sources of value related to employees' capabilities, organizations' resources and way of operating and the relationships with their stakeholders (Lönqvist & Kujansivu, 2004). Previous study on intellectual capital by Cabrita and Vaz (2006) indicates that intellectual capital as intangible assets that may be used as a source of

sustainable competitive advantage. Earlier studies also demonstrate that intellectual capital is positively and significantly associated with organizational performance. Theorists have often described intellectual capital as an important component between a firm's market value and the cost of replacing its assets (Bontis *et al*, 2000). In fact, their study have provided a positive contribution of intellectual capital to total firm performance based on net value added over total assets. In addition, Riahi-Belkaoui (2003) indicates that intellectual capital is positively associated with future firm performance, as measured by the net value added created. Previous research on intellectual capital has used Value Added Intellectual Coefficient (VAIC™) developed by Ante Pulic in 1998 as measurement of Intellectual Capital performance. Pulic (1998) also come out with a result that indicates the Value Added Intellectual Coefficient (VAIC) theory as the approach to measure how much and how efficiently Intellectual Capital and capital employed create value based on the relationship of three major components: (1) capital employed; (2) human capital; and (3) structural capital. This is agreed by Saengchan (2008), as the study aimed to investigate the Pulic's Value Added Intellectual Coefficient (VAIC), which includes human capital (HC), structural capital (SC) and physical capital (CA) as the efficiency measure of capital employed and intellectual capital and their impact on firms' performance. This is certainly true as other researchers such as Clarke *et al*, 2010 signify that there is a direct relationship between intellectual capital and performance of Australian publicly listed firms, particularly with capital employed efficiency and to a lesser extent with human capital efficiency. VAIC is an analytical procedure designed to enable management, shareholders and other relevant stakeholders to effectively monitor and evaluate the efficiency of Value Added (VA) by a firm's total resources and each major resource component.

Human capital

Human capital can be defined as health, knowledge, motivation and skills, the attainment of which is regarded as an end in itself because they yield fulfillment and satisfaction to the possessor. It is also referred to the employee competence in creating both tangible and intangible assets by contributing in the continuous generation of knowledge and ideas. Unlike structural capital, human capital is always owned by the individuals who have it, unless it is recorded in a tangible form or is incorporated in the organization's procedures and structures. In essence, financial sector especially banks in particular, needs a new generation of professional executives who are more customer-centric, technology-savvy, more highly qualified, flexible and agile with skill sets that are now more comprehensive than previously. In the context of globalization, high-class human capital today has become a necessity and not merely opulence (Nik Maheran, 2009).

Structural Capital

Nik Maheran (2009) has mentioned that structural capital encompasses the enabling structures that allow the organization to exploit the intellectual capital. The structure ranges from tangible items offered by an organization such as patents, trademarks and databases, to complete intangible success such as culture, transparency and trust among employees. This capital is resulted from the products or systems that firm has created over time and will remain with the enterprise when people leave (Nik Maheran, 2009). Thus, organizations that possess strong structural capital will have a supportive culture that permits their employees to try new things, to learn and to practice them (Bontis *et al*, 2000). On the other hand, structural capital represent the competitive intelligence, formulas, information systems, patents, policies, processes, that result from the products or systems the firm has created over time. Structural capital also includes all the non-human storehouses of knowledge in organizations, which include the databases, organizational charts, process manuals, strategies, routines and anything whose value to the company is higher than its material value (Bontis *et al*, 2000).

Capital Employed

Capital employed on the other hand can be defined as total capital harnessed in a firm's fixed and current assets. Viewed from the funding side, it equals to stockholders' funds or equity capital plus long-term liabilities or loan capital. However, if it is viewed from the asset side, it equals to fixed assets plus working capital. Thus, capital employed represents the value of the assets that contribute to a company's ability to generate revenue and it is also known as operating assets. This capital is normally financed by using two funding methods which are shareholders' equity and net debts. It is the assets within a manager's direct span of control and typically includes accounts receivable, inventory and plant and equipment (Nik Maheran, 2009). The banking sector is one of the sectors that utilize intensive intellectual capital. With regards to bank performance and intellectual capital, there are some researches that study the role of intellectual capital on banks' performance (Saengchan, 2008; Cabrita & Bontis, 2008). By using intellectual capital to measure performance, it has proved to give benefits towards the banks involved. In addition, Riahi-Belkaoui (2003) study has indicated that there is a positive relationship between intellectual capital and financial performance of multinational companies in United States. By seeing this, intellectual capital is proven to be compatible not only for banking industry but other industries as well.

