Exploring the Relationship between Intellectual Capital and Performance of Commercial Banks in Malaysia

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ABSTRACT

In today's economy, intellectual resource is becoming increasingly significant as successful companies tend to possess characteristics that continually innovate, attempting new technologies and emphasize on skills and knowledge of their employees. As globalization and liberalization takes its course, the Malaysian government has embarked on developing several strategies to accelerate its economy transformation to a knowledge-based economy. With knowledge being the new engine of corporate development, the aim of this study is to examine the relationship between the intellectual capital namely human capital efficiency (HCE), capital employed efficiency (CEE) and structural capital efficient (SCE) on banks' profitability ratio, specifically return on asset (ROA) and return on equity (ROE). This study used a model called value added intellectual Capital ($VAIC_{TM}$) introduced by Pulic (1998). The data covers 9 local commercial banks in Malaysia over 6 years from year 2005 to year 2010. Static panel fixed-effect model is used to analyze the data. The empirical results suggest that SCE and CEE has a positive significant relationship on ROA and ROE. On the other hand, the HCE has negative significant relationship with ROA and ROE. Overall, the intellectual capital has a positive relationship with ROA and ROE for local commercial banks in Malaysia.

Keywords – Intellectual Capital, Value Added Intellectual Coefficient, Bank Performance

1.0   Introduction

Malaysia is a compelling illustration of how a developing economy successfully utilized its factor endowments to achieve strong economic growth over a short period of time (Alejandro et al., 2010). Since its independence, Malaysia's pursuit of a trade-intensive policy and government initiated establishment led to dramatic increase in the gross domestic product (Economy Watch, 2010). Such national effort proved to be the main driver of Malaysia's economy. Accordingly, to succeed in becoming a high-income country

and gain the developed nation status of Malaysia's long-term plan Vision 2020, the 10th Malaysian Plan was published in 2010 (World bank, 2011). The plan proposed for a much desired transition from currently manufacturing-efficiency driven base economy to an innovative knowledge service-oriented base economy (Economic Planning Unit, 2010).

The 1997 Asian crisis revealed Malaysia's severe structural weaknesses in its financial institution. Due to excessive investment in manufacturing, the industrial over-capacity was heavily detrimental to the services and small medium-sized enterprises (SMEs). Lack of domestic technological capabilities including information infrastructure and qualified human capital, hinders the development of the ICT industries (Abd-Kadir et al., 2010). The change in competitive advantages of rising labour costs which have led to a decline in foreign direct investment made investment in education and innovation all the more substantial (Alias Radam et al., 2010). Importantly, these failures run counter to what is deemed crucial to developing knowledge-based economies which was a significant feature in the government development strategies (Economy Watch, 2011).
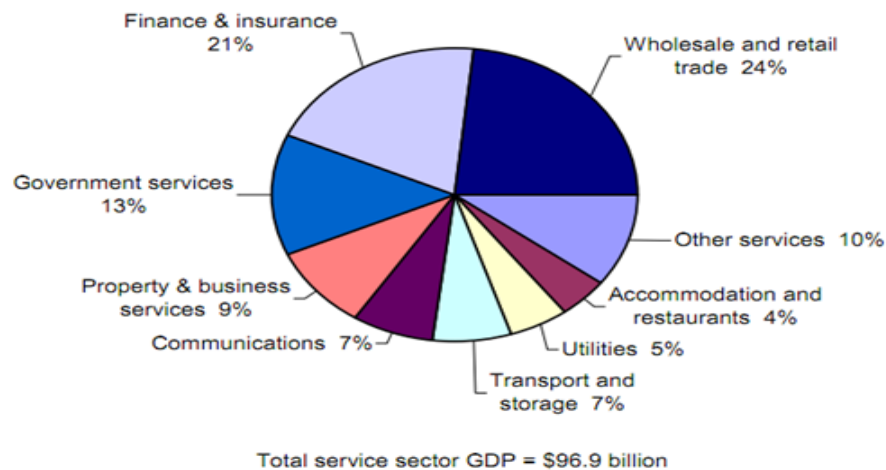
Source: Treasury Malaysia, Economic Reports 2009/2010 , 2010, table 2.3.

Note: Values are estimated.

Figure 1: Malaysia: Service sectors as a percentage of GDP, 2008

Financial services have a significantly increasing role within the Malaysian economy to mobilize funds as the primary source of economic financial support (Bank Negara Malaysia, 2010). As per figure 1, a 21 percent contribution to the total service sector GDP in 2008, makes it the most prominent contributor amidst service industries which indicates that banks have an imperative role in enhancing an economy's growth (Treasury Malaysia, 2010). Accounting for 7 percent of national employment, workers in 2009 within the finance, real estate, business and insurance service industries were at an estimate of 814,100. This figure reflects an 11 percent increase from 2005 (Economist Intelligence Unit, 2011).

The banking element within Malaysian financial system is made up of commercial banks, investment banks, and Islamic banks (BNM, 2010). These syndicates are crucial mobilizers of funds and are the fundamental source of financing accommodating all economic efforts within the country. Non-bank monetary agents comprise of pension and provident funds, development financial institutions, takaful operators and insurance were incorporated to aid banking organizations in managing reserves and supporting the nation's financial needs (Malaysian Investment Development Authority, 2011).

Within the banking system, commercial banks are the key performers accounting for 42 percent of the total assets of the financial system as at the end of 2007 (BNM, 2007). As of May 2008, there were 22 commercial banks (of which 13 are locally incorporated fully foreign-owned) after downsizing 58 banking institution into 10 commercial banks, 13 Islamic banks (of which three are foreign-owned), and 14 investment banks. Domestic commercial banks had the largest share of the market; among these, the government controlled the largest bank (Maybank) through a majority share and it fully owned the second largest bank, CIMB Bank Bhd. In addition, there are also development finance institutions (DFIs) which provide financing, especially to certain strategic sectors of the economy (Kwan, S.H. (2003).

The table below provides the list of Licensed Banking Institutions in Malaysia-end of 2010:

	Total	Malaysian-Controlled Institutions	Foreign-Controlled Institutions
Commercial Banks	24	9	15
Investment Banks	15	15	-
Islamic Banks	17	11	6
International Islamic Banks	4	-	4
Money Brokers	6	-	-
Other Financial Institutions	2	2	-

(Source: Bank Negara Malaysia, 2010)

These banks run over an estimate network of 2,651 branches across the country. Out of those recorded, six Malaysian banking groups operate globally in 19 countries in the form of international branch, representative offices, affiliates and joint ventures. The liberalization measures by BNM in 2009 involved issuing of up-to-date licenses and increasing foreign equity limits and has caught the attention of international financial institutions to further establish its presence in the country. Today there are 22 foreign banks with representative offices providing services to assist with information exchanges between businesses in Malaysia and their counterparts (Malaysian Investment Development Authority, 2011).

According to Company Act No. 10 of 1998, *"Commercial Bank is a bank conducting business based on conventional or Islamic principles in its activities to provide services in payment traffic."* By international banking experts however, a commercial bank is defined

as profit oriented financial institutions whereby profits are obtained through inter mediation functions.

A range of services that include savings, fixed deposits as well as credit cards and personal loans are provided by these banks from bank branches nationally. Supplementary to this, clients are assisted in managing their entire financial situation from insurance protection to retirement financial planning. Personals must be empowered with skills, equipped with creativity along with ability to build relationships with clients as well as be confidential and discreet. Corporate banking facilities are also complex as provisions are targeted to enterprises from an array of large conglomerates to SMEs and even micro enterprises. SMEs financing, initiated by the Malaysian economy, would encourage small businesses to contribute more to the economic growth by offering the ease and aided access to financing their trade further develop (Alias et al., 2009).

As financial stability is a key indicator of economic growth, it is crucial for banks and its stakeholder to identify and sustain development on its performance. Though physical capital is essential for banks to operate, it is the intellectual capital that determines the quality of services provided to customers. By examining the empirical relationship between elements of intellectual capital and banks' financial performance, the banks are able to optimize the utilization of resources. Thus, this paper attempts to answer the following research questions:

1. Is there a correlation between elements of intellectual capital and commercial bank performance?

2. Which intellectual element contributes most to banks performance?

3. How did commercial banks utilize its intellectual capital resources over the past 6 years with regards to the banks' performance?

The main objective of this paper is to study the relationship between intellectual capital and commercial banks performance in Malaysia. By examining the relationship, this paper allows the bank and its stakeholders to have a clearer consideration of the composition of intellectual capital which contributes most towards bank performance. In addition, this paper also intends to examine the trend of intellectual capital on commercial bank performance in the progressing years.

Based on the objectives above, the following hypotheses are generated:

H_{1a}:   There is correlation between Capital Employed Efficiency (CEE) and Return on Asset (ROA) and Return on Equity (ROE).

H₁b: There is correlation between Capital Employed Efficiency (CEE) and Return on Equity (ROE).

H₂ₐ: There is correlation between Human Capital Efficiency (HCE) and ROA.
H₂ₐ: There is correlation between Human Capital Efficiency (HCE) and ROE.

H₃a: There is correlation between Structural Capital Efficiency (SCE) and ROA.
H₃b: There is correlation between Structural Capital Efficiency (SCE) and ROE.

2.0   Literature Review
2.1   Definition of Intellectual Capital

Several expressions such as intangible assets or knowledge assets are jargons used to denote IC. Literature reviews prove that despite similar compositions of knowledge and its contribution, there is no one consistent definition of IC (Bontis, 2001; Kujansivu, 2005). According to earlier promoters of IC, Sullivan (2000) describes IC as "profit derived from knowledge" while Roos et al (1997) as the "totality of knowledge" translated into trademarks, processes and also brands. There exist many contrived definitions of IC, as IC is a multidisciplinary growing research area; many organizations abide by their own individual definitions.

Although various authors classify IC interchangeably, the essence and characteristics of IC remains therefore preventing one from disqualifying and excluding another. Firstly, IC is an obscure and invisible element. Additionally, it is closely related to knowledge, information, skill and experience. Third, it suggests opportunity for growth or development to any enterprise in the future. Thus, accordingly, not all organizational knowledge is IC, rather only knowledge which generates value for the company constitutes IC.

The pioneer classification of IC models was presented by Saint-Onge (1996). The findings suggest that there are three elements of IC: human capital, structural capital, and customer capital. Dr Nick Bontis (2000) further made minor adjustments to customer capital to include suppliers' affiliation accordingly, identifying it as relational capital. However, in 2002 a highly recommended set of guidelines developed by a group of researchers known as the MERITUM Project from universities across Europe highlighted the composition of IC components:

2.1.1   Human Capital

Human capital represents the considerations of human resource, specifically the competency required of employees in the form of skills, knowledge and personal attributes (McGregor et al., 2004). According to Stewart (1997) it is "the wellspring of innovation, the home page of insight." Thus they are the people who contribute to developing productivity and growth, similar to physical assets. Interchangeably, human capital is the

expertise an employee acquires on the job via experience and training thus increasing his or her marketplace value (Roos and Roos, 1997).

Knowledge advances in different form, from unique, innovative capacity, creativity, to the generic training experience. As time evolves human capital dimensions account for workers' health, motivation and ability to create physical and non-physical assets which contribute to the constant accumulation of facts and ideas. Unlike structural capital, human capital bounded to the individual who possesses it.

Financial sectors, especially banks, require an influx of highly qualified professional executive, as well as flexible customer-centric, technology-savvy agility of skills that are more comprehensive than before. In a globalization context, high-class human capital is not mere luxury but rather a necessity (Nik Muhammad et al, 2007). Thus, intellectual capabilities and resources must be utilized to constantly strengthen a large pool of high calibre professionals and talents to meet the growing complexity of advance technology facilities (Zeti, 2005).

2.1.2   Structural Capital

Structural capital alternatively is the knowledge that remains within the firm's property subsequent to the contribution imposed by the human skill (Bontis, 1998). Structural capital deals with all kinds of "knowledge deposits" i.e. business intellects that derive from structure and information. Human capital develops structural capital. Although influenced by human capital, structural capital dependent on human capital exists objectively and independent of human capital (Chen et al., 2004; Ordonez de Pablos, 2004; Roos et al., 1998).

