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IC and Firms Performance: The Moderating Effect of Malaysia Corporate Government Code 2012 and 2017

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ABSTRACT--*In the age of knowledge economy Intellectual Capital (IC) is gaining prominence in academic research and management practices owing to the fact that it is a significant contributor to strong performance creation. To achieve maximum performance, corporate governance (CG) mechanism plays an important role by enhancing the management of IC practice via effective control, measurement, and reliable reporting of IC. In 2017, Malaysia witnessed the reform of corporate governance emphasizing a holistic structural change. Arguably, such reforms could result in better IC management practice compared to the prior CG code established in 2012. However, the desired effect of the new code on IC with respect to strong performance has not been tested thus far. This study, therefore, was carried out with the aim to compare the effect of IC on strong performance between pre- and post-Malaysian Code of Corporate Governance 2017 practices. The study involved three research objectives, which were to investigate the associations of IC and performance, to compare the moderating effects of MCCG 2012 and MCCG 2017 practices on such associations relating to the desired improvement between the codes, and to compare the moderating effects of mandatory CG 2012 and 2017 practices CG practices on such associations. The research data consisted of information derived from the financial years of 2015, 2016, 2017, and 2018. The CG index of mandatory practice was developed using MCCG 2012 and 2017 codes. Value Added Intellectual Coefficient (VAIC) was calculated to measure IC performance. The findings showed that the total VAIC was associated with performance. Furthermore, the sub-analysis of VAIC revealed that only human capital efficiency was significantly associated with performance and human capital and structural capital efficiencies were not significantly associated with firm performance. Regression results indicated that mandatory CG practices significantly moderated the relationships between VAIC and firm performance. The findings also showed that the moderating effect of MCCG 2017 was stronger than that of MCCG 2012, indicating that regulators' efforts in reforming CG practice code had achieved their aims. Based on such findings, an investment in human capital is paramount to improving performance. In addition, such findings provide empirical support for resource base view and agency theory where a better corporate governance mechanism can contribute to the significant association between IC management practices and firm performance.*

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I. INTRODUCTION

The intangible based economic of the nations and corporate keep increasing. The recent reports from the World Bank (2017) documented that intangible assets amount of up to eighty percent of the overall global income prosperity. At corporate level, the proportion of it has also reached up from twenty percent of corporate balance sheets to eighty percent (Skroupa, 2017). The global progress on such economy structure over time has continuously resulted in the expansion of debates and research on intellectual capital (IC). The IC research is still relevant today particularly in the area of identification of IC efficiency and business performance.

There is however a persistence of ineffective IC application by managers (Kweh, Chan, and & Ting, 2015). The oblivion state of awareness and limited degree of knowledge on the contribution of IC to their businesses is amongst the ultimate challenge (Hashim, Maryam, Osman, and Alhabshi, 2015). The exclusive reliance on the resource-based view theory (RBV) alone is perceived to be restricted in explicating the advantages of IC. This is because of numerous other possible elements which might intervene its offerings towards firm performance. Even in the presence of a firm's intangible resources, there might be for example failure in attaining a sustainable competitive edge due to failure in the corporate governance (CG) system to monitor management in undertaking effectual IC practice. The perceived importance of CG as mediator originates from the notion CG and IC work in tandem to create performance, and focus on stakeholders' interests and multi-directional value creation (Keenan & Aggestam, 2001).

This issue has paved a way to this study to discover the effect of CG on the efficiency of IC towards firms' performance. In particular, this study was undertaken to look how the amendment from the old to the new CG improve the relationship. The introduction of corporate governance code versions of 2002, 2007, 2012 and the latest 2017 witnessed the commitment of Malaysia Government to improve the effectiveness of the governance structure. The MCCG 2017 is considered the code that advocates the value creation of among Malaysia corporate sector in which IC should has been a particular concern.

A question emerges as to what extent the CG reforms introduced through MCCG 2017 have achieved their desired effects of the change. In other words how new code of the CG has improved IC that in turn leads to better performance of firms. This question remain unanswered to date that require further investigation. This study therefore seeks to investigate the effect of value added intellectual capital efficiency (VAIC) on the firm performance in Malaysia's largest listed companies before and after Malaysia corporate government code 2017.

II. INTELLECTUAL CAPITAL AND FIRMS PERFORMANCE

The development and progress of a firm's IC has been recognised as indicative of eventual performance and there have been handful of researches proved the positive linkage of IC with companies performance (e.g. Bontis, 2016 and Farrukh & Joiya, 2018). Banking, pharmaceutical, software and services industries were the primary focus of prior studies due to the fact that these industries are highly knowledge-based in which IC practices were obviously take place (Kamath, 2008; Pal and Soriya, 2012, Latif, Malik, and Aslam, 2012; and Bontis, 2016). Other than general performance, some studies associated it specific performance such as development and sales of

new products (Ahmadi, Ahmadi, and Shakeri., 2012; Chien and Chao, 2011), market value and productivity (Gan and Saleh, 2008). To capture IC, previous studies employed secondary data such as Value Added Intellectual Coefficient (VAIC), economic value added (EVA) and market to book value (Bontis, Dragonetti, Jacobsen and Roos, 1999; Mohd Saleh, Che Abdul Rahman and Hasan, 2009; Clarke, Seng, and Whiting, 2011; Bontis, 2016; Zulkifli, Abdul Shukor, and Rahman, 2017 and Farrukh & Joiya, 2018) and also primary data through survey and interview method (Tovstiga and Tulugurova, 2007; Mention and Bontis, 2013 and Gogan, Artene, Sarca, and Draghici, 2016).

The RBV purports that internal resources and capabilities provide a strong basis for gaining competitive advantage and achieving superior performance. It is imperative for the resources to be exceptional, signifying that they are priceless, limited, incomparable and inimitable. To attain and maintain competitive edge for the company, both tangible physical assets and intangible assets need to be co-existed, integrated and utilised efficiently (Riahi-Belkaoui, 2003).These four characteristic are actually in line with IC properties that offering similar advantages. Accordingly, the past empirical studies that based on the RBV theory predicted and mostly found IC performance gained more firms values and performance (Goh, 2005; Farrukh and Joiya, 2018). In this genre of studies, VAIC by Pulic (1998) seems to be the most popular method to capture IC performance. This approach is unique since it can be an innovative control and management instrument to gauge and monitor IC (Kamath, 2007). The VAIC measure human capital efficiency (HCE), structural capital efficiency (SCE) and capital employed efficiency (CEE). This method linked to every IC element and the capital implemented, which are physical and financial capital, according to the notion of aggregated gains value.

Several studies that associated VAIC and business performances were conducted in Malaysia, however there were no similarity in term of VAIC component on firm performances. For example, Ting and Lean (2009) discovered that HCE and CEE efficiency has significant positive influence on the profitability of Malaysian financial institutions, while SCE efficiency has a negative influence. Kweh, Chan, and & Ting. (2013) revealed that the Malaysian software sector companies are utilising higher use of HCE as compared to SCE and CEE efficiency in improving performance.