Firm Performance

Firm performance can be measured through different tools based on financial and non-financial aspect. Performance measurement tools can help businesses evaluate their resource allocation processes in order to determine how resources can be better managed and distributed to the appropriate channels (Chen *et al*, 2005). Traditionally, many performance measures have been based around financial aspects, omitting important non-financial aspects including the importance of dynamic capability through accumulating research and development as well as marketing capability over time, to further enhance firm performance (Hsu & Wang, 2010). Besides that, the evaluation of the performance of banks, for example, usually employs financial indices, providing a simple description about the bank's financial performance in comparison to previous periods (Chen, 2001). By focusing only on financial aspects, however, is not enough for management to deal with the changing business environment. Moreover, Kwan (2003) mentioned that the financial statements is a common measure of banks generally in terms of financial health over a given period of time and it can be used to compare similar banks across the same industry or to compare industries or sectors in aggregation. Indeed, there are various ways to measure financial performance. The performance can be measured by using various methods such as accounting based technique, which consist of Return on Asset (ROA) and Return on Equity (ROE). With these results, the data must be collected in collective way in order to see what impact it can contribute in measuring banking performance. This measure will include revenues from every single department and operations units available within the banks.

Moreover, according to Tarawneh (2006) in his article regarding financial performance in Oman banking sector, it shows that not all banks that have high total capitals, deposits, credits or even total assets would indicate that the banks always had better profitability. The situation that is caused by current competition that intensely effect on banking performance. Tarawneh (2006) also noted that with increasing competition in both of national and international banking markets, contribute to the changes towards monetary unions and the new technological innovations precursor major changes in banking environment. By seeing this, it is crucial for the banks to accept the challenges and be ready to prepare in order to enter into new competitive financial environment. On the other hand, Pandey (2001) had come up with study on financial performance of company in Malaysia. In the paper, Pandey (2001) has successfully proved that by conducting a cross-section study of selected sample of companies in Malaysia. The study produced a results in which not all companies will experienced goal of maximizing profit before income tax is positively related with accounting based ratio. To be specific the ratios includes Return on Assets (ROA) and Return on Equity (ROE). Besides, Pandey (2001) mentioned that if companies keep trailing the goal of maximizing ROE, it does not have any relationship with the actual performance measured

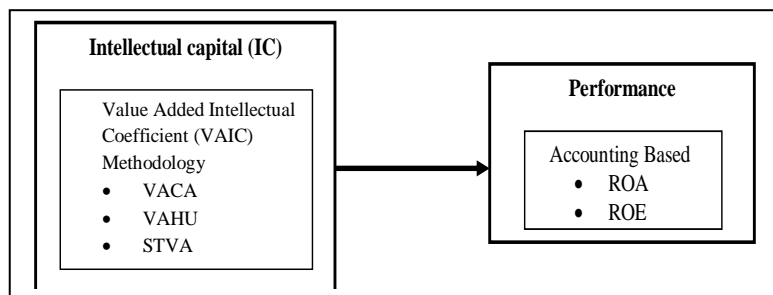
by ROE. This is because it has a negative relationship with the financial performance measure of ROA.

