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THE IDENTIFICATION OF INDONESIA AND MALAYSIA COMPANY PERFORMANCE BASED ON INTELLECTUAL CAPITAL

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Salawati Sahari[1]
Santy Mayda Batubara[2+]

[1,2]*Faculty of Economics and Business, Universiti Malaysia Sarawak, Malaysia.*
Email: ssalawati@unimas.my Tel: +6082584437
[2]*Faculty of Economic and Business, Universitas Muhammadiyah Pontianak, Indonesia.*
Email: sasan.mamay05@gmail.com Tel: +6281254373033

(+ Corresponding author)

ABSTRACT

Indonesia and Malaysia are Southeast Asian countries that have similar growth rates in business performance. Both countries have experienced the global financial crisis and recovered from the economic downturn. This study examined the performance based on intellectual capital of Indonesian and Malaysian companies listed on the Indonesian and Malaysian Stock Exchanges from 2013 until 2016 using an analysis based on the "Independent Sample t –test" to evaluate the Intellectual Capital value which consists of the variables Value Added Capital Employed (VACA), Value Added Human Capital (VAHU), and Structural Capital Value Added (STVA), (Pulic, 1998). Based on the Value Added Intellectual Coefficient (VAIC)TM approach, the study found several performance differences between Indonesian and Malaysian companies involving the capital employment (VACA), human capital (VAHU), structural capital (STVA) and also a significant decline in company performance.

Contribution/ Originality: This study contributes to practical perspectives of investment investigation and decision making for listed companies on the Indonesian or Malaysian Stock Exchange.

1. INTRODUCTION

There has been a decline in international economic growth since the Global Financial Crisis, where investment activities worldwide were stopped and commodity prices in the global market were dropped. While global debt increased, productivity gains remained low and inflation continued until the money value was reduced below the value set by the central bank. These crises often take place in states which face political uncertainty.

Similarly with reference to Table 1, there was a difference between the market cap values of countries in several regions of Southeast Asia, and one of the states in Indonesia was ranked second in the Southeast Asia Stock Exchange after Singapore in this matter (third quarter period, 2017).

Indonesia's economic growth improved by 4.88 percent in 2015 and reached 5.02 percent in 2016. Indonesia exhibited the best stock market performance in a number of countries and ranked second in the Asia Pacific regions (CNNM, 2017). The Composite Stock Price Index or IHSG was close to Indonesia in this ranking, with 15.32 percent and 5,296.71 points in terms of economic growth. Initially, the national economic growth increased from 6.3 points to 5,290.39 by 0.12 percent in early 2017. However, during the third quarter of 2017, the national

economic growth increased by 5.06 percent, although this increase did not have any proportional correlation with the performance of stocks or IHSG.

Table-1. The market cap value in the regions of Southeast Asia

Countries	Market cap value	% Year to date (percent)
Singapore	553.13	19.24
Indonesia	483.08	14.37
Thailand	459.67	11.57
Malaysia	413.86	19.91
Filipina	265.18	13.02
Vietnam	113.90	34.80

Source: CNN Money (2017)

As for Malaysia, the economic growth in this country increased by 4.5 percent in 2016. This growth percentage was lower than the percentage in the previous year. This could be seen from this country's economic growth, which was 5 percent, and the insignificant investment growth in the private sector. This resulted in a low ringgit currency value. However, during the second quarter of 2017, Malaysia experienced the fastest economic growth which was 5.8 percent due to high domestic and export demands. Despite this achievement, there had been a drop of foreign investment to Malaysia, from 17 billion to 8.3 billion ringgit during the first quarter of 2017 until the second quarter of 2017.

In terms of capital market growth, Malaysia gained 2.84 trillion ringgit in 2017, with an overall increase of 98.5 billion. Meanwhile, Indonesia increase of 6,400.11 trillion rupiahs and received 78 thousand transactions by its investors within a month. Nevertheless, due to inconsistent global economic climates, the capital markets in both countries still remained within secure market conditions.