In Hong Kong, Chan (2009) discovered that SCE and CEE were the only a significant predictors to return on assets and return on equity. In recent studies, Bontis (2016) investigated the influence of IC on the achievement of a company in ICT industry in Serbia. The study find that HCE, SCE failed to predict the firm performance and CEE only positive for large size of companies. Farrukh and Joiya, (2018) examined the association between IC and the performance of the company in manufacturing companies in Pakistan and found that all components of VAIC. Wang, Liang, Wang, and Xiang (2018) explored the influence of IC on the performance of the company, considering the intermediary part of the pace of innovative initiatives and quality in China. The outcomes reveal all components HCE, SCE and CEE are favorably associated with the pace and quality of innovative initiatives, that consequently assisted in the functioning and financial performance of a company.

The discussion above tends to support the belief that IC contribute towards firms' performance. The increment of efficiency will evidently be manifested in greater performance made by firms. Based on this discussion, the following hypotheses were formulated:

H1. IC efficiency (VAIC) and firms' performance are positively associated.

H1a. Human capital efficiency (HCE) and firms' performance are positively associated.

H1b. Structural capital efficiency (SCE) and firms' performance are positively associated.

H1c. Capital employed efficiency (CEE) and firms' performance is positively associated.

However, we believe that RBV alone is unable to completely explain the relationship between IC and performance of firms. There might be structural weakness in agency relationship that would eventually fail to benefits IC and firm performance. It is thought that failure to apply strong CG can lead firms to under-recognizing the benefits of the intangible resources they control. We argue that the resources may exist, but a sustainable competitive advantage could not be created through it when the CG system fails to stimulate and monitor management to undertake the relevant actions to IC. Therefore, agency theory provides additional explanation to RBV about how CG mechanisms of firms enable the improvement of resources and their capabilities to manage the resources.

III. REFORM OF MALAYSIA CODE OF CORPORATE GOVERNANCE.

The urgency and dire requirement for the enhancement of CG in firms, arises out of the consequence of the 1997/1998 Asian Economic Crisis, in addition to the global widespread publicity of the scandalous affair. Thus, improved CG in companies should be in place so as to recover the mechanisms and the shareholders' trust in the companies credibility in Malaysia (Hashim & Devi, 2008). Consequently, Malaysian regulatory bodies initiated the first Malaysian inaugural Code on Corporate Governance (MCCG) in 2000. This code provided guidelines for structuring the board of directos, the appropriate remuneration for new directors, directors' recruitment procedures, the use of board of director committees, their commands and their actions (MCCG, 2000). Following the market changes, the code was revised in 2007 to produce the second code due to concerns about the global financial crises and the inadequacy of CG attributes in the first version of the code.

Later, Malaysia Securities Commission (SC) initiated the Corporate Governance Blueprint in 2011, comprising strategic initiatives aimed at reinforcing self and market discipline. The blueprint was the basis for the third version which was known as Malaysian Code of Corporate Governance 2012. The MCCG 2012 concentrates on illustrating the duties of the board of directors to provide leadership and improve board efficiency by reinforcing its structure and strengthening its independence. The MCCG 2012 includes a new structure which offers greater clarity, more information to companies and is simple to read and understand.

In 2016 the SC of Malaysia again did a comprehensive review through the use of information obtained from the local and international stakeholders, conclusions drawn from CG failings, and alterations within the framework of the market and business requirements. Therefore, on 26 April 2017, SC issued the fourth version which is known as MCCG 2017. Its application encompass the entire listed companies in Malaysia, where the application of specific practices are restricted to 'Large Companies', consisting of firms on the FTSE Bursa Malaysia Top 100 Index or companies with market capital worth RM2 billion and exceeding that at the initiation of their financial year.

The MCCG 2017 comprises 36 practices contained in the code to buttress the three essential principles related to i) a firm's board of directors, ii) audit and risk management and iii) stakeholders. Every individual principle is determined with the intended outcomes alongside the suggested Practices, in addition to extensive explicative points as guidelines for the execution of the kind of practices. They are perceived as the key elements of good CG

and the essential elements which direct the practices and the targeted results once the practices are implemented efficiently. There are ten additional CG standard practices in MCCG 2017 in the area of board of directors and audit and risk committee namely practice 1.7, 4.1, 4.2, 4.5, 6.2, 8.4, 8.5 and step up 9.3 (Appendix A). The MCCG 2017 however still incorporates a selection of the best practices from the 2012 Code.

MCCG 2017 enhancements target at reinforcing Malaysia's corporate culture founded on accountability and transparency, forming situations required for the retention and increasing investors' trust. It contains three comprehensive areas, as there were important alterations being presented in it, inclusive of the board constituents, gender diversity on boards, and term of office of independent directors, including about the audit committee and risk management. Nonetheless, CG reform would not achieve the desired unless CG related regulators consider the cultural, economic and legal environment of the country (Machuga and Teitel, 2009). I this sense, we believe that in order to ensure the CG reform is meaningful for current requirement, it should has been responded to the change of economic structure of a business from tangible to intangible economy. There is no single empirical evidence so far to prove how it response.

This study anticipates that the amended code in 2017 would function as a trigger for Malaysian firms to stimulate improved IC practices. This current research investigates only two CG attributes namely the board of directors and audit and risk committee. In agency theory, the board of directors acts as the monitoring mechanism which capable to monitor managers in making decision and actions that enhance shareholders' wealth and performance of firm through effective use of IC. Meanwhile, audit and risk committee can perform duties to oversee management activities about IC.

IV. INTELLECTUAL CAPITAL, FIRM PERFORMANCE AND CORPORATE GOVERNANCE

How a firm performs is very much affected by CG, and establishing an appropriate functional CG would attract investors. This strengthens the company's economic pillars and increase in firm performance. This means that CG is able to offer protection against financial challenges and promote rapid growth. It was found that investment were made good in firms with good CG mechanisms as these firms may provide higher profit to their investors (Bhagat and Black, 2002, Al-Najjar, 2010). Gompers, Ishii, and Metrick (2003) discovered that companies with favourable CG indicate high equity returns, boosted value, and enhanced accounting outcomes as compared to their weakly-governed peers. Bhatt & Bhatt (2017) investigated the impact of the Malaysian Code on Corporate Governance 2007 and 2012 on the listed firms performances in Malaysia. It was found that the companies demonstrated clear progress following the application of MCCG 2012 in comparison to MCCG 2007. The outcome of the study also demonstrated that the performance of the companies is more favourably and evidently associated with new CG. Shamsudin, Abdullah, and Osman (2015) is consistent with Bhatt & Bhatt (2017) where the study found that there is significant relationship between the revised MCCG 2012 with the firm performance.