The organizational procedures, systems, cultures, along with the general use of information technology and organizational learning capacity are structural formation that has been established by the competence of its employees. This valuable input could be leveraged and legally protected by Intellectual Property Rights, making it for the exclusive use of the firm. Better formulas, information systems, policies and many more are the result of innovation created over time. In the same way database such as Bloomsberg, Databank and online annual report at every internet user disposal are all contributions made by previous employees.

By utilizing and exploiting on features which enhance performance, providing a competitive benefit, it could propel domestic Malaysian banks to contend on international standards.

2.1.3   Capital employed/Relational Capital

Relational capital comprises of knowledge entrenched within the relationships an organization develops with its customers, suppliers, competitors, government bodies and trade associations (Bontis, 1999). "Market orientation" is a main category of relational

capital referred to as customer capital. Relational capital is the concept of a living learning organization (Dewhurst, 2004; Senge, 1992).

These assets hold the value that is the company's image and reputation and it is this perception that its stakeholders have about the company. Its image, the satisfaction of their customers and their loyalty, together with supplier links, sustainable environmental activities and also capacity to negotiate with financial entities are all relational capital (MERITUM, 2002, p13). Relational capital as an invisible asset structured on developing, maintaining and nurturing high-quality relationships with any individual or organization that may influence business performance (Welbourne, 2008)

Interchangeably, the total capital harnessed by a firm's current and fixed assets could be utilized as capital employed within the spectrum of IC. Perceived from the economic side, it accounts for the equity capital and funds as well as loans and long-term liabilities. It is fixed asset plus working capital. Working capital are contributes in a company to generate wealth. These are the assets within a manager's control and typically include accounts receivable, inventory and equipment (Nik Mohammad et al, 2006). As banks usage of its financial resource is the ultimate product, capital employed is the variable that will be used in this study.

As the banking sector is a sector that utilizes intensive IC components, it was foreseeable that studying the role of IC on banks' performance would advance (Goh, 2005; Najibullah, 2005; Belkaoui, 2002; Saengchan, 2008). To measure performance by way of IC, it will allow a details understanding how capital coefficient, human capital as well as structural capital contribute to the impact of banking's' financial performance of. According to Reed (2000), IC would be a powerful predictor of banks future performance as IC as the system of intangibles which have strategic relevance.

2.2   Significance of Measuring Intellectual Capital

With the ongoing pressure of globalization and the highly competitive nature of the international market today, importance of performance measurement increases. Performance measurement is a tool designed primarily to improve decision making as it allow user to examine the capabilities, progress and success of an organization or industry over time, either against the same or of different region (Stewart, 1997).

In traditional accounting measures, assets refer mainly to financial and physical capital (Edvinsson et al., 1997). IC measurement covers important non-financial contents such as customer satisfaction, innovation and human capital. There is significant difference between the two approaches: IC measurement looks to the future while financial accounting looks backwards (Sveiby, 2000). However, Bontis (2001) more in-depth views, is that IC is a vital resources for strategic marketing and business management and its quantification has great benefit as an internal management tool rather than an external communication to investors.

Excluding intellectual capital and only looking at traditional accounting underestimates (Waterhouse and Svendsen, 1998) and fail to provide a firm's true value to its shareholders (Pulic, 1998; Harrison and Sullivan, 2000). By supplementing IC measurement with the traditional way of reporting, managers will be well-informed of IC management, benchmarking existing IC between companies and validating a company's tendency to achieve its strategic objective all of which encourages companies to be a learning organization. The Gottlieb Duttweiler Foundation a Swiss think-tank found that of all the knowledge available, only 20 percent is actually utilized by an organization.

Therefore, as summarized by Marr et al. (2003) who suggested that IC measurements are necessary for three reasons:

2.2.1   Strategy
In an era of "knowledge economy", it has been proven that organization's reliance on their IC is increasingly what determines its competitive position (Klein, 1998). The ability to fulfill technical enquiries with "knowledge workers", and adopting "learning organizations" culture in the business premise has proven to provide that additional advantage in competing. Today, even small firms have demonstrated that equal opportunity to heighten their market share is possible with innovative high-quality niche products and services. Thus, only by measuring the available IC and analyzing the room for potential growth would allow, Teece et al. (1997) established that IC provide 3 strategic reasons for better performance namely: competitive forces; the resource based; and evolutionary dynamics.

2.2.2   Influencing behaviour
By relying and building goals around financial measurements exclusively, more studies suggest that it would merely lead to short-term results (Johnson and Kaplan, 1987; Kaplan and Norton, 1992). However, non-pecuniary performance measures are good predictors of long-term performance and help focus managers on the long-term effects of their decisions (Ittner et al., 2003).
Kaplan and Norton (1996, p. 7) stated that "the collision between the irresistible force to build long-range competitive capabilities and the immovable object of the historical-cost financial accounting model" has created a need for a new system for performance measurement, one that includes non-financial performance measures.

2.2.3   External validation (communication to external stakeholders)
As awareness on governance is mounting, pressure on companies to quantify and report IC value has led firms to reevaluate their IC policies (Marr et al., 2003). Two widespread justification theories from social and environmental literature to disclose IC in their annual reports are the legitimacy theory and stakeholder theory (Guthrie et al., 2004).

According to this legitimacy theory, organizations exist in societies with express or implicit social contracts (Campbell, 2000). Therefore, an organization would voluntarily report on intellectual capital undertakings if it is perceived that such was expected by the community in which the organization operates. Given that there are strategic competitive advantages at

stake, there is a higher chance for a company to report on its IC if they explicitly required to. Additionally, according to Mouritsen (2004), traditional financial statements do not reveal relevant information for stakeholder to fully comprehend how the invested resources potentially create value. The gap is bridged by providing information about how their resources – the majority of which are intangibles – create value in the future with standard and maintained IC measurements.

The stakeholder theory derived from environmental and social literature justifies a company's disclosure of IC in their annual reports (Guthrie et al., 2004). Freeman (1984, p. 5) defined stakeholders as a group or individual affected by or who can affect an organization's objectives. According to this theory, managers formulate and implement strategies that satisfy these groups. Its main task is to manage and integrate the relationships and interests of shareholders, employees, customers, suppliers, communities and other groups in a way that guarantees the firm's long-term success (Freeman and McVea, 2002). Guthrie et al. (2004) queried if companies offer a voluntary account of their IC and the value of its intangible assets because of this theory. There is a need for more research to properly assess this question.

2.3   Review of Existing IC Measurement Models

Sink and Tuttle (1989) claim that to measure the performance of an organization, seven performance criteria could be analyzed for comparison including: effectiveness, efficiency, quality, productivity, quality of work life, innovation and profitability. In this study, profitability and productivity will be utilized to measure performance.

Productivity is basically balancing the output a production unit generates and the provided inputs by a decision making unit. It quantifies an efficient use of resources by increasing the production of goods and services with the same resources or utilizing fewer resources to produce the same goods and services. Greater financial performance is more likely to be visible when a firm exhibits its productivity growth (Roslender and Fincham, 2001). Productivity has always been important to the development process in the banking sector as it allows banks to intensify their competitiveness in relation to enhancing operational efficiency and to develop more contemporary priced financial products. The banking sector is a dominant supplier of intermediate services such as financing facilities indicating how important productivity in the banking sector is to the economy. Furthermore, the efficiency of the banking sector administering intermediate services affects the value chain of manufacturing and service industries et al. that depend on such services being provided to them (Abd-Kadir H., Selamat Z. & Idros M., 2010).

However, the general procedures of financial reporting and accounting regulations are insufficient to report IC value in spite of the amount of methods developed and utilized to measure IC (Andriessen, 2004; Pike and Ross, 2004; Chan, 2009), (Lev and Zorowin, 1999; Lev, 2004; Kujansivu, 2005; Lajili and Zeghal, 2005).

Although many methods have been proposed and utilized, a widely accepted process of IC quantification does not exist. "True competitive advantage" is created by identifying and measuring IC as intangibles create value and is therefore important to organizations (Ratnatunga et al., 2004, p. 78). Measuring and managing IC is not easy as IC resources and actualizing value has a complex inter-relationship (Cuganesan, 2005). The typical measurements of IC are limited (Abernethy et al., 2005) and even popular frameworks like balancing the scorecard face issues when linking the method to outcomes (Norreklit, 2000). Thus innovative solutions when measuring IC are required especially to pinpoint the links between IC elements and rational capital and value creation (Edvinsson and Malone, 1997; Stewart, 1997; Sveiby, 1997).

Skandia AFS, a Scandinavian insurance company pioneering in quantifying and reporting IC. They have been contributing IC information in an additional statement to its annual reports since 1994. This supplement is a result of the company's focus on customers, structural processes and human knowledge. Additional to historic financial data, future development information is provided. There are four categories measurement approaches have b een categorized into Sveiby (2004) and E.E.Sveiby (2007). These are extensions of classifications put forth by Luthy (1998) and Williams (2000).

After surveying contemporary studies Andriessen (2004) listed 30 methods and more recently Chan (2009) listed 34 methods of calculating IC. Pike and Ross (2004) were assured in the reliability of these methods having measured the succor of a few of these methods with associated theories. Andriessen (2004) felt that they failed to establish a connection between financial performance and IC. The methods identified and commonly established by Pike and Ross (2004) and Chan (2009) were categorized into four generic approaches:

1) Market Capitalization Methods (MCM): Calculate the difference between a company's market capitalization and its book value as the value of its intellectual capital or intangible assets. Markets to Book Value, Tobin's Q are examples of this method.

2) Direct Intellectual Capital methods (DIC): Estimate the Ringgit-value of intangible assets by identifying its various components. Once these components are identified, they can be directly evaluated, either individually or as an aggregated. This method includes The Value Explorer, Intellectual Asset Valuation, Total Value Creation (TVC), Accounting for the future (AFTF) etc.

3) Scorecard Methods (SC). The various components of intangible assets or intellectual capital are identified and indicators and indices are generated and reported in scorecards or as graphs. Examples of this method are National Intellectual Capital Index , IC RatingTM, ICdVALTM, Value Chain Scoreboard

4) Return on Assets methods (ROA). It is the capitalization of industry above-average earnings by the company's average cost of capital. Industry above average earnings is the multiplication of company's excess ROA over industry ROA with its average tangible assets. This method includes Knowledge Capital Earnings, Economic Value Added (EVATM), Calculated Intangible Value (CIV), Value Added Intellectual Coefficient (VAICTM) etc.

These approaches were explained in detail by Chan (2009). The final approach, i.e. VAICe, or the "Austrian approach", has been utilised in numerous of studies (VAICe) (Pulic, 2000, 2001, 2004; Chan, 2009). The VAIC approach is a comparative analysis that is both standard and consistent that can be utilized at local and international levels over a long period of time.

## 2.4   Value added as an indicator of Intellectual Capital

Ante Pulic (2000, 2003, 2005) was a pioneered IC researcher who focus on constructing IC and economic performance and based his analyses solely on company's financial accounting indicators. Value Added Intellectual Coefficient (VAIC) method enables firms to measure the value-creation efficiency from decisions of investment and management of resources (Pulic, 2001, 2002; Boremann 1999). It has undergone critical conceptual or formal analysis, and most recently the measurement model was further elaborated by corporate IC.

From a stakeholder's point of view, Pulic (2001) identified a firm's market value creation through capital employed (physical & financial) and IC. VAIC measures the efficacy of a firm use of physical, financial and IC that enhances value. Stakeholders are the shareholders, employees, and customers, as well as the government and also debtors (Riahi-Belkaoui, 2003). His indirect way of measuring efficiency by calculating the efficiency coefficient of value added (VA), capital employed (CE), human capital (HC) and structural capital (SC). This would produce VAIC index that is unambiguous which informs tangible and intangible asset efficiency that can be utilized to generate a firm's value.

VAIC model intends to measure how best a firm could add value to its company using the element of knowledge. VAIC calculations are based on: human capital which is employee expenses; structural capital which is the difference between produced added value and human capital; and lastly, book value of the net asset and the way it is utilized is capital employed efficiency.