In order to obtain an actual corporate value, the values of the knowledge related to company performance are estimated (Bontis, 2001). The knowledge applied to predict the improvement of this value consists of physical capital, human capital, and structural capital. These three components form an Intellectual Capital (IC) value or variable. With this knowledge, there will be a positive outcome in the company performance.

Intellectual Capital (IC) is required to determine the corporate value and increase competitive advantage (Bounfour, 2003; Chen *et al.*, 2005; Kehelwalatenna and Gunaratne, 2010). It is a technique of achieving a company's competitive edge, which then uses the human, structural, and physical capital in a distinctive way. The Intellectual Capital concept is essential due to its intangibility characteristics, similar to other intangible assets. It is associated with knowledge management which provides a company with the guidelines for achieving its desired goal. Narvekar and Jain (2006) identified that through enhanced skills organizational, not only an individual will be able to increase their profits in the short run, they can also go beyond their comfort level and able to gain long term profits.

IC is identified as the difference present between the market value (a business enterprise) and the book value of a company's assets. It is based on an observation conducted by the end of the 1980s, where the market value of most businesses, specifically the knowledge-based businesses, were higher than the value reported in financial statements. This was according to calculations performed by accountants (Roslender and Fincham, 2004).

One of the indicators used in this study to gauge and assist in the evaluation of the value creation efficiency of a company was the Value Added Intellectual Coefficient or VAIC™. The VAIC™ model was established and instigated by Pulic for the calculation of the Intellectual Capital in a company (Pulic, 1998;2004).

This study examined the performance of Indonesian and Malaysian companies based on Intellectual Capital. In this study, the Value Added Intellectual Coefficient (VAIC™) was used as a measurement model of company performance. With this, the economic state of smaller countries in particular regions was predicted to obtain some benefits from the resilience of their economic states and high commodity prices of their neighbouring countries.

2. LITERATURE REVIEW

Several authors provided an overview of the IC evaluation models, i.e. Sydler *et al.* (2014); Bontis (2001); and Sveiby (1997). One of the most adopted IC methods by previous researchers was the Value Added Intellectual Coefficient (VAIC™) model, i.e. Bontis *et al.* (2015); Nimtrakoon (2015); Maria (2014); Janosevic and Dzenopoljac (2012); Chang and Hsieh (2011) and Wei and Hooi (2009). The model developed by Pulic (1998;2000) allowed the managers, shareholders, and other interest stakeholders in a company to monitor and measure a company's IC performance and potential. In other words, the VAIC™ measures a company's intellectual efficiency in its value creation by using their economic resources (Pulic, 2004).

The VAIC™ method, which was proposed by Pulic (1998) allows a company to evaluate its value creation efficiency Pulic (2001;2002). This method uses the financial statements of a company to calculate the efficiency coefficient of the three capitals of knowledge (human, structural, and physical capital). Although the VAIC™ makes use of the accounting data, it does not focus on the cost of the company. Instead, it focuses on the efficiency of the company's resources (Bornemann, 1999; Pulic, 2000). This method also provides information about the efficiency of the tangible and intangible assets which can be used to generate a company's value. The efficiency of the value added by the company's IC is measured by the VAIC as an indirect method.

The IC measurement of a company's can be done with the company's ability to value add to its products or services (VA). VA is the most objective indicator to assess a company's business success and demonstrate its ability in generating value (Pulic, 1998). The calculation of VA is done by determining the difference between the output (OUT) and input (IN). It is defined as an increase in the net value of a company due to the company's activities.

The main components of VAIC™ were developed by Pulic (1998). These components are present in a company's resources which consist of "*physical capital* (*Value Added Capital Employed*), *human capital* (*Value Added Human Capital*), and *structural capital* (*Structural Capital Value Added*)".

VAIC™ = VACA + VAHU + STVA

i. Value Added Capital Employed (VACA)

Value Added of Capital Employed describes the volume of a company's value-added which is generated from the use of its physical capital. The performance of the company will be optimized with the use of CE (Capital Employed), provided if 1 unit of CE is capable of generating a higher amount of return than any other company. A company's ability to obtain the CE's optimum level is a part of its intellectual capital.

