

THE IMPACT OF INTELLECTUAL CAPITAL AND LIQUIDITY ON CAPITAL SUFFICIENCY OF BANK LISTED ON INDONESIA STOCK EXCHANGE

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Abstract

Development of bank is influenced not only by its physical capital but also by activities related to human resources such as knowledge, training and development, relationship among members of working team and by the structural capital consisting of database, organization structure, system and procedures. The combination of them is called value-added intellectual capital (VAIC) and this VAIC is ideally expected to have contribution to bank persistence. In fact, banks are always related to the high risks. Therefore, it is essential for them to have capital sufficiency related to risks. The aim of this study is to investigate the impact of intellectual capital with liquidity as control variable on bank capital sufficiency. The population used is from bank listed on Indonesia Stock Exchange. The banks are sample are picked up from population by simple random sampling method. Data obtained, furthermore, are analyzed by regression model with pooled data. This study concludes that value-added intellectual capital has a negative impact on bank capital sufficiency whereas and liquidity has a positive impact on bank capital sufficiency.

Keywords: added-value intellectual capital, bank liquidity, bank capital sufficiency.

I. Introduction

Going concern can be interpreted as the efforts conducted by firm to ensure that its usual operational activities are available now and firm will never be liquidated in the future (Riahi-Belkaoui, 2004). As the firm, bank cannot be separated from risk. To preserve its effort steadiness, every bank is required to own sufficient amount of capital established by a regulation of Bank Indonesia (BI). The regulation states that minimum CAR that is necessary to be owned by banks is 8% (Ali, 2006). Bank fulfilling this minimum CAR is able to protect itself from unexpected losses and decrease in assets (Gosh & Maji, 2014).

The existence of value-added intellectual capital (VAIC) containing physical assets, human activities, structural capital (Ulum, 2009) will not only make bank have ability to survive but also to

reach high performance (Soriya & Narwal, 2015) and to compete (Iswati, 2007; Gama & Mitariyani, 2014). In other word, bank with high amount of intellectual capital is expected to own high sufficient capital (Aprilina, 2013). This statement is proven by study documenting bank capital sufficiency is positively affected by value-added intellectual capital, measured by either value-added human capital (see Aprilina, 2013; Pertiwi & Arifin, 2017) or value-added intellectual capital coefficient (see Pertiwi & Yusuf, 2013).

Unfortunately, this ideal evidence does not always occur. On the other hand, there are some studies showing that bank capital sufficiency is negatively affected by intellectual capital measured by value-added capital employed (see Aprilina, 2013; Pertiwi & Arifin, 2017). Besides studies showing this negative effect, there are also some studies showing that bank capital sufficiency is not affected by intellectual capital measured by either value-added structural capital (STVA) (see Aprilina, 2013; Pertiwi & Arifin, 2017) or value-added intellectual capital coefficient (see Subagyo & Lahagu, 2013).

In fact, position of bank capital sufficiency is influenced not only by intellectual capital, but also bank liquidity measured by loan to deposit ratio and the influence can be positive (see Alajmi & Alqasem, 2015; El-Ansary & Hafez, 2015; Febrianto & Anggraeni, 2016) or negative (see Carindri, Filona, Putri, 2013; Nuviyanti & Anggono, 2014; Shingjergji & Hyseni, 2015; Astreanto & Riyadi, 2017; Olarewaju & Akande, 2016). Differing from these studies showing the impact, study of Sari & Kusumawardhani (2016) concludes bank liquidity, measured by loan to deposit ratio, has no impact on bank capital sufficiency.

Based on these various results of previous studies, this study is conducted. The purpose of this study is to test and analyze the impact of intellectual capital and liquidity on capital sufficiency of bank listed on Indonesia Stock Exchange. The rest sections of this paper are arranged as follows. Section two explains theoretical framework and hypothesis development. Section three presents research method. Section four displays result of classical assumption tests, results of hypothesis test, discussion, and managerial implication. Section five shows conclusion and recommendations.

II. Conceptual Framework and Hypothesis Development

This section presents the logical framework based on theory and relevant previous study results to build two hypotheses. The first is the hypothesis to explain why value-added intellectual capital can have the impact on bank capital sufficiency. The second one is the hypothesis to explain why liquidity bank can have the impact on bank capital sufficiency.