In other study by Pandya and Rao (1998), shows that management researchers would prefer to use various accounting based measures to measure performance. Most common variables are ROA and ROE. With the usage of ROA and ROE, it can help the management of any forms of communication to evaluate managerial performance-how well is a firm's management using the assets in order to generate accounting returns per dollar of investment, assets or sales. This is certainly true as Bram Handkar *et al* (2007) in their initial study, tried out several alternatives by gathering data on Return on Assets (ROA), Return on Equity (ROE), and Return on Investment (ROI). They found that the first (ROA) is the most universally reported figure, revealing less gaps in the data set. Mahoney and Roberts (2002) followed Waddock and Graves (1997), Return on Assets (ROA) and Return on Equity (ROE) and used it separately to measure a firm's financial performance. A one-year lag between financial performance and all independent variables was used by them, thus obtained the ROE and ROA from the Standard and Poor's Research Insight database for years 1997 through 2000. Based on the finding, they found numerous significant relationships between corporate social responsibility and profitability measures such as Return on Assets and Return on Sales. Chen *et al.* (2005) used total asset yield (ROA) as a substitute variable of enterprise performance. Based on the perspective of organizational effectiveness, Venkatraman & Ramanujam (1986) circumscribed the concept of firm performance. According to the authors, firm performance is a subset of organizational effectiveness. The narrowest conception of firm performance considers the use of financial indicators such as sales growth, Return on Assets (ROA) and Return on Equity (ROE) while the broader concept of firm performance includes emphasis on indicators of non-financial or market-based performance. Finally, the above reviews illustrate various researches that have been conducted and relevant to this particular study. These researches present past and recent literatures on characteristics of intellectual capital and firm performance.

DATA AND METHODOLOGY

This study focuses on the linkage between capital employed, human capital and capital structure as a measure of intellectual capital and company performance. This linkage is analyzed for the commercial banks operated in Malaysia that are listed by Bank Negara Malaysia (BNM). There are two various sources of data for this study which were obtained from the bank's annual reports and the Data Stream from Thomson One Bankers Databank. The data collected are pooled data that being arrange in time series dimension. These data are collected from the year 2004 to 2008. These years are chosen because the capital markets study requires ample number of years such as 5 to 10 years as will provide reasonable duration for intellectual capital data. This period is also assumed to be long enough to handle short-term irregularities and can provide a reliable estimate of company performance. The total number of observation is 18 commercial banks.

Figure-1: Research Framework



Source: Adapted from Pulic (1998)

As shown in Figure 1, there are two proxies of performance measures that are utilized as dependent variables in this analysis. These performance indicators are commonly used in studies on corporate performance. They are the Return on Assets (ROA) and Return on Equity (ROE). The definitions of these performance variables are as below:

DEPENDENT VARIABLES

Return on Asset (%)

Return on Assets (ROA) is the ratio of pre-tax income divided by average total assets as reported in the annual report. ROA reflects banks' efficiency in utilizing total assets and as an indicator of profitability and good overall indicator of bank's performance. ROA is a comparison of net income over total assets. Investor and potential investors use this ratio to evaluate how well a company's leadership and how much a profit a company generated for each RM1 in assets. This accounting measure of performance is generally accepted as a valid measure of overall company performance (Core *et al* 1999). The ROA provides information about the value added to the company that lead to better performance of that company.

Return on Equity (%)

The Return on Equity (ROE) is the after tax profit divided by book value of equity. It considers profit rates and not profit size. It represents the ultimate measure of how well the companies serve the economic interest of their shareholders'. ROE reveals how much profit a company earns in comparison to the total amount of shareholder or shareholders fund, found on the balance sheet. The shareholder equity is equal to total assets minus total liabilities. It is what the shareholders "own". Shareholder equity is a creation of accounting that represents the assets created by the retained earnings of the business and the paid-in capital of the owners. ROE is used as an alternative measure of profitability and reflects the return to owners' investment. ROE is a typical performance benchmark in many empirical studies (Abowd 1990; Main *et al.* 1996; Kern & Kerr 1997; Core *et al.* 1999).

Independent variables

Value added intellectual coefficient (VAIC) model introduced by Pulic (1998) enables the firm to measure its value creation efficiency (Pulic, 2001). VAIC method used financial statements of a firm to calculate the efficiency coefficient on three types of capital that is human capital, structure capital and capital employed. Pulic (2001) identified that firms' market value have been created by capital employed including physical and financial and intellectual capital. VAIC of a firm can be calculated using the following five steps.

Step- 1

Calculation of value added (VA_{it}) by all the resources during the 't' period of time.

$OUTPUT_{it}$ = Total income from all products and services sold during the period of 't'.