VACA = VA/CE

ii. Value Added Human Capital (VAHU)

Value Added Human Capital determines a company's labour ability to generate its value through the expenditure spent on the labour. To be specific, a higher value-added generated by a company is an indication that the company is capable of an optimum management of its human resources. Subsequently, with good labour quality, a company's business performance will be improved.

VAHU = VA/HC

iii. Structural Capital Value Added (STVA)

Structural Capital Value Added (STVA) describes a company's structural capital contribution in value creation. It is used to measure the volume of the structural capital which is required to produce a company's VA. It is also used as an indicator of the success of a company's structural capital in value creation. Structural capital is a non-independent measure, as human capital and structural capital will depend on value creation (Pulic, 1998). Therefore, the enhancement of human capital contribution in value creation will reduce the impacts of the structural capital. It

was also stated by Pulic (1998) that SC is described through the subtraction of HC from VA, and this has been verified by an empirical research on traditional industrial sectors.

$$STVA = SC/VA.$$

Value Added Intellectual Coefficient is one of the concepts which shows whether a value is generated or not and the amount of value generated (Pulic, 2004). Martín-De-Castro *et al.* (2006) explained an individual's fear of losing their old skills and the reluctance of adopting new skills, and these bring the biggest disadvantage to an organization. Meanwhile, Stam (2009) explained the same concept: with the employees' misuse of resources and the lack of efficiency in using their skills, intellectual capital becomes a burden to an organization. How they use their resources and skills will depend on their satisfaction and loyalty to their job. These two elements are the most effective outcomes of all these factors (Aydogdu and Asikgil, 2011). VAIC™ measures the intellectual efficiency in a company's value creation through the exploitation of its economic resources (Pulic, 2004; Greco *et al.*, 2014).

Several works of empirical research found a number of positive findings between IC and company performance, i.e. Maditinos *et al.* (2011); Zeghal and Maaloul (2010); Wei and Hooi (2009); Chan (2009a); Tan *et al.* (2007); Ghosh and Wu (2007); Cohen and Kaimenakis (2007); Shiu (2006a); Chen *et al.* (2005); Bollen *et al.* (2005); Mavridis (2004) and Bontis *et al.* (2000). At the same time Setianto and Sukmana (2016) stated that a number of negative findings were found by some researchers i.e. Chan (2009b); Shiu (2006b) .

3. METHODOLOGY

This study was conducted through cross sectional recorded from a secondary data. The technique implemented in this study is purposive sampling, which manufacturing companies have different types of production were investigated (cross-section). These companies had been listed on the Stock Exchange board in Indonesia and Malaysia from 2013 until 2016 (time series), with a criterion that they possessed and published complete financial reports from 2013 until 2016 and recorded a positive profit. The sample studied were derived from 77 Indonesia companies and 86 Malaysia companies annually in a four year period. The total samples studied were 308 for Indonesia companies and 344 samples for Malaysia companies in 4 years period.

Data collection was conducted based on the documents examined in this study. This process was also based on the access we had to the financial commodity exchange website (https://sites.google.com, http://www.idx.co.id) for four years to acquire the company's annual financial statements.

In this study, the content from an annual company report was used as a reference to provide an overview of the intellectual capital reporting practices. The "Independent Sample t -test" method was used to evaluate and provide an overview of the Intellectual Capital value. This study was done in accordance to the research by Guthrie *et al.* (2004) and Schneider and Samkin (2008).

The study model was based on VAIC™, where two independent groups were compared.

