Intellectual Capital amongst Commercial Banks in Malaysia

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Abstract

In order to maximize profits and to be more innovative, industry should not only focus on the physical capital but also on the intellectual capital. Further, intellectual capital is crucial in Malaysia's development toward achieving Vision 2020. Hence, the aims of the study are to evaluate the intellectual capital efficiency and to examine the relationship between intellectual capital components and financial performance. Using 21 commercial banks in Malaysia in years 2008 to 2012, this study employs the Value Added Intellectual Coefficient (VAIC^{TM}) model and the Pooled Ordinary Least Square (POLS) estimation method. This study finds that AmBank (M) Berhad is the most efficient in utilizing its intellectual capital. Further, it is found that the intellectual capital components are positively associated with the financial performance. This study contributes towards the implementation of Malaysia's Financial Sector Masterplan (FSMP) in enhancing banks's operating efficiency, innovation and competition.
Keywords: Intellectual capital, financial performance, Value Added Intellectual Coefficient (VAIC^{TM})
JEL Codes: G21; L20.

1. Introduction

As remarked by Lehar (2012), Datuk Seri Najib Tun Razak as the Prime Minister of Malaysia has highlighted the importance of developing country in terms of intellectual capital in order to produce a mass of geniuses. The rapid economic changes in global market today are the signals of high competition among nations. Datuk Seri Najib Tun Razak in year 2012 has outlined structural change, good governance and setting performance target approach to transform banking sector especially Conventional Commercial Banks (CCBs) and Islamic Commercial Banks (ICBs) into a large and comprehensive sector by invested knowledge capital to lead the economic growth. The Prime Minister of Malaysia wants to enforce a resilient banking sector that is more efficient by to be more innovative to make decision that can be further enhanced competitiveness. As stated by Nik Maheran (2009), in the mid 1990s, Malaysia is more depended on knowledge capital investment to improve our economic growth at that time.

The change strategy from an input-driven to productivity-driven economy was slow due to the large investment for long development periods followed by the reducing in output as a result of the 1997 financial crisis. The basis for this change was the declining marginal productivity of capital reflecting by rises capital-output ratio (EPU, 2004). Over the years, many of the banks in Malaysia are facing problems and lead to results those aggressive layoffs of employees and see a number of banks collapsed. The phenomena also limit causes of the lack of human skills and technology advancement. The Asian crisis has laid an impact towards the banking sector in most South East Asia countries including Malaysia. Without a good impressive decision, effectiveness and strengthen on financial system at that time, the possibility our nation goes bankrupt are large. Previously, the licensed banking system in Malaysia consists of 35 commercial banks in which 22 are local or domestic banks while the remaining 13 are foreign banks. However, in 2012 there are 27 commercial banks, comprises 19 foreign banks and only 8 domestic banks remain.

Iqbal *et. al* (1998) stated that Islamic banking had faced challenges especially in terms of accounting standard, technology, globalization, equity institutions, relation to the central bank, financial performance, high cost of funding, training and teaching are being studied. In Malaysia, Islamic banking is in the infant stage and in trying to compete in open-economy windows where needed in this sector continues in more creativity productivity, and more variations in products. All that things can grows followed by the improvement in terms of intellectual capital efficiency. Some of the workers of Islamic banking in Malaysia do not show in high skills and knowledgeable because many of the labor had employed does not linked with Islamic banking background.