Based on several assumptions and definitions, VAIC measure could directly analyse IC as it is made up of quantifiable ratios:
> (i) capital employed efficiency CEE = VA/CE;
> (ii) human capital efficiency HCE = VA/HC; and
> (iii) structural capital efficiency SCE = SC/VA.
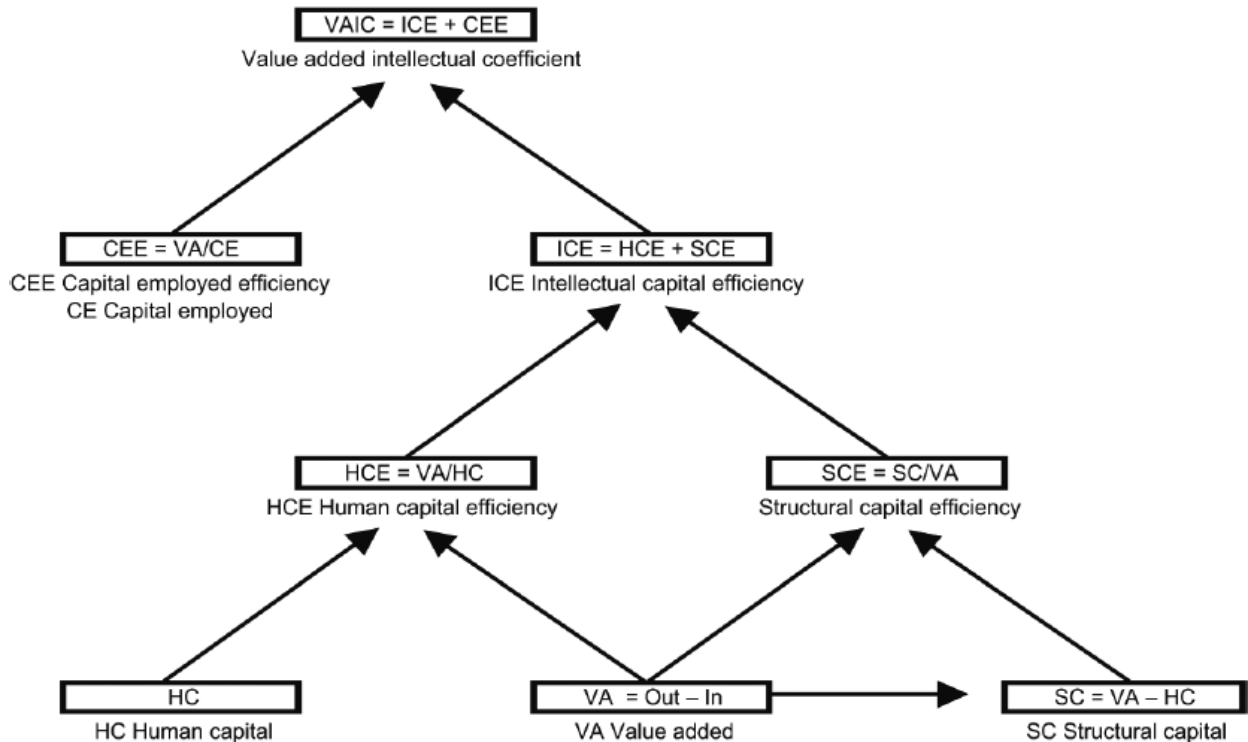
Figure 2: Construction of VAIC

The computed VAIC index would equate between 1 and 3, and calculates the sum of the ratios of value added as seen in figure 2.0. With its own limitations, VAIC application as an IC indicator is best utilized for statistical analysis mainly because of wide availability to the input data of the model (Andriessen, 2004). Schneider (1998) countered that there is danger that the data collected and processed becomes an end in itself if the procedure is highly sophisticated and maintained that the simple process that is the VAIC enables comparisons.

Firer and Williams (2003) argued that developed models of IC measurement are specific to a firm's profile thus limits its comparability. Furthermore, Firer and Williams (2003) maintained that VAIC calculations are based on audited data, which is objective and verifiable (Pulic, 1998, 2000). Williams (2001) criticized the subjectivity of other measures of IC indicators.

A tri-sectoral study of 300 UK companies using VAIC as an indicator of firm performance found that how VAIC analyzes the impacts of IC on financial, economic and stock market performances is an indicator of intellectual capacity and its effects on company performance (Zeghal and Maaloul, 2010). The study perceivedIC as a source of "value creation". IC's role in reducing a company's costs of production while maintains its importance for stakeholders as it afford better management of IC against competitors. For sustainable growth and development, the VAIC method evaluate companies on continual creations of VA. Governments also can utilize the VAIC to asses various sectors in its

economy in terms of VA of their IC. This may improve the management of a new economy thus resulting in better more efficient economic policies.

Value added is an increase in generating wealth by a firm's productive utility of its resources. The value added report and its measure of value added is accepted to a certain degree in the UK (Morley, 1978), France (Haller and Stolowy, 1998), Germany (Pohmer and Kroenlein, 1970), South Africa (Van Staden, 1998), Japan (Shimizu et al., 1991), Korea (Kim et al., 1996), and recognition in the USA (American Accounting Association, 1991).

2.5   Review of IC on Corporate Performance using VAIC

Studies increasingly indicate that value added may be the smoothest measure of IC utilizing the VAIC model. As financial institutions are the core essential for every transaction in all sectors of an economy, it is not only vital, but highly necessary that the banking sector capitalize on the value added strategy for a sustainable economic growth. The highly advanced business nature of banks in the way of operation, execution and delivery, intellectual potential is an imperative resource of corporate achievement. The financial institution of the more developed part of the world cater to their clients in an exceedingly cutting-edge manner in terms of availability and satellite services, proves that Malaysia's banks need to consistently regulate itself to offer more value added and diversified amenities. As the service quality of banks highly depends on intellectual capital, banking sector provides a great research opportunity for intellectual capital studies (Kwan 2003).

Thus, it is ideal to utilize VAIC in banking sector for IC research as the staff is more comparable intellectually than in other economy sectors (Kubo and Saka, 2002). As financial institutions are controlled so tightly by the Bank Negara Malaysia, with little room for competition, sustainable business success is ensured in a secure manner by increasing intellectual potential efficiency.

However, overall studies using VAIC have resulted in mixed reviews across different countries, industries, and years. In example, while Chen et al. (2005) concludes that IC drives firm value and financial performance, Shiu (2006b) noted only weak relationships between performance and VAIC. In addition Firer and Williams (2003) and Chan (2009b) found that firms and investors place less importance on IC compared to physical assets, but Appuhami (2007) concluded IC's importance in Thai sectors. The inconsistency of the evidence does not lead to a compelling conclusion about the relationship between firm performance and IC. With Malaysian commercial data, a further investigation provides evidence of a relationship between IC and banks performance in Malaysia, and if so, its direction.

Several justifications for VAIC as a methodology are:
- It provides standardised measures that can be harnessed by any organization ranging from in size from small to large. Results are comparable within different entities between industries and countries.
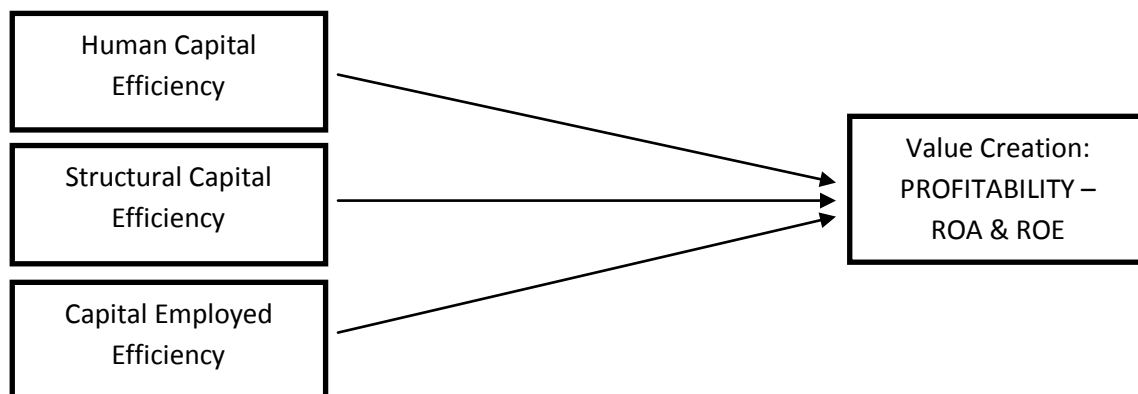
- Utility is enhanced by incorporating measures of IC performance in traditional financial statements.
- Data is provided by financial statements that are publicly available, quantitative, and audited information that are more reliable than questionnaires as these are usually audited by professional public accountants set by international governing standards.
- This method, although takes account of a variety of elements in its computation, it is simple as its results can easily be comprehended. Once quantified, its results as IC can be inferred directly.

2.6   Theoretical Framework

The diagram below shows the independent variables (human capital efficiency, structural efficiency and capital employed efficiency) and the dependent variable (profitability - return on asset and return on equity).

Independent Variables   Dependant Variable

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┌─────────────────────┐
│   Human Capital     │─────────────────┐
│    Efficiency       │                  │
└─────────────────────┘                  ↓
                                  ┌──────────────────┐
┌─────────────────────┐           │  Value Creation: │
│  Structural Capital │──────────→│  PROFITABILITY – │
│    Efficiency       │           │    ROA & ROE     │
└─────────────────────┘           └──────────────────┘
                                         ↑
┌─────────────────────┐                  │
│  Capital Employed   │──────────────────┘
│    Efficiency       │
└─────────────────────┘
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Referring to the above framework, the overall intellectual capital component will be represented and measured by the VAIC model. The correlation of intellectual capital against bank performance on a whole would be determine between efficient utilization of assets that is via the return on assets (ROA) proxy and efficient utilization of equity invested by shareholder that is the return on equity (ROE) ratio. Subsequently, each element of intellectual capital will be analysed on how it corresponds towards performance to determine which has the most significant contribution using regression. Using VAIC models, the study will provide a better understanding on the relationship of intellectual capital and banks' performance.

3.0 Methodology
3.1 Sample and data collection

Datas are collected from the annual reports of nine local commercial banks operating in Malaysia which comprised of Affin Bank Berhad, Alliance Bank Malaysia Berhad, AmBank (M) Berhad, CIMB Bank Berhad, EON Bank Berhad, Hong Leong Bank Berhad, Public Bank Berhad, Malayan Banking Berhad, RHB Bank Berhad. The datas gathered began from the year 2006 to 2010. These years are chosen to reflect a recent study of current performances whilst satisfying capital markets study requirement of duration reasonably long enough to overcome short-term abnormalities thus delivering a reliable and dependable evaluation of the commercial bank's performance. Data collected yielded a total sample of 54 observations over a six years' time-period. Any missing data on selected variables or major irregularities such as merger and acquisitions in these periods would be excluded from the study. The data collected were pooled and arranged in a time-series measurement.

3.2   Measurement of dependent variable

To measure banks' profitability, two accounting standard ratios are utilized as dependent variables. The financial performance is measured using Return on Assets (ROA) and Return on Equity (ROE) which have been used in many international studies (Williams and Firer, 2003; Chen et al., 2005; Maditinos et al., 2011; Chu et al., 2011; Ahangar, 2011). The definitions of these performance variables are as below:

ROA is a leading measure of company's efficiency by the comparison of the pre-tax income divided by average total assets as reported in the annual report. This measure reflects banks' efficiency in utilizing its total assets and as an indicator of profitability and overall indicator of banking's performance. ROA inform relevant stakeholders how efficiently banks are able to convert its overall assets into profits via its management and leadership. The formulation of ROA measures a company's earning in relation to all of the resources it had at its disposal, which is the shareholders' capital plus short and long term borrowed funds. ROA formula is:

$$\text{Return on Assets (ROA)} = \frac{\text{Pre-tax Income}}{\text{Total Assets}}$$

All else held equal, when an assets-intensive business margin is falling, it indicates that more money must be injected to continue generating earnings. An alternative to investing additionally capital, innovative banks could develop a competitive edge strategy by improving net margin with better operation efficiency or cutting cost while maintaining revenue inflow (Phusavat et al, 2011). Therefore, ROA provides information about value added to the company that lead to better performance.