4. RESULTS AND DISCUSSION

4.1. Descriptive Statistic

All the companies had published their financial statements and audited their reports for the four consecutive years. The performance of the companies from both countries was reviewed based on the VAIC™ .
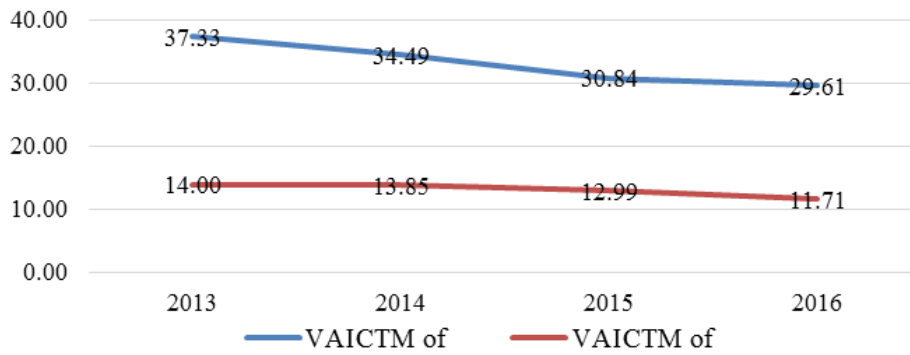
Figure-1. The average value for Indonesia and Malaysia companies' performance.

The performance of the companies selected in this study is demonstrated in the graph above. In Figure 1, both the red and blue lines are moving downward from the left to the right side of the graph, exhibiting a declining trend.

One of the Indonesian companies, PT Wilmar Cahaya Indonesia, showed the highest average value of VAIC™ at 128.66. Meanwhile, PT Pyridam Farma Tbk displayed the lowest average value of VAIC™ at 4.93.

As for the companies in Malaysia, A-Rank Berhad showed the highest average value of VAIC™ at 54.35, while Facb Industries Incorporated Berhad showed the lowest average value of VAIC™ at 3.37.

However, in this study, few companies from both countries showed an increase in performance value. To illustrate this point, two Indonesian companies, Akasha Wira International Tbk and Indo Kordsa Tbk, showed an increase in performance value, as seen in Figure 2.
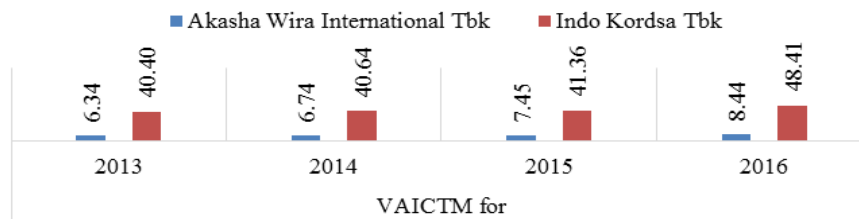

Figure-2. The increase value of Indonesian companies' performance.

The Indonesian companies which had been experiencing a decline in their performance value for four years were Astra International Tbk, Bata Tbk Shoes, Colorpak Indonesia Tbk, Indospring Tbk, Inter-Delta Tbk, Indopoly Swakarsa Industry Tbk, Lionmesh Prima Tbk, Nippon Indosari Corpindo Tbk, Supreme Cable Manufacturing Tbk, Sea Sekar Tbk, Mandom Indonesia Tbk, and the Tjiwi Kimia Tbk Paper Mill, as seen in Figure 3:
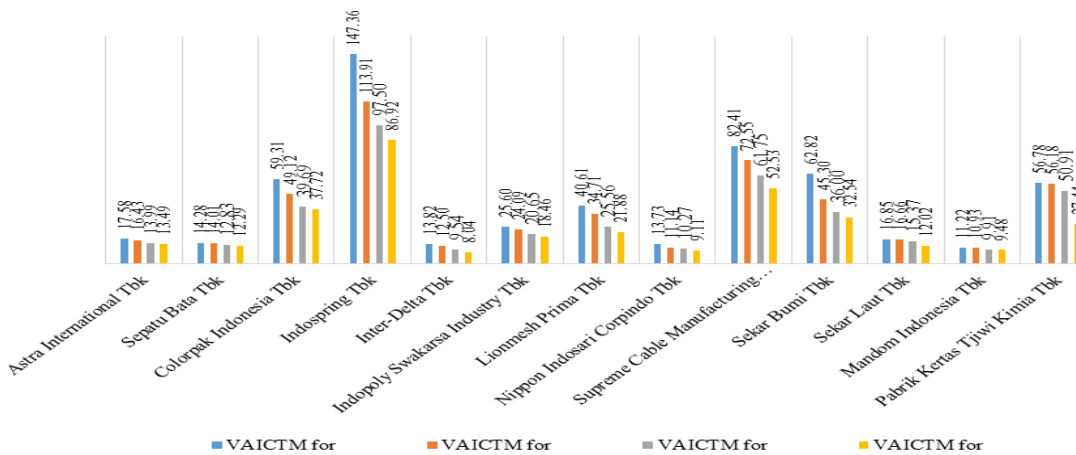

