

## THE RELATIONSHIP BETWEEN INTELLECTUAL CAPITAL AND FIRMS' PERFORMANCE IN THE TRADING AND SERVICES SECTOR IN MALAYSIA

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### ABSTRACT

The purpose of this study is to determine the relationship between intellectual capital and the firm's performance of trading and services sector in Malaysia. This sector was chosen for the study since it becomes one of the important sectors that drive the Malaysian economy. A total of 120 firms were used as the sample. This study used the secondary data that were extracted from the annual reports of the firms for years 2012 and 2013. The efficiency of the intellectual capital components were calculated using the Pulic's Value Added Intellectual Capital (VAIC) method; while the firm performance was measured based on its profitability value. This study employed the Spearman correlation in order to find the correlation between intellectual capital component efficiency and firm performance. Meanwhile, Paired Sample T-test was used to test the significance difference between the two years. The results showed a mix relationship between the independent and dependent variables. In 2012, Human Capital Efficiency (HCE), Capital Employed Efficiency (CEE), and VAIC efficiency showed a positive significant relationship with the performance. However, Structural Capital Efficiency (SCE) indicated no relationship with the firm performance. In 2013, HCE and CEE showed a positive significant relationship with the firm performance; while SCE indicated a negative relationship. However, the VAIC efficiency showed no significant relationship. The findings from this study could be useful for the management of the firms, investors or other stakeholders in managing the intellectual capital. It also will add to the literature on the intellectual capital in Malaysia.

**Keywords:** Intellectual capital, Malaysia, Trading and Services Sector, VAIC

## 1.0 INTRODUCTION

Intellectual capital (IC) is a concept that quickly gained ground because organizations increasingly tend to develop models based on knowledge where the human factor plays a central role. Each firm's unique knowledge, skills, values and solutions can be transformed into value in the market, which may in turn affect the competitive advantage and increase the productivity and market value (Pulic, 2002). In Malaysia, most firms still do not alert with the important of intellectual capital. Several successful firms in the world realize the importance of investing in intellectual capital for their business, to create value products and services (Chang, 2007) from the firm physical assets (Wang, 2006).

## 2.0 BACKGROUND OF STUDY

Since 2002, Malaysia has embarked on a mission to develop a knowledge-based society by introducing the Knowledge-based Economy Master Plan. This plan outlines various strategies to accelerate the transformation of Malaysia to the knowledge-based economy (Economic Planning Unit, 2001). The present Prime Minister of Malaysia, Datuk Seri Najib Razak believed that it is important to enhance the intellectual capital as it is the biggest factor that determines the success and prosperity of a country (Melissa, 2011). He also said that we must develop an intellectual capital to be a developed country.

To achieve Vision 2020, Malaysia needs to sustain a rapid rate of economic growth and enhance the international competitiveness through the basis of knowledge-based economy. In addition, the Knowledge-based Economy Master Plan (KEMP) launched in 2002 contains 136 recommendations covering human resource development, information structure, incentives, science and technology development, reorientation of the private and public sectors as well as addressing the digital divide. It renowned that a well-educated, trained and skilled employee is important in developing work and economic performance and sustaining the international competitiveness as Malaysia transforms into a knowledge-based society (Zainol, 1999).

There are several research conducted in Malaysia relating to intellectual capital such as, "Measuring Intellectual Capital Efficiency in the Malaysian Software Sector" in Kweh, Chan and Ting (2013); "Intellectual Capital Performance of Financial Institution in Malaysia" in Ting and Lean (2009); "Intellectual Capital Performance of Commercial Banks in Malaysia" in Goh (2005). Meanwhile, this research focuses on the relationship between intellectual capital towards the performance of trading and services firms in Malaysia. This research adopted the Value Added Intellectual Coefficient (VAIC) method to measure importance of intellectual capital in the trading and services firms in Malaysia.