The CCBs and ICBs need to be more prepared in the development of strategies of action in terms of invested capital employed efficiencies to meet the requirement structural capital and human capital efficiencies of nation in anticipation of the changing condition of the social, economic, industrial, and business environment. This is because Ernst and Young (2011) emphasized that intellectual mostly intensive in banking industry. During financial crisis has taught us that the strength of a nation is invariably tied up with the qualities and attribute of its citizens (Emerline, 2011). The countries like Japan, Switzerland, South Korea and Singapore have specialty on their economy even though have limited national resources. This is because they have more specialized in terms of their intellectual capital pyramid and high-performance work ethics. As a result, they can maintain competitive power among countries in the global market today. Banking in Malaysia is a fast-changing and dynamic industry with new developments taking place all the time that forces by liberalization and globalization. The liberalization has started since 1987 when the interest rate on deposits is deregulated. This has been aided by technological innovations in the financial marketplace as well as the development of various financial products. The development of Malaysian domestic economy would need to switch to a more productive structure that is more innovation-driven and knowledge intensive. In addition, the 1997 to 1998 Asian financial crisis further fueled the need to strengthen the domestic financial system and inject greater dynamism and competition into the financial marketplace. The role of the financial sector therefore will also evolve from being an enabler of growth to becoming a significant catalyst and driver of economic growth and development. Consequently, in achieving a strong financial system, the Bank Negara Malaysia (BNM) has consciously and systematically developed an innovative and sophisticated financial system which has effectively mobilized and allocated resources especially in terms of intellectual capital for productive use in tandem with the economy's rapid growth and transformation. Malaysia had been introduced to a knowledge-based economy after the inception of the knowledge-based Economy Master Plan in 2002. There has been a variety of strategies carried out in order to achieve a sustainable economic growth in which Malaysia will no longer depend on investments in capital or physical capital. The growth of economy can be achieved by human knowledge productivity and effective management of both tangible and intangible assets, such as intellectual capital. The Malaysian banking sector is a suitable sector to be analyzed in terms of intellectual capital efficiency because it relies more on new technology and emphasize skills and knowledge of employees rather than just focusing on assets such as fixed and financial assets. In this era of globalization, banks have been enabled to better serve their clients with the advancement of technology such as the use of ATMs, mobile banking, electronic banking, telephone banking, smart cards, twenty-four hour services, the overall quality of services, expanded portfolios of products and services, and better customer relationship management with the use of advanced tools and a variety of merchandise. Due to the liberalization and globalization era, the banking sector in Malaysia has experienced high competitive pressure in offering the innovative and

highest quality products to the customer for being cost effective and efficient in banking operations. Last but not least, this research had lack of study by researchers today. Therefore, this study would help in order to fill the entire gap. Due to this reason, it is crucial to the banks to keep and see track on their performance since it can help the banks in identifying the appropriate sections that need to be enhanced. This study seeks empirically the relationship between the stages of intellectual capital efficiency. VAIC^{TM} model can show us which banks industries displayed more high efficiency against the others and study the relationship between intellectual capital and financial performance.

2. Literature Review
2.1. Theoretical Literature

$$Q = f(K; L)$$
Cobb-douglas function
L= Labor; K= Capital

Based on production theory on above shows, the factor of productivity is measured by the labor quality. The Cobb-Douglas production function describes the representation of many production processes. When quality of labor increases, the quality of the capital of goods also increased as stated by Petersen (1999). The production theory on above shows labor and capital are required and important thing in production of goods or services.

$$Q = AK^{\alpha} L^{\beta}$$

The function shows where A refers to total factor productivity. This theory is used as a guideline to the analysis of the Value Added Intellectual Coefficient Method (VAIC) where labour (L) refers to Human Capital while capital (K) refers to Structural Capital and Capital Employed as remark by Pulic (1998). Based on Petersen (1999), it is consistent with the concept of the production function where the assumption that all input or factor of production comprises into two categories namely labor (L) and capital (K). The α and β are the output elasticity of capital and labor. These values are constants determined by available technology. The output elasticity measures the responsiveness of output to a change in levels of either labor or capital to change in levels of either labor or capital used in production cateris paribus. As example if α equal to 0.45, a 1 per cents increase in capital usage would lead to approximately a 0.45 per cents increase in output. The production function has constant returns to scale if sum of α and β equal to 1 ($\alpha+\beta=1$), where meaning that doubling the usage of capital K and labor L will also double output Y. If sum of α and β less than 1 ($\alpha+\beta<1$) returns to scale are decreasing and if sum of α and β more than 1 ($\alpha+\beta>1$) returns to scale are increasing. There is a nonlinear relationship between the inputs L and K and the output Q, and the two inputs interact.

The author Pulic (1998) remark that capital in terms of physical and intellectual capital play pivotal role play in making the market value added for banking sectors. However, over the world more depends on intellectual capital compared to physical capital because of rapid competitive in the global market today. Intellectual capital is going to determine the quality of services offered to customer such example in terms of the high information system of services, financial system services, innovative technology system to trade the money and highly professional of workers to easily adaptable with crucial problems. Intellectual capital hard measured because it is one of the intangible assets. By using VAIC^{TM} model, it easier to evaluate the level efficiency capital invested against non-physical capital.

