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Competitive Advantage as Mediating Role of Intellectual Capital and University Performance: An Empirical Study in Indonesia

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ABSTRACT

One of important elements that can be used by a university in order to be sustained in the global high learning challenges is optimization of its competitive advantage to increase its performances. This study aims to determine the effects of competitive advantage in mediating the relationship between intellectual capital and the performance of public universities in Indonesia. A questionnaires survey was used to collect the data via online manner from 177 respondents of 8 public universities in Indonesia that are listed in the QS World University Rankings. The Wrap Partial Least Square (PLS) program was used to analyse the data and test the hypotheses. The findings had confirmed a significant a partial type of mediation relationship between intellectual capital and university performance through the competitive advantage in Indonesia. The confirmation value of a partial type of mediation relationship between intellectual capital and university performance was 24.8 percent. This study had successfully proved that competitive advantage plays a crucial role to mediate the relationships between intellectual capitals and the performance of public universities in Indonesia. Conclusively, the implication of study has suggested universities to allocate more investment on their intellectual capital development in an effort to improve their performances.

JEL Classification: I24, I25

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INTRODUCTION

Higher education has a very big role in nation building. Through transformation of human resources functions, social science and technology, higher education occupies a strategic position in a shaping and changing a society. In relation to these conditions, education has an important role in generating qualified human resources and also the cornerstone of a nation for a systematic, programmatic and tiered development of resources. The Ministry of National Education of the Republic of Indonesia (2012) reported that the number of higher education institutions in Indonesia increased by 18% and 5.39% for public and private higher education institutions respectively from 2005 to 2011. The increment of higher education institutions in Indonesia has created a tough competition amongst them. The competition is also triggered by the changes of global business which lead the higher education institutions to put a priority on a high quality of service for their customers. This new paradigm has led the university's orientation, i.e. not only have to be able to compete in the national level, but in the global level as well. Orientations of international competition among universities for the last few years have raised the concept of World Class University (WCU).

Universities in Indonesia should put their institutions into the WCU's category. Therefore, universities must be pushed to participate globally to develop an international standard of academic quality. In other words, efforts of building the competitiveness for a university are an absolute must in order to maintain its existence. In fact, very few public universities in Indonesia were listed in the universities world's universities ranking list. The QS World University Rankings (2015) revealed the latest top 100 university ranking in Asia region for 2013/2014 and 2014/2015, however, results indicated that only one university from Indonesia has managed to enter the top 100 Asia rank.

Measuring university performance is made on the basis of achievements in academic excellence globally. This is in line with Hughes (2013), who states that the paradigm shift of higher education in the globalization era should be changed from a "national, analogue, industrial economy" orientation to a "global, digital and information-based" one. Facing these challenges, the universities should enhance their performances both in academics and management. Performances measurement has increasingly pushed a call for accountability in higher education. If the national universities are not able to face the challenges effectively, this institution might not able to maintain their existence in the community and slowly but surely their will lose their role. In response to these challenges, universities in Indonesia have immersed in the process of changes to increase their effectiveness, efficiency and transparency with the purpose to contribute to the growing and improvement of competitiveness.

Few researchers have attempted to examine the relations between intellectual capital and university performance. Lu (2012) uses two-stages structure including cost efficiency and teaching research efficiency' by a two-stage DEA model based on the additive efficiency decomposition approach for assessing the operating performance of universities. Meihami and Karimi (2014) reported a similar study but the indicators for the university performance are undetailed which are only mentioned terms of financial performance, educational performance and research function for the university performance. Anggraini, et.al. (2016) mentioned that intellectual capital has a significant relationship with universities performance. Besides, Meihami and Karimi (2014) also studied the effect of intellectual capital to the success of current and future companies. They confirmed that intellectual capital directly affects the success of companies, and it also provide competitive advantage to the whole company of intangible asset acknowledged by organisation. Several other studies were also conducted to explore the effect of intellectual capital and competitive advantage (Taie, 2014; Kamukama, 2013; Ahmadi et.al., 2012; Jaradate et.al., 2012; Kangarlouei et.al., 2012; Kong and Prior, 2008). Other related studies demonstrated the effects of the competitive advantage of such organisations' performance (Maa, 2000; Raduan et.al., 2009, 2010; Majeed, 2011).

Reviewing all these above-mentioned studies, it can be summarised that previous studies lack of looking comprehensively at the education environment; hence, there is a gap that should be filled-up as a further study for that matter. The previous studies were only limited to examine the direct effect of intellectual capital and university performance without considering the role of potential mediating variable. Specifically under local condition, the effects of competitive advantage in mediating the relationships between intellectual capital and the performance of public universities in Indonesia are still questionable since no such comprehensive study for this country has been appeared in the research literatures.

Therefore, it is urgently need to accomplish the previous studies by conducting a complement further study. The objective of this study is to examine the competitive advantage as mediation between intellectual capital and public universities performance in Indonesia. It is believed that competitive advantage being a mediating variable may affect the pattern of relationship between intellectual capital and university performance and this should be looked into seriously. It is hoped that the findings of this study will be able to promote the importance of intellectual capital disclosure as one of the factors contributing to the improvement of universities' performances in Indonesia.