Figure-3. The decline value of Indonesian companies' performance.

For the Malaysian companies have an increased performance value. They were Bonia Corporation Berhad, Hexza Corporation Berhad, Homeritz Corporation Berhad, Khee San Berhad, London Biscuits Berhad, Magni-Tech Industries Berhad, Padini Holdings Berhad, dan Power Root Berhad, as shown in Figure 4:
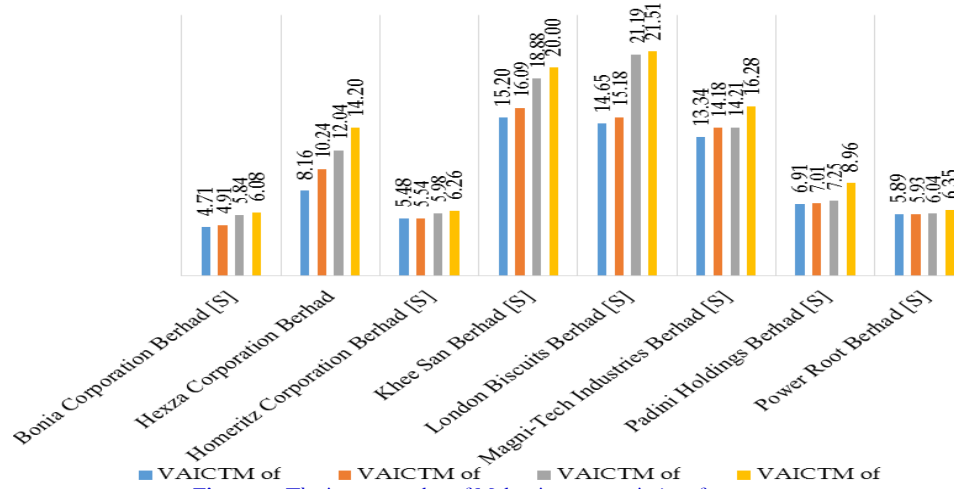

Figure-4. The increase value of Malaysian companies' performance.