2.2. Empirical Literature
2.2.1. Financial Performance

The Hansen and Mowen (2005) stated that performance is the function of the ability of an organization to gather and manage the resources in several different ways to produce competitive advantage. The author Walker (2001) had explained where company's performance is measured in three dimensions where related directly to the financial report. The first dimension is company's productivity, or processing input into output efficiently. The second is profitability dimension, or the level of which company's earning is bigger than its price. The third dimension is market premium, or the level of which company's market value is exceeding its book value. Performance can be quantified by applying various methods such as traditional accounting based technique, which consist of Return on Asset (ROA). With these results, the data must be collected by collective way in order to find out

what impact it can contribute to measuring banking performance. This amount will include revenues from every single department and operations units available within the banks. According to Tarawneh (2006) in his article regarding financial performance in the Oman banking sector, it proves that not all banks that have high total capitals, deposits, credits or even total assets would indicate that the banks always had better profitability. Tarawneh (2006) also noted that with the increasing competition in both national and international market banking, contributing to a shift towards monetary union and new technology innovation key precursor to changes in the banking environment. By realizing this, it is all important for the banks to accept the challenges and be ready to prepare in order to enter into the new competitive financial environment. On the other hand, Pandey (2001) had come up with a study on the financial performance of company in Malaysia.

In this study, financial performance only focused on one dimension as stated by Walker (2001), profitability. The reason choosing the standard are for implementation of net profit before tax eliminates the effects of converting of the tax structure to profitability level; and to identifying of the company's effectiveness in managing the resources. The profit information is prime attention in appraising performance or responsibility of the management, and profit information helps the owner of stake holders appraise the company's profitability in the long run. In financial report, profits functions as a parameter to evaluate management performances, so that the investor's attention only on profit information without paying attention the procedure which is employed by the company to produce profit. This concern urges managers in maximizing the ratio of profitability. The probability can be measured by the ROA.

2.2.2. Intellectual Capital (IC)

Saengchan (2008) presented that intellectual capital refers to the asset collected the knowledge and information that can provide more competitive advantage. Zhang *et.al* (2006) had remarked that the intellectual capital management is the essence of the business operation in the rapid global era. The reasons, if you can seek for today, our environment going to change more rapidly in the global marketplace. That is why in this era, we are more depends on intellectual compared than physical capital. The high technology companies are actually can increase the values by leveraging knowledge workers and knowledge work. The intellectual capital has determined the quality of services that has catered for a customer in order to increase their degree of utility satisfaction on each goods and services that have provided for them. With the higher knowledge, many of innovative product can be created and at the same time give such high competency with other industry of banks. The efficiencies of commercial banks can give a sign in utilizing the intellectual capital. Intellectual capital is a component needed between a the cost of replacing its assets and firm's market value had studied by Bontis *et al* (2000). In fact, their work has provided a positive contribution of intellectual capital to total firm performance based on net value added over total assets. In addition, Riahi-Belkaoui (2003) suggests that intellectual capital is positively linked with future firm performance, by quantifying the net value added created. The intellectual capital comprises into three variable types such in terms of Human Capital (HC), Structural Capital (SC) and Capital Employed (CA).

2.2.3. Human Capital (HC)

The human capital defined as motivation, health, skills, and knowledge the attainment of which is regarded as an end in its self because they yield fulfillment and satisfaction to the mainframe. It is also based to the employee competency in producing both tangible and intangible assets by contributing in the continuous propagation of knowledge and ideas. Financial sector especially banks in particular, needs a new generation of professional executives who are more customer oriented, technology-savvy, more highly skilled, easily adaptable and competent with skill sets that are now more holistic than previously. In the context of globalization, high-class human capital today has become a requirement (Nik Maheran, 2009). Cabrita (2006) indicated that human capital shows have a positive and substantial relationship with ROA.

2.2.4. Structural Capital (SC)

Nik Maheran (2009) has observed that structural capital includes structure allows that enables organizations to exploit intellectual capital. Structure of intangible goods that are offered by organizations for instance patents, systems, trademarks and database, to complement the apparent success as transparency, culture and trust within workers. Resulted from the capital had results the

products or submit that firm has created over time and will continue with the enterprise when people leave that has studied by Nik Maheran (2009). Therefore, a system that receives a solid capital structure will have a culture supportive of allowing the workers to try new things, to practice and learn them by Bontis *et. al* (2000). On the other hand, represents the structure of capital formula competitive intelligence, patents, information system, processes, policies, which results from the firm's product or organization that has been made from time to time. Chan (2009) and Chen *et. al* (2005) found a significant and positive relationship between structural capital and ROA.