In the area of IC study, how good CG improves the relationship between IC and firms performance has not been evident yet. Conceptually, Keenan and Aggestam (2001) stated that wisdom and expertise of CG can create and leverage IC to sustain the gains of knowledge- intensive organisations. Makki & Lodhi, (2014), concluded in their study that CG unable to enhance financial performance directly, instead CG can improve it considerably by

the exploitation of IC. Safieddine, Jamali and Noureddine (2009) examined the relationship between CG and IC in a university setting. They pointed out that the absence of good CG could result in a failure to draw and retain IC. The study found that there is a relationship between CG and IC, and that faculty members consider CG as a main factor in attracting IC. In this study we believe that a stronger relationship between IC and firms performances were prevalent in firms with a stronger CG. It seems that not only is CG a determinant of firms performance, but it could also play a moderating role between IC and firms performance.

The prior studies argue in support of the necessity to know the role of CG in effectively deploying, protecting and retaining IC in companies (Keenan and Aggestam, 2001; La Rocca, La Rocca, and Cariola, 2008; Safieddine et al., 2009). CG ensures that managerial decisions are made to enhance shareholders' wealth through the witty use of IC (Vafeas and Theodorou, 1998; Weimer and Pape, 1999; Keenan and Aggestam, 2001). Keenan and Aggestam (2001, p. 273) "[…] the responsibility for the prudent investment of IC resides with corporate governance". In Malaysia context, given that the MCCG 2017 leads to more effective governance mechanisms and restricts the management's opportunistic discretion to a greater degree, we believe that there would be stronger impact of it towards IC and firms performances compared to MCCG 2012. As such, there are four related hypotheses were formulated as follows:

Based on the above argument, the following hypotheses were formulated:

H2: IC performance and firm performance are moderated by MCCC.

H2a: IC performance and firm performance are moderated by MCCG 2012.

H2b: IC performance and firm performance are moderated by MCCG 2017.

H2c: The moderation effect of MCCG on the relationships is stronger for MCCG 2017 than MCCG 2012.

V. METHODOLOGY

Sample Selection

This research limit its sampling to the top 100 listed firms on the main market or having the value of the market capitalisation of RM2 billion and above, spanning from the year 2015 to year 2018 for the following reasons: firstly, IC practices require a large size of firms' resources to be generated. Secondly, the years 2015 to 2018 were chosen because it covers the last 2 years of old code practices and the first 2 years of new the code practices which allow comparison to be made. The final sample firms are 88 with total observation 352 as presented in Table 1.

Table 1: Firms Sample

	No. of Companies
Population for the year 2018 (Main Market)	900
Excluded firms (market capitalisation less than RM2 billon)	(789)
Finance and closed-end funds firms	(17)
Excluded firms (not listed continuously)	(6)
Final sample	88
Total observation (88 x 4 years)	352

Variables Measurement

a) Firm performance

This study employs Return on Assets (ROA) in gauging a firms' performance. In accordance to Hutchinson and Gul (2004) and Mashayekhi and Bazazb (2008) study, ROA provides the management actions results and thus is chosen over market-based measures whenever the association between corporate governance and firm performance is examined. Consequently, a firm that demonstrates a positive performance through ROA displays its accomplishments of preplanned high performance (Nuryanah & Islam, 2011). In addition, Kamath (2007) stated that ROA is the measurement of efficacy or productivity of an establishment, as it signifies how effectively the companies' assets are being utilised. ROA is calculated by net income over total assets at the end of the year as shown by the formula below.

$$\text{ROA} = \frac{\text{NI (net income)}}{\text{TA (total asset}}$$

b) IC efficiency

IC efficiency is measured using VAIC. VAIC comprises Customer Capital Efficiency (CEE), Human Capital Efficiency (HCE), and Structural Capital Efficiency (SCE). VAIC measures the value creation efficiency of tangible and intangible assets within the firm (Tan, Plowman, and Hancock, 2007; Clarke et al., 2011). CEE represents the value added (VA) of capital employed. Furthermore, HCE represents VA efficiency of human capital, while SCE signifies VA efficiency of structural capital. It is formulated as follows:

$$VAIC=HCE+SCE+CEE$$

Value added (VA) should be calculated first. VA indicates the firm ability to create value added to different stakeholders (Clarke et al., 2011). The VA is the difference between input and output. Where output represents operating revenues and input represents operating expenses except labour expenses since it is considered as firms' entity expenses. It can be expressed as follows:

$$VA = \text{operating revenues} - \text{operating expenses}$$

The second step is to measure HCE where it represents how much VA is generated by the amount of money spent on human capital. HCE is formulated as follows:

$$HCE = VA/HC$$

$$\text{Where: } HC = \text{total salaries}$$

The third step is to calculate SCE. SC represents the amount of money invested on organisational strategy, patents, databases, IT systems, and communication system. In calculation SC, Pulic (1998) states the VA is created by the influence of both HC and SC. SC is dependent of HC and the higher invested efforts on HC result in better internal structure. SC and SCE is calculated as follows:

$$SCE = SC/VA$$

$$\text{Where } SC = VA - HC$$

Final step involves calculation of CEE. CEE capture the efficiency that both HCE and SCE could not capture. Pulic (1998) mentions that the IC value creation cannot be generated if it is not associated with physical and

financial capital employed (CE). CEE shows how much money is spent by the firm on CE in order to create value. CEE is measured as follows:

$$CEE = VA/CE$$

*Where: CE= total assets – intangible assets

c) Malaysia Corporate Governance Code Index

The study reviewed both the MCCG issued in the years 2012 and 2017 and came up with 21 items in total as exhibited in Appendix A. The total number of items include additional 10 items arising from MCCG2017. This means that sample firms from 2015 and 2016 were not subject to compliance of these ten additional items. This MCCG index of 21 items are categorised into (i) board of directors and (ii) audit, remunaration and risk committee. Each item is treated as a dummy variable, where, a value of 1 is assigned if the item is complied and 0 otherwise. The corporate governance index score (CGIS) for the company i is treated as a percentage and calculated as follows:

$$CGISi = \frac{CG\ items\ compliance}{Total\ CG\ items} \times 100$$

d) Control variables

There two control variables used in this study namely size and leverage. Firm size is measured by firm's total assets at the end of the financial year (Ousama, Fatima, and Hafiz-Majdi, 2012; Haji and Mohd Ghazali, 2013; Rabaya, Hamzah, and Mohd Saleh, 2018). Leverage is measured by total liabilities to shareholder's equity (Clarke et al., 2011; Ousama et al., 2012).

Statistical Model

The first hypothesis of the study is tested using Models 1 and 2 as represented below:

Perfjt = $\beta\ \theta$ + β1 VAICit jt + β2 $SIZEjt$ + β3 LEVjt+ +βjt ……..... (1)

Perfjt = $\beta\ \theta$ + β 1 HCE+ β 2 SCE + β 3CEE + β 4 $SIZEjt$ + β 5 LEVjt +βjt... (2)

The second hypothesis is to determine the effect of MCGC as moderating influence to the association between IC performance and firm performance for overall data set as shown in Model 3. The third and fourth hypothesis separate the second hypothesis into 2012 and 2017 as exhibited in Model 3, 4 and 5.