## 3.0 LITERATURE REVIEW

### 3.1 Components of Intellectual Capital

Previous study had identified several components of Intellectual Capital. According to Edvission and Malone (1997), intellectual capital is divided into three, such as Human Capital, Structural capital and Customer Capital. Human centered asset conclude skills of the employee, the abilities, leadership styles and etc. All the technologies, processes and methodologies that enable firm to function are categories under infrastructure assets. Intellectual property includes the trademarks and patents while market asset is mentioning about brands, customers, customer loyalty and distribution channels. Wang, WY & Chang, (2005) classified the intellectual capital into four categories which is human capital, structural capital, innovation capital and relational capital. For the purpose of this study, we are using Edvission and Malone (1997) study as our reference that is divided into three such as Human Capital, Structural capital and Customer Capital.

Human capital is rooted in a certain way in the talent of employees (Cater & Cater, 2009). This capital is in the employees and it belongs to the individual itself. When the employees leave the firm, the capital also leaves and this capital cannot be owned by the firm. According to Pablos (2002), human capital is the personal information stock of the firm that is represented by employees and the source of invention and strategic innovation.

Structural capital is in contrast with human capital when these intellectual assets that remain when employees leave the firm, hence structural capital is independent of individuals and is generally explicit (Chen, Lin & Chang, 2006; Hormiga et al, 2011; Longo, Mariani & Mura, 2009). According to Pirtini (2004), structural capital is the whole

organizational capabilities, which are owned by the business and enables the firm to meet the market requirements and involves elements such as culture, intellectual property, system and processes that are kept within the enterprise.

Customer Capital is the value of a firm's relationship with people and how it maintains the good relationship to conduct business (Cabrita & Bontis, 2008; Hormiga et al, 2011; Longo et al, 2009). This capital includes relationship with external stakeholders, networks with suppliers, distributors, lobby organizations, partners, customers relationship to build image-building, loyalty, network partners and investors, and branding (attitudes, preference, reputation, brand recognition) (Jacobson et al, 2005; Marr, Schiuma, & Neely, 2004; Roos & Roos, 1997). Customer capital is also named as External capital, Relational capital and Capital Employed. It consists with the part of human and structural capital involved with a firm's relations with stakeholders, and also the perceptions that they hold about the firm (Belkaoui, 2003).

### 3.2 Malaysia and Intellectual Capital

Malaysia has transformed itself from a country that long depends on agricultural commodities and mining to an industrializing economy. Malaysia had changed itself in the last three decades. In meeting the challenges of the new economy, Malaysia has embarked on a mission to develop a knowledge-based society as highlighted in its Third Outline Perspective Plan, 2001-2010 (Economic Planning Unit, 2001). Knowledge-Based Economy Master Plan was launched in 2002.

The study by Amin J.M, Saringat and Hasan (2011) investigates the intellectual capital disclosure in Malaysian public listed firms. This research specifically examines the relationship between IC disclosure and firms' profitability, productivity, and firm size. The authors measure the IC disclosure using the IC disclosure index and IC disclosure frequency. The sample for this study are 255 firm-year observations from 2006-2008. This study showed that IC disclosure has been important over time in Malaysia. Nowadays, more firms in Malaysia had realized that Intellectual Capital is important to the organization.

An earlier empirical study on intellectual capital performance in Malaysia was carried out by Bontis, William and Richardson (2000). This study focused on the inter-relationship of intellectual capital within the services and non-services industries in Malaysia. Psychometrically validated questionnaire (which was administered in Canada by Bontis, 1998) was used in this study. The result for this research shows that structural capital has a great influence on business performance and human capital is of significance, especially in non-services based industry.

After that in year 2005, a later study by Goh (2005), aimed at measuring intellectual capital performance of commercial banks in Malaysia over the period 2001 to 2003. Goh finds that all banks, generally have relatively higher human capital efficiency than structural and capital efficiencies. In addition, she mentions that there are significant differences in terms of the ranking based on efficiency using VAIC and traditional accounting measures.