The ROE ratio measures profitability with regards to the efficiency in generating profit when utilizing shareholders' invested funds. By dividing profit before tax by book value of equity, it considers profit rates and not profit size. Thus, it represents the ultimate measure

of how well the companies serve the economic interest of their shareholders' (Mohd Said et al., 2011; Shiu, 2006a, b).

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 all shareholders (Gan and Saleh, 2008; Ting and Lean, 2009). ROE is an alternative measure of profitability which reflects the return of owners' investment. ROE formula is:

$$\text{Return on Equity} = \frac{\text{Profit before Tax}}{\text{Shareholders equity}}$$
$$\text{(ROE)}$$

For publicly traded companies, shareholders' earnings are of prime importance. ROE is an internal performance measure of shareholder value commonly used as:

(i)   It reflects a direct financial return to the shareholder's investment;
(ii)   It is publicly available with ease in understanding and use; and
(iii) It enables a comparative study between different companies or different sectors of the economy.

ROE value indicates productivity of managing capital, thus ultimately profitable. Both ROA and ROE together would enhance the understanding of management's effectiveness. With a reasonable financial leveraged, when ROA is sound, an indication of strong management is reflected of high ROE. However, if a company is carrying a lot of debt, making ROA low, a high ROE can provide false condition of the company's performance. At such consideration, both ratios will be used.

3.3   Measurement of Independent Variables
Only by quantifying intellectual capital will a solid understanding of how this variable correlates against the performance of banks. To calculate VAIC, the difference between output and input will indicate a company's ability to create added value (VA) to all its stakeholders (Clarke et al., 2011). Output is the net sales revenue generated from the operation of the business, while input contains all necessary expenses incurred in earning the sales. Labour costs are excluded as it is viewed to be a creating value entity or an investment to the company (Tan et al., 2008). With regards to the commercial banks in Malaysia, VAIC method allows the extraction of accounting data derived from financial statements.

The efficiency coefficient will be calculated on three types of capital that is human capital, structure capital and capital employed against VA, that is the net value created by firms during the year (Chen et al.,2005). A higher value for VAIC shows a greater efficiency of these resources in creating values for the firm (Pulic 2002, Boremann 1999). Additionally, multiple regression will be conducted to identify the significant impact of VAIC

components; Human Capital coefficient (HC), Capital Employed coefficient (CA) and Structural Capital coefficient (SC).

VAIC enable management, shareholders and other relevant stakeholders to effectively monitor and evaluate the efficiency of value added by a firm's total resources and each major resource component (Ahangar, 2011). As identified by Pulic (2001), a firms' market value have been created by capital employed (physical & financial) and intellectual capital. (Pulic, 2001; 2002)

Thus. $VAIC_{TM}$ is a composite sum of two indicators namely:
(1) Capital Employed Efficiency (CEE): indicate VA efficiency of capital employed;
(2) Intellectual Capital Efficiency (ICE: indicate VA efficiency of company's Intellectual Capital base.

$$VAIC_{TM} = \text{Intellectual CapitalEfficiency} + \text{Capital Employed Efficiency}$$
$$\text{(Human and Structural)} \qquad \text{(Physical and financial)}$$

$VAIC_{TM}$ is the value creation efficiency of all resources. It takes account of the efficiency of corporate value creation efficiency of tangible physical capital usage as well as intangible assets, intellectual form, within company operations. It expresses the intellectual ability of a company, regional or national economy.

To measure intellectual resources of banks, five steps must be taken before attaining the final outcome which indicates the intangible contribution. A detail explanation of how to apply methodology will be explained.

3.3.1 Value Added
Firstly, to calculate intellectual capital, the main step is to quantify bank's ability to create value added to all its stakeholders.

$$VA = S - B = NI + T + DP + I + W \quad (1)$$

where: S is net sales revenues (Output); B is bought-in materials and services or cost of goods sold (Input); NI is net income after tax; T is taxes; DP is depreciation; I is interest expense; and W is employee wages and salaries. The VA equation above is known as the "Gross Value Added" approach (Riahi-Belkaoui, 2003).

To calculate value added, a broad performance measurement is used when applying the Theory of stakeholder (Donaldson and Preston, 1995). The stakeholder theory suggests that everyone who has an interest or stake in the firm that would directly or indirectly be affected by the company's performance is accounted for.

3.3.2 Human Capital Efficiency

Secondly, within the VAIC model human capital efficiency (HCE) would be analyzed by measuring the level of human capital, defined as salaries and wages at a point in time (Pulic, 1998; Edvinsson and Malone, 1997). Human capital (HC) is made up of the expertise, competences, productivity level and suitability of employees within the work place. This would usually be reflected with the salary, bonus and increments every employee acquires. The justification was that, higher wages would be afforded to staff with greater skills who would add more value to the firm than staff on lower wage rates (Pulic, 2000). Therefore, VA is created by every dollar spent on HC or employee and measured by how much it generates.

Hence, HCE is calculated as the ratio of total VA divided by the total salary and wages spent by the firm on it employees. Equation 2 shows this relationship:

$$HCE_i = VA_i/HC_i \qquad (2)$$

Where: HCE_i = human capital efficiency coefficient for company I,
VA_i = VA for firm i. and
HC_i = total salary and wage costs for firm i.

The rationale is that, if salaries are low and VA is high, the banks are able to efficiently manage its human capital with the given remuneration. However, should VA be low in relation to salaries, the banks management of its staff is not being employed and developed efficiently and HCE will be low. Higher HCE is the result of effective application and exploitation of HC to add value through operating profit.

3.3.3 Structural capital efficiency

Next, primarily, it has been discussed that structural capital (SC) includes intellectual items such as strategy, organisational networks, patents, and brand names. All of which originated from personnel previously or those currently employed. Consistent with views of other leading intellectual researchers (Edvinsson, 1997; Sveiby, 2001), Pulic (1998) argues a firm's total VA less its human capital is an appropriate proxy of a firm's SC. therefore, in order to calculate structural capital efficiency (SCE), it is first necessary to determine the value of a firm's structural capital (SC). Pulic (1998) proposes SC as:

$$SC_i = VA_i - HC_i \qquad (3a)$$

Where: SC_i = structural capital for company i,
VA_i = VA for firm i. and
HC_i = total salary and wage costs for firm i.

As a company's value is influenced by the efficiency of human capital and the efficient value added created by databases and strategy, it is said that SC is dependent on HC, and greater HC_i translates into improved internal structures (Nazari and Herremans, 2007). Based on prior empirical research findings there is a proportionate inverse relationship between HC and SC (Tan et al., 2008). Pulic (1998) improved upon it and calculates SCE as:

$$SCE_i = SC_i / VA_i \qquad (3b)$$

Where: SCE_i = structural capital efficiency coefficient VA for company i,
SC_i = Structural capital for company i; and
VA_i = VA for firm i

SCE_i is therefore the dollar of SC_i within the firm, for every dollar of value added, and as HCE_i increases, SCE_i increases. If the efficiency measures for both HCE_i and SCE_i were calculated with VA as the numerator, the logical inconsistency would remain (Pulic, 1998).

3.3.4 Capital Employed Efficiency (CEE)

Pulic (1998) argues that intellectual capital would logically be manufactured and creating value with assistance from physical and financial resources employed. Thus, capital employed efficiency (CEE) encompasses the efficiency that SCE and HCE fail to capture. Capital employed is measured as total assets minus intangible assets and CEE is defined as:

$$CCE_i = VA_i / CE_i \qquad (4)$$

Where: CEE_i = capital employed efficiency coefficient for company i,
VA_i = VA for firm i; and
CE_i = book value of the net assets for firm i.
Capital employed efficiency measure the added new value that has been created by one unit of investment, by way of financial or physical, in the capital employed. Therefore, CEE shows how much VA is created by each dollar spent on capital employed.

3.3.5 Value Added Intellectual Coefficient

Following Chen et al. (2005), Value added intellectual coefficient (VAIC) is the compilation of the three efficiency measures into one index components. The HCE, SCE and CEE coefficient independently will represent each component of the independent variable. As explained earlier, VAIC measures the level of intellectual capital of firms and provides information about the value creation efficiency of tangible and intangible assets within a firm (Tan et al., 2008).

$$VAIC_{it} = HCE_i + SCE_i + CCE_i \qquad (5)$$

As the firm uses its human, structural, physical and financial capital, value is added to the firm. The more efficiently these capitals are used, the more value is added to the firm, the greater the VAIC. For better operational prospect, commercial banks would prosper with better focus in enhancing its intellectual capital resources.

3.4   Data Analytical Methods
3.4.1 Panel Data Model
Strata program was used to analyse the data collected for the research. As the sample is analysed in a 5 year time series dimension over 9 banks, the first step in analysing the data is by using the panel data model:

$$y_{it} = X_{it}\beta + \in_{it} \tag{1}$$

For the sample, *i* indicate sample while the time periods is in *t* form. The error structure for the disturbance term:

$$\in_{it} = \alpha_i + \eta_{it} \tag{2}$$

Where it is assume that η_{it} is uncorrelated with X_{it}. The first term of the decomposition, α_i, is called an individual effect. In this formulation, error structure comes in two parts – the first part varies across individuals or the cross-section unit but is constant across time; this part may or may not be correlated with the explanatory variables. The second part varies unsystematically (i.e., independently) across time and individuals. This formulation is the simplest way of capturing the notion that two observations from the same individual will be more similar to each other than observations from two different individuals.

3.4.2   The Fixed Effects Model
Because the fixed effects model starts with the presumption that cov $(X_{it}, \alpha_i) \neq 0$, it is estimated that the model is conditionally on the presence of the fixed effects.

$$y_{it} = X_{it}\beta + \alpha_i + \eta_{it} \tag{3}$$

The α_i is treated as unknown parameters to be estimated. Consistent estimates of the additional parameters in the typical panel data case are not obtainable. In the typical case, T is small, and n is large. The asymptotic theory is based on the idea that it gets larger and larger. In this setup, however, the number of parameters is growing at the same rate as the sample. Although it cannot be estimated that α_i is consistent, it can be estimated that the remaining parameters is consistent. To do so, regression must be run:

$$y = X\beta + D\alpha + \eta \tag{4}$$

Where $D = I_n \otimes i_T$, as before, is a set of n dummy variables (one for each bank). From the Frisch-Waugh-Lovell Theorem, note that Eq. (12) is just the same as running a regression of each variables y and X on this set of dummies and then running the regression of the y residuals on the X residuals. The matrix that produces such residuals is the familiar $M_D = I - D(D'D)^{-1}D'$. OLS can be on the transformed variables $M_D y$ on $M_D X$ to get:

$$\hat{\beta}_W = \left(X' M_D X \right)^{-1} X' M_D y \qquad\qquad (5)$$

This is merely the within estimator derived before. The within estimator is only one possible fixed effects estimator. Any transformation that relieves the study of the fixed effect will produce a fixed effects estimator.

For example, in considering the T X (T – 1) matrix F, which transforms a 1 X T vector of repeated observations on the same individual to a 1 X T – 1 vector of first differences by post multiplication:

$$F = \begin{bmatrix} -1 & 0 & 0 & \cdots & 0 \\ 1 & -1 & 0 & \cdots & 0 \\ 0 & 1 & -1 & \cdots & 0 \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & 0 & 0 & -1 \\ 0 & 0 & 0 & 0 & 1 \end{bmatrix}$$

This transformation is just the first difference transformation we pursued in the previous section. The reader should verify that this too rids the equation of the fixed effect.

Returning to our deviations from mean approach, this purges the data of the fixed effects by removing means of these variables across individual cross-section units. That is, the predicted value of y, which belongs to group i, is just the mean of that group (in the same way that a regression of y on just a constant would yield a predicted value equal to the mean computed over the whole sample),

$$\bar{y}_i = \bar{X}_i \beta + \bar{\alpha}_i + \bar{\eta}_i \qquad\qquad (6)$$

Because the mean of α_i for individual i is merely α_i, we can difference Eqs. (11) and (14) to yield

$$y_{it} - \bar{y}_i = \left(X_{it} - \bar{X}_i \right)\beta + \left(\eta_{it} - \bar{\eta}_i \right) \qquad\qquad (7)$$

It is evident then that either first-differencing or differencing from person-specific means will do the trick. The two estimators will not in general be numerically identical, however.