Perfjt = $\beta\ \theta$ + β1 VAIC + β2 MCGC it jt + (β3 VAIC it jt *MCGC it jt) + β 4 $SIZEjt$ + β 5 LEVjt +βjt ……..……. (3)

Perfjt = $\beta\ \theta$ + β1 VAIC + β2 MCGC 2012 it jt + (β3 VAIC it jt x MCGC 2012 it jt) + β 4 $SIZEjt$ + β 5 LEVjt +βjt……..……. (4)

Perfjt = $\beta\ \theta$ + β1 VAIC + β2 MCGC 2017 it jt + (β3 VAIC it jt x MCGC 2017 it jt) + β 4 $SIZEjt$ + β 5 LEVjt +βjt……..……. (5)

Perfjt	Firm performance of company j at year t;
VAIC it jt:	Value added of intellectual capital coefficient of company j at year t;
MCGC it jt	corporate governance score of company j at year t.
MCGC it jt x VAIC it jt	Interaction between value added of intellectual capital coefficient and corporate governance index of company j at year t.

$SIZEjt$: Firm size of company j at year t

$LEVjt$: Leverage of company j at year t

β; regression intercept;

θjt: error

Finally, this study used Wilcoxon signed-rank test to answer the final hypothesis which is the comparison between the effect of MCCG 2012 and MCCG 2017 on the relationship between VAIC and firms performances.

VI. FINDINGS

Multicollinerity Test

Table 2 shows ROA ranged from -0.3630271 to 1.073945 with a mean of 0.0847959 and standard of deviation of 0.1163559. For the independent variables, the VAIC ranged from - 197.8493 to 30.25186 with a mean of 1.822805. This result is consistent with previous studies, for example Firer and Williams (2003), Chen, Cheng, and Hwang (2005) and Shiu (2006), indicated a wide difference of VAIC values between sample. For the components of VAIC, the result shows that the HCE mean value is 2.283768, SCE is -0.6493411, and CEE is 0.1908589. HCE has the highest mean value for components of VAIC. This result is similar to John Holland (2003) who noted that the extensive use of HCE. CG index ranged from 0.103448 to 0.655172 with a mean 0.509698. The range between the maximum and minimum is 55% (65.51%-10.34%). The results of CG index indicate higher divergence of compliance among large firms listed in Bursa Malaysia Berhad. These divergences are also evidenced in prior studies conducted in Malaysia (e.g. Wahab, Zain, and James, 2011; Ho and Taylor, 2013). Firms' size (total assets) shows a mean value of RM 15,000,000 and ranged from RM 189,186 to RM 151,000,000. In addition, size in Log form since it is not normally distributed shows a mean value 6.811487 and the range from 5.276889 to 8.178956. Firm leverage (LEV) has a mean value 1.346015, and ranged from 0.0492169 to 10.27229.

Table 2: Descriptive Statistics for All Variables

Variables	Mean	Std. Dev.	Min	Max
ROA	0.0847959	0.1163559	-0.3630271	1.073945
VAIC	1.822805	11.88569	-197.8493	30.25186
HCE	2.283768	2.884203	-5.539841	18.52477
SCE	-0.6493411	11.14914	-197.8546	9.495702
CEE	0.1908589	0.7746625	-0.3278606	13.46495
MCGC	0.509698	0.076602	0.103448	0.655172
Log size	6.811487	0.5940036	5.276889	8.178956
LEV	1.346015	1.507814	0.0492169	10.27229

As exhibited in Table 3, the correlation matrix of VAIC, HCE, SCE, CEE and ROA are 0.1729, 0.3521, 0.0789 and 0.242 respectively which shows no of the coefficients exceeded the value of 0.9. The models do not suffer multicollinearity problem between dependent and independent variables. For control variables, only LEV (0.0427) is positively correlated with ROA, and negatively correlated with L.SIZE (-0.4751) and Size (-0.2744).

Table 3: Correlation Matrix

	ROA	VAIC	HCE	SCE	CEE	CG	lnSIZE	LEV
ROA	1							
VAIC	0.1729**	1						
HCE	0.3521***	0.3536***	1					
SEC	0.0789	0.9606***	0.0864	1				
CEE	0.2042***	0.2006**	0.4582***	0.0257	1			
CG	-0.0535	0.0264	-0.0451	0.0611	-0.3066***	1		
L.SIZE	-0.4751***	-0.0074	-0.0672	0.0176	-0.1156**	0.1012*	1	
LEV	0.0427	0.0904	0.1631**	0.0551	-0.0132	0.1192*	0.1912**	1

Note ***Correlation is significant at the 0.01 level **Correlation is significant at the 0.05 level

VII. REGRESSION ANALYSIS

Multiplier test was conducted in each model to choose the best model that suits the data. There are three models, POOLS (POLS), Random Effect (RE), and Fix Effect (FE). Tables 4 exhibits results of regression model 1 (hypothesis H1). Random effect (RE) regression corrected model gives a statistically significant with Breusch and Pagan Lagrangian value of 235.31. Fix effect (FE) corrected model also gives a statistically significant Hausman Chi2 (10) value of 56.58 which is more appropriate than RE. Wald chi2 (15) value of 5.8e+05, and Wooldridge test value 5.402 which indicates the presence of heteroscedasticity and autocorrelation problems. Thus we corrected the FE model from it and based on the corrected FE mode, it shows that VAIC is positively and significantly associated with ROA with a coefficient 0.003, adjusted R2, 0.4900 %, $p < 0.000$).

Table 4: Regression Analysis for Model 1

	POLS	RE	FE	corrected FE
VAIC	0.007***	0.004***	0.003***	0.003***
	[0.001]	[0.001]	[0.001]	[0.001]
LSIZE	-0.085***	-0.083***	-0.069***	-0.069**
	[0.005]	[0.009]	[0.023]	[0.029]
LEV	0.003	-0.005	-0.031***	-0.031***
	[0.002]	[0.003]	[0.006]	[0.008]
Constant	0.636***	0.638***	0.583***	0.583***
N	331	331	331	331
r2	0.495	0.4664	0.179	0.3248
r2 adj	0.4900			
Breusch and Pagan Lagrangian		235.31***		
Hausman test(chi2(6))			56.58***	
Wald: chi2			5.8e+05***	
Wooldridge test			5.402***	

VIF	1.06

t statistics in parentheses; * p < 0.05, ** p < 0.01, *** p < 0.000. Source: Stata output of relevant input variables.

Table 5 shows the regression results for model 2 (hypothesis H1a, H1b, and H1c). RE regression corrected model gives a statistically significant Breusch and Pagan Lagrangian value of 203.97. FE corrected model however does not give a statistically significant Hausman Chi2 (6) value of 7.75. Wald chi2 (15) value of 4.53e+07, and Wooldridge test value 0.0375 for RE regression, which also indicates the presence of heteroscedasticity and autocorrelation problems. Likewise, we correct the RE model and after the correction the results indicate an adjusted R2 of 0.540% (p = 0.000). The results show that HCE is significantly and positively associated with ROA (coefficient = 0.008). However, there is no significant association between SCE, CEE and ROA.