However, based on our knowledge and finding, there is no study that measures the effect of intellectual capital performance based on profitability towards trading and service sector firms listed under Bursa Malaysia for the period of 2012 to 2013. Trading and services sector was chosen for this study since this sector contributes quite a significant percentage to the Malaysian economy (MPC Productivity Report, 2014).

## 4.0 RESEARCH METHODS

The population for this study includes all 180 listed firms in trading and services sector listed in Bursa Malaysia as at the date of 6<sup>th</sup> September 2014. By using simple random sampling method, 120 firms were chosen from 180 firms in trading and services sector. According Sekaran (2010), if the population is more than 120 firms, we must choose at least 30% from the population to be taken as a sample for the purpose of research. Two years annual reports (2012-2013) from these 120 firms were taken as samples for this research in order to determine the changes of performance for these firms within the period of two years.

This study used content analysis to identify the disclosure of numericals in annual report. The annual reports of the firms are from the Bursa Malaysia. All the data have been collected by ranking the criteria of intellectual capital components in activity reports of trading and services firm between 2012 and 2013 to see any changes or improvement in the firm's VAIC.

In obtaining data to measure the dependent and independent variable, this study is based on the content analysis of the annual report of the sample firms. According to Krippendorff (1980), Guthrie and Parker (1990), Guthrie, (1983), content analysis seeks to analyze published information systematically, objectively and reliably. The content analysis is a method of codifying the text of writing into various groups or categories based on selected criteria. This is the reason why these studies choose content analysis to measure the data of IC.

#### 4.1 Measurements of Variables

Several methods had been developed to measure intellectual capital such as market capitalization approach, direct intellectual capital measurement approach, return on asset approach and Scorecard method. One of the methods is Value Added Intellectual Coefficient (VAIC™) by Pulic (1997). It shows the measurement of efficiency of intellectual capital and capital employed can create a value based on the relationship of the three major components that is human capital, structural capital and external capital.

Based on Pulic's method, VAIC™ is calculated by the sum of human capital efficiency (HCE), structural capital efficiency (SCE), and capital employed efficiency (CEE) because those are the components of VAIC™ and defined as:

$$\text{VAIC}^{\text{TM}} = \text{HCE}_i + \text{SCE}_i + \text{CEE}_i$$

Where the VAIC™ = sum of the value added for the firm  $i$ , HCE $_i$  = human capital efficiency of the firm  $i$ , SCE $_i$  = structural capital efficiency of the firm  $i$ , and CEE $_i$  capital employed efficiency of the firm  $i$ .

Before analyze these components, we need to observe "the competency of a firm to create Value Added (VA)". The tenacity is to "create as much value added as possible with a given amount of financial and intellectual capital" (Pulic, 2000a). The calculation of VAI (the sum of value added for firm  $i$ ) is defined as follows (Chang, 2007):

$$\text{VAI} = \text{Gross Margin} - \text{Sales General Administrative Expenses} + \text{Labor Expenses}.$$

Based on this formula, employees are not treated as costs, but it is treated as an investment for the firms (Pulic, 2002). CEE is the ratio of total VA divided by the total amount of capital employed (CE). CEE is defined as:

$$\text{CEE}_i = \text{VAI}/\text{CE}_i$$

Where, CEE $_i$  = capital employed efficiency of the firm  $i$ , VAI = the sum of value added for the firm  $i$ , CE $_i$  = book value of net assets for the firm  $i$ .

HCE is the ratio of total VA divided by the total salary and wages spent by the firm on its employees. HCE shows the total of VA created by unit of money spent on employees (Tan et al., 2007). HCE is defined as:

$$\text{HCE}_i = \text{VAI} / \text{HC}_i$$

Where, HCE $_i$  = human capital efficiency of the firm  $i$ , VAI = the sum of value added for the firm  $i$ , HC $_i$  = total salary and wage expenditure of the firm  $i$ .

