RESEARCH ARTICLE

THE ROLE OF BETA AS A MODERATING VARIABLE ON THE RELATIONSHIP BETWEEN INTELLECTUAL CAPITAL AND FINANCIAL PERFORMANCE IN CONSUMER GOODS INDUSTRY AT INDONESIA STOCK EXCHANGE 2010-2017

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ABSTRACT

This study aims to examine the moderating effect of beta on relationship between intellectual Capital and financial performance. The proxies of intellectual capital are Value Added Human Capital (VAHU), Value Added Relational Capital (VACA) and Structural Capital Value Added (STVA), while return on equity (ROE) is used as a proxy of Financial Performance. Sample of this study were 17 industrial goods consumer companies found on the IDX during 2010 to 2017 based on purposive sampling method and were in accordance with the criteria in this study. After identifying the data, outliers occurred in this study and finally produced 115 samples that were ready to be analyzed and tested. Hypothesis was tested using multiple linear regression with a significance level of 5%. The results of this study indicate that the VAHU has positive effect on financial performance, VACA has negative effect on financial performance. But STVA has no significant effect on financial performance. Research findings provide empirical evidence that Beta moderate the effect of intellectual capital on ROE. However, the effects are mixed, firm with lower absolute beta has moderate the effect of intellectual capital on financial performance, while it is not found at firm with higher absolute beta. The results is consistent after being controlled by size.

Keywords: *VAHU; VACA; STVA; Financial Performance; Beta; size*

INTRODUCTION

This era of globalization has made world development more competitive. With the advancement of technology, information and science, we can increase added value (value added) to products and can help business people who create companies that can improve performance in the financial sector in order to

be able to compete to maintain the sustainability of the company.

Intellectual capital does not only exist in the knowledge and expertise of employees but also in the company's structure and relations between business stakeholders (Sangkala 2006, p. 7). IFAC (1998) classifies that intellectual capital consists of value added human capital (VAHU) about knowledge and expertise possessed by employees, added value relational capital (VACA) about good relationships between employees and all business stakeholders and structural capital value added (STVA) regarding knowledge that remains in the company even though employees leave the company.

The decision of a manager will also affect the value that will be obtained by shareholders and interested parties within the company. Shareholders wish to increase the value of their shares from year to year, either from capital gains or from dividends obtained. To be able to increase this value, the company can invest in projects that can produce returns above the risk costs that can be adjusted to capital. In general, investment activities can be said to be high risk high returns, which means that with high investment will also have a big risk. Non-systematic risk is the risk that arises due to changes in security income that are not related to market movements but this risk depends on the characteristics of the company. Systematic risk is the risk that arises due to changes in security income that are affected by market movements. Risk cannot be avoided but can be minimized by good risk management. One form of the balance model is capital asset pricing capital (CAPM).

The size used by the CAPM is beta as a systematic risk. Beta has several advantages, namely beta can improve the total risk size using variants and standard deviations, beta is relatively stable so that beta can be used for future beta. Beta can describe systematic risks that cannot be eliminated due to diversification. Beta itself can be calculated using historical data with estimation techniques for a certain period, for example monthly, weekly, daily. Assuming securities return-return and market return-return have linear relationships (Rosenberg and Guy, 1987, p. 62).

From the formulation of the problem above, the objectives of this study are as follows: To test the effect of VAHU, VACA, and STVA on financial performance; to examine the role beta in moderating the effect of VAHU, VACA, and STVA on financial performance. This study is expected to prove the existence of beta influences in moderating the relationship of intellectual capital to financial performance. This research is also expected to be able to provide information and consideration for managers in order to be able to properly manage company resources effectively and efficiently in order to create values that can improve performance for the survival of the company.

MATERIAL AND METHODS

MATERIAL

Stakeholder theory can help corporate managers to increase the value of activities and can minimize the losses of stakeholders. Stakeholder theory can be seen in two fields, namely in the field of ethics and managerial. In the ethical field stakeholders have the right to be treated equally and managers must also manage the organization to benefit all stakeholders. Management of all good potential will create value added for companies that can improve company performance, especially in

the financial sector for the interests and welfare of stakeholders.

The knowledge base view theory is a development of the resource base view theory which states that knowledge is a strategic resource for the company. Knowledge as a strategic corporate resource based on knowledge has terms to be said as resources so that it can be used to develop company competitiveness.

Previous research. Awareness that intellectual capital is the basis for companies to be superior and grow more so that many interested researchers, including the research of Wijaya (2012) using banking companies in 2008-2011 shows other results where value added human capital and structural capital value added have no influence on financial performance, but value added relational capital has an influence on performance finance. Other research, which was carried out by Fadei, Taleghani, Noghlebari (2013) explained value added human capital, structural capital value added and value added relational capital to the financial performance of Bank Melli's Guilan branch with profit factors, resource absorption. Allocating resources and valid bonitas debt collection questionnaires show that value added human capital, structural capital value added, and value added relational capital do not affect financial performance.

