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Intellectual Capital, Bank Profitability, and Bank Value

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Abstract

This study plans to investigate the influence of intellectual capital on bank profitability and value and bank profitability on bank market value. Furthermore, 34 banks listed on Indonesia's capital market are taken from the population by the simple random sampling technique. Path analysis model acting as the method to evaluate the variables-related data. From the hypothesis testing, this study affirms a positive impact of intellectual capital on bank profitability and value and the similar effect of bank profitability on bank value. The implications related to the application of intellectual capital in banks are attached.

Keywords: Bank Value, Bank Capability to Create Profits, Intellectual Capital

I. INTRODUCTION

Banking is one of the industries in the capital market of Indonesia (Hartono, 2017). This industry has an outstanding contribution to the market index movement. This situation happens because some banks, i.e., PT Bank Central Asia Tbk. (BBCA), PT Bank Rakyat Indonesia (Persero) Tbk. (BBRI), PT Bank Negara Indonesia (Persero) Tbk., and PT Bank Mandiri (Persero) Tbk. (BMRI), have a significant stock market capitalization (Situmorang, 2020). As an indicator of the bank value, the stock price becomes the attention when investors want to buy or sell stocks. If they purchase shares at the right time, they will get a capital gain, and vice versa. The realized capital gain reflects the wealth of the investors (Hartono, 2017).

Therefore, it is essential to know what drives bank value in the capital market. In the study of Wijaya (2012), intellectual capital influences the bank value. The other researchers also obtain that profitability is its value determinant (Ozkan, Cakan, & Kayacan, 2016; Obala & Olweny, 2018; Septiana, 2018; Silwal & Napit, 2019). However, this evidence is unreliable, reflected by the study of Radianto (2011), Artinah & Muslih (2011), and

Septiana (2018), failing to prove the intellectual capital impact on bank value. Additionally, Ghauri (2014) and Nureny (2019) find no effect of profitability on this value.

According to some researchers, intellectual capital affects bank profitability (Zia-ul-Haq, Sabir, Arshad, Sardar, & Latif, 2014; Isanzu, 2015; Septiana, 2018; Octavio & Soesetio, 2019; Ousama, Hammami, & Abdulkarim, 2020; Uslu, 2020). Unfortunately, these findings are not consistent. For example, the study of Radić (2018) cannot prove this influence.

By mentioning the differing stimulus, this study aims to examine and analyze two influences. Firstly, the effect of intellectual capital on bank profitability and value. Secondly, the impact of profitability on bank value. The banks utilized are from the Indonesian capital market for five years, started from 2015 until 2019.

The bank is the institution counting on the intellectual capital in their business (Mavridis, 2004). According to Janosević, Dzenopoljac, & Bontis (2013), this capital consists of humans, structure, and relation (see Table one for the detail).

Table 1: The bank intellectual capital components

Human capital	Structural capital	Relational capital
1. Knowledge and skills	1. Management procedures	1. Brand and reputation.
2. Creativity	2. strategy	2. Relationship with depositors and borrowers.
3. Capacity	3. Planning	3. Networking.
4. Capability to learn	4. Software	
5. Accountability	4. Database	
6. Devotion	5. Organizational structure	
7. Enthusiasm	6. Patents.	
8. Motivation level	7. Trademarks.	

Source: Modified from Janosević et al. (2013)

Additionally, to measure intellectual capital, the value-added intellectual coefficient by mentioning Ulum (2009) is applied. This added value is from utilized equity, human, and structure (see formulas 1a, 1b, and 1c). The banks effectively empowering them will gain a competitive advantage (Ulum, 2009) to create profits, as shown by Zia-ul-Haq et al. (2014), Isanzu (2015), Septiana (2018), Octavio & Soesetio (2019), Ousama et al. (2020), Uslu (2020), and improve its value in the capital market, as displayed by Wijaya (2012). By denoting this explanation, the first and second hypotheses can be made like this.

H₁: Intellectual capital positively affects bank profitability.

H₂: Intellectual capital positively affects bank value.

In the dividend discount model, profitability becomes one of the fundamental ratios influencing the stock price. As the profitability proxy describing company earnings power, return on assets positively affects the stock price (Natarsyah, 2000). This evidence also gets confirmed in the studies exhausting the banks as the sample, such as Ozkan et al. (2016), Obala & Olweny (2018), Septiana (2018), Silwal & Napit (2019). By denoting this explanation, the third hypothesis can be made like this.

H₃: Profitability positively affects bank value.