2.1. The impact of value-added intellectual capital on bank capital sufficiency.

Effective management of intellectual capital is expected to be able to reduce operational costs and maximize earnings that are got by banks. Moreover, available earnings will increase retained earnings that will add bank capital sufficiency (Rustiarini & Gama, 2012). This information is supported by study of Pertiwi & Yusuf (2013) stating intellectual capital has a positive impact on bank capital sufficiency. Based on this information, the first hypothesis is formulated as follows.

H1: Intellectual capital has a positive impact on bank capital sufficiency.

2.2. The impact of bank liquidity on bank capital sufficiency.

Following study of Carindri, et al., (2013), Nuviyanti & Anggono (2014), Alajmi & Alqasem (2015), Shingjergji & Hyseni (2015), Febrianto & Anggraeni (2016), Olarewaju & Akande (2016), Sari & Kusumawardhani (2016), Astreanto & Riyadi (2017), liquidity position in this study is measured by loan-to-deposit ratio (LDR). In addition, this ratio also reflects how good bank executes its intermediating function (Carindri et al., 2013).

Increase in LDR indicates decrease in liquidity and increase in credits or loans. By assuming that few problems exist when bank collects money from its borrowers, the amount of earnings from lending activities will get increased so that it is able to strenghteen bank capital sufficiency (Febrianto & Anggraeni, 2016). This argumentation is confirmed by study of Alajmi & Alqasem (2015), El-Ansary & Hafez (2015), as well as Febrianto & Anggraeni (2016) showing LDR has positively impact on bank capital sufficiency. Based on this information, the second hypothesis is stated as follows.

H2: LDR has a positive impact on bank capital sufficiency.

III. Research Method

This section describes some points: (1) the indicator used to measure intellectual capital and bank liquidity as well as bank capital sufficiency, (2) population, sample, and sampling method, (3) method of data analysis.

3.1. The Indicator to Measure Variables

The indicator to measure intellectual capital is value-added intellectual capital coefficient (VAIC) in the end of the year, bank liquidity is loan-to-deposit ratio (LDR) at the end of the year, and bank capital sufficiency is capital adequacy ratio (CAR).

3.2. Population, Sample, and Method of Sampling

Population and sample are banks listed on Indonesia Stock Exchange between 2011 and 2016. Banks as sample are taken from the population by simple random sampling method. Method of random sampling needs the number of sample representing the population. To accommodate this requirement, the number of working population has to be known. Based on secondary data of IDX Fact Book 2012 to 2017, the number of existing banks between 2011 and 2016 as working population (N) is 30. Moreover, the number of banks as sample (n) is calculated by Slovin formula referring to Suliyanto (2009) with 10% margin of error. Slovin formula can be seen in the first equation as follows.

$$\frac{N}{1+Ne^2} \dots\dots\dots (1)$$

Based on this formula, the number of sample = 26.47 ≈ 26 banks (rounded).

By using random number when taking sample, suggested by Hartono (2012), the names of banks obtained are as follows: (1) Bank Rakyat Indonesia Agroniaga Tbk (AGRO), (2) Bank MNC Internasional Tbk (BABP), (3) Bank Capital Indonesia Tbk. (BACA), (4) Bank Bukopin Tbk. (BBKP), (5) Bank Negara Indonesia (Persero) Tbk. (BBNI), (6) Bank Nusantara Parahyangan Tbk. (BBNP), (7) Bank Rakyat Indonesia (Persero) Tbk. (BBRI), (8) Bank Tabungan Negara (Persero)