SCE is the ratio of structural capital (SC) divided by total VA. The structural capital comprises proprietary software systems, networks distribution, supply chains, brand, organization management process, and also customer loyalty (Tan et al., 2008; Goh, 2005). The structural capital is the difference between a firm's total value added and its human capital. The calculation of SCi and SCEi can be defined as follows:

$$\begin{aligned}\text{SC}_i &= \text{VAI} - \text{HC}_i \\ \text{SCE}_i &= \text{SC}_i / \text{VAI}\end{aligned}$$

Where, SC $_i$  = structural capital of the firm  $i$ , HC $_i$  = the total salary and wage expenditure of the firm  $i$ , SCE $_i$  = structural capital efficiency of the firm  $i$ , VAI = the sum of value added for firm  $i$ .

By using the VAIC method, this research may show the trend of human capital, structural capital and also external capital in each of the firm. Profitability shows the trend of the firm performance in the current year. Thus, we can see the relationship between intellectual capital and the firm's performance based on the VAIC method and performance measurement.

#### 4.2 Data Analysis

The Statistical Package for Social Science (SPSS) being utilized to test the data gathered. Prior to in-depth analysis, normality test was carried out to determine whether the data is normally distributed or not. If the data is normally distributed, parametric test may be used for this research. If the data is not normally distributed, this research proceeds with non-parametric test. Parametric statistic is based on the assumption that the population from which the sample is drawn normally distributed while non-parametric is based on the assumption when the sample is not normally distributed in the test. This research uses 120 samples from the Public Listed firms in the Main Market (Trading & Services sector) for a period of 2 financial years. Since the data was more than 50, this study employed the Kolmogorov - Smirnov method to test the normality.

Paired sample t-test is necessary to compare the means of data from two related samples. It acts as an additional assumption for a subject that is normally distributed. However, when the samples size is more than 30, the violation of this assumption will not cause any serious problems (Field, 2009). This test shows the mean for each samples and its significant level of the mean. When the significant level is below than 0.05 it shows that the sample has a significant different between two related samples. The correlation shows the correlation between two related samples. This study employed the paired sample t-test by comparing the mean from two related samples for two years that is from 2012 until 2013.

Correlation tests are needed to determine the relationship and the strength between the two variables, dependent and independent. A variable used in this study is the intellectual capital and the performance of the trading and services firms.

The intellectual capital gives high values when associated with high or good financial performance and shows positive correlation exists. Nevertheless, if the intellectual capital has high values associated with the low values of financial performance, it shows the negative correlation exists.

When the data sample is normally distributed, then Pearson's Product Moment Correlation ( $r$ ) is used to test the strength of the relationship between the variables either is positively correlated or negatively correlated.

### 5.0 FINDINGS AND DISCUSSION

#### 5.1 Normality Test

Table 1 below showed the results of the Kolmogorov-Smirnov Test. To obtain more precise information, normality test was used to determine whether the data is normally distributed or not. The normality test for these two years is less than 0.05 which indicates that the data is not normally distributed. Therefore, non-parametric tests would be more appropriate to be used to carry out further analyses (Hair, et al., 2010). However, since the number of sample is large, the normality assumption of data can be relaxed and hence either parametric or non-parametric tests analyses would produce the same results (Field, 2009). Thus, this study used both parametric and non-parametric tests in order to analyse the data.

**Table 1: Results of Normality Test**

Kolmogorov-Smirnov		
	2012	2013
	Sig	Sig
HCE	.000	.000

<b>SCE</b>	.000	.000
<b>CEE</b>	.000	.000
<b>VAIC</b>	.000	.000
<b>PROFITABILITY</b>	.000	.000

## 5.2 Paired

### Sample T-Test

The purpose of the paired sample t-test was carried out is to compare the effects of intellectual capital components efficiencies towards the firm's performance for the year 2012 and 2013. In addition, the total intellectual capital efficiency, VAIC, was also used to compare its effects on firm's performance for the two years.

Table 2 below shows the paired sample t-test results of intellectual capital efficiencies as compared to the changes of the intellectual capital components, that is Human Capital Efficiency, Structural capital efficiency, capital employed efficiency and Value Added Intellectual Coefficient between 2012 and 2013. It also shows the comparison of mean and standard deviation between each intellectual capital components and shows the paired differences produced from paired sample statistics.