Hypothesis:

H1 : Intellectual capital, i.e. VAHU, VACA, and STAVA lead financial performance.

H2 : Beta moderate the effect of VAHU, VACA, and STAVA on financial performance.

METHODS

Indonesia Stock Exchange with the observation period 2010 to 2017. There are 29 firms in the initial sample and after filter the data, there are 17 firms in the final sample. Data used in this research are annual financial report that provide information to calculate and measure variable.

Variable measurement. Independent variables are *Value added Human Capital (VAHU), Relational capital value added (VACA),* and *Structural capital value added (STVA).* Operational definition and measurement of those variable refer to Ulum (2009) and Mardani (2013):

$$V = \frac{V}{H} \tag{1}$$

$$V = \frac{V}{C} \tag{2}$$

$$S = \frac{S}{V} \tag{3}$$

Where:

VA is Value-added = OUT – IN,

OUT = Total revenue,

IN = Sales expenses and other cost excluding expenses for employee,

HC is Human capital

 = Expenses for employee (wage, salary)

CE is Capital employed

 = Total assets – intangible assets

SC is Structural capital

 = VA – HC

Moderating variable is beta. The beta will be estimated using single index model based on weekly return for a year.

$$R_t = \alpha_i + \beta_R + \varepsilon_t \tag{4}$$

Where:

R_t is weekly stock return of firm at t

RM_t is weekly stock return of market index at t
α is intercept
β is beta or coefficient of parameter
ε is residual error

There are two approaches in measuring beta. First, Beta as real number, which is estimated using equation 4. Second Beta as a dummy variable, where is equal to 1 for firm with absolute beta equal or above average, otherwise 0.

Dependent Variable. Dependent variable is financial performance. This study used Return on equity (ROE) as a proxy of financial performance (Mardani, 2013; Samryn, 2012) . ROE is calculated as follow:

$$R = \frac{E}{E} \qquad [5]$$

Where:

ROE is return on equity
EAT is earning after tax
E is common equity

This study also employs Size as a control variable. Previous research concern that Size also affect ROE that represent economic of scale, which has advantage in efficiency, barrier to entry, and power to acquire key resources.

This study uses multiple regression analysis to examine the hypothesis:

$$R = \alpha + \beta_1 V + \beta_2 V + \beta_3 S + \varepsilon \quad [6]$$

$$R = \alpha + \beta_1 V + \beta_2 V + \beta_3 S + \beta_4 B \cdot B + \beta_5 S \cdot B + \varepsilon \qquad [7]$$

Where:

ROE = Return on equity
VAHU = V*alue-added human capital*
VACA = V*alue-added capital employed*
STVA = V*alue-added structural capital*

Beta = Estimated beta using single index
α = *Intercept Coefficient*
$\beta_1\beta_2\beta_3$ = *slope coefficient*
ε = *Error disturbance*

RESULT AND DISCUSSION

Descriptive Statistic. This section analyze statistic descriptive of research variable. Table 1 reports statistic descriptive result for dependent and independent variables. Mean ROE is 0.316 with standard deviation 0.345. Mean VAHU is 41 with standard deviation 87,979. This score has wide range among firm with ranging value of VAHU minimum of 2.843 and maximum of 620.947. While value of VACA and STVA is relatively stable among firm with lower standard deviation than their mean value. The value of Beta varies among firm, which ranging from -1.642 to 2.312.

Table 1. Statistic Descriptive

Statistic Descriptive	ROE	VAHU	VACA	STVA	BETA
Mean	0.316	41.806	1.571	0.915	0.616
Median	0.191	17.707	1.369	0.944	0.564
Maximum	1.423	620.947	3.782	0.998	2.312
Minimum	0.000	2.843	0.395	0.648	-1.642
Std. Dev.	0.345	87.979	0.639	0.076	0.606
Observations	136	136	136	136	136

Table 2 presents multiple regression analysis for return on equity model. The table provide 4 result of multiple regression analysis. Those final model have met Classical assumption of ordinary least square. There are four observations should be removed in the analysis due to outlier data. The first model is initial model without moderating and controlling variables. The model shows that VAHU and VACA have significant effect on ROE, while STVA is not significant. The effect of VAHU on ROE is positive, however VACA has negative effect on ROE.

The second model reports that Beta moderate the effect of VAHU, VACA, and STVA on ROE. The model show that all variables have significant effect on ROE. Beta also increase the power of significance effect of VAHU, VACA, STVA on ROE, especially for STVA, which has insignificant effect on ROE in the initial model. Adjusted R2 in the second model is slightly higher than initial model. While the main effects show increasing power of statistic significance, all coefficient parameter of moderating effects are statistically insignificant.