Malaysian companies had been experiencing a decline in their performance value in the four year period, including A-Rank Berhad, Apollo Food Holdings Berhad, Box-Pak (Malaysia) Berhad, Cab Cakaran Corporation Berhad, Chin Well Holdings Berhad, Fima Corporation Berhad, Hartalega Holdings Berhad, Imaspro Corporation Berhad, Oka Corporation Berhad, Poh Huat Resources Holdings Berhad, Poh Kong Holdings Berhad, Prolexus Berhad, Sapura Industrial Berhad, Shh Resources Holdings Berhad, Subur Tiasa Holdings Berhad, Sws Capital Berhad, and Toyo Ink Group Berhad. This is illustrated in Figure 5:
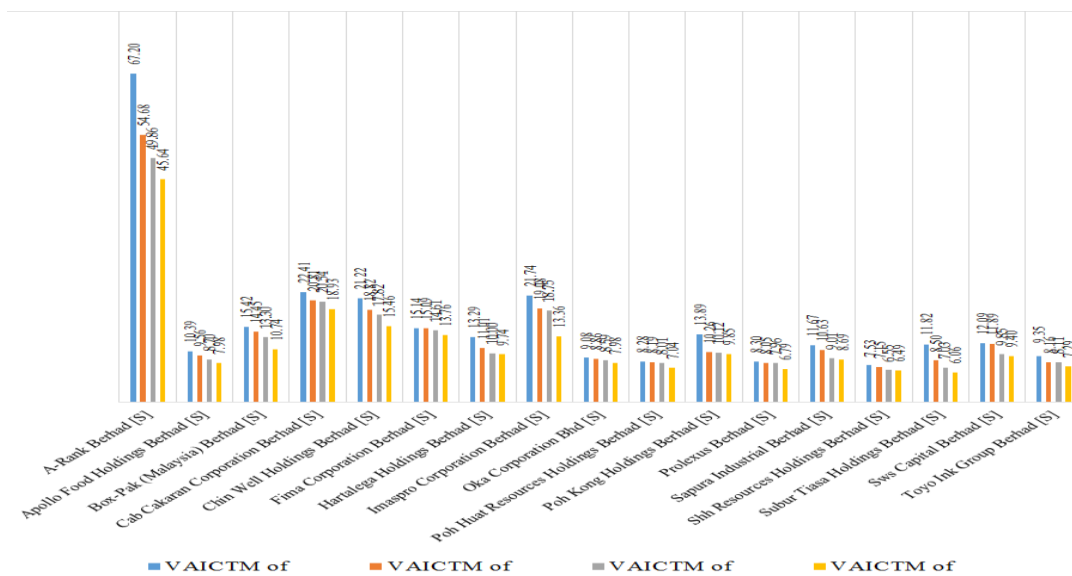

Figure-5. The decline value of Malaysia companies' performance.

4.2. Hypothesis Testing

This study implemented the VAIC™ method to measure the performance of companies.

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Table-2. The average component values of company performance.

Yearly	VACA		VAHU		STVA	
	Indonesia	Malaysia	Indonesia	Malaysia	Indonesia	Malaysia
2013	2.28	2.16	34.11	31.42	0.94	0.93
2014	2.21	1.53	31.34	11.46	0.94	0.86
2015	1.90	1.41	28.00	10.73	0.93	0.85
2016	1.81	0.13	26.88	9.54	0.93	0.84

Based on Table 2, it can be seen that the average value of all three components for company performance in both countries decreased, although this decrease was not significant. This decrease was in accordance with the average performance of the companies shown in Figure 2.

4.2.1. Normality Testing

This study used the manufacturing companies from both countries (77 Indonesian companies and 86 Malaysian companies annually) as a sample. The data obtained from this test are displayed in Table 3:

Table-3. The independent sample data.

Case processing summary							
		Cases					
		Valid		Missing		Total	
	Country	N	Percent	N	Percent	N	Percent
VAIC™	Indonesia	308	100%	0	0%	308	100%
	Malaysia	344	100%	0	0%	344	100%

Situmorang et al. (2009) suggested three methods to identify if the data distribution is normal or vice versa, i.e. the Kolmogorv Smirnov approach, histograms chart, and graphs. This study used the histogram approach with a bell-shaped data distribution. If the independent sample of the data from the two groups (Indonesia and Malaysia) was abnormal, an outlier process would be carried out to reduce the samples until the data distribution turned to normal. Group 1 are Indonesian companies and group 2 are Malaysian companies.

The normality test conducted on company performances based on VAIC™ in 2013 year found that group 1 had decreased to 73, while group 2 also had decrease to 80; in 2014 group 1 became 74, and group 2 also had decreased to 79; in 2015 group 1 had decreased to 83, while group 2 also had decreased to 74 and in 2016 group 1 had decreased to 72, while group 2 became 83. Therefore, it was concluded that the data from both groups (2013 – 2016) were distributed normally.

Table-4. The independent sample data after normality test.

Case processing summary							
		Cases					
		Valid		Missing		Total	
	Country	N	Percent	N	Percent	N	Percent
VAIC™	Indonesia	302	100%	0	0%	302	100%
	Malaysia	316	100%	0	0%	316	100%

4.2.2. Comparison Testing

The hypotheses formulated in this study showed several differences between the performance of the Indonesian and Malaysian companies through the VAIC™ approach. A Paired Sample Test was conducted to identify the significant differences between the two uncorrelated sample groups in terms of their average values.