In fact, if the two estimators give very different answers, it is evidence that the assumptions of the fixed effects model do not hold.

It was also observed that when the random effects model is valid, the fixed effects estimator will still produce consistent estimates of the identifiable parameters. It would appear therefore that, in general, the fixed effects estimator is preferred to the random effects estimator unless we can be certain that we can measure all of the time-invariant factors possibly correlated with the other regression.

Many researches apparently find a precisely estimated fixed effects estimate more persuasive that a precisely estimated random effects estimate. This preference seems to be a consequence of the reasonable belief that, apart from purely experimental or quasi-experimental situations, it is unlikely that the fixed effects are uncorrelated with the regression of interest.

4.0   Findings

The purpose of this empirical study is to investigate the efficiency level of intellectual capital among the Malaysian commercial banking sector, it's 6 year trend and the level of contribution of human capital, structural capital, and capital employed to value added intellectual capital. The study was conducted using the data from 9 commercial banks annual reports listed from Bursa Malaysia. The method of analysis used was the one introduced by Pulic (1998, 2000, and 2001) to measure intellectual capital efficiency and panel data analysis was used to see the relationship between $VAIC_{TM}$ and HC, SC and CA over the 6 years.

After formulating the value added as well as the configured VAIC of each bank, it was ranked against financial performance ratio as seen in figure 4.0.

Table 4.0: Performance from the analysis using $VAIC_{TM}$

RANK	BANK	VAIC	Value Added RM billion	ROA (%)	ROE (%)
1	Hong Leong	8.86	3.79	1.31	18.40
2	Public	8.71	7.95	1.71	28.21
3	RHB	7.65	11.42	1.15	18.21
4	Maybank	6.78	2.96	1.49	18.52
5	Affin	6.33	1.85	1.11	9.10
6	Arab Malaysia	6.15	6.81	0.98	11.03
7	EON	5.91	3.39	0.87	10.64

| 8 | CIMB | 5.80 | 1.09 | 1.24 | 15.37 |
| 9 | Alliance | 4.67 | 1.34 | 0.79 | 9.10 |

Based on the measurement using VAIC_TM method, the bank that depicts the highest result in efficiently utilizing their intellectual capital was Hong Leong. In terms of total corporate value added RHB has the highest value added, followed by Public bank and AM bank. In previous findings, Public bank was a pioneer in utilizing its intellectual capital and a corresponding outcome was seen in its profitability at 28 percent returns on equity (Goh, 2005). However, a misstep was taken when Public bank compromise its knowledge-factor resources as Hong Leong has progressively developed both in terms of its intellectual capital as well as its profitability and productivity which will be explained in more detail later.

Furthermore, Alliance lack in enhancing efficiency on its resources has led to the worst performing commercial bank in terms of ROA at 0.79 percent. Affin bank is at par in terms of performance, but effort is taken in being more efficient which would reflect in the near future. Although CIMB is generating a low value added, its ROE and ROA is comparatively better. This could indicate utilization of its financial and physical capital employed was far more efficient then investment on human and structural capital. Human element may, as they may be geared for other purposes but not in generating profit. This finding is in line with NIk Maheran (2009) that, in Malaysian financial sectors, value have been created more by capital employed (physical & financial) rather than intellectual element. However, such outcome was only triggered by CIMB bank.

Maybank's value added is also surprisingly low considering its ROA and ROE is performing well, as well as its intellectual procurement. As it is government linked cooperation, hindrances could occur due to tight control by imposition and intervention that limits further business freedom. However, in terms of total corporate value added, the companies with high intellectual capital employed shows better profitability compared to value added. Hong Leong, Maybank and EON bank has high VAIC with high ROE performance rate, however in all 3 banks value added was low. It can be concluded that value added does not indicate profitability more than intellectual capital does.

The output of the banks information is illustrated in tables 4.1.

Table 4.1: Summary of respondents' profile

Banks	Years	Pre-tax Profit (RM billion)	Total Asset (RM billion)	Net Equity (RM billion)
EON Bank Bhd	2005	0.41	35.80	30.74
	2006	0.33	39.41	3.25
	2007	0.29	41.39	3.46
	2008	0.22	43.56	3.47
	2009	0.43	46.61	3.83
	2010	0.60	53.28	4.16
Average		*0.38*	*43.34*	*3.54*
CIMB Bank Bhd	2005	0.87	91.45	7.00
	2006	1.36	133.15	10.94
	2007	2.33	155.01	12.14
	2008	2.14	168.15	13.08
	2009	2.55	196.02	16.89
	2010	2.97	211.91	17.85
Average		*2.04*	*159.28*	*14.18*
AMBank Bhd	2005	0.49	62.11	4.85
	2006	0.71	72.26	6.14
	2007	-0.08	78.98	5.99
	2008	1.19	83.19	7.25
	2009	1.22	89.89	7.91
	2010	1.38	96.48	9.84
Average		*0.82*	*80.49*	*7.00*
Alliance Bank Bhd	2005	0.29	23.57	1.94
	2006	-0.28	23.58	1.94
	2007	0.16	26.35	2.04
	2008	0.50	27.62	2.50
	2009	0.30	31.82	2.69
	2010	0.41	31.63	2.88
Average		*0.23*	*27.43*	*2.33*
Affin Bank Bhd	2005	0.23	25.00	2.09
	2006	0.27	29.43	2.27
	2007	0.32	31.91	2.51
	2008	0.45	33.01	2.71
	2009	0.43	35.60	2.97
	2010	0.52	42.06	3.31
Average		*0.40*	*34.40*	*2.75*

Banks	Years	Pre-tax Profit	Total Asset	Net Equity
		(RM billion)	(RM billion)	(RM billion)
RHB Bank Bhd	2005	0.49	84.76	4.34
	2006	0.71	95.12	4.70
	2007	1.03	94.48	4.61
	2008	1.41	94.94	6.83
	2009	1.49	106.09	7.83
	2010	1.90	119.45	9.16
Average		*1.73*	*99.14*	*6.24*
Public Bank Bhd	2005	2.06	111.69	8.89
	2006	1.31	102.02	6.63
	2007	3.00	174.16	9.98
	2008	3.38	196.16	10.23
	2009	3.32	217.14	11.72
	2010	4.09	226.33	13.69
Average		*2.86*	*171.25*	*10.21*
Maybank Bank Bhd	2005	3.49	191.90	16.85
	2006	3.99	224.28	17.48
	2007	4.36	256.67	19.87
	2008	4.09	269.10	20.09
	2009	1.67	310.74	25.77
	2010	5.37	336.70	28.66
Average		*3.83*	*264.90*	*21.45*
Hong Leong Bank Bhd	2005	0.72	57.62	4.40
	2006	0.76	60.60	4.38
	2007	0.86	71.42	4.66
	2008	1.01	77.46	5.13
	2009	1.13	79.33	5.70
	2010	1.21	84.74	6.51
Average		*9.50*	*71.86*	*5.13*

According to analysis of all the banks, Maybank maintain the greatest aggregate in terms of its asset value, net profit and shareholders' funds. These results might influence the findings of the current study in terms of their intellectual capital efficiency in relation to firm's performance. Alliance bank proves to be weakest in terms of generating profit.

However, given its size with regards to total asset, this bank is operating on a small scale basis.

The overall profitability of the commercial banks in Malaysia are sound as profit earn increases every year. However, during the 2008 crisis, Maybank was affected the most with 72% decrease in profit in the year 2009. With regards to shareholders confidence, CIMB, Maybank and Public bank gains the most investment by way of stockholders' funds.

A finding worth noting is that despite Hong Leong is 3 times smaller than Maybank with regards to possession of asset; its profit is 3 times larger than Maybank's aggregated profit for the past 6 years. Alliance Bank total asset at RM 27 billion, 9% of Maybank's asset worth with the lowest shareholder's fund at RM 2 billion 10% of Maybank's net equity generating profit RM 233 million which is an estimate of 9% that of Maybank's net profit.This indicates that Hong Leong is able to generate more profit by utilizing their fewer resources more efficiently.

4.3   Descriptive *Statistics*
Table 4.2 presents the mean, the median and standard deviation of the dependent and independent variables.

Table 4.2: Selected Variable Frequency Analysis

Variable Description	Variable name	Mean	Median	Standard Deviation
Dependent variables **Profitability:** Ratio of net income to total assets	ROA	1.19%	0.013	0.005
Ratio of net income to shareholder funds	ROE	15.92%	0.16	0.076
Independent Variables: **Value Added Capital Coefficient:** Ratio of Total VA divided by the Total Amount of Capital Employed	CEE	0.042	0.042	0.005
Value Added Human Capital Coefficient: VA divided by total salary and wages spent by the firm on its employees	HEE	5.905	5.817	1.531
Value Added Structural Capital Coefficient: Ratio of firm's structural capital divided by the total VA	SCE	0.817	0.828	0.059
Total Value Added Intellectual Capital: Sum of CEE, HCE and SCE				

	VAIC	6.764	6.688	1.588

Table 4.2 shows the mean for profitability, ROA and ROE have a mean of 1.19 and 15.9 per cent, respectively. Standard deviation stands at 0.005 and 0.076 which indicates the range of how far the variable deviate from mean. Therefore, since the average ROA is at 1.19 percent, deviation of banks performance could fall between 0.69 to 1.69 percent with reference to 0.005. Similarly, the ROE of the commercial banks could differ between 15.82 and 15.98 percent.

With regards to the independent variable, the mean value of HCE indicates that banks human capital is more effective in creating value than SCE and CEE during the study periods. A VAIC of 6.764 was obtained, indicating that the firm created RM6.7642 out of every RM1 invested in the firm. However, if the components are examined individually, it is evident that human capital (mean = 5.905) is more efficient in comparison to physical capital (mean = 0.0419) and structural capital (mean= 0.817). This is consistent with the findings of Gan and Saleh (2008), Firer and Williams (2003) and Ho and Williams (2002).

Table 4.3: Description of Independent and Dependent Variables

	ROA	ROE	HCE	SCE	CEE	VAIC
Mean	0.01	0.16	5.91	0.82	0.04	6.76
Median	0.01	0.16	5.82	0.83	0.04	6.69
Maximum	0.02	0.33	9.11	0.89	0.05	10.04
Minimum	-0.01	-0.14	2.13	0.53	0.02	2.68
Std. Dev.	0.01	0.08	1.53	0.06	0.01	1.59
Skewness	-2.01	-0.94	0.10	-2.23	-1.02	0.04
Kurtosis	9.64	6.79	2.68	11.13	5.20	2.76
Jarque-Bera	135.44	40.21	0.32	193.70	20.23	0.15
Probability	0.00	0.00	0.85	0.00	0.00	0.93
Sum	0.64	8.59	318.89	44.12	2.26	365.27
Sum Sq. Dev.	0.00	0.30	124.28	0.19	0.00	133.61
Observations	54	54	54	54	54	54

Table 4.3 further elaborate that the minimum value and maximum value of the variable lies at 0.02 to -0.01 for ROA and 0.33 to -0.14 for ROE. Additionally with a negative sign of skewness, most banks were leaning to the left.

4.4   Correlation Analysis
To analyze the association between the dependent and independent variables, a correlation analysis is undertaken and the results are presented below.

Table 4.4: Correlation between Independent and Dependent Variable

	ROA	ROE	HCE	SCE	CEE	VAIC
ROA	1.000					
ROE	0.914	1.000				
HCE	0.532	0.708	1.000			
SCE	0.676	0.758	0.902	1.000		
CEE	0.683	0.606	0.468	0.581	1.000	
VAIC	0.541	0.713	1.000	0.909	0.477	1.000

The output given in table 4.5depicts that there is a significant positive relationship between ROA and ROE with regards to VAIC and the elements of intellectual capital. All VAIC, SCE, HCE and CEE are positively and highly correlated which means that it does yield profitability to enhance on these resources.

As performance is positively associated with profitability, banks should attempt to enhance its human capital efficiency, structural capital efficiency and capital employed efficiency increases. As such when intellectual resources are increasing in efficiency, the VAIC increases, which is expected to boost profitability and productivity of the financial institutions.