$INPUT_{it}$ = All expenses (except labor, taxation, interest, dividends, depreciation) incurred by firm for the period of t.

$$VA_{it} = OUTPUT_{it} - INPUT_{it} \quad (1)$$

Step- 2

The calculation of Value Added Capital Employed Coefficient ($VACA_{it}$)

$$VACA_{it} = VA_{it} / CA_{it} \quad (2)$$

CA_{it} = Total Assets - Intangible Assets at end of 't' period

$VACA_{it}$ = The value created by one unit of capital employed during the 't' period

Step- 3

Calculation of Value Added Human Capital Coefficient (VAHC_{it})

$$\text{VAHC}_{it} = \text{VA}_{it} / \text{HC}_{it} \quad (3)$$

HC_{it} = Investment in Human Capital during the 't' period or total salary and wage including all incentives.

VAHC_{it} = Value added by one unit of Human Capital invested during period of 't'

Step- 4

Calculation of the value added structural capital coefficient (STVA_{it})

$$\text{STVA}_{it} = \text{SC}_{it} / \text{VA}_{it} \quad (4)$$

SC_{it} = Structural capital (VA_{it} - HC_{it})

STVA_{it} = the proportion of total VA accounted by structural capital.

Step- 5

Calculation of Value Added Intellectual Coefficient (VAIC_{it})

$$\text{VAIC}_{it} = \text{VAHC}_{it} + \text{VACA}_{it} + \text{STVA}_{it} \quad (5)$$

VAIC_{it} = Indicate corporate value creation efficiency on firm resources.

Value added (VA) =
 Operating profit + Employee costs + Depreciation + Amortization
Value Added Intellectual Coefficient
 (VAICTM = ICE + CEE)
Intellectual Capital Efficiency (ICE = HCE + SCE)
Human Capital Efficiency (HCE = VA/ HC)
Structural Capital Efficiency (SCE = SC/ VA)
Capital Employed Efficiency (CEE = VA/ CE)

Findings and Analysis

This section shows the results of how intellectual capital affects bank performance in Malaysia. Based on the data collected from 18 commercial banks annual reports as listed by Bank Negara Malaysia (BNM) for the year 2004 to 2008, 10 commercial banks are represented by local banks while the remaining 8 banks are foreign banks. This section also reports on the relationship between intellectual capital and bank performance. Therefore, this part of the research will discuss firstly on the summary statistics of the raw data that are used in the estimating equations. This is followed by discussion on correlation between the variables. The discussion followed by identifying the significant impact of intellectual capital towards bank performance in Malaysia. Finally, discussion on results obtained from the intellectual capital–bank performance relationships in local and foreign banks are examined.

The Correlation Analysis

This section discusses the correlation of the variables utilized in the estimating equations. Based on Table 1, the number of population (N) is represented by 90 with a total of 18 commercial banks multiply by 5 years (2004-2008). By using at least 5 percent level of significance, only five relationships that have 1 percent level of significance and one relationship that have 5 percent level of significance.

- There is very high positive relationship between ROA and ROE with correlation 0.958
- There is moderate positive relationship between VACA and ROE with correlation 0.640
- There is positive lower relationship between ROA and VACA with correlation 0.473
- There is positive lower relationship between VAHU and ROE with correlation 0.374
- There is positive higher relationship between VAHU and VACA with correlation 0.785
- There is positive lowest relationship between STVA and VAHU with correlation 0.213

In general, it is observed that all the variables correlate significantly among themselves. Most of the variables are related to each other. Therefore, it can be said that, this correlation estimates offers logical approach to subsequent analysis of the data. In overall, this objective is strongly supported by Sàenz (2005), Cabrita and Vaz (2006), Bontis *et al*, (2000), Riahi-Belkaoui (2003) as well as Chen *et al*, (2004) who also indicates that there is a relationship between intellectual capital with the performance of an organization.

The Regression Analysis

This research involves a major analysis namely the intellectual capital–bank performance relationship, which comprised the discussion, based on overall multiple regression models of VACA, VAHU and STVA variables on two dependent bank performance variables.