2.2.5. Capital Employed (CA)

Capital employed refers as the amount of capital used in current and fixed assets of the firm. It is the same fund shareholders' capital or long-term liabilities plus equity or loan capital. In terms of assets, it is equal to the working capitals and fixed asset. Therefore, the capital uses summarize asset values led to the company's ability to create income and it is also known as operating assets. The money is often funded through two methods shareholder equity financing and net debt. It is an asset in the long direct control manager and typically includes accounts receivable, inventory and plant and equipment (Nik Maheran, 2009). Based on a study by Chan (2009), Chen *et.al* (2005), and Firer and Williams (2003), the researcher had sought that capital employed efficiency has positive and substantial relationship with ROA.

2.2.6. VAIC^{TM} as Proxy for Measuring Intellectual Capital

The Barney (1991) had remarks that intellectual are recognize as a major corporate asset in which capable of generating sustainable competitive advantages and superior financial performance. In order for measuring IC from many experts, about 20 methods had developed. Such examples; Scandia Navigator model, market to book value, Tobins' Q, calculated intangible value, market capitalization method, balance score card and Real Option Based Approach as the newest one. Among those methods, VAIC^{TM} is a model that has been used widely in many academic research publications (for example Firer and Williams, 2003). Several major reasons underscore use of VAIC^{TM} in many researches. First, VAIC provides a standardized and consistent basis of measure (Pulic and Bornerman, 1999). Second, all data used in VAIC calculation is based on audited information; therefore calculation can be considered objective and verifiable (Pulic, 1998, 2000). Besides those reasons, this research decide to use VAIC^{TM} as proxy to measure IC since this method is considered as the most appropriate tools in evaluating the significant of IC for Conventional Commercial Banks (CCBs) and Islamic Commercial Banks (ICBs).

2.2.7. The Influence of Intellectual Capital toward Financial Performance

Pulic (1998) come out with an outcome that indicates the Value Added Intellectual Coefficient (VAIC^{TM}) theory as the approach to measure how efficiently and how much Intellectual Capital and capital employed create value based on the relationship of three main components in which confronted such as human capital; structural capital; and capital employed. This is agreed by Saengchan (2008), as the study aimed to identify 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.

Several research indicates significant prove if intellectual capital influence to organization performance. In globalization era, all organization effort has to competitive advantage. To achieved competitive advantage needs both physical capital and intellectual capital. The study result of Hitt *et al*. (2001) proved the role intangible capital more dominant to compare with real capital. Other research indicates that intellectual capital recognized as important resources which give a use for create organization efficiency, effectiveness, productivity, and innovation better than physical capital and financial capital by Najibullah (2005). The research result of Pulic (1999) indicates that intellectual capital can create value added for the organization consistent with research before, intellectual capital has potential as a wealth creator in business organization (Walker, 2001; Usoff *et al*., 2002; and Karp, 2003).

Interest for depth further, the Peña (2002) result proved his theory, that the new organization performance depends on intellectual capital management which achieved by the entrepreneur in the

preparation period. Walker (2001) did research the relation between intellectual capitals with three dimensions of organizational performance; there are profitability, productivity, and market price. Walker's result there is a significant positive relation between human being capital and organizational performance in both yang low knowledge base organization and high knowledge-based organization.

3. Data and Methodology

Figure-1. Research Framework


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INDEPENDENT VARIABLES                    DEPENDENT VARIABLE
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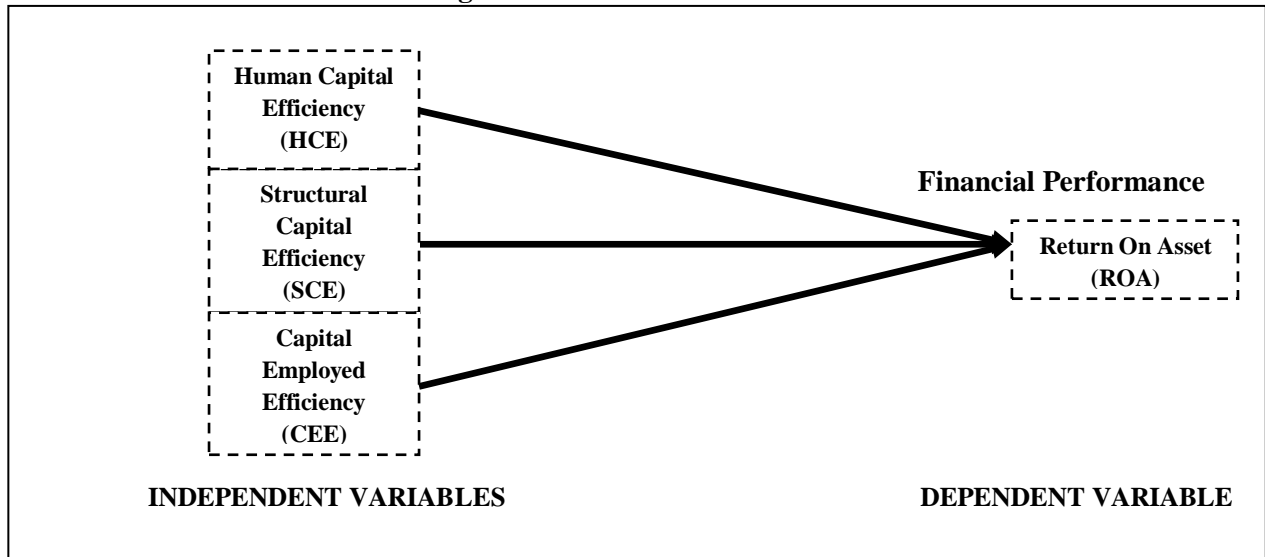
3.1. Dependent Variable
3.1.1. Return on Asset (ROA)