REVIEW OF LITERATURE

Intellectual capital (IC) represents knowledge-related intangible assets embedded in an organisation. Intellectual capital approaches have become of key significance in organisations of universities because knowledge is their main output and input. Universities provide knowledge and also scientific technical research such as the results of investigation, publication, or across teaching e.g. students trained and productive relationships with the stakeholders (Ramirez and Gordillo, 2014). Intellectual capital propels organisational performance and creates value for it (Roos et al., 1997). According to Sharabati et al. (2010), Khalique et.al. (2011), and Wang (2010), intellectual capital is playing a significant contribution to enhance the innovation, creativity and organisational performance, which indicates the causative relationship between capability and organisational intellectual capital (Marr and Roos, 2005). Ramirez et al. (2011) showed the intangible elements about universities should provide information in order to satisfy their user's new information demands. Several studies on the effect of intellectual capital on universities have revealed in the research literatures (Jones et al., 2009; Mart ńez-Torres, 2006; Ramirez et al., 2011; Lu, 2012; Meihami and Karami, 2014. All these studies suggested that there is a need to develop a new measurement model for university or higher education institution, so that it can be a value added for the institutions. As the university is one type of organisation, it is clear that intellectual capital with its consistent elements i.e. human capital, structural capital and relational capital is a major asset for universities. Intellectual capital is being formed by the following three basics and closely interrelated components, human capital is defined as summation of the explicit and tacit knowledge of the university staff acquired through formal and non-formal education and refresher processes included in their activities, structural capital is defined as explicit knowledge relating to the internal process of dissemination, communication and management of the scientific and technical knowledge at the university and relational capital is defined as extensive collection of economic, political and institutional relations developed and upheld between the university and its non-academic partners such as enterprises, non-profit organisations, local government and society in general, (Ramirez et al., 2011).

According to Bontis et al. (2007), intellectual capital (IC) is a key driver of innovation and competitive advantage in today's knowledge based economy. Kong and Prior (2008) added intellectual capital has been recognised as an important resource that organisations need to develop to gain sustained competitive advantages. Competitive advantage is conventionally imagined on sources for example natural resources, technology or economies of scale, since these are increasingly easy to duplicate (Kamukama et al., 2011; Balaji and Makhija, 2011). They said that maintainable competitive advantage is not anymore imbedded in physical assets and financial capital, but in effective focusing of unique intellectual resources. Meso and Smith (2000) argued that continued competitive advantage is attributable to strategic assets.

Many researchers realised that intellectual capital is a hidden important asset and the most forceful competitive armament in affecting an organisation's performance (Stewart, 1997, 1998). Other scholars like F-Jardon and Martos (2009) and Kiong and Lean (2009) shared similar opinion and discuss that the drivers of organisation's value in modern competitive atmospheres stay in an organisation's intellectual resources rather than in its physical and financial capital.

Intellectual capital has a powerful role in building competitive advantage of an organisation. This statement is similar with, Hazline and Zubaidah (2009) and Jaradate et al. (2012), who noticed that intellectual capital is a source of competitive advantage, which affects an organisation's performance. Numerous researchers have defined competitive advantage of an organisation. Barney (1991) describes competitive advantage of an organisation as a condition under which competitors are incapable to duplicate its competitive strategies implemented by the company, nor are competitors able to obtain the benefit that the company acquired

by means of its competitive strategies. Lindong (2007) states that competitive advantage is a superior market position to achieve in the higher education that carries long-term market success. Higher education experiences competitive advantage when its actions in the higher education create economic value and when only a few competitors engage in similar actions. Lindong (2007) defines competitive advantage in higher education in three based on Porter (1985) dimensions: first, cost leadership as a generic positioning strategy whereby a higher education works hard to accomplish the smallest production and extending costs of their service. Low tuition fees, for instance, could indicate that the institution is able to draw bigger amount of students than competitors. Secondly, differentiation is a type of generic positioning strategy whereby a higher education pursues to be special in the higher education through some dimensions appreciated by students, such as academic pathways, staggered fee payment, unique features of a course and study incentives. Third, focus refers to a generic positioning strategy where higher education concentrates its attempts on helping a less market fragments well rather than going after the entire market. Several authors have attempted a significant relationship between competitive advantage and performance (Maa, 2000; Newbert, 2008; Tuan and Yoshi, 2010) concluded that assets of organisations that are valuable, scarce, imperfectly imitable and imperfectly substitutable are the main sources of sustainable competitive advantage for continued superior performance. Resource Based View (RBV) examines and recognizes resources of the organisations to respect how organisations attain maintainable competitive advantage. RBV concentrates on the concept of difficult-to-copy features of the organisation as sources of superior performance and competitive advantage (Barney, 1991)

Competitive advantage and organisational performance are two different constructs with an apparently complex relationship (Maa, 2000). Overall, though, studies have shown a significant relationship between competitive advantage and performance (Maa, 2000; Fahy, 2000; Wang and Lo, 2003; Wiklund and Shepherd, 2003; Morgan et al., 2004). As mentioned earlier, despite competitive advantage and performance constructs are often used interchangeably (Porter, 1985), they have real conceptual differences from one to another and have a causal relationship that leads the former to the latter. According to Newbert (2008), competitive advantage is generally conceptualised as the implementation of a strategy not currently being implemented by other firms that facilitates the reduction of costs, the exploitation of market opportunities and neutralisation of competitive threats (Barney, 1991). Performance is generally conceptualised as the rents a firm accrues as a result of the implementation of its strategies (Rumelt et al., 1994).