**Table 2: Paired sample T-Test**

		N	correlatio n	sig	Mean	Mean differenc es	Std. Deviation	Std. deviation differences
Pair 1	HCE201 2	114	0.694	0.00 0	3.40671 0	3.947836 8	9.4552398	17.9664116
	HCE201 3	114			- 0.54112 7		23.1826824	
Pair 2	SCE201 2	114	-0.020	0.83 6	1.32153 4	- 1.459999 1	7.5200976	20.1296733
	SCE201 3	114			2.78153 3		18.5250939	
Pair 3	CEE201 2	114	0.005	0.95 6	0.17660 4	0.513547 4	1.4991106	3.9862367
	CEE201 3	114			- 0.33694 3		3.7013853	
Pair 4	VAIC20 12	114	0.426	0.00 0	4.90484 3	3.001385 1	11.5320070	27.9099091
	VAIC20 13	114			1.90345 8		30.8047617	

Paired sample t-tests results show that there are significant differences between year 2012 and 2013 for the HCE and VAIC since the p-values is less than 0.05 (pair 1 and pair 4). The mean values of HCE in 2012 and 2013 are 3.407 and - 0.5441 respectively. Meanwhile, the mean values of VAIC in 2012 and 2013 are 4.905 and 1.903. In terms of correlation, the association is rather strong for HCE with coefficient value of 0.694. However, the correlation for VAIC is at moderate level with coefficient value of 0.426.

The results also indicated that there is no significant differences between SCE for 2013 and 2013 (pair 2) as well as CEE for 2012 and 2013 (pair 3) since the p-values are greater than 0.05. The mean values for these two pairs were rather small and the correlation is very weak.

## 5.3 Correlation

This study employed the Spearman Rho statistical test (non-parametric statistical tests) to answer the hypotheses and find out the correlation among the variables since the data were not normally distributed. The Spearman Rho statistical

test was used in order to determine the relationship between intellectual capital and its impacts on firm performance in trading and service industry. This study is using Pallant's rules of thumb in explaining the correlation results (Pallant, 2001):

- i. 0.7 and above – **very strong relationship**
- ii. 0.50 to 0.69 – **strong relationship**
- iii. 0.30 to 0.49 – **moderate relationship**
- iv. 0.10 to 0.29 – **low relationship**
- v. 0.01 to 0.09 – **very low relationship**

**Table 3: Correlation of 2012**

Spearman's rho	Profitability	
	Correlation Coefficient	Sig.(2-tailed)
<b>HCE 2012</b>	0.427**	0.000
<b>SCE 2012</b>	0.171	0.068
<b>CEE 2012</b>	0.447**	0.000
<b>VAIC 2012</b>	0.449**	0.000

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

\*. Correlation is significant at the 0.05 level (2-tailed).

#### **Human Capital Efficiency (HCE) and Profitability (2012)**

Table 3 shows that there is a significant relationship between HCE and Profitability. The relationship between HCE and Profitability are significant at 0.010 levels since the p-value is lower than 0.01. The correlation coefficient for HCE and Profitability is at 0.427. It shows that there is a moderate positive relationship between HCE and Profitability. The correlation indicates a positive direction between HCE and Profitability, which means that the higher the value of HCE, the higher the value of Profitability and vice versa.

This result supported by prior study conducted in Malaysia by Ting and Lean (2009) which finds that human capital efficiency is positively correlated with profitability. In addition, Chen et al (2005) and Ting and Lean (2009) also discovered similar findings. Accordingly, this suggests that it is important for firm to use human capital efficiently to generate higher profit.

#### **Structural Capital Efficiency (SCE) and Profitability (2012)**

Table 3 shows that the relationship between SCE and Profitability is not significant since the p-value value is higher than 0.050. This result supported by Ting and Lean (2009) and Shiu (2006b) which also found non significant association between SCE and profitability. In addition, previous research done by Ting and Lean (2009) in Malaysia also shows that the profitability is not significantly related with structural capital.