The ROA is the ratios between average company's incomes divided by average tangible assets during period of time. ROA reflects banks' efficiency in utilizing total assets and as an indicator of profitability and good overall indicator of bank's performance. This accounting measure by the investor to knows how well a company's leadership and how much a profit such company generated for each RM1 in assets. The ROA provides information about the value added to the company that lead to better performance of that company.

3.2. Independent Variables

VAIC is the sum of total of the three ratios calculated above in example the sum of HCE, SCE and CEE, and indicates the intellectual; capability of the banks. The independent variable are also known as Value Added Intellectual Coefficient which adapted by Pulic (1998). The method functions to measure the bank's level of efficiency performance in utilizing their IC. VAIC use accounting data and it does not focus on the cost of the firm. Higher values for VAIC signal a greater efficiency in the use of resources such as HC, SC and CA. The study can evaluate all resources efficiency indicator by referring the VAIC^{TM} Model below:

$$VAIC = HCE + SCE + CEE$$

The Value Added Intellectual Coefficient (VAIC^{TM}) Model introduced by Pulic (1998) is function to measure the level ranking efficiency of CCBs and ICBs in Malaysia for a period of years 2008 to 2012. The components of VAIC were collected based on formulae illustrated below;
Output$_{it}$ = Gross income from all products and services are sold during period of t that generated by an organization during the year by selling product or services.

Input$_{it}$ = Operating Expenses (Excluding Personnel Costs) incurred by the firm for a period of t towards purchase of inputs. All expenditure related to the human resources would be excluded from the input because human capital would be treated as an investment (Human Capital) and not a cost.
Value added$_{it}$ = Output$_{it}$-Input$_{it}$

HC_{it} = Personnel cost; considered as an investment for period of t. The most important components of intellectual capital are human capital. It covers all expenditure on employees as a key resource who invests their knowledge, skills and intellect in managing the organization and creating wealth. Hence, the expenditure on employees is considered as an investment or human capital.

SC_{it} = $VA–HC$ (an appropriate proxy for structural capital), a result of human capital's past performance for period of t. Refers to the organization structure, organization and processes that enable an organization to exploit intellectual capital.

CA_{it} = Capital employed (both physical and financial capital); total assets excluding computer expenditure for period of t. It includes the net physical, and material assets of the organization employed for attaining financial goals. (Exclude the intangible assets).

HCE_{it} = VA/HC (indicator of human capital efficiency for period of t). It is a ratio of VA to HC. This ratio gives the contribution made by every unit of money invested in HC to the VA in the organization.

SCE_{it} = SC/VA (indicator of structural capital efficiency for period of t). It is a ratio of SC to VA.

CEE_{it} = VA/CA (indicator of capital employed efficiency for period of t). It is a ratio of VA to CE. This ratio gives the contribution made by every unit of CE to the VA in the organization.

4. Findings and Analysis
4.1. The Rankings Level Efficiency

Table 1 shows the results of measurement for VAIC efficiency components namely as HCE, SCE, and CEE that was computed from the year 2008 to 2012 in average. The ROA shows symbolized for the financial performance. To rate the level of efficiency for the banks, the HCE, SCE, and CEE were plus together into equal for VAIC efficiency. Therefore, the VAIC^{TM} Model will determine which bank shows the most efficient compare to the others into such ranking in order to utilize their capital to create value added. In terms of Human Capital Efficiency, AmBank (M) Berhad dominated with HCE of 17149.9946. The HCE means that, for every RM1 value invested, AmBank (M) Berhad was created RM 17149.9946 million from its human capital. Furthermore, in terms of Capital Employed Efficiency (CEE), AmBank (M) Berhad also dominated with CEE value of 0.0899, where for every RM1 value invested, AmBank (M) Berhad was created RM 0.0899 million from its capital employed.