The diagnostic statistic indicates that ROA and ROE is highly correlated at 0.91. Between intellectual capital, pairing VAIC with ROA and ROE, 0.54 and 0.71 respectively, specifies that profitability is enhanced with ROE than ROA. An obvious reason is shares are issued and bought in times of great prospect which in turn meant high return to shareholders' investment. In acquiring capital, the fastest way is by issuing new shares to existing shareholder with manifestation of high potential in earnings.

Among the explanatory variables, capital employed and structural capital is significantly interrelated (0.67 and 0.68) compared to human capital among the variables (0.53). This suggests that although the relationship between VAIC and performance is positively, human capital efficiency are not the prime focus as it does not yield as much profit as capital employed efficiency and structural capital efficiency. From the results in table 4.4, when structural capital increase by RM 1, the company's ROE increased by RM 0.76 and ROA increased by RM 0.68. However, against ROE alone, human efficiency is higher interrelated than capital employed efficiency at 0.71 and 0.61 correspondingly. Thereby, with investors in play, employees are expected to heighten their conduct to meet the expectation by stakeholders, especially with regards to foreign investment.

4.5   Regression Analysis
In measuring which intellectual capital features affect company's performance most, multiple regression analysis was used. With the aim of finding whether there is a dependency between independent variables, firstly, the correlation coefficient ρ between

the variables was examined using the suitability of *i*=9 sample size and 6 years from 2005 to 2010 (*t*). Moreover, R-square is used to identify how many percent of independent variables can be explained of y. On the other hand, to test the validity of model, F-test is used.

Table 4.5: Regression Analysis of IV impact on ROA

ROA	Coefficient	Standard Error	t-statistics	p-value
HCE	-0.02	0.06	-3.82	0.000
SCE	0.06	0.02	3.56	0.001
CEE	0.03	0.02	4.58	0.000
constant	0.15	0.02	6.20	0.000
R-squared Overall = 0.33			F-test =32.77 (0.009)	

With reference to table 4.5, the R-squared of 0.33 indicates that 33% of variation in ROA can be explained by the variation of HCE, SCE and CEE while the other 67% of variation in ROA can be explained by other factors. The F-test of 32.77 shows that the model is valid and the results are reliable.

All three VAIC components are significant variables when reviewing banks' profitability. If, the structural and physical capital were fully utilized in a more resourceful manner, both capital may causing significant substantial profitability to venture. As both SCE and CEE is highly significant at 1% level, the results suggest that there is a positively significant relationship between SCE and CEE with ROA. Based on the results, 1% increase in SCE and CEE, the ROA is expected to be increased by 0.06% and 0.03%, respectively.
In contrast, HCE has negatively significant relationship with ROA at 1% level. It means that 1% increase in HCE will reduce the ROA by 0.02%. As a conclusion, although the HCE has contributed negative effect to the ROA, but the combination positive effect from SCE and CEE was larger than HCE. Overall, the intellectual capital is still enhances the variation of ROA.

Table 4.6: Regression Analysis of IV impact on ROE
Fixed- effect

ROE	Coefficient	Standard Error	t-statistics	p-value
HCE	-0.21	0.06	-3.44	0.001
SCE	0.68	0.18	3.74	0.001
CEE	0.28	0.25	4.71	0.000
constant	1.55	0.25	6.28	0.000
R-squared Overall = 0.29			F-test = 42.60 (0.000)	

Table 4.6 shows the regression analysis when ROE is the dependent variable. Based on the results, the impacts of three independent variables namely HCE, SCE and CEE to ROE are larger compared to the ROA. Again, both SCE and CEE is positively significant to ROE at 1% level. This indicates that 1% increase in both SCE and CEE will increase the ROE by

0.68% and 0.28%, respectively. For the HCE, the coefficient of -0.21 shows that HCE and ROE is negatively significant relationship at 1% level. Hence, 1% increase in HCE will lead the ROE to reduce by 0.21%. Overall, the impact of intellectual capital on ROE is still positive whereby we can observe that the sum of coefficients SCE and CEE is able to absorb the negative impact of HCE.

The R-squared of 0.29 indicates that 29% of HCE, SCE and CEE be able to explained the variation of ROE while the other 71% of variation in ROE is explained by other factors. The F-test of 42.60 shows that the model is valid and the results are reliable.
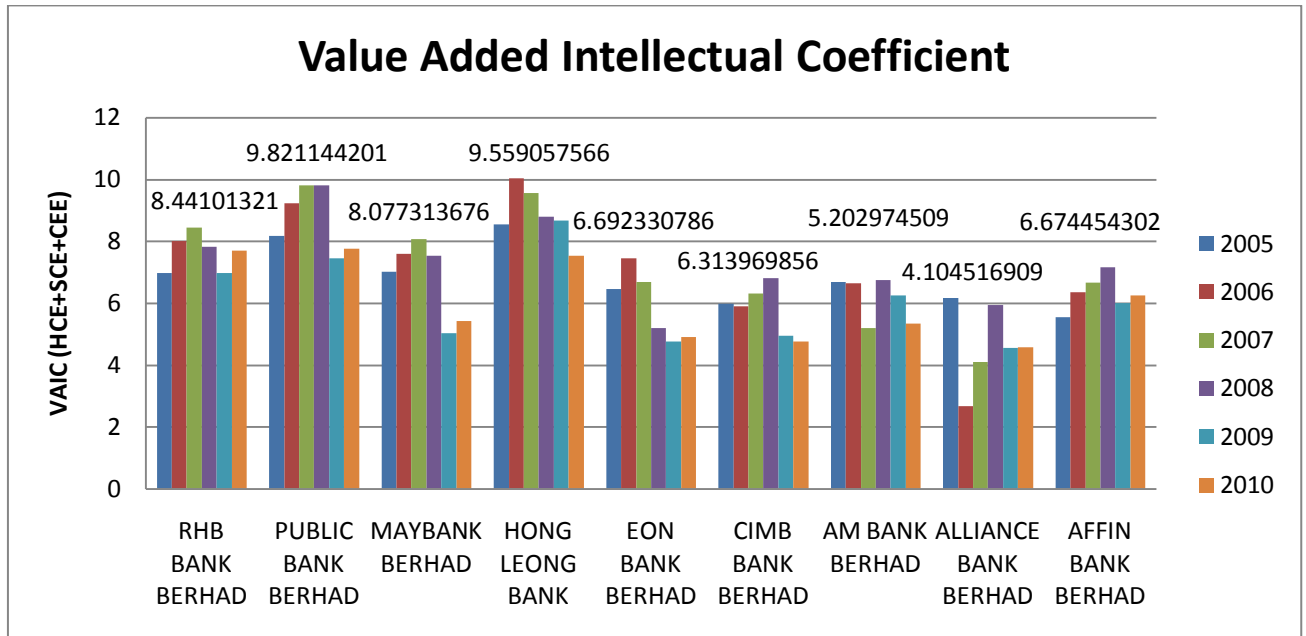
4.6   Trend Analysis
4.6.1   Intellectual Capital Efficiency

Table 4.7: Trend of VAIC efficiency in banks

	2005	2006	2007	2008	2009	2010	Avg.
RHB BANK BHD	6.974	8.006	8.441	7.83	6.976	7.7	7.655
PUBLIC BANK	8.184	9.235	9.821	9.809	7.456	7.756	8.710
MAYBANK BHD	7.028	7.592	8.077	7.541	5.038	5.433	6.785
HONG LEONG	8.546	10.039	9.559	8.809	8.667	7.529	8.858
EON BANK BHD	6.468	7.453	6.692	5.202	4.765	4.904	5.914
CIMB BANK	5.995	5.91	6.314	6.823	4.962	4.773	5.796
AM BANK BHD	6.684	6.656	5.203	6.762	6.249	5.34	6.149
ALLIANCE BANK	6.177	2.679	4.105	5.946	4.557	4.583	4.675
AFFIN BANK	5.544	6.364	6.674	7.172	6.011	6.253	6.336

Based on the calculation shown in table 4.7, the results of the current study found that, in terms of Intellectual Capital efficiencies among commercial banks, Hong Leong has the highest efficiency ranking with $VAIC_{TM}$ at 8.86 accumulated of the past 6 years beginning 2005 up to 2010. Previously Public bank was the pioneer from 2007 to 2010 with Hong Leong trailing close. With less emphasis by Public bank on intellectual resources, Hong Leong is progressively taking its place.

Subsequently RHB has been utilizing its intellectual assets efficiently, at a better position followed by Maybank, Affin Holdings Berhad and AMMB Holdings Berhad. The least efficient bank is Alliance Bank Berhad with $VAIC_{TM}$ of 4.7 with severe drop in 2006 . EON bank has been deteriorating in its productivities which could be explained by the recent decision to merge with Hong Leong mid 2011 (Economy Watch, 2011)

Value Added Intellectual Coefficient

Figure showing a grouped bar chart titled "Value Added Intellectual Coefficient" with Y-axis labeled "VAIC (HCE+SCE+CEE)" ranging from 0 to 12, and X-axis showing banks: RHB BANK BERHAD, PUBLIC BANK BERHAD, MAYBANK BERHAD, HONG LEONG BANK, EON BANK BERHAD, CIMB BANK BERHAD, AM BANK BERHAD, ALLIANCE BANK BERHAD, AFFIN BANK BERHAD. Data labels shown: 8.44101321, 9.821144201, 8.077313676, 9.559057566, 6.692330786, 6.313969856, 5.202974509, 4.104516909, 6.674454302. Legend years: 2005, 2006, 2007, 2008, 2009, 2010.

Figure 4.0: Value Added Intellectual Coefficient for domestic banks

As shown by figure 4.0, the performances of banks in terms of VAIC$_{TM}$ values for the years 2005 to 2010 has Hong Leong performing most efficiently. Hong Leong VAIC$_{TM}$ of 8.88 means that, for every RM1 value invested, RM 8.88 was added from intellectual capital efficiency. Public bank follows with a continuous increase from year to year. Hong Leong and Public bank has been interchanging in differing years. While Public bank is top for 2007 and 2006, with years 2005 up till 2007 Hong Leong was leading place for VAIC$_{TM}$ values. However, a heavy decline in 2009 emerges due to recession and the impact is still lingering for Public bank. RHB bank has been consistent throughout the global crisis at third place.

The most inconsistent with irregular activities and variability was Alliance bank with AM bank second to worse. Throughout the years, CIMB and Alliance did not perform on par in terms of its intellectual capital management.

Last FYE varies among the banks; Dec 2010, Jun 2010 or Mar 2010
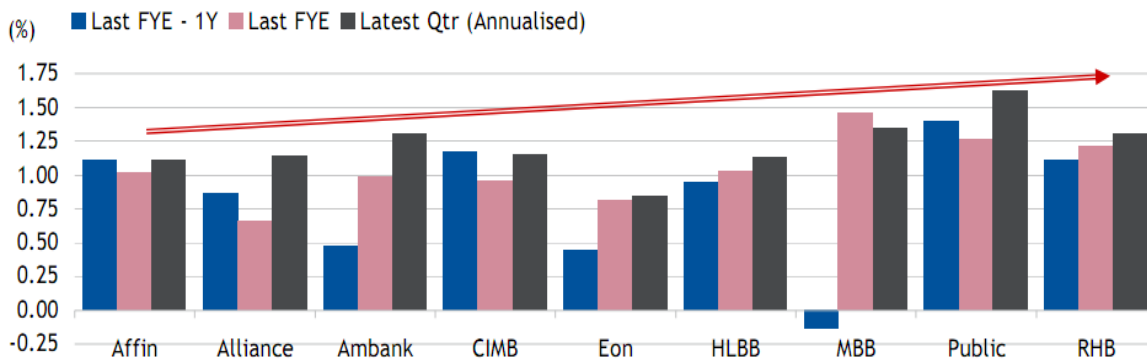
Source: Bank financials, MARC

Figure 4.1: Return on Asset of domestic banks in 2010

Despite CIMB ROE performing well accumulated over the 6 years period, however the VAIC contribution was amongst the lowest. EON performed the worst, financially and towards its efficiency in utilizing its intangible capital (Figure 4.6).

There is immediate correlation from the graph which suggests that as Public bank uses its IC well, it will yield in the ROA in its efficiency of managing its assets. As reflected by AmBank, the negative outcome of the ROA in 2010 proves that VAIC affects profitability.