The independent data (both two groups) were analyzed by the "F test" (Levene's Test) to identify a possibility that the variances were similar (homogeneity), before the analysis with the "t-test" was done. If there was a similarity between the variances, the Equal Variance Assumed "t-test" could be used. However, if the variances were

different from each other, the Equal Variance Not Assumed "t-test" would be used instead.

Table-5. The results of the company performance test based on VAIC™ for the independent data groups.

Yearly	Sample (N)	Value of			Levene's test for equality between the variances (P value)
		t-test	Mean difference	Interval of difference	
2013	153	8.671	20.50585	15.80105 – 25.21064	0.000
2014	153	8.554	18.89301	14.50118 – 23.28484	0.000
2015	157	7.539	16.50625	12.15457 – 20.85792	0.000
2016	155	7.404	13.96363	10.21640 – 17.71087	0.000

Based on Table 5, the "F test" value (Levene's test) for the data within the four year period was 0.000 or less than 5% (0.000 < 0.005). This showed how the data variances were different from each other and therefore not categorized into equal variances.

1.   In the case of the sample data in 2013, group 1 was 74, while group 2 was 79. The "t-test" value was 8.671, which was higher than the "t table" value (8.671 > 1.9758). The value of the average difference between the two independent groups (Malaysia and Indonesia) was approximately 32.1040 for group 1 and 11.5981 for group 2. Meanwhile, the lowest difference value between the two groups was 15.8010 and the highest difference value was 25.2106.

2.   As for the sample data from 2014, group 1 was 74, while group 2 was 79. The "t-test" value was 8.554, which was higher than the "t table" value (8.554 > 1.9758). The value of the average difference between the two independent groups (Malaysia and Indonesia) was approximately 30.0955 for group 1 and 11.2025 for group 2. Meanwhile, the lowest difference value between the two groups was 14.5012 and the highest difference value was 23.2848.

3.   As for the sample data from 2015, group 1 sample data (Indonesia) was 74, while group 2 sample data (Malaysia) was 83. The "t-test" value was 7.539, which was higher than the "t table" value (7.539 > 1.9758). The value of the average difference between the two independent groups (Malaysia and Indonesia) was approximately 32.1040 for group 1 and 11.7047 for group 2. Meanwhile, the lowest difference value between the two groups was 12.1546 and the highest difference value was 20.8579.

4.   As a result of the test conducted on the sample data from 2016, group 1 sample data (Indonesia) was 72 and group 2 sample data (Malaysia) was 83. The "t-test" value was 7.404, which was above the "t table" value (7.404 > 1.9758). The average difference between the two independent groups (Malaysia and Indonesia) was approximately 25.6683 for group 1 and 11.7047 for group 2. Apart from that, the lowest difference value between the two groups was 10.2164 and the highest difference value was 17.7109.

The result are similar to those found bySetianto and Sukmana (2016) where a significant difference in intellectual efficiency scores was shown by the Islamic Banks in Malaysia. They exhibited higher VAIC™ scores compared to the scores gained by the Islamic banks in Indonesia. Although it was suggested in the regression analysis that bank institutions with better human capital efficiency usually possess higher profitability levels, structural capital does not determine Islamic bank potential. It was also suggested in the results that capital efficiency in both Indonesia and Malaysia usually possesses higher profitability levels.

It was found in a study by Nimtrakoon (2015) that the effect of intellectual capital (IC) is significant and positive on the financial performance (FP) of the companies from ASEAN countries (e.g. Indonesia, Malaysia, Philippines, Singapore, and Thailand). This is due to the significant and positive relationship that ASEAN countries develop with human capital (HC) and FP.

Table-6. The result of company performance based on the VAIC™.