II. RESEARCH METHOD

2.1. Variable Definition

The first variable is intellectual capital. Moreover, this variable performs as exogenous. This capital is measured by a value-added intellectual coefficient (VAIC). By denoting Ulum (2009), the formula to calculate it can be seen in the following equations:

$$VAIC = VACA + VAHU + STVA \dots\dots\dots (1)$$

VACA or added value from capital employed is got by dividing the sum of operating profits, employee costs (EC), depreciation (D), and amortization (A) or total added value (TAV) by the total equity (see equation 1a).

$$VACA = \frac{OP+EC+D+A}{Equity} \dots\dots\dots (Equation 1a)$$

VAHU or added value from human capital is obtained by dividing TVA by employee cost (see equation 1b).

$$VAHU = \frac{OP+EC+D+A}{EC} \dots\dots\dots (Equation 1b)$$

STVA or added value from structural capital is achieved by dividing the results from subtracting employee costs from TVA by TVA (see equation 1c).

$$VAHU = \frac{TVA-EC}{TVA} \dots\dots\dots (Equation 1c)$$

The second variable is profitability. Furthermore, this variable has a position as the endogenous. By following Ghauri (2014), Zia-ul-Haq et al. (2014), Isanzu (2015), Ozkan et al. (2016), Obala & Olweny (2018), Radić (2018), Septiana (2018), Nureny (2019), Octavio & Soesetio (2019), Ousama et al. (2020), and Uslu (2020), this variable is measured by return on assets (ROA).

The third variable is the bank value. Additionally, this variable becomes endogenous. Like the firm value, the bank value can be counted by stock price (SP) by following Ghauri (2014), Hanafi (2017), and Siwal & Napit (2019). The bank stock prices are not always in the same range of value; thus, by denoting Sahabuddin dan Hadiano (2019), the logarithm natural is used. By transforming them in the logarithm natural, the residuals in equation three will be normally distributed.

2.2. Population and Samples

The banks listed on the Indonesia stock exchange from 2015 to 2019 become population in the research. According to the observation, 37 banks are consistent in this period. Hence, this number becomes the total population (TP). Moreover, the Slovin formula in equation two using 5% margin of error (me) is applied to compute the sample number (SN).

$$SN = \frac{TP}{1+TP.(me)^2} \dots\dots\dots (Equation 2)$$

By utilizing that formula, the sample number = $\frac{37}{1+37(5\%)(5\%)} = \frac{37}{1.925} = 33.87 \approx 34$. Then, 34 banks are taken by simple random sampling method, and their name is in Table 2.

Table 2: The chosen banks becoming the samples

No.	Code	The name of the bank
1.	AGRO	Bank Rakyat Indonesia Agroniaga Tbk.
2.	BABP	Bank MNC Internasional Tbk.
3.	BACA	Bank Capital Indonesia Tbk.
4.	BBCA	Bank Central Asia Tbk.
5.	BBKP	Bank Bukopin Tbk.
6.	BBMD	Bank Mestika Dharma Tbk.
7.	BBNI	Bank Negara Indonesia Tbk.
8.	BBRI	Bank Rakyat Indonesia Tbk.
9.	BBTN	Bank Tabungan Negara Tbk.
10.	BBYB	Bank Yudha Bhakti Tbk.

Table 2: The chosen banks becoming the samples

No.	Code	The name of the bank
11.	BDMN	Bank Danamon Indonesia Tbk.
12.	BEKS	Bank Pembangunan Daerah Banten Tbk.
13.	BINA	Bank Ina Perdana Tbk.
14.	BJBR	Bank Pembangunan Daerah Jawa Barat Tbk.
15.	BJTM	Bank Pembangunan Daerah Jawa Timur Tbk.
16.	BKSW	Bank QNB Indonesia Tbk.
17.	BMAS	Bank Maspion Indonesia Tbk.
18.	BMRI	Bank Mandiri (Persero) Tbk.
19.	BNBA	Bank Bumi Artha Tbk.
20.	BNGA	Bank CIMB Niaga Tbk.
21.	BNII	Bank Maybank Indonesia Tbk.
22.	BNLI	Bank Permata Tbk.
23.	BSIM	Bank Sinarmas Tbk.
24.	BSWD	Bank of India Indonesia Tbk.
25.	BTPN	Bank BTPN Tbk.
26.	BVIC	Bank Victoria Internasional Tbk.
27.	DNAR	Bank Dinar Indonesia Tbk.
28.	INPC	Bank Artha Graha Internasional Tbk.
29.	MAYA	Bank Mayapada Internasional Tbk.
30.	MCOR	Bank China Construction Bank Indonesia Tbk.
31.	MEGA	Bank Mega Tbk.
32.	NISP	Bank OCBC NISP Tbk.
33.	NOBU	Bank National Nobu Tbk.
34.	SDRA	Bank Woori Saudara Indonesia Tbk.

2.3. The method of data analysis

Based on these research intentions, a suitable method to analyze the data is the path analysis model. This model has two sub-structures, as seen in equations three and four.

$$\text{LN(SP)} = \gamma_1 \text{VAIC} + \beta_1 \text{ROA} + \varepsilon_1 \dots\dots\dots \text{(Equation 3)}$$

$$\text{ROA} = \gamma_2 \text{VAIC} + \varepsilon_2 \dots\dots\dots \text{(Equation 4)}$$

Furthermore, each residual in equations two and three (ε_1 and ε_2) is essential to be normally distributed. By denoting Ghozali (2016), the Kolmogorov-Smirnov is utilized to examine it.