Table 4.8: Trend of CEE in banks

CEE	2005	2006	2007	2008	2009	2010	Avg.
RHB BANK BHD	0.032	0.037	0.043	0.045	0.034	0.037	0.038
PUBLIC BANK	0.046	0.046	0.049	0.048	0.038	0.042	0.045
MAYBANK BHD	0.044	0.046	0.049	0.048	0.035	0.02	0.040
HONG LEONG	0.039	0.044	0.044	0.043	0.043	0.036	0.042
EON BANK BHD	0.046	0.044	0.045	0.042	0.041	0.039	0.043
CIMB BANK	0.044	0.042	0.05	0.045	0.039	0.04	0.043
AM BANK BHD	0.041	0.042	0.032	0.049	0.045	0.042	0.042
ALLIANCE BANK	0.045	0.023	0.039	0.051	0.04	0.04	0.040
AFFIN BANK	0.038	0.041	0.045	0.046	0.037	0.038	0.041

With regards to Capital employed (VACA), as the sample are banks, this is a significant feature to the success and sustainability of its operation. Therefore as seen by the trend, all 9 banks were averaging at 0.04 on how it employed its capital efficiently. However, Public bank was able to sustain the recession in 2008, making it leading with the best CEE in the past 6 years. RHB however maintained a low CEE throughout the 6 years at 0.03. Maybank was hit badly by the crisis which they still have no recovered fully. Financial efficiency stands at 0.02 in 2010. CIMB also performed well and in 2007 peaked its CEE at 0.05 EON and CIMB is on par while Hong Leong and Ambank maintain value added of 0.04.
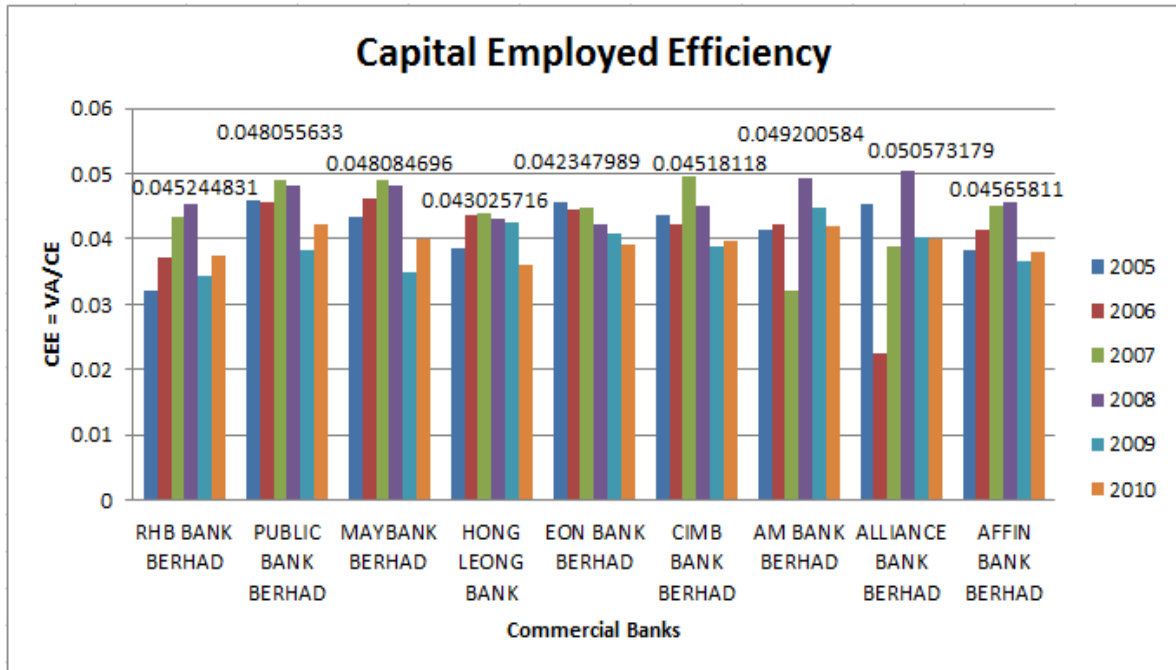
Figure 4.2: Structural Capital Value Added for Domestic Banks

Alliance bank plummeted in 2006 prior to the crises indicating weak structure but peaked in 2008 above all other commercial banks. After the crisis Hong Leong had trouble in recovering compared to the other banks.

In terms of human capital performance, all banks have relatively higher structural capital and capital employed efficiencies than human capital efficiency. Among the banks, Public Bank tops the list with the highest HCE scores in 2007 and 2008 (Table 4.9). In 2006 Alliance bank contributed the least for its human capital which was reflected in the ROA, performing the worst in 2010.

Table 4.9: Trend of HCE in Commercial banks

HCE	2005	2006	2007	2008	2009	2010	Avg
RHB BANK BHD	6.105	7.109	7.53	6.929	6.105	6.81	6.765
PUBLIC BANK	7.276	8.31	8.885	8.874	6.569	6.86	7.796
MAYBANK BHD	6.147	6.695	7.168	6.643	4.239	4.61	5.917
HONG LEONG	7.638	9.105	8.631	7.892	7.754	6.644	7.944
EON BANK BHD	5.601	6.561	5.819	4.388	3.975	4.109	5.076
CIMB BANK	5.146	5.066	5.448	5.946	4.163	3.984	4.959
AM BANK BHD	5.815	5.786	4.398	5.883	5.389	4.519	5.298
ALLIANCE BANK	5.32	2.126	3.363	5.092	3.781	3.806	3.915
AFFIN BANK	4.718	5.504	5.802	6.286	5.168	5.4	5.480

As employees are the easiest cost to reduce by way of downsizing or layoffs, Alliance and EON has taken steps to reduce its resources in investing upon core competencies. At 2.13 Alliance bank human capital efficiency was at its worst amongst all the banks over the 6 years. With 2.13 HCE, this indicates that for every RM1 invested in employing new personnel, Alliance Bank staff generated a mere RM 2.13. However Public Bank staff efficiency level rose up to 8.31 and 8.89 from 2006 to 2008 leading in the industry. Currently a stronger competitor is seen by Hong Leong efforts to enhance investment and efficiency.
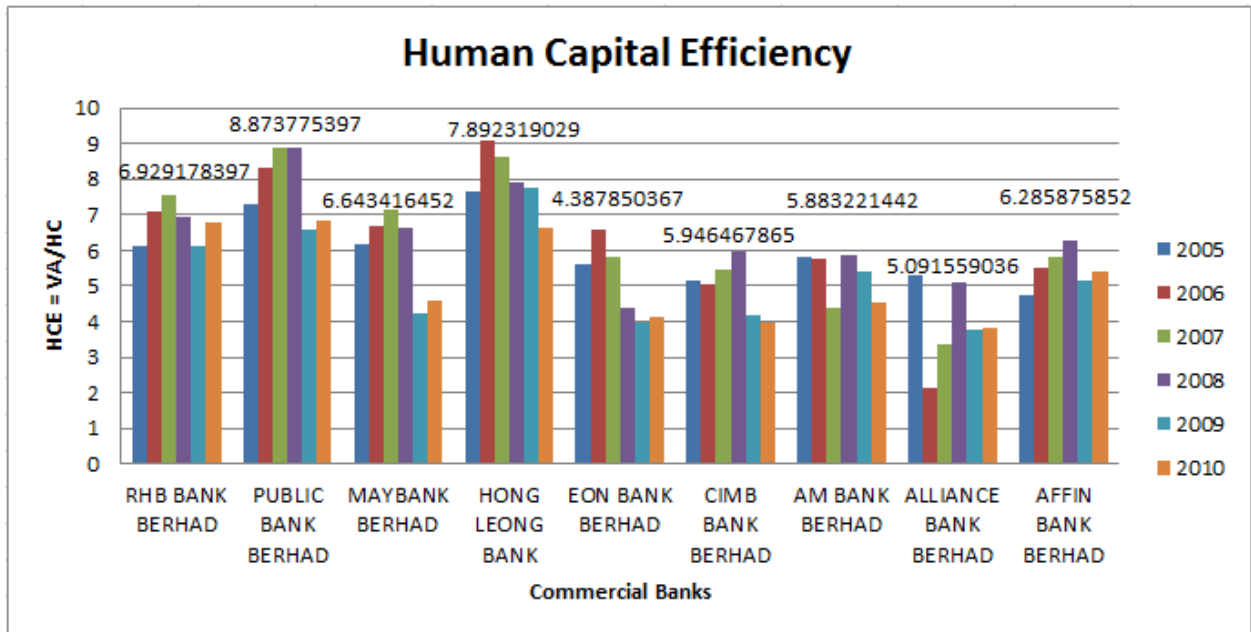
Figure 4.3: Value Added Human Capital for domestic banks

In terms of human capital efficiency, Hong Leong Bank dominated with VAHC of 9.12 in 2006, with all the other year average between Public Bank,Hong Leong and RHB .

Table 4.9: Trend of SCE in Commercial banks

SCE	2005	2006	2007	2008	2009	2010	Avg.
RHB BANK BHD	0.836	0.859	0.867	0.856	0.836	0.853	0.8512
PUBLIC BANK	0.863	0.88	0.887	0.887	0.848	0.854	0.8698
MAYBANK BHD	0.837	0.851	0.86	0.849	0.764	0.783	0.824
HONG LEONG	0.869	0.89	0.884	0.873	0.871	0.849	0.8727
EON BANK BHD	0.821	0.848	0.828	0.772	0.748	0.757	0.7957
CIMB BANK	0.806	0.803	0.816	0.832	0.76	0.749	0.7943
AM BANK BHD	0.828	0.827	0.773	0.83	0.814	0.779	0.8085
ALLIANCE BANK	0.812	0.53	0.703	0.804	0.736	0.737	0.7203
AFFIN BANK	0.788	0.818	0.828	0.841	0.807	0.815	0.8162

With regards to Structural capital, all banks did not vary much as this is the key in operating efficiency, especially for bank sectors. Hong Leong was also the best performer for structure capital efficiency measured by STVA. Goh (2005), Hazlina (2009) have found that Public bank was the best performer early 2000. Its governance may result to permanent losses as IC is a strategic asset that innovate companies.

As seen in commercial banks in Malaysia, a strict maintenance of its structural capital efficiency is a common practice among banks. This is due to the nature of business which is highly in need of information communication technology, databases and satellite services. All of which are elements of structural capital as employee in the workplace were required to deliver such quality for the company.
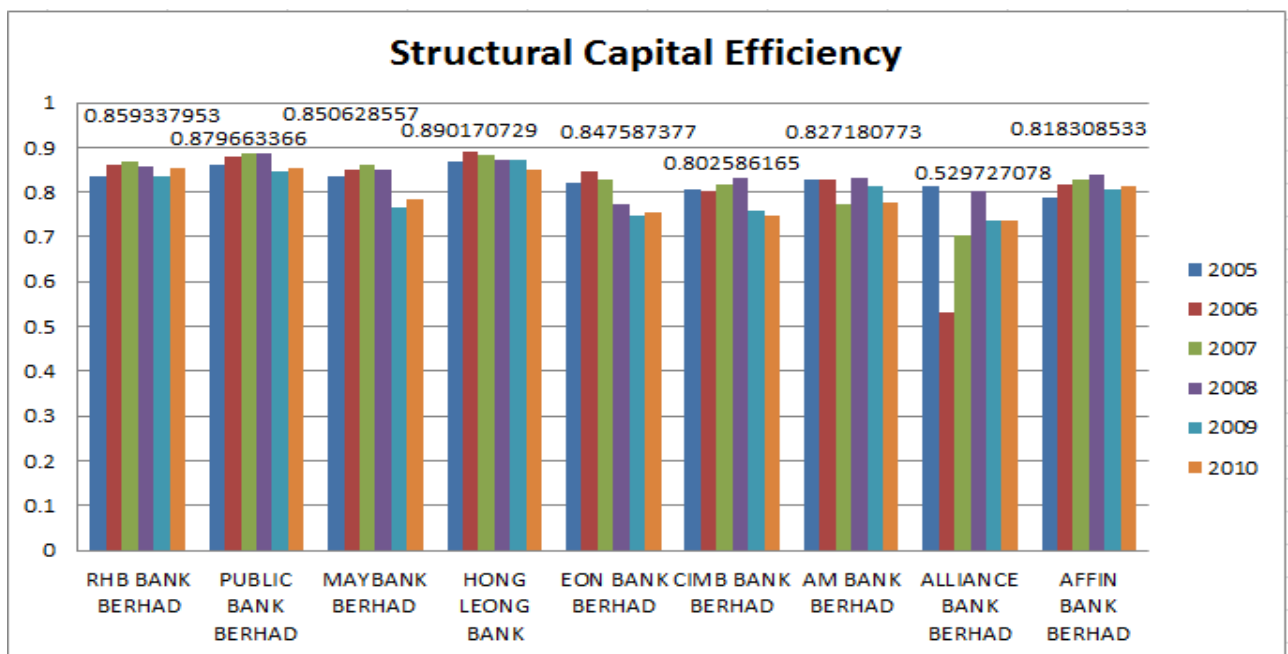

Figure 4.9: Structural Capital Value Added for domestic banks

All banks accept for EON maintain a progressive SCE even in times of crisis. Maybank is also struggling which indicates weak structure of the bank. As a whole, and in line with other literature, banks in Malaysia have relatively high Value added human capital (VAHC), compared to Value added capital employed (VACA) and value added structural capital efficiency (STVA). Thus, these banks companies produce lower IC efficiency in terms of human capital but they maintain high capital employed structural capital. In line with Nik Maheran (2009) it was found that out of 18 companies evaluated from year 2002-2006, banking sectors owning more on intellectual capital compared to insurance company and brokerage firm. Company's value added was very much related to the amount of

capital employed as compared to other variables. The trend of intellectual capital shows positive relationship for almost all sectors.