Table 5 : Regression Analysis for Model 2

	POLS	RE	FE	corrected RE
HCE	0.009***	0.007***	0.005***	0.008***
	[0.002]	[0.002]	[0.002]	[0.002]
SCE	0.001	0.001	0.001	0.001
	[0.002]	[0.001]	[0.001]	[0.001]
CEE	0.069***	0.015	0.006	0.026
	[0.015]	[0.011]	[0.011]	[0.016]
LnSIZE	-0.079***	-0.083***	-0.073***	-0.086***
	[0.005]	[0.009]	[0.023]	[0.007]
LEVE	0.002	-0.003	-0.031***	0.002
	[0.002]	[0.003]	[0.006]	[0.003]
Constant	0.589***	0.635***	0.607***	0.640***
	[0.035]	[0.059]	[0.153]	[0.051]
N	331	331	331	331
r2	0.540	0.5231	0.195	0.4782
r2 adj	0.5331			
Breusch and Pagan Lagrangian		203.97***		
Hausman test(chi2(6))			7.75	
Wald: chi2		4.53e+07***		
Wooldridge test		0.0375**		
VIF		1.15		

t statistics in parentheses; * p < 0.05, ** p < 0.01, *** p < 0.000. Source: Stata output of relevant input variables.

For control variables, firm size in Model 1 and Model 2 were significantly negative associated with firms' performance (coefficient = -0.069, P-value = 0.000) and (coefficient = -0.086, P-value = 0.000) respectively. On the other hand, leverage effect in the both model show it has a statistically negative significant effect on the performance in model 1 (coefficient = -0.031) but no significant effect on firm performance in Model 2 (coefficient = 0.002).

The results shown in Table 6 and 7 the variance inflation factor (VIF) is 12.86, MCCG 2012 is 15.55, and MCCG 2017 is 13.61 respectively, which indicates multicollinearity problem. Multicollinearity can lead to unstable estimates and bouncing beta weights (Sauer, 2014). Also, multicollinearity has major impacts on the weights. The inherent collinearity of powered and product terms with their first-order predictor variables is problematic because it can create instability in the values for the estimated regression weights, leading to 'bouncing beta weights' (Pedhazur, 1982). However, this study adopted Residual centering process (Orthogonalizing Powered) to remove the multicollinearity problem. The advantage of Residual centering are mean centering alleviates the ill-conditioning of the correlation matrix among the predictor variables that results from non-essential multicollinearity (Marquardt, 1980) among the first-order predictors and their interaction term (or between first-order predictors). The second advantage of mean centering concerns the interpretability of the estimates. Table 6 show results of Model 3 (H2), to the effect of CG on the model 1.It was found that RE regression corrected model gives a statistically significant Breusch and Pagan Lagrangian value of 41.38. FE model has given a statistically significant Hausman Chi2 (6) value of 23.50. Thus, the FE is more suitable than RE and it was used for this model. Wald chi2 (15) value of 41.5e+07, and Wooldridge test value 12.647 for FE regression, which indicates the presence of heteroscedasticity and autocorrelation problems. Therefore, we correct the FE model from the problems. Based on the corrected FE, the results show R2 is 0.942 which is CG explaining 94.2 % of the association between VAIC and firms performance. The result also indicates that CG is positively and significantly moderate the relationship (coefficient = 0.941).

Table 6: Summary of statistical interaction (Product term) and (Residual centering) for moderation analysis

statistics in parentheses; * p < 0.05, ** p < 0.01, *** p < 0.000. Source: Stata output of relevant input variables.

	Interaction(Product term)				Interaction(Residual centering)			
	POLS	RE	FE	corrected FE	POLS	RE	FE	corrected FE
VAIC	-0.008***	-0.003	0.001	0.001	0.002***	0.001***	0.001***	0.001***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.000]	[0.000]	[0.000]	[0.000]
CG	-0.136*	-0.036	0.001	0.001	-0.034**	-0.037**	-0.044	-0.044
	[0.073]	[0.084]	[0.117]	[0.133]	[0.015]	[0.018]	[0.028]	[0.029]
VAIC*CG	0.025***	0.011*	0.000	0.000	1.000***	0.975***	0.941***	0.941***
	[0.006]	[0.006]	[0.006]	[0.005]	[0.012]	[0.012]	[0.015]	[0.044]
LnSIZE	-0.094***	-0.091***	0.076	0.076	-0.097***	-0.097***	-0.086***	-0.086***
	[0.009]	[0.013]	[0.066]	[0.107]	[0.002]	[0.003]	[0.016]	[0.014]
LEV	0.008**	0.008	-0.012	-0.012	0.010***	0.010***	0.008**	0.008**
	[0.004]	[0.005]	[0.015]	[0.023]	[0.001]	[0.001]	[0.004]	[0.003]
Constant	0.775***	0.709***	-0.415	-0.415	0.748***	0.749***	0.681***	0.681***
	[0.068]	[0.094]	[0.434]	[0.761]	[0.015]	[0.020]	[0.107]	[0.090]
N	352	352	352	352	352	352	352	352
r2	0.3040	0.4354	0.3241	0.3241	0.965	0.9767	0.942	0.942

R2 Ajd.	0.2940			
Breusch and Pagan Lagrangian		71.22***	41.38***	
Hausman test		27.95***		23.50***
Wald: chi2		4.1e+07***		1.5e+07***
Wooldridge test		9.256***		12.647***
VIF	12.86		1.03	

Table 7 shows the results for Model 4 and 5 (H2a and H2b). The results show the VIF is 1.19 in MCCG 2012, which indicates no multicollinearity problems. RE model gives a statistically significant Breusch and Pagan Lagrangian value of 20.63 while FE model gives a statistically not significant Hausman Chi2 (6) value of 6.95. Therefore, the RE is more suitable than FE and it is used for model 4. However it is corrected due to the heteroscedasticity and autocorrelation problems (Wald chi2 (15) value of 8.05e+08, and Wooldridge test value 4.685). Based on corrected RE, it was found that MCGC 2012 is positively and significantly related to ROA (coefficient = 0.991) and thus H2a is accepted. On the same reason, corrected RE is also used for model 5 and results indicates that there relationship between VAIC and ROA are significantly moderated by MCCG 2017 (coefficient =0.962) with R2 is 94.4%.

Thus we fail to reject the both hypothesis (H2a and H2b) that IC performance and firm performance are moderated by MCCG 2012 and 2017 respectively.

Table 8 is presented in order to prove H2c where the moderation effect on the relationship is stronger for MCCG 2017 than MCCG 2012 so that the former can be seen to be more effective to IC and firms performance than the later. Data abnormality requires non-parametric Wilcoxon-Signed tests to be used. Two comparative group are MCCG 2012 consisting data of 2015-2016 and MCCG 2017 data of 2017-2018 The study used dummy variable, 0 if the year 2015-2016 and 1 if the year 2017-2018. Table 9 shows the z-value of -6.743 and p-value of 0.000

Therefore, hypothesis H3c is accepted where the sum-rank for 1 is much more than 0, thus mean of MCCG 2017 (37405) better than MCCG 2012(24723).