Tbk. (BBTN), (9) Bank Danamon Indonesia Tbk. (BDMN), (10) Bank Pembangunan Daerah Banten Tbk (BEKS), (11) BPD Jawa Barat dan Banten Tbk. (BJBR), (12) Bank Mandiri (Persero) Tbk. (BMRI), (13) Bank Bumi Arta Tbk (BNBA), (14) Bank CIMB Niaga Tbk. (BNGA), (15) Bank Negara Indonesia (Persero) Tbk. (BBNI), (16) Bank Permata Tbk (BNLI), (17) Bank Sinarmas Tbk. (BSIM), (18) Bank of India Indonesia Tbk (BSWD), (19) Bank Tabungan Pensiunan Nasional Tbk. (BTPN) (20) Bank Victoria International Tbk. (BVIC), (21) Bank Artha Graha Internasional Tbk (INPC), (22) Bank Mayapada Internasional Tbk (MAYA), (23) Bank Windu Kentjana Internasional Tbk. (MCOR), (24) Bank OCBC NISP Tbk. (NISP), (25) Bank Pan Indonesia Tbk. (PNBN), (26) Bank Woori Saudara Indonesia 1906 Tbk. (SDRA).

3.3. Method of Data Analysis

The method of data analysis is regression model with pooled data. Pooled data consist of cross-sectional and time-series data. The model of regression mentioned can be seen in the second equation as follows.

$$CAR_{it} = \beta_0 + \beta_1.VAIC_{it} + \beta_2.LDR_{it} + \epsilon_{it} \dots\dots\dots(2)$$

This regression model uses least square as the method of estimation so that it is necessary for this model to fulfill classical assumption tests, such as normality, multicollinearity, heteroskedasticity, and autocorrelation (Ghozali, 2016). Referring to Ghozali (2016), to test normality, test of Kolmogrov-Smirnov is used, to detect multicollinearity, variance inflation factor value and its cut-off value of 10 are used. To test heteroskedasticity and autocorrelation, Glesjer test and runs test are respectively used.

IV. Results and Discussion

The section consists of five parts. The first part is the results of classical assumptions test. The second one is the result of estimation of regression model. The third one is the test result of hypotheses. The fourth one is discussion. The fifth one is managerial implication.

4.1. The Test Result of Classical Assumptions

Table 1 presents the results related to test of classical assumptions. This table contains four panels named Panel A, B, C and D.

- Panel A displays Kolmogorov-Smirnov normality test result on residuals. In this panel, Asymp. Sig (2-tailed) value of Z-statistic of Kolmogorov-Smirnov on unstandardized residuals is 0.017. Furthermore, this value is compare with tightened significance level (α) of 1%. Because this value is greater than 1% significance level, null hypothesis stating residuals are normally distributed is accepted. In other word, normality assumption is already fulfilled.
- Panel B shows multicollinearity detection result by utilizing analysis of variance inflation factor (VIF). In this panel, VIF value for VAIC and LDR is the same, i.e. 1.124. Moreover, this value is compared with 10 as the cut-off value (see Ghozali, 2016). Because this value is lower than 10, multicollinearity does not exist. In other word, this regression model is free from this problem.

- Panel C exhibits Glesjer heteroskedasticity test result. In this panel, probability value of t-statistic for VAIC and LDR is 0.0360 and 0.1072, respectively. Additionally, this value is compare with tightened significance level (α) of 1%. Because these values are greater than 1% significance level, null hypothesis stating absolute residuals are not affected by VAIC and LDR is accepted. In other word, regression model is free from heteroskedasticity.
- Panel D presents runs test result based on mode of residuals to prove the absence of autocorrelation. In this panel, Asymp. Sig (2-tailed) value of Z-statistic on unstandardized residuals is 0.909. Furthermore, this value is compare with significance level (α) of 5%. Because this value is greater than 5% significance level, null hypothesis, stating residuals are random, is accepted. In other word, regression model is free from autocorrelation.

Table 1. Summary of Classical Assumption Test Result

Panel A. Normality Test Result		
		Unstandardized Residual
Kolmogorov-Smirnov Z-statistic		1.544
Asymp. Sig. (2-tailed)		0.017
Panel B. Multicollinearity Detection Result		
Independent variable		VIF
VAIC		1.124
LDR		1.124
Panel C. Glesjer Heteroskedasticity Test Result: Residual = f (VAIC, LDR)		
Independent variables	t-statistic	Probability
VAIC	-2.115683	0.0360
LDR	1.620410	0.1072
Panel D. Runs Test Result		
		Unstandardized Residual
Test Value		0.13637
Cases < Test Value		155
Cases >= Test Value		1
Total Cases		156
Number of Runs		3
Z-statistic		0.114
Asymp. Sig. (2-tailed)		0.909

Source: Modified Output of IBM SPSS 20 and E-Views 6.