In terms of Structural Capital Efficiency, Asian Finance Bank Berhad dominated with SCE of 13.1256. In 2008 to 2012, the AmBank (M) Berhad have relatively HCE, compared to CEE but not more to SCE in order to utilizing their intellectual capital. As a whole, the banks have relatively HCE, followed by SCE and CEE. Therefore, findings suggest that Capital Employed Efficiency (CEE) was still considered highly by the CCBs and ICBs for improving the financial performance of the banks. It suggests physical capital (capital employed) remains as a prominent factor in sustaining and boosting the banks whilst human capital efficiency is more considered for increased the profitability.

Table 2 shows the results from the analysis using a VAIC^{TM} model for the year 2008 to 2012 measured as average in order to determine the ranking level of efficiency among CCBs and ICBs bank industry in Malaysia. The result purposed to fulfill the main objective. All the calculation is amounted by referring the author Bavana and Narender (2012).

The outcome of the study has displayed that, in term of Intellectual Capital Efficiencies among both types of banks, AmBank (M) Berhad has the highest efficiency ranking with a VAIC^{TM} score of 17151.0758, followed by CIMB Bank Berhad with VAIC^{TM} of 2289.6092 and Asian Finance Bank Berhad in 13.6421. The least efficient bank is Bank Muamalat Malaysia Berhad with VAIC^{TM} of 2.3755. As a conclusion, AmBank (M) Berhad from the CCBs type of bank in first ranking level. Based on the production functions theory, the equation used natural log model in order to change the functions from non-linear change to be linear. The production function shows the most efficient compare to another commercial banks because of the banks gain increasing returns to scale of α and β more than 1 (α+β>1) in which with little invested values for the resources such as Human Capital (HC), Structural Capital (SC) and Capital Employed, AmBank (M) Berhad can gain more value added intellectual capital.

Table-1. Result From The Analysis Using VAIC^{TM} for The Year 2008 to 2012

Banking Institution in Malaysia	HCE	SCE	CEE	VAIC
Commercial Conventional Banks (CCBs)				
Affin Bank Berhad	3.3277	0.6990	0.0223	4.0490
Alliance Bank Malaysia Berhad	2.6996	0.6274	0.0239	3.3509
AmBank (M) Berhad	17149.9946	0.9912	0.0899	17151.0758
CIMB Bank Berhad	2288.5206	0.9988	0.0898	2289.6092
Hong Leong Bank Berhad	3.5258	0.7129	0.0196	4.2583
Malayan Banking Berhad	3.1964	0.6852	0.0240	3.9056
Public Bank Berhad	4.6330	0.7834	0.0259	5.4423
RHB Bank Berhad	3.4949	0.7124	0.0269	4.2342
Bangkok Bank Berhad	2.5295	0.5812	0.0145	3.1252
Citibank Berhad	3.8607	0.7357	0.0344	4.6307
Deutsche Bank (Malaysia) Berhad	3.4463	0.6680	0.0168	4.1312
HSBC Bank Malaysia Berhad	3.1839	0.6794	0.0288	3.8921
J.P. Morgan Chase Bank Berhad	3.8712	0.6711	0.0220	4.5643
OCBC Bank (Malaysia) Berhad	4.2508	0.7631	0.0246	5.0385
Standard Chartered Bank Malaysia Berhad	3.8773	0.7330	0.0258	4.6361
The Royal Bank of Scotland Berhad	1.8551	1.4179	0.0138	3.2867
United Overseas Bank (Malaysia) Bhd.	3.9772	0.7482	0.0246	4.7501
Islamic Conventional Banks (ICBs)				
Al Rajhi Banking & Investment Corporation (Malaysia) Berhad	1.1050	1.3668	0.0119	2.4838
Asian Finance Bank Berhad	0.4905	**13.1256**	0.0260	13.6421
Bank Islam Malaysia Berhad	2.3468	0.5708	0.0243	2.9419
Bank Muamalat Malaysia Berhad	1.8999	0.4603	0.0154	2.3755

4.2. The Regression Analysis

The descriptive statistics is used raw data and this statistics also convey the important aspects of the distribution of research data. Table 3 shows that the data are normally distributed. Based on the probability shows on Jaque-Bera is statistically significant at 1% significance of level. Therefore the null hypothesis is not rejected in which the observations are normally distributed. The null hypothesis will be rejected if the hypothesis of normal distribution at the 5% level but not at the 1% significance level. The residuals can be used in Z tests or in any other test derived from the normal distribution, such as T-tests, F-tests, and Chi-Square tests. Kurtosis measures the peakedness or flatness of the distribution of the series. The kurtosis of the normal distribution is 3. The kurtosis exceeds 3, the distribution shows is peaked relative to the normal.