Category	2013			2014			2015			2016		
	Mean rank	Z value	P value	Mean rank	Z value	P value	Mean rank	Z value	P value	Mean rank	Z value	P value
VACA:		-4.550	0.000		-4.215	0.000		-3.870	0.000		-3.080	0.000
Indonesia	94.06			92.6			93.87			89.92		
Malaysia	61.43			62.39			65.74			67.6		
VAHU:		-7.446	0.000		-7.351	0.000		-6.732	0.000		-7.016	0.000
Indonesia	104.92			104.21			104.87			105.16		
Malaysia	51.52			51.51			55.93			54.44		
STVA:		-7.431	0.000		-7.243	0.000		-6.694	0.000		-7.000	0.000
Indonesia	104.82			103.76			104.68			105.06		
Malaysia	51.62			51.94			56.11			54.53		

Based on Table 6, the average value of capital employment (VACA), human capital (VAHU), and structural capital (STVA) for the performance of Indonesian companies was higher than the average value of these three components for the performance of Malaysian companies within the four year study period.

To be specific, the Z score for the three components (VACA, VAHU, and STVA) was shown to have lower values than the Z table value at the 5% level or -1.96 (the decision making criteria hypothesize that the Z score is higher than 1.96 or lower than -1.96). The Z score had a lower value than the average value due to the negative values of the three components. Even when the values of the three components were significant, they were lower than the alpha (α) value (0.000 < 0.05).

For structural capital (SC), although it has a significant and positive relationship with the FP in Malaysia, it had a negative relationship with the FP in the Philippines.

Other findings by Matos et al. (2015) showed that only the components of human intellectual capital had the positions which correspond to the ranks with a higher value than the process intellectual capital and finance intellectual capital values in Rumania and Portugal. However, the components of process intellectual capital and finance intellectual capital did not have these positions.

This indicated that knowledge and innovation play a crucial role in the economic and social development of firm, and they are the driving force of a company's competitiveness in the last decades of ICT acceleration. The variables used in the analysis obtained were intellectual capital, innovation, competitiveness, reputation, branding.

Overall, this result indicated the difference between the components of VAIC™ in terms of value, and it could be used as a guideline to evaluate the performance of Indonesian and Malaysian companies.

5. CONCLUSION

It was found that during 2013, the "t-test" value which represented the performance of the Indonesian and Malaysian companies was higher than the t table value at 8.671 > 1.9758, while the p-value was lower than the alpha (α) value at 0.000 < 0.05.

During 2014, the "t-test" value was higher than the t table value at 8.554 > 1.9758, while the p-value was lower than the alpha (α) value at 0.000 < 0.005. In 2015, the "t-test" value was higher than the t table value at 7.539 > 1.9758, while the p-value was lower than the alpha (α) value at 0.000 < 0.05. In 2016, the t-test value was higher than the t table value at 8.554 > 1.9758, while the p-value was lower than the alpha (α) value at 0.000 < 0.05.

In addition, the value of the Z score was lower than the Z table value, which amounted to -1.96, at 5% even though the value of three components was lower than the alpha value (0.000 < 0.05). Last but not least, a review was conducted on the three components of VAIC™.

Based on the review, it can be concluded that there are differences between the companies from Indonesia and Malaysia in terms of performance value.

This result is supported by the global economic growth in terms of gross domestic product (GDP). Indonesia has a higher GDP percentage compared to Malaysia.

Indonesia recorded 5.6% GDP in 2013; 5.0% in 2014; 4.8% in 2015; and 4.9% in 2016 with an average of 5.075% within 4 years. Meanwhile, Malaysia's GDP values were recorded as 4.7% in 2013; 6.0% in 2014; 5.0% in 2015 and 4.3% in 2016 with an average of 5.0% within 4 years. In 2017 the GDP growth for Indonesia was 5.3% but in Malaysia the GDP had declined at 4.6% (MF, World Economic Outlook (WEO) database; and IMF staff IMF projection, www.imf.org).

The findings indicated the difference between the components of VAIC™ in terms of value (as the above hypothesis testing), and it could be used as a guideline to evaluate the performance of the companies from Indonesia and Malaysia.

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