Table 7: Wilcoxon Signed- ranks test result for differences in MCCG 2012 and 2017

Sign	Obs.	Sum rank	Expected
0	176	24723	31064
1	176	37405	31064
combined	352	62128	62128

unadjusted variance	911210.67
adjustment for ties	-26866.58
adjusted variance	884344.09

Ho: CG(2015-2016=0) = CG (2017-2018=1)

Z = -6.743

Prob > |z| = 0.0000

VIII. DISCUSSION

The results support IC efficiency was positively associating with firm's performance in the largest companies in Malaysia as were mostly found in previous studies (Latif et al., 2012; Almusali and Ismail, 2014; Mondal & Ghosh, 2012; Khalique, Bontis, Abdul, Yaacob, and Ngah, 2018). It was thought that IC was properly managed and utilized by the firms which in turn to encourage internal innovation, enhance employee skill and creativity that led to better corporate performance. Hence, the outcomes of this research substantiate the role of IC in boosting the performance of the firm, implying the need for an extended investigation into the role of IC in different emerging economies setting such as Malaysia. After all, Malaysia has embarked on a new mission to develop a knowledge-based economy and this will set forth in order to achieve a sustainable knowledge-based economic growth.

Results show that only HCE has a significant relationship with firms' performance. It seems that Malaysian largest firms appear to be dependent only on human capital in generating performance. It was agreed by Bontis, William, Stanley (2000) and Goh and Lim (2004) whose found no matter of industry type, human capital is more important for Malaysia firms. The largest companies in Malaysia place extra emphasis on human capital investment rather than any other capital may be due to high dependency on employee as key enabler for driving and sustaining business performance. In addition, Malaysia can offer efficient and inclusive labour market with wide range of skills and competencies. Structural capital was found to insignificantly affect firm performance. This result supports the argument and findings of the previous studies (Clarke et al., 2011; Al-Musali & Ismail 2014; Ting & Lean 2009; Saengchan, 2008; Kianto, Hurmelinna-Laukkanen, and Ritala 2010; St-pierre and Audet 2001; Shiu 2006). This insignificant outcome may be due to high cost that needs to be in incurred in acquiring, registering and maintaining that capital compared to human capital. The reason behind an insignificant association between CEE and performance can be related to the sample selected in this studies which mostly were from information and technology industry, pharmaceuticals, chemical and petrochemical, and manufacturing companies. These industries are known to be less dependence on traditional asset on gaining performance (Shiu, 2006).

The study found significant moderating effect of MCCG on VAIC's association with firm performance. It can be argued that the IC less likely to be converted into firm performance without the presence of good CG practice Korutaro Joseph, Augustine, Samuel, Korutaro, Joseph, Augustine, Samuel, and Nkundabanyanga (2014). It is also improve the firm's brand name and value creation of companies which eventually increase the confidence of the stakeholder and investors (Gupta and Sharma, 2014). From internal perspective, it was espoused that MCCG serves as a monitoring and control tool which enables managers through CG mechanisms to interconnect between the three IC performances attributes resulting in sufficient use of IC performance resources (Makki & Lodhi, 2014). CG mechanisms such as effective board of directors and audit committee, seeks to develop IC, and to achieve maximum efficiency from IC resources in order to gain higher financial performance (Gompers et al., 2003, Ho

and William, 2003; Makki & Lodhi, 2014, Appuhami and Bhuyan, 2015). Ho and Williams (2003) for instance, expounded that the board of directors can be treated as an important part of human capital and its composition itself can affect the overall IC efficiency of a firm. On the other hand, audit committees demonstrated that they have a crucial part in governance practices, specifically in improving the efficiency of the boards in tracking management effectiveness (Spira, 2003). Buallay (2018) found an evident favourable effect of the audit committee attributes on the IC performance.

It is evidently found in this study that RBV is successfully connected with agency theory. Improving CG structure improved IC practices which in turn reduce agency cost and enhance corporate performance. CG restricts managers from vested self-interest behaviors, and directs managers towards allocating firms' resources effectively. An effective monitoring role of CG, is inclined to mobilise managers towards sufficient utilisation of IC resources. CG operates as an "[…] comprehensive tracking instrument for a company to diminish the 'free riders' attitude of managers, and to decrease the negative IC effect. It ensures that the adoption of resolution by managers is to develop, retain, and exploit IC (Safieddine et al., 2009).

The study demonstrated that the MCCG 2017 has more positive impact on the performance of IC than MCCG 2012. It can be concluded that MCCG 2017 provides improved structure in term of board of directors and auidt commitee to facilitate the IC practices which in turn positively affecting firms performance. Thus, the findings of the study may offer informative indicators to managers interested in evaluating the efficacy of the new code on CG. It indicates that implementing successful CG reform is unlikely to be realized, unless the regulators and policy makers consider local peculiarities and business environment. These results are indeed encouraging to regulators as it is an indication that their efforts have been worthwhile, thereby justifying the improved and amended regulations.

IX. CONCLUSION

This study mainly sought to investigate whether Malaysia firms practice on MCCG 2017 is stronger than MCCG 2012 in moderating the association between IC and firms performance. Consistent with hypothesis, the comparison results indicate that the firms practice on MCCG 2017 shows stronger moderating effect on the association than MCCG 2012. It can be concluded that amendment made in MCGC 2017 provides improved structure of CG to be more facilitate the IC practices which in turn enhanced firms performance. The implications of this study are, firstly, CG roles of a firm should not limited to top management level but it must be expanding their monitoring to IC operational level. Secondly, the CG code has to be consistently reformed and ensured that IC matters are included in the evaluating and monitoring parameters. The future amendment of CG code has to be paralell with the dynamic changes of IC. For example, the code has to consider that the members of board and audit comittee should posess the knowledge and skills in IC management so that monitaring would be more effective.