In order to measure variables in explaining the performance of the bank, the data have been split into two groups represented by ROA and ROE. Table 2 represents summarization of the regression analysis from ROA and ROE perspective. Based on Table 2, the R-square for ROA is 35.4 percent. These signify that 35.4 percent of the total variations were explained by the changes of VACA, VAHU and STVA. In contrast, the R-square of ROE is equal to 46.8 percent. This shows that 46.8 percent of total variations were explained by the changes of VACA, VAHU and STVA. Therefore, any changes of VACA, VAHU and STVA will result in difference effects on the ROA and ROE R-square. From the table, the F-statistic value for ROA is 15.159 meanwhile ROE is 24.324. Both values are greater than f-table, which is equal to 2.72. Therefore, it shows the strength on the reliability prediction of the effectiveness of the data. Based on the test of regression in Table 2, the VACA and VAHU variables give the same significant impact towards ROA and ROE. However, the STVA variable does not give a significant impact towards ROA and ROE since the p-value of analysis is greater than 0.05 level of significant. This is because, most of the bank in Malaysia pay less attention on its intangible assets such as patents, trademarks and databases as a source that contribute towards firm performance. This is due to lack of awareness on the importance of structured capital as an indicator in measuring firm performance. Consequently, the result on this study shows no significant impact of STVA towards bank performance in Malaysia. Given that there is one variable that gives a significant impact towards ROA and ROE, the test of regression is considered significant for both ROA and ROE.

In overall, by looking at the summarization of Table 2, 1 unit increase in VACA will increase 867.003 ROA at 1 percent level of significant while other variables is constant. Meanwhile for ROE, an increase in VACA will increase 2336.442 return ROE at 1 percent level of significant while other variables is constant. It appears that there is a positive relationship between VACA and bank performance. This indicates that the bank really focused on its capital employed such as the advancement of technology in banking services as its main asset to achieve greater performance. However, one unit increase in VAHU will result in decrease of 2.509 in ROA at 1 percent level of significant while other variables are constant. As for ROE, 1 unit increase in VAHU will decrease about 4.158 at 5 percent level of significant while other variables are constant. It shows that, there is an inverse relationship between VAHU and bank performance. In other words, the bank should reduce its human capital in order to achieve a higher bank performance. Therefore, the estimated models that have been constructed based on the summarization of explanation above are as below:

MODEL 1:

Model 1a: Regression Model with ROA

$$ROA = -7.189 + 867.003VACA - 2.509VAHU$$

Model 1b: Regression Model with ROE
 $ROE = -25.461 + 2336.442VACA - 4.158VAHU$

Figure-2. The estimated model

DV	VACA (X_1)	VAHU (X_2)	STVA (X_3)	R-Square
ROA	867.003	-2.509	-	35.4%
ROE	2336.442	-4.158	-	46.8%

In order to get a better explanation on ROA estimated model performance, the data has been divided into local and foreign bank in Table 3. The R-square of local bank is equal to 68.1 percent, which has explained a total of variance in ROA that being predicted from the variables VACA, VAHU and STVA. Meanwhile, R-square for foreign bank is represented by 55.3 percent with the changes in VACA, VAHU and STVA to the ROA. The remaining 51.9 percent and 44.67 percent of R-square could not be explained by the regression analysis due to the omission of some important independent variables. Therefore, it shows that there are factors other than VACA, VAHU and STVA that affects the performance of ROA.

Both local and foreign banks have a greater result in F-test of 30.574 and 14.840 than the f-table value of 2.83. Based on the regression analysis, there is one variable for both local and foreign banks that gives a significant impact on ROA which is VACA. The rest of variables namely are VAHU and STVA, does not give a significant impact towards ROA since the value of p-test is less than 2.02 or greater than negative of 2.02. Therefore for VACA, every increase of 1 unit in local bank will increase 1414.875 in ROA and will make VACA in foreign bank increased by only 20.683 when other variables is constant.

From perspective of ROE, the data has dependent variables which have been divided into local and foreign bank. Based on Table 4, 71.3 percent of the R-square in local bank and a lower amount of 54.8 percent of R-square in foreign bank are both explained by the intellectual capital variables. Meanwhile, both local and foreign bank have a greater value of f-test as compared to f-table of 2.83. Both local and foreign bank F-test is represented by 35.644 and 14.566.