Competitive advantage is conventionally imagined on sources for example natural resources, technology or economies of scale, since these are increasingly easy to duplicate (Kamukama et al., 2011). Seubert et al. (2001) said that maintainable competitive advantage is not anymore imbedded in physical assets and financial capital, but in effective focusing of unique intellectual resources. Meso and Smith (2000) have been proved that continued competitive advantage is attributable to strategic assets.

From the theoretical perspective, it has proven that theory resource-based view and knowledge based-literature have the relationships between intellectual capital, competitive advantage and university's performance within the university setting (Barney, 1999; Decarolis and Deeds, 2006; Teece et al., 1997). Through an empirical study Secundo et al. (2010) found that the universities that adopt a strategic approach to the management of intellectual capital have found this as an opportunity to enhance their market position.

Theory resource-based view has expressed internal resources as becoming more important to a company than its external resources to achieve and maintain a competitive advantage. Barney (1991) has outlined a framework to determine the possibility if a resource can be considered a source of sustained competitive advantage. The key elements of this framework require resources to be valuable, rare, inimitable and non-substitutable.

The resource-based view discovered a company's resources as the main drivers of competition and performance. These resources include both tangible and intangible assets which have been internalised and used effectively by the company that implements competitive strategies. Related to the resource-based view is the knowledge-based theory, which states that heterogeneous knowledge bases among firms and the ability to create and apply knowledge are the main determinants of competitive advantage (Grant, 1996; Spender, 1996; Decarolis and Deeds, 2006). Blending different knowledge bases, according to the theory gives organisation a better competitive position in an environment (Ahmadi et al., 2012).

The existing literature has further confirmed that a firm's competitive advantage and performance are largely affected by its intellectual capital (Tovstiga and Tulugurova, 2009; Barney, 1991). Most past literatures focusing intellectual capital has overlooked the significance of competitive advantage on the relationship

between intellectual capital and organisational performance (Chang et al., 2008; Ho, 2009; Bontis et al., 2002; Stewart, 1997, 1999).

Kamukama et al. (2011) examined the mediation effects of competitive advantage in the relationship between intellectual capital and financial performance in microfinance industry in Uganda. The findings indicated that the mediation effect of competitive advantage on the relationship between intellectual capital and firm performance satisfies the conditions of mediation, as pointed out by Baron and Kenny (1986) and Jose (2008). Furthermore, the results of Kamukama (2013) reported that the three intellectual capital elements such human capital, structural capital and relational capital are strong predictors of competitive advantage.

According to the resource-based view, continued competitive advantage is affected by resources that are beneficial, scarce, non-similar and hard-to-duplicate and exist within an organisation (Barney, 1991; Stiles and Kulvisaechana, 2004). From the above-elaboration, it is can be noticed that RBV theory said that competitive advantage plays important role in enhancing the organisation performance. Based on the above-mentioned statements, hypothesis 1 states that:

H1: Competitive advantage mediates the relationship between intellectual capital and the performance of public universities

RESEARCH METHODOLOGY

The population of this study includes all academicians in public universities in Indonesia. The major rationales in choosing the public universities in this study is just simply because these higher learning institutions are totally run under the government's control, and hence, they are considered as representing good and ideal universities for the stakeholders in the country. In fact, the public universities in Indonesian are purposely focused in the study since these objects are similar with previous studies conducted by Ramirez et al. (2011), Lu (2012) and Siboni et al. (2013). They also focused their studies on IC in their respective public universities i.e. Spain, Taiwan and Italia.

This study used a non-probability sampling technique. This technique does not provide opportunities or equal opportunity for each element or member of the population to be selected into the sample. It is purposive sampling used for sampling the elements that meet the chosen study criteria as sample (Cooper and Emory, 1995). The sample derived from the population of Indonesian public universities that are listed under the QS (Quacquarelli Symond) World University Rankings in between the year 2013/2014 and 2014/2015.

Table 1 Rank of Indonesian Public Universities in the QS World University

Rank	Public universities
310	Universitas Indonesia (UI), Jakarta
461	Institut Teknologi Bandung (ITB), Bandung
551	Universitas Gadjah Mada (UGM), Yogyakarta
703	Universitas Airlangga (UNAIR), Surabaya
719	Institut Pertanian Bogor (IPB), Bogor
725	Universitas Diponegoro (UNDIP), Semarang
767	Institut Teknologi Surabaya (ITS), Surabaya
826	Universitas Brawijaya (UNIBRAW), Malang

Source: website QS World University 2013/2014 and 2014/2015

Table 1 shows that only 8 (eight) Indonesian public universities were displayed at QS the World University Rankings from 2013/2014 and 2014/2015. The respondents focused are the universities' and faculty administrators, included the Rector, Vice rector, faculty members such as Dean, Vice Dean and Head and Secretary of Departments and lecturers. Such respondents are purposely chosen as they know much about their institutions. During data collection, respondents were given a set of questionnaire regarding to the academic and research matters, which available online via Google website at the following URL address; http://goo.gl/forms/EKlrV6uoCY. The available questionnaire forms were then disseminated to the respondents through their email addresses. The questionnaires were sent to the selected universities and 177 respondents representing eight public universities in Indonesia took part in the study. The pattern of questionnaire response rate is presented in Table 2. As shown in Table 2 the results of the study shows that usable respondent's rate was 22% of total respondents. The response can be categorised as a very high response rate since according to

Mardiah and Gudono (2001), normally the response rate in Indonesia is within the range of 10% to 16% of the total respondents.