REFERENCES

1. Ahmadi, AA, Ahmadi, F & Shakeri, S 2012. The Survey of Relationship between Intellectual Capital(IC) and Organizational Performance (OP) within The National Iranian South Oil Company. Interdisciplinary Journal of Contemporary Research in Business, 3(5):369-380.
2. Al-Musali, M.A.K. and Ismail, K. N. I. K. (2014). Intellectual capital and its effect on financial performance of banks: evidence from Saudi Arabia. Procedia-Social and Behavioral Sciences, 164, 201–207.
3. Al-Najjar, B. 2010. Corporate governance and institutional ownership: evidence from Jordan. Corporate Governance:The international journal of business in society, 10 (2):176-190.
4. Appuhami, R., and Bhuyan, M. (2015). Examining the influence of corporate governance on intellectual capital efficiency: Evidence from top service firms in Australia. Managerial Auditing Journal, 30(4/5), 347–372.
5. Bhagat, S. and Black, B. 2002.The non-correlation between board independence and long-term firm performance. Journal of Corporation Law, 27 (2):231-274.
6. Bhatt Padmanabha Ramachandra, Bhatt R. Rathish.2017 Corporate governance and firm performance in Malaysia. Corporate Governance: The International Journal of Business in Society, 17 (5): 896-912.
7. Bontis Nick, William Chua Chong Keow, Stanley Richardson 2000.Intellectual capital and business performance in Malaysian industries. Journal of Intellectual Capital, 1 (1):85 – 100.
8. Bontis, N., Dragonetti, N.C., Jacobsen, K. and Roos, G. 1999. The knowledge toolbox: a review of the tools available to measure and manage intangible resources. European Management Journal, 17(4): 391-402.
9. Bontis, V. 2016. Intellectual capital and financial performance in the Serbian ICT industry . Journal of Intellectual Capital, 17 (2): 373 – 396.
10. Buallay, A. 2018. Audit committee characteristics: an empirical investigation of the contribution to intellectual capital efficiency. Measuring Business Excellence. 22(2):183-200.
11. Chan, K. H., (2009). Impact of intellectual capital on organisational performance: an empirical study of companies in the Hang Seng Index (part 1). Learning Organization, 16 (1), 4-21.
12. Chen, M. C., Cheng, S. J., and Hwang, Y. (2005). An empirical investigation of the relationship between intellectual capital and firms' market value and financial performance. Journal of Intellectual Capital, 6(2), 159–176.
13. Chien, S.-H. and Chao, M.-C. (2011), "Intellectual capital and new product sale performance of the financial services industry in Taiwan", Service Industries Journal,Vol. 31No. 16, pp. 2641-2659.
14. Clarke, M., Seng, D. and Whiting, R. (2011). Intellectual capital and firm performance in Australia. Journal of Intellectual Capital, 12(4), 505–530.
15. Farrukh, W., & Joiya, J. Q. 2018. Impact of Intellectual Capital on Firm Performance. International Journal of Management and Economics Invention, 4(10): 1943-1952.
16. Firer, S., and Williams, S. M. (2003). Intellectual Capital and Traditional Measures of Corporate Performance. Journal of Intellectual Capital, 4(3), 348–360.
17. Gan, Kin and Saleh Z. 2008. Intellectual Capital and Corporate Performance of Technology-Intensive. Asian Journal of Business and Accounting, 1(1):113-130.
18. Gogan, L. M., Artene, A, Sarca, I., and Draghici, A. 2016. The Impact of Intellectual Capital on Organizational Performance. Procedia - Social and Behavioral Sciences 2(21):194 – 202.
19. Goh, P. C. (2005). Intellectual capital performance of commercial banks in Malaysia. Journal of Intellectual Capital, 6(3), 385–396.

20. Goh, P. C., and Lim, K. P. (2004). Disclosing Intellectual Capital in Company Annual Reports: Evidence from Malaysia, Journal of Intellectual Capital, 5 (3) 500 – 510.
21. Gompers, P.A., Ishii, J.L. and Metrick, A. 2003.Corporate governance and equity prices. Quarterly Journal of Economics, 118(1):107-155.
22. Gul, F. A. (2006). Auditors' response to political connections and cronyism in Malaysia. Journal of Accounting Research, 44(5), 931–961.
23. Gupta, P., & Sharma, A. M. 2014. A study of the impact of corporate governance practices on firm performance in Indian and South Korean companies. Procedia-Social and Behavioral Sciences, 13(3): 4-11.
24. Haji, A. A. and Ghazali, N. A. M. (2013). A longitudinal examination of intellectual capital disclosures and corporate governance attributes in Malaysia. Asian Review of Accounting, 21(1), 27–52.
25. Hashim, H. A., & Devi, S. S. 2008. Board independence, CEO duality and accrual management: Malaysian evidence. Asian Journal of Business and Accounting, 1(1):27–46.
26. Hashim, Maryam Jameelah, Osman Idris, and Alhabshi, S.M. 2015. Effect of Intellectual Capital on Organizational Performance. Social and Behavioral Sciences, 211: 207–214.
27. Ho, P. L., and Taylor, G. (2013). Corporate governance and different types of voluntary disclosure: Evidence from Malaysian listed firms. Pacific Accounting Review, 25(1), 4–29.
28. Holland, J. 2003. Intellectual capital and the capital market - organisation and competence. Accounting, Auditing & Accountability Journal, 16 (1):39-48.
29. Hosam Alden Riyadh, A. A. S., Ahim Abdurahim, Hafiez Sofyani. (2020). THE EFFECT OF IRAQ'S DINAR EXCHANGE RATE AGAINST UK POUND ON IRAQ'S EXPORT TO UK. Journal of critical reviews (JCR), 7(2), 51-55. doi: doi: 10.31838/jcr.07.02.12
30. Kamath, G. B. (2007). The intellectual capital performance of the Indian banking sector. Journal of Intellectual Capital, 8(1), 96–123.
31. Kamath, G. B. (2008). Intellectual capital and corporate performance in Indian Pharmaceutical Industry. Journal of Intellectual Capital, 9(4), 684 – 704.
32. Keenan, J. and Aggestam, M. (2001). Corporate governance and intellectual capital: some Conceptualisations. Corporate Governance: An International Review, 9(4), 259–275.
33. Khalique, M., Bontis, N., Abdul, J., Yaacob, M. R. & Ngah, R. 2018. Intellectual capital and organisational performance in Malaysian knowledge-intensive SMEs. Int. J. Learning and Intellectual Capital 15(1):20-36.
34. Kianto, A., Hurmelinna-Laukkanen, P., Ritala, P. (2010) Intellectual capital in service- and product-oriented companies, Journal of Intellectual Capital, 11, 305-325.
35. Korutaro, S., Joseph, N., Augustine, M.N., Samuel, A., Korutaro, S., Joseph, N., Augustine, M.N., Samuel, A. & Nkundabanyanga, S.K. 2014. performance Intellectual capital in Ugandan service firms as mediator of board governance and firm performance. African Journal of Economic and Management Studie 5(3): 300–340.
36. Kweh, Q. L., Chan, Y. C., & Ting, I. W. K. (2013). Measuring intellectual capital efficiency in the Malaysian software sector. Journal of Intellectual Capital, 14(1), 310–324.
37. Kweh, Q. L., Chan, Y. C., & Ting, I.W.K. 2015. Intellectual Capital Efficiency and Its Determinants. Kajian Malaysia 33(1): 105–124.
38. La Rocca, M., La Rocca, T. and Cariola, A. (2008). Corporate governance, intellectual capital and value creation. ICFAI Journal of Corporate Governance, 7(3), 7–30.