4.2. The Estimation Result of Regression Model

After classical assumption tests are conducted and the results are suitable for supporting use of OLS, estimating regression model is the next essential step to be executed. Furthermore, the estimation result of regression model is in Table 2 as follows.

Table 2. Estimation Result of Regression Model with Pooled Data

Dependent Variable: CAR

Method: Least Squares

Date: 02/18/18 Time: 22:10

Sample: 1 156

Included observations: 156

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.005407	0.009290	-0.581979	0.5614
VAIC	-0.003516	0.001714	-2.052014	0.0419
LDR	0.212485	0.012392	17.14654	0.0000

Source: Modified Output of E-Views 6.

4.3. The Test Result of Hypothesis

The test of each research hypothesis is done by comparing probability value of t-statistic with 5% significance level. If probability value is lower than significance level and the estimation sign is the same as formulated sign of hypothesis, research hypothesis is accepted and vice versa.

- The first hypothesis states that intellectual capital has a positive impact on bank capital sufficiency. This first hypothesis is rejected because of a negative regression coefficient of VAIC and existence of probability value of t-statistic for VAIC that is lower than 5% significance level.
- The second hypothesis states that liquidity, measured by LDR, has a positive impact on bank capital sufficiency. This second hypothesis is accepted because of a positive regression coefficient of LDR and existence of probability value of t-statistic for LDR that is lower than 5% significance level.

4.4. Discussion

The test result of the first hypothesis shows intellectual capital has a negative impact on bank capital sufficiency significantly. This fact is contrary on the explanation of the first hypothesis formulated in section II part one. This indicates intellectual capital in banking sector tends to have the high amount of cost so that it reduces bank capital. Hence, this negative impact does not support the study of Pertiwi & Yusuf (2013) stating intellectual capital has a positive impact on bank capital sufficiency.

The test result of the second hypothesis shows bank liquidity, measured by LDR, has a positive impact on bank capital sufficiency significantly. This fact supports the explanation of the second hypothesis formulated in section II part two. Hence, this positive impact supports the study of Alajmi & Alqasem (2015), El-Ansary & Hafez (2015) as well as Febrianto & Anggraeni (2016) stating that LDR has a positive impact on bank capital sufficiency.

4.5 Managerial Implication

Regarding intellectual capital give a negative contribution to bank capital; bank is expected to do two things. Firstly, bank can equip its employees with training and development enabling

them to be productive to serve its customers: borrowers and depositors so that bank is able to get competitive advantage in its marketplace. Secondly, bank can review its current organization structure and make it simpler in the future so that it can facilitate leaders and their team member to work more effectively and efficiently.

Regarding LDR give a positive contribution to bank capital; depositors are suggested selecting one of banks listed on Indonesia Stock Exchange with high capital adequacy ratio and high loan-to-deposit ratio in safe position when they want to put their money in various forms of deposit account that the bank offers.

V. CONCLUSION AND RECOMMENDATION

The purpose of this study is to test and analyze the impact of intellectual capital and liquidity on capital sufficiency of bank listed on Indonesia Stock Exchange. Based on test result of two hypotheses conducted, it can be summarized two things. Firstly, intellectual capital has a negative impact on bank capital sufficiency. Secondly, liquidity measured by loan-to-deposit ratio has a positive impact on bank capital sufficiency.

This study has some limitations such as utilizing banks listed on Indonesia Stock Exchange only and two determinants of bank capital sufficiency. Two limitations can be overcome by giving some theoretical recommendations for next researchers as follows.

1. Next researchers can combine banks that are not listed with bank that are listed on Indonesia Stock Exchange when they make the research model and treat this status of bank as moderating variable. Therefore, the next study is expected to develop existing theory about the impact of intellectual capital on bank capital sufficiency.
2. Next researchers can utilize other determinants of bank capital sufficiency, such as non-performing loan, profitability, operating expense to operating income ratio, investment policy ratio, fee-based income ratio, net open position, size of bank.

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