Based on the profile of the respondents, it can be explained that the respondents in this study have represented the populations. A total of 122 respondent or 68.9% who gave the response were the male, while the rest were female. Majority of the respondents have the profile ages between 40-49 years old or with a number of 65 or 36.7% of total respondents. About 61.5% or 109 respondents were Ph.D. degree holders. Based the position held, the respondents who had lecturers position were 110 or 62.1% of total respondents. All the respondents were expected early knowing his job as head of the university as well as a lecturer.

Table 2 The pattern of questionnaire response rate

	Questionnaire Response	
	Quantity	**Response Rate (%)**
Questionnaire distributed to email addresses	1,210	
(-) Unanswered questionnaire returned or invalid email addresses	(404)	
Potential respondents	806	
Questionnaires received in stage one up to 5 May 2015	143	
Questionnaire received in stage two up to 5 July 2015	45	
Total number of questionnaires received	188	
		23.3%
Incomplete responses (stage one, 9; stage two, 2)	(11)	
Usable response rate	**177**	**22%**

RESEARCH INSTRUMENT

Intellectual capital, in university, is a term used to cover all the institution's non-tangible or non-physical assets, including processes, capacity for innovation, patents, the tacit knowledge of its members and their capacities, talents and skills, the recognition of society, its network of collaborators and contacts, etc. The instrument to measure intellectual capital adopted from Ramirez et al. (2011). Three dimensions of intellectual capital are considered for analysis purpose including human capital, structural capital and relational capital. The instrument consisted of 1 to 5 Likert scales, where 1-scale is for "not at all important" and 5-scale says that "it is very important".

University performance is performance of universities can be measured by the extent to which each of university functions is maintained toward the university goals. This study uses the university organisational performance measurement by Wang (2010). The academic performance dimension can be further divided into research and educational dimensions. The respondents were asked to evaluate their universities performances based on the given Likert Scale. It begins with the very low scale (1-scale) showing that the performances the university is very low up to very high performances presented by 5-scale. Higher scores indicate high performances of the university.

Competitive advantage is an advantage over competitors gained by offering consumers greater value, either by means of lower princes or providing greater benefits and services that justify a higher price (Porter, 1985). Chowdhury (2011) describes competitive advantage as the results of differentiation. This study uses six items of innovation differentiation scales from Chandler and Hanks (1994) to fit the universities context. The respondent to the items were made using a 5 point Likert scale, ranging from1 strongly disagree to 5 strongly agree.

Techniques of analysis

Analytical techniques are used to interpret and analyses the data. The Partial Least Square (PLS) approach with WarpPLS program version 3.0 was used to test the hypothesis. This approach has several advantages as stated by Hair et al. (2013) and Kock (2013). Firstly, SEM-PLS is suitable for this research model that uses variables that cannot be measured directly (latent variables) and has predicted measurement error. Secondly, analysis of SEM-PLS can simultaneously test multiple dependence and independence variables as used in this research model. Thirdly, component-based SEM-PLS can overcome complexity models with small sample sizes.

Validity and reliability tests

The first step in data analysis with SEM-PLS approach is validity and reliability tests. Testing the validity with the reflective indicators was carried out through convergent validity and validity discriminant. The output of testing reliability for reflective construct was measured by Cronbach alpha, and composite reliability was measured based on Kock (2013). Meanwhile, testing construct validity and reliability are not required for the formative indicators. This can be done by looking at the weight indicator only. This indicator should be statistically significant and multicolinearity of variance inflation factor (VIF) should be smaller than 3.3. The second stage in the analysis of SEM-PLS is evaluation of structural models also called hypothesis testing of inner model.

RESULTS AND DISCUSSION

Table 3 summarised the results of validity and reliability testing for reflective constructs. The results of measurement models (outer model) reflective construct have fulfilled the criteria so that it can proceed to the structural model (inner model) for testing the model. One of the advantages of the WarpPLS 3.0 software that does not exist in other software is it has full output collinearity VIF (Kock, 2013). The output shows the software is free from the problems of vertical and lateral collinearity and also prevent the common method bias occurred.

Table 3 Conclusion from the Results of the Validity and Reliability (Outer /Measurement Model) Testing

Construct	Validity		Reliability		Full Collinearity VIF
	Loading Range	*AVE*	*Composite Reliability*	*Cronbach Alpha*	
Rule of thumb	> 0.5	> 0.5	> 0.7	> 0.7	< 3.3
Intellectual Capital (IC)	0.599-0.857	0.734	0.892	0.818	1.159
Competitive Advantage (CA)	0.619-0.807	0.548	0.878	0.833	1.426
University Performance (UP)	0.583-0.861	0.639	0.875	0.809	1.841

Table 4 Results of Formative Construct Testing

Constructs	P value	VIF
Rule of thumb	< 0.05	< 3.3
Intellectual Capital		
lv_HC	<0.001	2.052
lv_SC	<0.001	1.921
lv_RC	<0.001	1.639
University Performance		
lv_PR	<0.001	1.658
lv_PE	<0.001	1.336
lv_PF	<0.001	2.200
lv_PH	<0.001	1.976

The formative construct of the WarpPLS program just looked at the significance of weight indicators with criteria p value less than 0.05 and VIF (variance inflation factor) of less than 3.3 (Kock, 2013) are presented in Table 4. The output of weight indicator also shows three dimensions of intellectual capital and the fourth dimension of university performance have qualified for the construct validity formative. Once the requirements have met the formative construct, then, further step of hypothesis testing was commenced.