39. Latif, M., Malik, S. M., and Aslam, S. (2012). Intellectual Capital Efficiency and Corporate Performance in Developing Countries: a Comparison between Islamic and Conventional Banks of Pakistan. Interdisciplinary Journal of Contemporary Research in Business, 4(1).
40. Machuga, S., & Teitel, K. (2009). Board of director characteristics and earnings quality surrounding implementation of a corporate governance code in Mexico. Journal of International Accounting, Auditing and Taxation, 18(1), 1–13.
41. Makki, M.A.M. and Lodhi, S. A. (2014). Impact of corporate governance on intellectual capital efficiency and financial performance. Pakistan Journal of Commerce and Social Sciences, 8(2), 305–330.
42. Malaysia, S. C. (2017). Malaysian Code on Corporate Governance 2017. Retrieved from https://www.sc.com.my/api/documentms/download.ashx?id=70a5568b-1937-4d2b-8cbf-3aefed112c0a
43. Marquardt, D.W. (1980). You should standardize the predictor variables in your regression models. Journal of the American Statistical Association, 75, 87-91.
44. Mashayekhi, B., & Bazazb, M. S. (2008). Corporate governance and firm performance in Iran, 4(2):156–172.
45. Mention, A.-L. and Bontis, N. (2013). Intellectual capital and performance within the banking sector of Luxembourg and Belgium. Journal of Intellectual Capital, 14(2), 286–309.
46. Mohd Saleh N., Che Abdul Rahman M.R. and Hasan M. S. 2009. Ownership structure and Intellectual Capital performance in Malaysia. Asian Academy of Management Journal of Accounting and Finance, 5 (1):1 – 29.
47. Mondal, A. and Ghosh, S. 2012. Intellectual capital and financial performance of Indian banks. Journal of Intellectual Capital, 13, (4):515-530.
48. Nuryanah, S., & Islam, S. M. N.2011. Corporate governance and performance: Evidence from an Emerging Market. Malaysian Accounting Review, 10(1):17–42.
49. Ousama, A. A., Fatima, A. and Hafiz-Majdi, A. R. (2012). Determinants of intellectual capital reporting Evidence from annual reports of Malaysian listed companies. Journal of Accounting in Emerging Economies, 2 (2), 119-139.
50. Pal, K., and Soriya, S. (2012). IC performance of Indian pharmaceutical and textile industry. . Journal of Intellectual Capital, 13(1), 120 – 137.
51. Pedhazur, E.J. (1982). Multiple regression in behavioural research. 2nd ed. Holt, Rinehart, & Winston: New York.
52. Pulic, A. (2000). VAICTM an accounting tool for IC management. International Journal of Technology Management, 20(5–8), 702–714.
53. Pulic, A. (1998), “Measuring the performance of intellectual potential in knowledge economy”, available at: https://www.bib.irb.hr/35384 (accessed 16 October 2017).
54. Rabaya, A., Hamzah, N. & Mohd Saleh, N. 2018. Malaysian Financial Reporting Standard 139 Financial Instruments: Recognition and Measurement Adoption and Intellectual Capital Performance: Evidence from the Malaysian Financial Sector. Asian Journal of Accounting and Governance 9: 151–166.
55. Riahi-Belkaoui, A. (2003). Intellectual capital and firm performance of US multinational firms. Journal of Intellectual Capital, 4(2), 215–26.
56. Riyadh, H. A., Alfaiza, S. A., & Sultan, A. A. (2019). THE EFFECTS OF TECHNOLOGY, ORGANISATIONAL, BEHAVIOURAL FACTORS TOWARDS UTILIZATION OF E-GOVERNMENT

ADOPTION MODEL BY MODERATING CULTURAL FACTORS. Journal of Theoretical and Applied Information Technology, 97(8).

57. Saengchan, S. (2008), "The role of intellectual capital in creating value in the banking industry", working paper, available at: www.bus.tu.ac.th/uploadPR/ADV3_11_2008/9.%20.pdf (accessed 13 May 2016).

58. Safieddine, A., Jamali, D. and Noureddine, S. (2009). Corporate governance and intellectual capital: evidence from an academic institution. Corporate Governance, 9(2), 146–157.
59. Sauer, C. (2014). Orthogonalizing powered and product terms using residual centering. The Stata Journal, 14(1): 226–229.
60. Securities Commission Malaysian. (2012). Malaysian Code on Corporate Governance 2012. Retrieved from http://www.sc.com.my/malaysian-code-on-corporate-governance- 2012.
61. Shamsudin, S.M., Abdullah, W.R.W. & Osman, A.H. 2015. Corporate Governance Practices and Firm Performance after Revised Code of Corporate Governance: Evidence from Malaysia. State-of-the-Art Theories and Empirical Evidence(June): 49–63.

62. Shiu, H. J. (2006). Application of the value added intellectual coefficient to measure corporate performance: evidence from technological firms. International Journal of Management, 23(2), 356–365.
63. Skroupa P. C. (2017, October 31). How Intangible Assets Are Affecting Company Value in the Stock Market. Online: https://skytopstrategies.com/intangible-assets-affecting-company-value-stock-market/(retrieved, Jan, 2018)
64. Sohail Imran Khan, A. A. S., Hosam Alden Riyadh. (2019). Academic Performance, Social Media Effects, and Leaning of College Students: Evidence of Positive Influence in Erbil City. Journal of Research on the Lepidoptera, 50(4).
65. Spira, L. F. (2003). Audit committees: begging the question? Corporate Governance: An International Review, 11(3), 180–187.
66. St-Pierre, J. and Audet, J. (2011), "Intangible assets and performance. Analysis on manufacturing SMEs", Journal of Intellectual Capital, 12(2), 202-223.

67. Sultan, A. A., & Noor, S. M. (2017). Absorptive Capacity, Civil Conflict and E-Commerce Adoption Among Iraqi Firms. Advanced Science Letters, 23(8), 7992-7995.
68. Tan, H. P., Plowman, D., and Hancock, P. (2007). Intellectual capital and financial returns of companies. Journal of Intellectual Capital, 8(1), 76–95.
69. Ting, I. W. K. and Lean, H. H. (2009). Intellectual capital performance of financial institutions in Malaysia. Journal of Intellectual Capital, 10(4), 588 – 599.
70. Tovstiga, G., and Tulugurova, E. (2007). Intellectual capital practices and performance in Russian enterprises. Journal of Intellectual Capital, 8(4), 695–707.
71. Tseng, C-Y. and Goo, Y.-J. J. (2005). Intellectual capital and corporate value in an emerging economy: empirical study of Taiwanese manufacturers. R&D Management, 35(2), 187–201.
72. Vafeas, N. and Theodorou, E. (1998). The relationship between board structure and firm performance in the UK. The British Accounting Review, 30(4), 383–407.
73. Wahab, E. A. A., Zain, M. M., and James, K. (2011). Political connections, corporate governance and audit fees in Malaysia. Managerial Auditing Journal, 26(5), 393–418.

74. Wang, Z., Cai, S., Liang, H., Wang, N. & Xiang, E. 2018. Intellectual capital and firm performance: the mediating role of innovation speed and quality. The International Journal of Human Resource Management: 1–29

75. Weimer, J. and Pape, J. C. (1999). A taxonomy of systems of corporate governance. Corporate Governance: An International Review, 7(2), 152–166.

76. Zulkifli, N.S., Abdul Shukor, Z. & Rahman, M. R.2017, Intellectual Capital Efficiency And Firm Performance In Malaysia: The Effect Of Government Ownership. Asian Journal of Accounting and Governance 8: 93–105.