THE EFFECT OF SUPERVISING BOARD NUMBER, PROFITABILITY, AND BANK SIZE ON BAD LOANS OF THE BANKS ON THE CAPITAL MARKET OF INDONESIA

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ABSTRACT

Channeling credit by a bank to their borrowers is a risky activity. The failure of the borrowers in returning it is the intended risk. If this situation happens, it disturbs the bank intermediary function. Hence, the bank cannot lend money to the other parties needing it and has high bad loans. This investigation occurs to answer why these loans happen. By the information of the previous study facts, at least, three inconsistent determinants exist. They are supervising board number, bank profitability, and bank size. Based on it, this investigation attempts to test and analyze the effect of supervising board number, bank profitability, and bank size on bad loans.

The population of this study covers the banks listed in the capital market in Indonesia from 2015 until 2018. To generalize the result, we use a simple random sampling method. Furthermore, we employ the panel data regression model with a random effect and the test of t-statistic to prove three proposed hypotheses. By indicating the discussion on the statistical test result, this research infers that the supervising board number positively affects bank loans. However, profitability and bank size negatively affect.

Keywords: supervising board number, bank profitability, bank size, bad loans

INTRODUCTION

A bank exists to serve the needs of society for money, i.e., loan and the other service to create financial transactions easy. Indeed, this money comes from deposits of the third parties having the surplus (Taswan, 2010). As the institution conducts the intermediary function, the bank has to be ready to face the consequence, i.e., credit risk (Ali, 2006). This risk comes from the incapability of borrowers to return the money on time (Margaretha & Kalista, 2016; Taswan, 2010). If this condition happens, the bank is difficult to manage the cash so that it cannot lend money to other borrowers (Akbar, Moeljadi, & Djazuli, 2018). Therefore, this risk should get handled correctly to perform well (Boffey & Robson, 1995).

Regarding this issue, some determinants need to reveal. By denoting the previous study facts, as a minimum, three explanatory factors are available, like the supervising board number, profitability, and bank size. However, the contradictions among these three determinants of bank loans still happen.

Leena and Luna International, Chikusei, Japan.
(株) リナアンドルナインターナショナル, 筑西市,日本
ISSN: 2186-845X ISSN: 2186-8441 Print
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- In the effect of the supervising board number on the bad loans, the research of Sameera & Wijesena (2018) and Saha & Gosh (2019) exhibit a large number of boards needed to decrease bad loans, but the investigation of Ahmad, Guohui, Hassan, Naseem, & Rehman (2016) and Khatun & Gosh (2019) display a small number of boards to cut it.
- In the effect of profitability on these loans, the research of Messai & Jouini (2013), Dimitrios, Helen & Mike (2016), and Waqas, Fatima, Khan, & Arif (2017) finds a negative. Unfortunately, the study of Alexandri & Santoso (2015) locates a positive. Meanwhile, Kumar & Kishore (2019) do not discover any impact.
- In the effect of size on the bad loans, three results are available. They are a negative, as investigated by Curak, Pepur, & Poposki (2013), Waqas et al. (2017), Yulianti, Aliamin, & Ibrahim (2018), a positive, as studied by Margaretha & Kalista (2016), and no impact, as inspected by Alexandri & Santoso (2015) and Sameera & Wijesena (2018).

By referring to the inconsistent facts shown above, this study exists with three determinants of bad loans. In other words, this investigation wants to prove and analyze the effect of supervising board number, profitability, and bank size on bad loans by utilizing the bank listed on the capital market of Indonesia.

THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

The effect of supervising board number on bad loans

Indonesia utilizes the dual-board system (Sukamulja, 2004), as done by the Netherlands, Germany, Denmark (FGCI, 2001), and China (Farag & Malin, 2016). In this system, the board of commissioners is in charge of supervising what the board of directors does (Sukamulja, 2004). The effectiveness of this supervising function can get determined by the number of persons on this board (Florackis, 2008). The agency theory suggests the total persons should be few so that they can organize, interrelate, take the decision to solve the problems (Lipton & Lorsch, 1992). By applying this illustration in this research context, the number of the supervising board should be low to diminish bad loans, as confirmed by Ahmad et al. (2016) and Khatun & Gosh (2019). Hence, the first hypothesis in this study can stand in this way.

H_1: The number of the supervising board positively contributes to bad loans.

The effect of profitability on bad loans

The profits from good loans become the first protection before capital for a bank from the losses of the bad ones (Boffey & Robson, 1995). The bank with higher profits can absorb it; therefore, the negative relationship between profitability and bad loans exists, as shown by the study of Messai & Jouini (2013) and Waqas et al. (2017). Hence, the second hypothesis in this study can stand in this way.