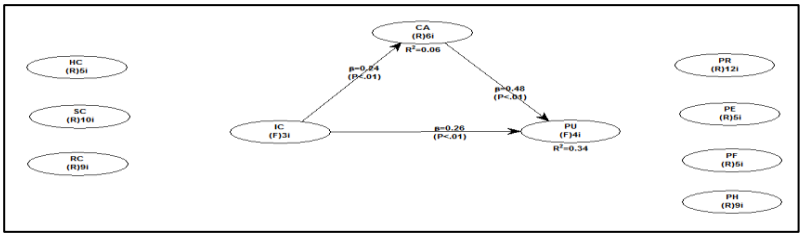

Figure 1 Results of the Structural Model for hypothesis 1

Figure 1 shows the results of structural models for hypothesis 1 testing. The value of the R^2 (R-Square) for the variance of university performance (PU) can be explained by the variance of intellectual capital (IC) and competitive advantage (CA) of 0.342 (the output results are rounded picture of 0.34). These results indicate that the effect of mediation on competitive advantage is significant.

Table 5 Output Path Coefficients for Hypothesis 1

Path coefficients	Standard Errors	Effect Sizes	Path coefficients values	p-values
IC → CA	0.082	0.059	0.242	0.002
CA → PU	0.072	0.251	0.477	<0.001
IC → PU	0.078	0.091	0.259	<0.001

Table 5 shows the obtained path coefficient value is the relationship intellectual capital (IC) and competitive advantage (CA) is equal to 0.242 and it is significant at 0.002. The result also demonstrates that emphasis of the management should be vested on intellectual capital resources because a sustainable competitive advantage is no longer rooted in physical assets and financial capital, but in effective channelling of intellectual capital. The result for the effect size estimates of the value of intellectual capital for competitive advantage is 0.059. According to Cohen (1988), this value of effect size is relatively small from views point of practical significance. Small value of effect size means the role of intellectual capital is small to the competitive advantage, even though the P-value is significant at 0.002. The result also demonstrates that emphasis of the management should be vested on intellectual capital resources because a sustainable competitive advantage is no longer rooted in physical assets and financial capital, but in effective channelling of intellectual capital. Furthermore, shows the value obtained for the correlation coefficient competitive advantage (CA) to the university's performance (PU) is approximately 0.477 and it is significant at 0.001. Thus, competitive advantage (CA) significantly influences the university's performance. In other words, the higher an organisation's competitive advantage, and the better the university's performance will be. The value of standardized path coefficient of intellectual capital to university performance is 0.262 and is significant at p-value less than 0.001 and the indirect one through a competitive advantage with a value of 0.259.

Evaluation of the PLS model with WarpPLS can give effect size, in which the f-squared effect size was conducted to determine the model goodness (Cohen, 1988). Effect size is calculated as the absolute value of the individual contribution of each predictor on the latent variables R-Squared value criterion variables. According to Cohen (1988), effect size can be grouped into three categories of weak (0.02), medium (0.15) and large (0.35). The output of WarpPLS also shows that the effect size value of competitive advantage against university's performance is 0.251, as presented in Table 3. Referring to Cohen (1988), value of 0.251 is closer to 0.35 (large). It means that this value is correlatively large to mediate the significance effect of competitive advantage to the university's performance. This finding proves that it is necessary for an organisation to manage its competitive advantage to drive the university to superior performance. In fact, competitive advantage can improve the relationship between intellectual capital and universities' performance based on the effect size of 0.251. Hence, H1 is supported.

The relationship between intellectual capital and universities' performance has satisfied the conditions of mediation as pointed out by Jose (2008), Tovstiga and Tulugurova (2009) and Kamukama et al. (2011, 2013). The results of this study are in line with the opinion of the Organisation for Economic Cooperation and Development (OECD, 2001), which stated that the intellectual capital perspective of the universities has a significant role in an effort to increase a country's competitiveness. Later, intellectual capital can advance universities' performance, create value and increase global competitive advantage.

Furthermore, WarpPLS 3.0 also produces the model fit indices into a useful set of measures related to model quality. The programmed WarpPLS displays model fit indices and p value in general (output general results). Three indicators of model fit consist of average path coefficient (APC), average R-squared (ARS) and average variance inflation factor (AVIF). They are used to evaluate whether the model fit (fit or supported) by the data. Based on the criteria of the p-value for the APC and the ARS, the value must be smaller than that of 0.005 or a significant meaning. In addition, as an indicator, the value of AVIF multicolinearity should be smaller than 5 (Kock, 2013).

Table 6 also shows that the model fit indices of model have met the criteria. Model fit indices output shows the APC values are 0.326 or it is significant with p-value less than 0.001 and the value of ARS is 0.200 with p-

value of less than 0.001 respectively, which are also significant. The AVIF value of 1.037 also met the criteria. It can be concluded that model is generally a good model that is supported by data.