The result of regression analysis for all the components of VAIC illustrated in table 4 below purposed in order to achieve the second objectives by measuring the association between VAIC efficiency components and the financial performance of CCBs and ICBs in terms of financial profitability indicated by return on asset (ROA). Finding result is consistent with Emerline (2011) and Gujarati (2009).

Table-2. VAIC^{TM} Ranking for CCBs and ICBs

VAIC Rank	BANK	Average VAIC Score
1	AmBank (M) Berhad	17151.0758
2	CIMB Bank Berhad	2289.6092
3	Asian Finance Bank Berhad	13.6421
4	Public Bank Berhad	5.4423
5	OCBC Bank (Malaysia) Berhad	5.0385
6	United Overseas Bank (Malaysia) Bhd.	4.7501
7	Standard Chartered Bank Malaysia Berhad	4.6361
8	Citibank Berhad	4.6307
9	J.P. Morgan Chase Bank Berhad	4.5643
10	Hong Leong Bank Berhad	4.2583
11	RHB Bank Berhad	4.2342
12	Deutsche Bank (Malaysia) Berhad	4.1312
13	Affin Bank Berhad	4.0490
14	Malayan Banking Berhad	3.9056
15	HSBC Bank Malaysia Berhad	3.8921
16	Alliance Bank Malaysia Berhad	3.3509
17	The Royal Bank of Scotland Berhad	3.2867
18	Bangkok Bank Berhad	3.1252
19	Bank Islam Malaysia Berhad	2.9419
20	Al Rajhi Banking & Investment Corporation (Malaysia) Berhad	2.4838
21	Bank Muamalat Malaysia Berhad	2.3755

Table-3. Descripitive Analysis

	ROA	HCE	SCE	CEE
Mean	0.015479	928.3851	1.368164	0.028816
Median	0.011100	3.288900	0.711300	0.023700
Maximum	0.161700	98534.82	52.47310	0.194100
Minimum	-0.015100	-15003.95	-0.528100	-0.002300
Std. Dev.	0.024950	9765.165	5.247989	0.029390
Skewness	3.963454	9.609186	9.062558	3.492365
Kurtosis	20.60794	96.97043	87.63089	16.72968
Jarque-Bera	1631.329	40249.07	32772.72	1038.146
[P-value]	0.000000	0.000000	0.000000	0.000000
Sum	1.625300	97480.43	143.6572	3.025700
Sum Sq. Dev.	0.064742	9.92	2864.305	0.089835
Observations	105	105	105	105

All variables have been transformed into the natural log functional form. The functional form allows for the analyst to estimate the ROA elasticity in order for measuring the responsiveness of ROA to change in level of HCE, SCE, or CEE. It follows the theory of Coubb-Douglas production functions and is supported by the Emerline (2011). The equation shows three independent variables have positive correlation with the Return on Asset (ROA). ROA is the function determined by HCE, SCE, and CEE. The values of 0.0964 represent positive coefficient values of variables for Human Capital Efficiency (HCE), 0.4782 for Structural Capital Efficiency (SCE) and 0.9183 for Capital Employed Efficiency (CEE). The value of coefficient of Human Capital Efficiency indicates that every one percent increase in the Human Capital Efficiency, the changes in Return on Asset is expected to increase by 0.0964 percent.