By looking at the local bank, there is only one variable, namely VACA that is significant at value of 1 percent level of significant. However, there is a different impact between intellectual capital variables of ROE in foreign bank since there are two variables that are significant at 5 percent level of significant. The two variables are VACA and VAHU that have a beta value of 288.975 and 1.096 respectively. Every increased in one unit VACA will increase ROE by 3684.990 for local bank model. As for foreign bank the value of regression can be presented by one unit increase in VACA that will make 288.975 ROE while the other variables is constant. Additionally, every increase in one unit in VAHU will only increased 1.096 in ROE. Therefore, the estimated models for ROA and ROE that have been constructed based on the summarization of explanation. In overall, there are two independent variables namely VACA and VAHU that give a significant impact on both ROA and ROE, which represent the bank performance.

MODEL 2:

Model 2a: Regression Model for Local Bank

$$ROA = -15.159 + 1414.875VACA$$

Model 2b: Regression Model for Foreign Bank

$$ROA = 0.214 + 20.683VACA$$

MODEL 3:

Model 3a: Regression Model for Local Bank

$$ROE = -45.444 + 3684.990VACA$$

Model 3b: Regression Model for Foreign Bank

$$ROE = 0.301 + 288.975VACA + 1.096VAHU$$

Figure-3: The estimated model

Dependent variables	VACA (X ₁)	VAHU (X ₂)	STVA (X ₃)	R- Square
ROA (Local)	1414.875	-	-	68.1%
ROA(Foreign)	20.683	-	-	55.3%
ROE (Local)	3684.990	-	-	71.3%
ROE(Foreign)	288.975	1.096	-	54.8 %

Independent Sample T-Test

In comparing the variables namely ROE, ROA, VACA, VAHU and STVA for both local and foreign bank, the independent sample t-test has been conducted and explained in Table 5. For the performance components, which are ROA and ROE, the results show no significant difference between local and foreign bank at 5 percent level of significant. Meanwhile, for the intellectual capital components, only two variables only two variables are significant at five percent level of significance. The two components are VACA and VAHU. Both VACA and VAHU are significant since the t-values are -4.787 and -6.976 which are less than -1.99. However for STVA, there is no significant difference since t-value is greater than -1.99. Since both VACA and VAHU have significant differences, it shows that there is probably a different outcome for both variables in local and foreign bank.

CONCLUSION

Based on the overall empirical analysis, it shows that there is a relationship between intellectual capital and bank performance in Malaysia. These results is strongly supported by Sàenz (2005), Cabrita and Vaz (2006), Bontis *et al*, (2000), Riahi-Belkaoui (2003) as well as Chen *et al*, (2004) who also indicates that there is a relationship between intellectual capital and the performance of an organization. Generally, it can be concluded that the estimated models have provided evidence to support the notion that variation across banks observed by intellectual capital mechanism have resulted in systematic variation in bank performance. Thus, this provide clear indication that the intellectual capital mechanism such as human capital and capital employed can create suitable impact for value maximizing bank performance. As such, intellectual capital is increasingly acceptable as important factor for sustainable corporate advantages. The results underlined the important of intellectual capital especially for capital employed and human capital towards banking performance. Therefore, intellectual capital can be recognized as one of the important indicator that has a significant impact towards bank performance.

IMPLICATIONS FOR FUTURE RESEARCH

Firstly, this study suggests that intellectual capital matters and it should be linked to firm productivity growth. In addition, despite using the Value Added Intellectual Coefficient (VAIC) model for evaluating firm performance, future research on each variable can also be done separately. As an example, the firm can focus on finding the significant impact of structural capital itself towards the firm performance since it is the most insignificant by this study. By doing this, it can increase the awareness on the importance of structural capital as a tools to evaluate firm performance. Secondly, given the increasing globalization in business, there will be demand to better understand how the characteristics of financial systems affect firm's behavior. Thirdly, since this study does not include the market-based measure in determining its performance, a further emphasis should be given in studying the role of the intellectual capital in affecting the market-based performance measure such as using the economic value added and market to book ratio.