Table 6 Good of Fit to Test the Hypothesis 1

Model fit indices	Coefficient	p value
APC (average path coefficient)	0.326	< 0.001
ARS (average R-squared)	0.200	< 0.001
AVIF (average variance inflation factor)	1.037	

Mediation Testing Methods SEM-PLS with VAF (Variance Accounted For)

Mediation testing methods SEM-PLS is aimed to statistically test whether significant competitive advantage is a mediating factor or not. This study used procedure analysis mediation by using the method accounted variance for (VAF) in the SEM-PLS programmed, as suggested by Hair et al. (2013). VAF is categorized into three-stage mediation. If VAF is greater than 80%, it is called full mediation, if value of VAF is in the range of 20% to 80%, is called partial mediation, and if the value of VAF is less than 20%, there is no mediating effect. The computed results for the mediation models VAF are presented in Table 7 below.

Table 7 Mediation Calculation Method VAF (Variance Accounted For)

Calculation	Total
Indirect Effect = 0.242 * 0.477 IC→CA = 0.242; CA→PU = 0.477	0.115
Direct Effect IC→PU; without entering competitive advantage as the mediation	0.349
Total effect	0.464
VAF = Indirect Effect/Total Effect = 0.115 / 0.464	0.248

The results from the analysis procedure of mediation in VAF can be explained by the first calculation of indirect influence. The estimation results indicate that the effect of intellectual capital on the performance of the university indirectly and through the competitive advantage is equal to 0.115. The value of 0.115 was calculated by multiplication coefficient direct effect of intellectual capital (IC) for competitive advantage (CA) for 0.242, with a competitive advantage of university's performance of 0.477. The second calculation of direct influence was calculated by the result from the hypothesis 1 testing with a coefficient value of 0.349. The total effect is the sum of the coefficient value indirect effect with immediate effect.

VAF is calculated by dividing the indirect effect with the total effect. The calculated VAF is 0.248 or 24.8, which is between 20%-80%. Mediation calculation results of this study support the research conducted by Kamukama (2011), who found only the VAF of 22.4%. This value is categorized as partial mediation (Hair et al, 2013). The result of the mediation with a model calculation of this VAF supports the opinion of Baron & Kenny (1986), who stated that there is a partial mediation effect. This form of partial mediation shows that competitive advantage is not the only variable mediates the relationship between intellectual capital and universities performance but there are other mediating factors.

CONCLUSION

This study confirmed the importance effect of competitive advantage in mediating the relationship between intellectual capital and public universities the performance. Inline growing awareness of higher education in Indonesia, hence, it is believed that intellectual capital play an important role in improving the competitive advantage and performance of university in the country through creating value from the asset management of the organization.

In addition, this study also showed that stakeholders have given higher ratings to the universities that have better performance because the universities had proved to be able to manage its intellectual resources effectively and efficiently. The results is consistent with the resourced based view (RBV) theory developed by Barney (1991) and Stewart (1997), which states that the organization, those retains their competitive edge has the ability to create added value for their stakeholders and to manage its strategic assets efficiently. These inventions

proved that intellectual capital is a group of intangible assets derived from an organisation and it significantly affects the position of competitive advantage and public universities' performance in Indonesia.

Based on theory the resource based view (RBV), intellectual capital meets the criterion as a unique resource that is capable of creating competitive advantages which can create value for the company later on. The value is the better performance of the company (Grant, 1996; Spender, 1996; Decarolis and Deeds, 2006). Therefore, the findings are applicable for the presentation of the theory of resource based view to gain competitive advantage in managing universities' resources in accordance with the capability of higher education institutions, especially in public universities in Indonesia.

The findings also showed a series of issues that need to be seriously considered by university managers and members, government and researchers/lecturers. Besides, it also suggested the university must quickly change its strategy to be a knowledge-based university in order to win the competition. This is because a resource that has a competitive advantage, in combination with the elements added value, worth, rarely held, intangible, difficult to be imitated, and inimitable, is believed to be able to maintain a sustainable competitiveness of public universities in Indonesia.

The inventions of this study have also provided some contributions to knowledge through extending the previous research's contributions on the relationship of intellectual capital performance for diverse business sectors, not only in corporation sector, but also in education sector. In particular, it successfully fills-up the current gap in the research literature showing that there is no comprehensive study examining competitive advantage as mediating role of the relationship between intellectual capital and the public universities' performance in Indonesia.

However, the study was limited on using single mediating variable, thus further research are recommended to extend the model developed in this study by incorporating other intervening variables to attain a better understanding of the contextual relationships intellectual capital and university's performance as a variable of good corporate governance and corporate responsibility.

REFERENCES

Anggraini. F., Ali M.A.H and Aza. A.M,K (2016) Intellectual capital and Indonesia universities performance. Paper presented at Annual Bangkok Business and Social Science Research Conference, Bangkok, Thailand. 3 - 4 June 2016, Available at http:// www.assbri.com (Accessed 7 June 2017).

Ahmadi, F., Parizi, Z., Meyhani, B. and Ziaee, M. (2012) Intellectual capital accounting and its role in creating competitive advantage at the universities. *Inter-discriminary Journal of Contemporary Research in Business*. 4(1), pp. 45-58.

Balaji, Y. and Makhija, M. (2001) *The knowledge imperative*. Special Advertising Supplement. March 15.

Barney, J. (1991) Firm resources and sustained competitive advantage. *Journal of Management*. 17(1), pp. 99-120.

Baron, R.M. and Kenny, D.A. (1986) The moderator-mediator variable distinction in social psychological research: conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*. 51(6), pp. 1173-82.