Table-4. The Results of Regression Analysis

Variable	lnROA
lnHCE	0.0964***
	(3.2169)
lnSCE	0.4782***
	(4.9979)
lnCEE	0.9183***
	(9.9910)
F-Test	130.7323***
R-square	0.8100
Adjusted R-square	0.8038
Durbin Watson	1.6902

T-statistics are presented in parentheses
*** Significance at the 0.01 level

It is depending on other independent variables are held constant. Since the value is positive, it suggests that there is a positive relationship between these independent variables Human Capital Efficiency (HCE) and dependent variable of Return on Asset (ROA). The value of coefficient of Structural Capital Efficiency (SCE) indicates that every percent unit increase in the Structural Capital Efficiency, the changes in Return on Asset is expected to increase by 0.4782 percent. It is depending on other independent variables are held constant. Since the value is positive, it suggests that there is a positive relationship between these independent variables, Structural Capital Efficiency and the dependent variable of Return on Asset. The value of coefficient of Capital Employed Efficiency (CEE) indicates that every one percent increase in the Capital Employed Efficiency, the changes in Return on Asset is expected to increase by 0.9183 percent with regards other independent variables are constant. Since the value is a positive, it indicates a positive relationship between these independent variables, Capital Employed Efficiency and dependent variable of Return on Asset.

Therefore, the study can conclude that all the independent variables are significant and the null hypothesis can be rejected. The significant relationship means that the both commercial banks show higher level of efficiency in utilizing their intellectual resources due to greater human capital efficiency and structural capital efficiency (Emerline, 2011).

5. Conclusion

As global environment grows rapidly, our nation and especially the organization have confronted with worldwide competition. In order to boost up and to be sustained with competitive advantage, the knowledge, expertise, high skilled worker, easily adaptable to the task, the staff needs to be viewed as a vital strategic resource in order to shows more efficiency. To gain competitive advantage in today, they depend on the strategic and efficient utilization of their intellectual capital and intangible resources that would determine and reflect in the quality of service, customer satisfaction and brand building. By improving intellectual capital standard index into all the banks, it was not possible in the future in our economy would to be the same levels like Japan, Korea, and Switzerland countries. Three countries that actually have advance in technology because of the higher knowledge and hard work groups among their ethnics.

Furthermore, it is inefficient if our nation just monitor the financial asset or physical capital but not to intellectual capital on today. The intellectual capital is based on knowledge approach in order to help our country to achieve Vision 2020 on forthcoming of years. By looking deeper on this area, many of researchers needed to explore the best intellectual capital measurement indexes within the companies. Responds from this statement, the federal agencies can generate better decision making and at the same time help by giving some guideline for intellectual capital development. Furthermore, it can show some signal in which, promotes a healthy comparison among company within the industry and improving transparency of the system. This study is also significant to the implementation of the Financial Sector Master Plan (FSMP) by the banking institutions to advance the level efficiency on operating and allow innovative strategies more focusing on business performance in enhancing competition and innovation. This subject will help the bankers to see how strong they are in

intellectual capital efficiency compared to the foreign banks. For the investors, helps them in modifying investment strategies. The last reason is in order to allow banks to benchmark themselves to boost up the capability in value creation. Therefore, all the commercial banks in Malaysia have to make more efforts to improve the efficiency human, structural capital and need to work at enhancing the efficiency capital employed. A significance reason for the higher efficiency of capital employed in certain banks in this study might be the fact that most of them have been in existence for a long period and have depreciated much of their fixed assets. The commercial banks are relatively of recent origin and as their fixed assets get depreciated over time, the efficiency of capital employed might to some extent automatically improved.

The relationship of the independent variable and the dependent variables are consistent with results of other researchers such as Emerline (2011), Cabrita and Vaz (2006), Bontis *et al* (2000). The writer had stated that intellectual capital has a positive and significant relationship with the financial performance. In addition to that, Chan (2009), Chen et al (2005), and Firer and Williams (2003), the researchers had found that Capital Employed Efficiency (CEE) has a positive and significant relationship with ROA. According to the recent research by Chan (2009) and Chen et al (2005), the Structural Capital Efficiency (SCE) and Human Capital Efficiency (HCE) had looked up by shows significant and positive relationships with ROA.

The more understanding of the VAIC^{TM} method into national account will assist in the implementation of national policies to better align intellectual capital with national objectives to achieve status as a developed country as due to Vision 2020. Malaysia government policy makers can receive the benefit of its economy from understanding the determinants of intellectual capital investments in generating economic growth by measuring the size and contribution of intellectual capital in our economy that can point to the drivers of long-term economic growth. In reason to achieve Malaysia's goal as developed country and high income of human capital in year 2020 forced this country to apply this method to boost up our economic growth by introducing improving knowledge of intellectual capital in modern economies to many sectors especially in banking sectors. In conclusion, based on the result that has obtained and by the recent study by another researcher, the study can conclude that this research is consistent with the hypothesis of recent research and these findings suggest can helps banks in preparing a roadmap in improving their future performance.

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