The third model presents moderating effect of beta using beta dummy variable. The model clear informs that that VAHU and VACA have significant effect on ROE, while STVA is not significant. The effect of VAHU on ROE is positive, however VACA has negative effect on ROE. The results of main effects are similar to initial model. This third model, however, indicates firm with beta absolute lower than 1, has more advantage intellectual capital to lead financial performance than other. The insignificant effect of DBETA interaction coefficient indicate that firm with beta absolute higher than 1 has no advantage of intellectual capital to lead financial performance.

The result is consistent when Size, as a control variable, is included in the fourth model. These findings show that firm with lower beta have more effectively moderate the effect of intellectual capital on financial performance than firm with higher beta.

Table 2. Multiple Regression on Return on Equity Model

Variable	Initial Model			Model using Beta			Model using Beta Dummy			Model Including Control Variable		
	Coef.	T	Sig	Coef.	T	Sig	Coef.	T	Sig	Coef.	T	Sig
Intercept	0,051			(0,009)			(0,007)			0,004		
Main effect												
VAHU	0,003	21,569	***	0,002	4,283	***	0,002	6,870	***	0,002	6,805	***
VACA	(0,028)	(2,040)	**	(0,051)	(2,726)	***	(0,041)	(2,483)	**	(0,041)	(2,478)	**
STVA	0,123	1,148		0,255	2,171	**	0,228	1,382		0,234	1,385	
Moderating effect of Beta												
BETA				....	....	....						
BETA.VAHU				0,001	1,543							
BETA.VACA				0,047	1,812	*						
BETA.STVA				(0,107)	(2,240)	*						
Moderating effect of Beta Dummy												
DBETA							....	....	....	....	....	....
DBETA.VAHU							0,000	0,810		0,000	0,771	
DBETA.VACA							0,039	1,281		0,040	1,282	
DBETA.STVA							(0,124)	(0,558)		(0,115)	(0,505)	
Control Variable												
Size										(0,001)	(0,180)	
Adjusted R²	0,832			0,837			0,832			0,831		
F	188,58		0,00	98,39		0,00	81,75		0,00	70,,89		0,00

Discussion. The results of multiple regression analysis indicate that VAHU has positive effect on financial performance. This result supports the hypothesis that intellectual capital lead financial performance. This result is in line with the knowledge base theory that companies can manage their resources effectively and efficiently in creating competitive advantages, and human capital creates intellectual power that improve financial performance. However, it is wonder that firm with lower beta provide evidence that VAHU significantly affect financial performance, while it is not found in the firm with higher beta.

The effect of value added relational capital on financial performance. The results of multiple regression analysis on the effect of VACA on financial performance are statistically significant. The results support hypothesis that intellectual capital lead financial performance. However, the effect of VACA on ROE is negative. According to Firer and Wiliams (2003) in Wijaya

(2012) value added that was created by the company's managed capital efficiently. The managed capital is a harmonious relationship to improve financial performance in maintaining the continuity of the company. In this study the results obtained were significantly negative, this indicates that the company's focus is no longer on the relationship created but on how to make use of capital efficiency by increasing the balance of life for its employees. Where welfare improvement is followed by a reduction in employees in order to improve financial performance. Firm with lower beta provide evidence that VACA significantly affect financial performance, while it is not found in the firm with higher beta.

Effect of STVA on financial performance. Furthermore, the results of multiple regression analysis on the effect of STVA on financial performance are not statistically significant. The findings are not supports the hypothesis. According to Bontis et al (2000) in Ulum (2009) structural capital value added is all non-human storehouses of knowledge that exist in the organization. Where the company's ability to fulfill its routine and structure can help employees obtain good financial performance based on knowledge. Thus, the results in this study explain that the use of companies to fulfill employee routines has not been able to provide added value to the company, especially in improving financial performance. The findings show that both lower and higher beta have no significant contribution to leverage the effect of STVA on financial performance.

In general, this is findings partially in line with Darwin (2008) who argued that where human resources can produce the best decisions for companies, for example an investment manager will make good investment decisions when the manager has high knowledge. Risks can occur because of uncertainty besides risk also can occur because of limited information and limited knowledge, skills or decision making techniques Darmawi (2008). This results paralel to Algifari (2013) who states that with a harmonious relationship with the shareholders the company seeks to invest in stocks to be able to maximize the welfare of shareholders by maximizing the value of the company's shares which will ultimately reflect the stock price.

The control variable in the robustness model is the size of the company (SIZE) as measured by LN assets resulting in that this study has no effect on the company's financial performance, meaning that the size of the company does not affect the company's financial performance nor the main effect on financial performance.

CONCLUSION

This study finds that VAHU has a significant positive effect on financial performance, VACA has a significantly negative effect, STVA has no effect on financial performance. Beta has contribution to moderate the effect of intellectual capital on financial performance. However, remain issues in this area are (i) Techniques in estimating beta, the issues related with non-synchronous trading or thin trading; (ii) the problem in absolute beta which only concern on model simplicity of parameter estimation which may less relevant with the higher or lower beta in the real number.

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