Bontis, N., Crossan, M.M. and Hulland, J. (2002) Managing an organizational learning system by aligning stocks and flows. *Journal of Management Studies*. 39(4), pp. 437-469.

Bontis, N., Seleim, A. and Ashour, A. (2007) Human capital and organisational performance: a study of Egyptian software companies. *Management Decision*. 45(4), pp. 789-801.

Chandler, G. and Hanks, S. (1994) Market attractiveness resource-based capabilities, venture strategies and venture performance. *Journal of Business Venturing*. 9(6), pp. 331-349.

Chang, S.C., Chen, S.S. and Lai, J.H. (2008) The effect of alliance experience and intellectual capital on the value creation of international strategic alliances. *International Journal of Management Science*. 36(2), pp. 298–316.

Chowdhury, M.M.H. (2011) Ethical issues as competitive advantage for bank management. *Humanomics*. 27(2), pp. 109-120.

Grant, R.M. (1996) Toward a knowledge-based theory of the firm. *Strategic Management Journal*. 17(6), pp. 109-122.

Cohen, J. (1988) *Statistical power analysis for the behavioral sciences.* Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Cooper, D.R. and Emory, C.W. (1995) *Business Research Methods*, 5th edition, Richard D. Irwin Inc.

Decarolis, D.M. and Deeds, D.L. (2006) The impact of stock and flows of organisational knowledge on firm performance: an empirical investigation of the biotechnology industry. *Strategic Management Journal*. 20(7), pp. 953-968.

Fahy, J. (2000) The Resource-based view of the Firm: Some Stumbling-blocks on the Road to Understanding Sustainable Competitive. *Journal of European Industrial Training*. 24, pp. 94-104.

F-Jardon, C.M. and Martos, M.S. (2009) Intellectual capital and performance in wood industries of Argentina. *Journal of Intellectual Capital*. 10(4), pp. 1469-1930.

Grant, R.M. (1996) Toward a knowledge-based theory of the firm. *Strategic Management Journal*. 17(6), pp. 109-122.

Hair, J., T.Hult, C. Ringle and M. Sartstedt (2013) *A Primer on Partial Least Squares Structural Equation Modeling*. Los Angeles: Sage.

Hazline, H. and Zubaidah, Z.A. (2009) Board structure and corporate performance in Malaysia. *International Journal of Economic and Finance*. 1(1), pp. 150-164.

Ho, B. (2009) Insurer-provider networks in the medical care market. *American Economic Review*. 99(1), pp. 393-430.

Hughes, J.C (2013) Are our universities ready for a paradigm shift? The Globe and Mail. Available at http://www.theglobeandmail.com/news/national/education/are-our-universities-ready-for-a-paradigm-shift/article9580030/ (Accessed 5 May 2016).

Jaradate, O.M., Al-Samralie, F.A. and Jadallah, N.A. (2012) Intellectual capital and its role in achieving competitive advantage: a field study for the Jordanian income tax service. *European Journal of Science Research*. 69(3), pp. 399-415.

Jose, E.P. (2008) Welcome to the Moderation/Mediation Help Centre, Version 2.0, School of Psychology, Victoria University of Wellington, Wellington.

Jones, N., Meadow, C. and Sicilia, M.A. (2009) Measuring intellectual capital in higher education. *Journal of Information and Knowledge Management*. 8(2), pp. 113–136.

Kamukama, N, Ahiauzu, A and Ntayi, J.M (2011) Competitive advantage: mediator of intellectual capital and performance. *Journal of Intellectual Capital*. 12(1), pp. 52-164.

Kamukama, N (2013) Intellectual capital: company's invisible source of competitive advantage. *International Business Journal*. 23(3), pp. 260-283.

Kangarlouei, S.J, Shadkami, N and Motavassel M. (2012) The Impact of Intellectual Capital on Competitive Advantage of Vehicle Industries in Tehran Stock Exchange (TSE). *International Journal of Academic Research in Business and Social Science*. 2(1), pp. 559-566.

Khalique, M., J.A.N. Shaari, A.H, Isa, M and Ageel. A (2011) Role of intellectual capital on the organizational performance of electrical and electronic SMEs in Pakistan. *International Journal of Business Management*. 6(9), pp. 55-65.

Kiong, I.W.T. and Lean, H.H. (2009) Intellectual capital performance of financial institutions in Malaysia. *Journal of Intellectual Capital*. 10(4), pp. 588-599.

Kock, N, (2013) Advanced mediating effects tests, multi-group analyses and measurement model assessments in PLS-based SEM. *International Journal of e-collaboration*. 10(3), pp. 1-13.

Kong, E. and Prior, D. (2008) An intellectual capital perspective of competitive advantagein nonprofit organisations. *International Journal Nonprofit Voluntary Sector Marketing*. 13(2), pp. 119-128.

Lindong, L.A. (2007) A Cross-Case Study of the Competitive Advantage of Private Higher Educational Institutions in Kuching, Sarawak Doctoral dissertation, University Sains Malaysia.

Lu, W.M (2012) Intellectual capital and university performance in Taiwan. *Economic Modeling Journal*. 29(2012), pp. 1081-1089.

Maa, H. (2000) Competitive advantage and firm performance. *Competitiveness Review*. 10(2), pp. 15-32.

Majeed, S (2011) The Impact of Competitive Advantage on Organizational Performance. *European Journal of Business and Management*. 3(4), pp. 191-196.