This findings is also consistent with the previous study of Goh (2005), where he also found that Maybank, which is the largest bank in terms of assets, net profit and shareholders' equity, had a lower intellectual coefficient. In the same study, he discovered that the performance of human capital is higher than those of structural and physical capital for both domestic and foreign banks in Malaysia. Panel data analysis has confirmed that IC efficiency has no effect by years. The efficiency level of the IC indicates no trend over the years.

5.0 Conclusions and Recommendations
The empirical findings have proven that intellectual capital is not only a crucial trading tool, but it is the backbone of every organization regardless of all else. With great certainty, the world would not be what it is today without intellectual capital. As this research aims to signify the importance of the knowledge asset, especially in banking the key contributor to the operation of any economy, management can now appreciate the impact and support the provision of intellectual elements. As a result, commercial banks may create awareness to invest on developing the intellectual capital without compromise on these vital resources.

The research model was created based on the analysis and evaluation from literature on intellectual capital. Objectives to find the relationship and which intellectual capital element most significantly influences bank profitability was found after conducting the econometric strata analysis for collected data. The results gathered provide meaningful revelations to individuals who wish to recognize and venture into intellectual capital implications in a more profound manner.

Undergoing this analysis, has discovered that the correlation between changes to structural capital and capital employed proved positive and significantly affected profitability and performance of banking activities. In line previous study, Nik Maheran (2009) found that there is a positive and significant impact created by intellectual capital to financial institutions profitability and ROA. However, in that research, human capital and structural capital has no significant relationships with company's performance. This was justified with other financial factors having more influence to performance such as sales volume and how the company manages their expenses. Therefore, domestic banks would be more alert in making managerial decisions in the area of its structural reforms as well as how efficiently the financial and physical assets are utilized. This finding was consistent with Bontis *et al* (2000) who also found that capital employed influenced the performance of the company. Accordingly, any innovative steps in these areas trigger skyrocketing effects. As globalization and liberalization take its powerful toll, the domestic bank must be sturdy enough to overcome and survive the competition.

Although there are many elements that affect the performance of an organization from macroeconomic factors, to internal operation, the one tool the domestic bank has strong

control over is its human capital. In the study conducted, there is a powerful influence of employee capital to domestic banks; however this is negatively affiliated. It is substantially noteworthy that management must implement a better system to enhance positively human contribution to the efficiency of generating profit for financial institutions. This could be translated into one of two things. The employees are unsatisfied causing a high turnover rate and absenteeism initiating productivity to plummet. Alternatively, unskilled bank personnel that are not up-to-date to global standards expected in terms of efficiency and competency damper productivity. Ultimately these factors make human capital inefficient and therefore redundant. Nik Maheran (2009) indicated that the human capital may be directed towards a different objective and not to organizational goals. It was also suggested in that study that the measure of human capital using $VAIC_{TM}$ method could be flawed as it fundamentally measure value added per wages.

Thus the results based on regressive models indicate that the factors significant to financial institute profitability in the Malaysian market currently are only structural capital and capital employed. However, human efficiencies are lacking in causing a positive variance in bank productivity. Furthermore, the results of correlation tests show that human capital, structural capital and capital employed yield a strong influence on domestic banks returns on assets and return on equity. However, between both proxies, a return on equity was more highly correlated as the use of shareholder funds indicate that managers take more precaution utilizing these capital compared to debts. From literature reviews previously analysed, the general norm has been that the association between the relationship of intellectual capital and profitability positive are highly likely. It was also discovered that the trend for the past 6 years indicated that progressively Malaysian economy is moving towards a more knowledge base economy as per Vision 2020 plan. In this study, the hypothesis is met whereby there is a relationship between intellectual capital and bank performance in Malaysia which is strongly supported by Sàenz (2005), Cabrita and Vaz (2006), Bontis *et al*, (2000), Belkaoui (2002) as well as Chen *et al*, (2004).

5.1   Recommendation on Human capital

To enhance financial institutions, policy makers must implement the key survival resource that is knowledge. By understanding that there human capital is inefficiently employed in banks, managers will benefit from developing processes and procedures that enhance the employment and utilization of its resources. Thusly, the first step that must be taken is the need for an improved selection, recruitment and retaining practice to avoid wastage of resources.

It is alleged that individuals excel beyond expectation when they are satisfied with their jobs thereby indicating an increase in productivity and better services provided occur when gathering individuals who not only qualify but who fit the job (Jain *et al*, 2007). In a forum of human resource professional bodies, it was discovered that a culture of job-hopping had become increasingly rampant in Hong Kong, Malaysia, and Singapore (Asia Pacific Management News, 2007). The costs and disruptions associated with job-hopping adversely affect Malaysia's competitiveness (Chang, 2006; The New Straits Times, 2006)

and foreign investors will obviously be deterred by the frequency of job-hopping (Asian Finance, 2008).

According to Robbins and Judge (2009), if the staff is active and constructive, attempts would be made to improve the situation or enhance their performance. However if they are destructive or discontented with the condition at hand, banks must face the cost of staff resignation or passively respond by way of high absenteeism, frequent lateness or reduced productivity. With high employee turnover, the adverse effect on domestic banks range from costs of high staff turnover which involve not only the direct financial cost of replacing staff but other repercussions such as the potential loss of key skills, knowledge and experience, disruption to operations and the negative effect on workforce morale. To eliminate this issue, human resource and line managers should improvise and constantly monitor and be more innovative in recruiting and training higher qualified staff. As banks continue to adopt greater sophistication in the application of information communication technology, efforts must be focused to develop ICT-savvy employees to deliver to customer a better service.

5.2   Recommendation on Structural Capital

As seen in the findings, the least amount of fluctuations in the capital invested for structural portion indicates that the structural support is a significant tool that must be well maintained. By adding innovative input, despite increasing saturation of the domestic market along with intensifying competition and lingering uncertainties of the economic condition, the domestic corporate sector is more secured.

Malaysia Rating Corporation Berhad (MARC) observed a stable outlook on the banking sector which performed well during the crisis and recovered quickly (MARC, 2010). Information communication technology is the strategic enabler for Malaysia to achieve its developed nation status. The rating stability of the banking sector is due to adequate capitalization, good asset quality and decent earnings steam.

Besides, commercial banks need to eliminate the factors that may reduce the value added. Quality of the services should be the prime concern as well as focus on content volume. This is because overload of content volume will make consumers feel confused, thus, e-commerce provider should organize well and screening the content. Voluntary turnover is a major problem for companies in many Asian countries such as Hong Kong.

With a better use of structural database and innovative tools in its information communication technology, customer relationship could be enhanced with improved excellent standard. Customer satisfaction increase would not only help retain them, but good word of mouth would provide free viral marketing which is proven to be far more effective than impersonal promotion schemes. As Malaysia has embarked on an ambitious plan to leapfrog into the information age, the Multimedia Super Corridor was created to bring together an integrated way the elements necessary to create a global multimedia climate.

5.3   Contributions of Study

Based on the findings, decisions made by the government to liberalize many of the service sectors so as to enable free market practices proves to be a wise decision. As organization such as OECD and Worldbank highlight that Malaysia has a severe problem with regards to brain-drain of highly educated population (Worldbank, 2011), this researcher found the correlation it has to Malaysian domestic banks. This major factor will hinder progress as the ongoing trend has been that these commercial local banks are merely procuring databases and making structural reforms on the basis of international practices. Little to no effort was contributed to the global banking system by innovative idea that originated from Malaysia.

The general perception of Malaysia's banking personal are not motivated have direct effect to its profitability. With great facilities at hand, the efficiency on how to serve customers still lie with employee treatment and service. The tall structured hierarchy system adopted by most domestic banks make decision making process slow, as well as impede the progress and enrichment of the bank staff in making effective and sharply executed assessment. A drastic look of this matter is a strong contribution to the area of intellectual capital as well as to the commercial domestic banking industry which has only recently been liberalized. Should actions not be taken promptly, these institutions would drown amidst the foreign playmakers. To meet the goal of 9th Malaysian plan for the development of Information Technologic and economy in Malaysia, this study is one step closer to accomplishing this target.

Furthermore, the findings of this research have underlined many important issues of the emerging intellectual capital measures and its use in Malaysia. With the recommendation in play, banks could increase their competitiveness by designing effective resource procurement strategies. This would attract new account holder as well as retain existing clients as speed, availability and security are key features when deciding to commit to a banking service provider.

5.4 Recommendations for Future Research

This study analyses the value added intellectual capital of the commercial banks in determining their performances by way of return on asset and return on equity. The findings from this study have implication for future empirical research.

Firstly, since intellectual capital has positive impact on bank performance, this study suggests that intellectual capital matters should be interconnected to firm productivity growth. Therefore, a study of evaluating firm performance done by future research could be on a specific variable. For example, the firm can focus on finding the significant impact of human 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 human capital as a tools to evaluate firm performance.

Secondly, to obtain a more accurate evaluation of intellectual capital in banks, the Malaysian local commercial banks efficiency could be measured against the foreign banks to give a comparative analysis of how it could be done better. A larger sample size is recommended in future research as well as change the use of time horizon with support of interview of focus group in each bank. By this approach undertaken, detailed information and deeper understanding of how banks formulate its intellectual capital efficiency could enhance the representativeness of the sample. In addition, as banking is progressing daily in terms of innovative products, future research will provide the information of the current and most up-to-date information.

Moreover, control variable of internal, external macroeconomic factors and development of international standards was lacking. As to conflict of time, should a collaboration of study be conducted, a control variable such as leverage or debt ratio could enhance the study together with element such as business freedom index or corruption index. This would reflect the reality of the industry with regards to hindrances by government despite liberalization efforts. Additionally, the analysis of corruption would be showcased proving that Malaysia's burden of money leaking out of the economy is a severe problem that must be researched on.

Link to the point above, given the increasing globalization in business, factors of financial systems could be a study of how it affect firm's behaviour. This issue has important implication with respect to other factor that will contribute to the firm performance. Also, this study does not include the role of the intellectual capital and how it affects market-based measure in determining its performance.

Finally, the importance of the intellectual capital should be emphasized not only to the commercial banks but also to the emerging market of Islamic banks in Malaysia. With Bahrain as the main competitor in Islamic bank, by focusing on this trend of the usage of Islamic product in the financial sector, Malaysia has a good chance to be the global leader of Islamic banking in terms of provision and hub. This will provide a wholesome research in implementing the best structure of intellectual capital for the banks in the future.

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