Finally, the importance of the intellectual capital should be emphasized not only to the commercial banks but also to other industries and the emerging market of Islamic banks in Malaysia. This is because the world trend is going to the phase usage of more reliable Islamic product in the financial sector as well as banking sector. This will surely provide good research in implementing the best structure of intellectual capital for the banks and various industries in the future.

Table-1. Correlation of Determination

		ROE	ROA	VACA	VAHU	STVA
ROE	Pearson Correlation	1				
	Sig (2-tailed)	.				
ROA	Pearson Correlation	0.958(**)	1			
	Sig (2-tailed)	0.000	.			
VACA	Pearson Correlation	0.640(**)	0.473(**)	1		
	Sig (2-tailed)	0.000	0.000	.		
VAHU	Pearson Correlation	0.374(**)	0.164	0.785(**)	1	
	Sig (2-tailed)	0.000	0.129	0.000	.	
STVA	Pearson Correlation	0.001	-0.053	0.150	0.213(*)	1
	Sig (2-tailed)	0.989	0.620	0.158	0.047	.
		0.01 Level of significance**		0.05 Level of significance *		

Table-2. Comparison between ROA and ROE

	ROA	ROE
R-Square	35.4%	46.8%
F-test	F cal > F table significant influence	
	15.159 > 2.72 (significant)	24.324 > 2.72 (significant)
Coefficient		
Intercept	- 7.189 (0.003)**	- 25.461 (0.000)**
X ₁ - VACA (Beta 1) P-value	867.003 (0.000)**	2336.442 (0.000)**
X ₂ - VAHU (Beta 2) P-value	- 2.509 (0.000)**	- 4.158 (0.014)*
X ₃ - STVA (Beta 3) P-value	- 1.277 (0.340)	- 2.895 (0.342)
	0.05 level of significance *	0.01 level of significance **

Table-3. Comparison between Return on Asset (ROA) towards Local and Foreign Bank

	Local Bank	Foreign Bank
R-Square	68.1%	55.3%
F-test	F cal > F table significant influence	
	30.574 > 2.83 (significant)	14.840 > 2.83 (significant)
Coefficient		
Intercept	- 15.159 (0.000)**	0.214 (0.155)
X ₁ - VACA (Beta 1) P-value	1414.875 (0.000)**	20.683 (0.001)**
X ₂ - VAHU (Beta 2) P-value	- 2.238 (0.278)	0.032 (0.226)
X ₃ - STVA (Beta 3) P-value	- 1.589 (0.252)	- 0.006 (0.963)
	0.05 level of significance *	0.01 level of significance **

Table-4. Comparison between Return on Equity (ROE) towards Local and Foreign Bank

	Local Bank	Foreign Bank
R-Square	71.3%	54.8 %
F –test	F cal > F table significant influence	
	35.644>2.83 (significant)	14.566>2.83 (significant)
Coefficient		
Intercept	- 45.444 (0.000)**	0.301 (0.917)
X ₁ – VACA (Beta 1)	3684.990 (0.000)**	288.975 (0.014)*
X ₂ - VAHU (Beta 2)	- 4.336 (0.402)	1.096 (0.034)*
X ₃ - STVA (Beta 3)	- 3.780 (0.278)	0.290 (0.940)
0.05 level of significance *	0.01 level of significance **	

Table-5. Comparison between Local and Foreign on ROE, ROA, STVA, VAHU and VACA

Statements	Responses	N	Mean	SD	t-Value	Conclusion
ROE	Local Bank	50	8.38	46.96	- 0.978	Not Significant
	Foreign Bank	40	15.75	8.90		
ROA	Local Bank	50	4.08	17.74	1.088	Not Significant
	Foreign Bank	40	1.03	0.46		
VACA	Local Bank	50	0.02	0.01	- 4.787	Significant
	Foreign Bank	40	0.03	0.01		
VAHU	Local Bank	47	2.38	1.42	- 6.976	Significant
	Foreign Bank	40	5.82	3.01		
STVA	Local Bank	50	0.52	1.14	- 1.272	Not Significant
	Foreign Bank	40	0.76	0.44		

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