Mart ńez-Torres, M.R. (2006) A procedure to design a structural and measurement model of intellectual capital: an exploratory study", *Information* Management. 43(5), pp. 617–626.

Marr, B. and Roos, G. (2005) *A strategy perspective on intellectual capital: in Perspectives on intellectual capital multi-disciplinary insights into management, measurement and reporting,* Marr, B. (Ed), Butterworth Heinemann, Oxford. pp. 28-41.

Meso, P. and Smith, R. (2000) A resource-based view of organizational knowledge management systems. *Journal of Knowledge Management*. 4(3), pp. 224-231.

Meihami, B and Karimi, J. (2014) The relationship between intellectual capital reporting and universities performance. *MAGNT Research Report*. 2(5), pp. 748-754.

Morgan, N.A., Kaleka, A. and Katsikeas, C.S. (2004) Antecedents of Export Venture performance: A Theoretical Model and Empirical Assessment. *Journal of Marketing*. 68, pp. 90-108.

Newbert, S. (2008) Value rareness, competitive advantage, and performance: A conceptual-level empirical investigation of the resource-based view of the firm. *Strategic Management Journal*. 29(2008), pp. 745-68.

OECD, (2001) Organization for Economic Cooperation and Development. Knowledge Management: Learning Experiences from Private Firms and Public Organizations, CERI/CD (2001)2, Centre for Educational Research and Innovation Governing Board, Organization for Economic Cooperation and Development, Paris.

Prajogo, D.I. and McDermott, P. (2011) Examining competitive priorities and competitive advantage in service organisations using importance performance analysis matrix. *Managing Service* Quality. 21(5), pp. 465-483.

Porter, M.E. (1985) Competitive advantages. New York: Free Press: London.

Raduan, C.R., Jegak, U., Haslinda, A. and Alimin, I.I. (2009) A conceptual framework, of the relationship between organizational resources, capabilities, systems, competitive advantage and performance. *Research Journal of International* Studies. 12, pp. 45-59.

Raduan, C.R., Jegak, U., Haslinda, A. and Alimin, I.I. (2010) A Review on the Relationship between Organization Resources, Competitive Advantages, and Performance. *Journal of International Social Research*. 3, pp. 11-21.

Ram ńez, Y., Santos, J.F. and Tejada, A. (2011) Intellectual capital in Spanish public universities: Stakeholders' information needs. *Journal of Intellectual Capital*. 12(2011), pp. 356–376.

Roos, J., Roos, G., Dragonetti, N.C and Edvinsson, L. (1997) Intellectual capital*: Navigating the new business landscape.* London: Macmillan.

Rumelt, R., Schendel, D and Teece, D. (1994) Fundamental issues in strategy. In D. Schendel, D. Teece, and R. Rumelt (Eds.), Fundamental issues in strategy. Harvard Business School Press: Boston. pp. 9-47.

Secundo, G., Margherita, A., Elia, G. and Passiante, G. (2010) Intangible assets in higher education and research: Mission, performance or both?. *Journal of Intellectual Capital*. 11(2), pp. 140-157.

Seubert, E, Balaji, Y. and Makhija, M. (2001) The knowledge imperative. Available at http://www.cio.com/sponsors/031501_km.html. (Accessed 17 March 2017).

Sharabati, A.A., S.N. Jawad and N. Bontis (2010) Intellectual capital and business performance in the pharmaceutical sector of Jordan. *Management Decision*. 48(1), pp. 24-35.

Siboni. B., Nardo. M.T. and Sangiorgi.D. (2013) Italian State University Contemporary Performance Plans: an Intellectual Capital Focus. *Journal of Intellectual Capital*. 14(3), pp. 414-430.

Spender, J.C. (1996) Making knowledge the basis of a dynamic theory of the firm. *Strategic Management Journal*. 17(5), pp. 45-62.

Stiles, P. and Kulvisaechana, S. (2004) Human capital and performance in public sector. *Judge Institute of Management*. *University of Cambridge*, Cambridge.

Stewart, T.A. (1997; 1999) Intellectual Capital: The new wealth of organizations, Bantam Doubleday Dell Publishing Group, New York, NY.

Teece, D.J., Pison, G. and Shuen, A. (1997) Dynamic capability and strategic management. *Strategic Journal*. 18(7), pp. 509-533.

Tovstiga, G. and Tulugurova, E. (2009) Intellectual capital practices: a four-region comparative study. *Journal of Intellectual Capital*. 10(1), pp. 70-80.

Tuan., N. P and Yoshi. T. (2010) The organizational capabilities, competitive advantage and performance in supporting industries in Vietnam. *Asian Academy of Management Journal*. 15(1), pp. 11-12.

Wang, Y. and Lo, H.P (2003) Customer-focused performance and the dynamic model for competence building and leveraging A resource-based view. *Journal of Management Development*. 22, pp. 483-526.

Wang, X (2010) Performance measurement in universities; managerial perspective. (DBA, dissertation, Faculty of Management and Governance University of Twente, Enschede, The Netherlands). Retrieved from http://essay.utwente.nl/60180/1/MA_thesis_X_Wang.pdf.

Wiklund, J. and Shepherd, D. (2003) Knowledge-based resources, entrepreneurial orientation, and the performance of small and medium-sized businesses. *Strategic Management Journal*. 24(13), pp. 1307-1314.

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