III. RESULTS AND DISCUSSION

3.1. The test result of normality of residuals

Table 3 presents the normality test result of residuals, reflected by the asymptotic significance of Kolmogorov-Smirnov Z of 0.491 for the first model and 0.130 for the second model. Because both these values are above 5% as the significance level, each model residuals follow the normal distribution.

Table 3: The normality test result of the residual

Description	Residual of the first sub-structural model: LN(SP) = f(VAIC, ROA)	Residual of the second sub-structural model: ROA = f(VAIC)
Kolmogorov-Smirnov Z	0.833	1.168
Asymp. Sig. (2-tailed)	0.491	0.130

Source: Modified Output of IBM SPSS 19

3.2. The estimation result of the path analysis model

Figure 1 demonstrates the result of standardized path coefficients (γ_1 , γ_2 , β_1), including their t-statistical probability. Moreover, these probabilities are utilized to test the first, second, and third null hypotheses by comparing them with a significance level of 5%.

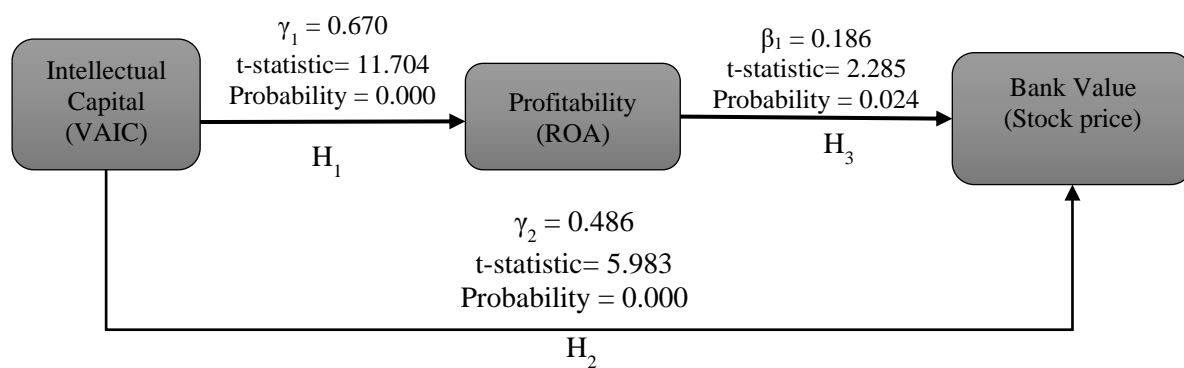


Figure 1: The estimation result of path coefficient

Source: Modified Output of IBM SPSS 19

As realized in figure one, the probability of the path coefficient of γ_1 and γ_2 is 0.000, and β_1 is 0.024. Because these values are below the significance level of 5%, the first, second, and third hypotheses are not declined. Therefore, intellectual capital positively affects bank profitability and value. Also, profitability positively influences bank market value.

3.3. Discussion

From the previous section, the data utilized backs up all alternative hypotheses in this research. By having this evidence, this research result is in line with:

- the study result of Zia-ul-Haq et al. (2014), Isanzu (2015), Septiana (2018), Octavio & Soesetio (2019), Ousama et al. (2020), Uslu (2020) for the first hypothesis declaring a positive impact of intellectual capital on bank profitability;
- the study result of Wijaya (2012) for the second hypothesis stating a positive effect of intellectual capital on bank value;
- the study result of Ozkan et al. (2016), Obala & Olweny (2018), Septiana (2018), Silwal & Napit (2019) for the third hypothesis affirming a positive impact of profitability on bank value.

From this evidence, intellectual capital is the driver of profitability creation, increasing bank value. This condition shows that the banks need to effectively use the employees to work productively by giving the training and incentive for their target achievement of lending money to borrowers and seeking money from depositors. Also, the banks are expected to provide precise career planning to motivate their employee to reach their organizational position. Related to the facilitates for their customers, banks must consider investing in the technology to realize safe, easy, and secure financial transactions.

IV. CONCLUSION AND RECOMMENDATION

This study aims to prove and analyze two matters. Firstly, the impact of intellectual capital on bank profitability and value. Secondly, the effect of profitability on bank value. Thus, to attain this purpose, statistical hypothesis testing is utilized on the bank data from the Indonesian capital market between 2015 and 2019. After doing that, the result demonstrates that:

1. Intellectual capital has a positive influence on bank profitability and value.
2. Profitability has a positive effect on bank value.

Though these research results are satisfactory, revealed from the significant positive sign of the relationship, this research still has some boundaries, i.e., the country origin of banks utilized (see point a) and the total explaining variables (see point b).

- a. As the first limitation, this study only utilizes the banks listed on the Indonesian capital market. It does not apply to the banks of various countries' stock exchange, for example, in Southeast Asia. Thus, the next scholars can combine them in their research.
- b. As the second inadequacy, this study only applies one determinant of bank profitability and two bank value determinants. By considering this issue, the next scholars can add the other determining factors related to the bank features, for instance, loan to deposits ratio (LDR), non-performing loan (NPL), and bank efficiency ratio.

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