#### **Capital Employed Efficiency (CEE) and Firm Profitability (2012)**

Table 3 shows that CEE have a significant relationship with Profitability since the p-value at 0.00 which is lower than 0.01. The hypothesis H3 is, therefore, accepted. The correlation coefficient for CEE and Profitability is 0.447. This result shows that there is a moderate relationship between profitability and CEE. This correlation indicates a positive direction which means that the higher value of CEE will result in greater value of Profitability, and vice versa. This result is supported by Chen et. al (2005) which shows a significant relation between CEE and Firm Profitability.

### Value Added Intellectual Coefficient (VAIC) and Firm Profitability (2012)

Table 3 shows that there is a significant relationship between VAIC and the Profitability. The relationship of VAIC and Profitability is significant at 0.01 levels since the p-value is less than 0.01. The correlation coefficient for VAIC and Profitability is valued at 0.449. This result shows that there is a moderate relationship between VAIC and the Profitability. The positive sign for this correlation indicates that as the value of VAIC increases, the amount of Profitability will also increase and vice versa. This result is supported by Gan and Saleh (2008), which conducted research on the relationship between IC and corporate performance, by investigating whether the value creation efficiency (measured by VAIC), can influence the market valuation, profitability, and productivity or not. Overall, the study of Gan and Saleh (2008) concluded that VAIC is positively correlated with profitability. On a similar study in Taiwan, Shiu (2006) found a significant positive correlation between VAIC and the profitability.

Table 4 Correlation of 2013

Spearman's rho	Profitability	
	Correlation Coefficient	Sig.(2-tailed)
<b>HCE 2013</b>	0.415**	0.000
<b>SCE 2013</b>	-0.241**	0.010
<b>CEE 2013</b>	0.564**	0.000
<b>VAIC 2013</b>	0.117	0.213

\*\*. Correlation is significant at the 0.010 level (2-tailed).

\*. Correlation is significant at the 0.050 level (2-tailed).

### Human Capital Efficiency (HCE) and Firm Performance (2013)

Table 4 shows that there is significant positive relationship between HCE and Profitability. The relationship between HCE and Profitability is significant at 0.01 levels since the p-value are lower than 0.01. The correlation coefficient for HCE and Profitability is at 0.415, which indicates that it has a moderate relationship. The result shows a positive relationship which indicates that the higher the value of HCE, the higher the value of Profitability, and vice versa.

This result is in line with the research of Chen et al. (2005) that study the relationship between VAIC and performance in Taiwanese listed firms between 1992 and 2002. The findings supported the positive relationship between human capital efficiency and profitability. Besides that, Ting and Lean (2009) also found a significant positive relationship between human capital efficiency and profitability. In addition, prior study done by Mavridis, (2004) found the positive impact of human capital efficiency on performance of Japanese banks Tovstiga and Tulugurova, (2007) also discovered that human capital is the most important intellectual capital component for competitive advantage.

### Structural Capital Efficiency (SCE) and Firm Performance (2013)

Table 4 shows that Profitability has significant inverse relationship with SCE since the p-value is at 0.01. The relationship between SCE and Profitability is significant at 0.01 levels but it has a low correlation relationship. The coefficient correlation value is -0.241. The negative sign indicates the inverse relationship, which means that the higher the value of SCE will result in lower value of Profitability, and vice versa. Due to the inverse relationship between SCE and Profitability, the hypothesis H2 is rejected.

This can be supported with the previous study conducted by Martin Clarke (2011) which aims to examine the effect intellectual capital has on firm performance of Australian firms. The result discovered that structural capital efficiency have an inverse relationship with performance of firms. Besides that, a study conducted by Ting and Lean (2009) also reported similar result on negative correlation relationship between structural capital efficiency and firm performance. Furthermore, prior research conducted in Malaysia by Irene Ting and Lean (2009) discovers a negative association between structural capital efficiency and profitability but not significant. On the contrary, Chan (2009b) found a

significant positive association between structural capital efficiency and profitability and Firer and Williams (2003) also discovered same result.

### **Capital Employed Efficiency (CEE) and Firm Performance (2013)**

Table 4 shows that significant positive relationship is found between Profitability and CEE at 0.01 levels since the p-value is 0.00. The correlation coefficient of 0.564 shows the strong correlation between CEE and Profitability. This correlation coefficient has shown a positive sign which indicates that the higher value of CEE will result in greater value of Profitability, and vice versa.

The result is consistent with the prior study conducted by Martin Clarke (2011) which investigates the effect of intellectual capital on firms' performance in Australia. The findings discovered that capital employed efficiency is positively correlated with all the performance measure used in this study including return on asset (Profitability). In addition, previous study by Ting and Lean, (2009) in Malaysia also indicates similar result.

### **Value Added Intellectual Coefficient (VAIC) and Firm Performance (2013)**

Table 4 shows that there is no significant positive relationship between VAIC and Profitability since the p-value is 0.213 (higher than 0.050). This finding can be supported by the previous research done by Firer and Williams (2003) that use VAIC approach to measure the relationship between IC and traditional measures of corporate performance of 75 South African public traded firms. The empirical result failed to support relationship between VAIC and profitability. On the other hand, there are prior studies that found different result. For example, Shiu (2006b) and Ting and Lean (2009) find a significant positive relationship between VAIC and return on assets (Profitability).

## **6.0 CONCLUSION**

Based on the findings discussed in the previous sections, the summary of the findings are as the followings:

- a) There is a positive relationship between Human Capital Efficiency and firm's performance for years 2012 and 2013;
- b) There is no relationship between the Structural Capital Efficiency and firm's performance for both years (2012 and 2013);
- c) There is a positive relationship between the Customer Capital Efficiency and firm's performance for years 2012 and 2013; and
- d) There is a positive relationship between VAIC and firm's performance for the year 2012; meanwhile there is no positive relationship between VAIC and firm's performance for year 2013.

Therefore, this research shows a positive relationship between the period of 2012 and 2013 for human capital efficiency and capital employed efficiency towards firm's performance. However, structural capital shows a negative relationship towards firm's performance in 2012 and 2013.

On the contrary, VAIC shows an inconsistent outcome for 2012 and 2013. It shows that there is positive relationship between 2012 but have a negative relationship in 2013 towards firm's performance. It indicates that the hypothesis 4 is supported for 2012 but not for 2013.

## **7.0 LIMITATIONS AND FUTURE RESEARCH**

The first limitation of this research is related to the period covered for the research in coming up with the samples. This study only covers two-year periods, 2012 and 2013 for the companies in the trading and service sector in Malaysia. According to Maditinos et al (2011), a sample data consisting of 10 years period may offer different result because it may show the fluctuation of the financial performance of trading and service sector. Thus, a longer period may be more appropriate in order to find out the real effects of intellectual capital towards the firm's performance.

Secondly, this study only used one type of measurement (profitability) in order to measure firm's performance. Other study such as research conducted by Fethi, Cigdem, A.Elvan, and Ece (2010) measured the performance in ITC sector

using market valuation, profitability, productivity, and return on equity. Since this research only used profitability to measure the performance of the companies, it may give different results should other types of measurements be used to measure firm's performance.

Lastly, this research is mainly focused on the firms that are listed in trading and service sector in Bursa Malaysia. There are many sectors listed in Bursa Malaysia such as finance, construction, consumer product, hotel, industrial products, IPC, mining, plantation, properties and others. Thus, by focusing on one sector only, comparisons could not be made on the contribution of intellectual capital to other firms in other sectors.

Based on the limitations discussed above, this study recommends that future researchers should collect a wider sample of the Malaysian firms and increase the period of study for more than just two years period. In addition, the measurement for firm's performance should take into account other forms of measurements such as market valuation, productivity and return on equity.

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