H_2: Profitability negatively contributes to bad loans.

The effect of bank size and bad loans

Unlike small banks, big banks can mitigate the risk well by diversification (Ozili, 2015). Also, these banks own a large amount of credit to channel that enables them to drop their lending interest rate. By executing it, they can reduce the possibility of bad loans (Yulianti et al., 2018). This situation stands confessed by the study of Curak et al. (2013), Dimitrios, et al. (2016), Waqas et al. (2017), Yulianti et al. (2018), stating the larger size the banks have, the lower bad loans. Hence, the third hypothesis in this study can get expressed in this manner.

H_3: Bank size negatively contributed to bad loans.

RESEARCH METHOD

The kind of research

The kind of this research is quantitative; therefore, by referring to Sugiyono (2012), it attempts to test the theory or the previous study facts by formulating some hypotheses set in advance.

The variable definition

There are two kinds of variables in this research. The first is the dependent variable: bad loans, determined by gross non-performing loans (NPL) at the end of the year. This measure tracks Curak et al. (2013), Messai & Jouini (2013), Alexandri & Santoso (2015), Ahmad et al. (2016), Dimitrios et al. (2016), Margaretha & Kalista (2016), Waqas et al. (2017), Aliamin et al. (2018), Yulianti et al. (2018), Sameera & Wijesena (2018), Saha & Gosh (2019), Khatun & Gosh (2019), and Kumar & Kishore (2019).

The second is the independent variables consisting of the supervising board number, profitability, and bank size.

a. By denoting Sameera & Wijesena (2018), Saha & Gosh (2019), Ahmad et al., (2016), and Khatun & Gosh (2019), the supervising board number (SBN) gets quantified by total individuals in this position of the bank at the end of the year.

b. By tracking Messai & Jouini (2013), Dimitrios et al. (2016), Waqas et al. (2017), Alexandri & Santoso (2015), and Kumar & Kishore (2019), the profitability gets quantified by the return on assets (ROA) of the bank at the end of the year.

c. By referring to Curak et al. (2013), Waqas et al. (2017), Yulianti et al. (2018), Aliamin et al. (2018), Margaretha & Kalista (2016), Alexandri & Santoso (2015), Sameera & Wijesena (2018), the bank size gets quantified by the natural logarithm of total assets [LOG(TA)] of the bank at the end of the year.

The population and sample

The source of the population is the listed banks on the stock market of Indonesia for four years, started from 2015 until 2018, in which the relevant number is 40. Furthermore, we apply the Slovin formula with the margin of error (e) of 10% in equation one to compute the total samples (n) that can represent the total population (N).

$$n = \frac{N}{1+Ne^2} \quad \text{..... (1)}$$

According to the formula in the first equation, the total samples (n) = $\frac{40}{1+40(10\%)(10\%)} = \frac{40}{1.4} =$ 28.57 ≈ 29 banks. Additionally, a simple random sampling is the sampling method to grab them, and the list of the bank names is in Table 1.

Table 1. The list of the bank names as the samples

No.	Symbol	The name of the bank
1.	AGRS	Bank IBK Indonesia Tbk.
2.	BABP	Bank MNC Internasional Tbk.
3.	BACA	Bank Capital Indonesia Tbk.
4.	BBCA	Bank Central Asia Tbk.
5.	BBKP	Bank Bukopin Tbk.

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ISSN: 2186-845X ISSN: 2186-8441 Print
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Table 1. The list of the bank names as the samples

No.	Symbol	The name of the bank
6.	BBMD	Bank Mestika Dharma Tbk.
7.	BBNI	Bank Negara Indonesia (Persero) Tbk.
8.	BBTN	Bank Tabungan Negara (Persero) Tbk.
9.	BBYB	Bank Yudha Bhakti Tbk.
10.	BCIC	Bank JTrust Indonesia Tbk.
11.	BDMN	Bank Danamon Indonesia Tbk.
12.	BEKS	BPD Banten Tbk.
13.	BJBR	BPD Jawa Barat dan Banten Tbk.
14.	BJTM	BPD Jawa Timur Tbk.
15.	BMRI	Bank Mandiri (Persero) Tbk.
16.	BNGA	Bank CIMB Niaga Tbk.
17.	BNII	Bank Maybank Indonesia Tbk.
18.	BNLI	Bank Permata Tbk.
19.	BSIM	Bank Sinarmas Tbk.
20.	BSWD	Bank of India Indonesia Tbk.
21.	BTPN	Bank BTPN Tbk.
22.	BVIC	Bank Victoria International Tbk.
23.	DNAR	Bank Oke Indonesia Tbk.
24.	INPC	Bank Artha Graha Internasional Tbk.
25.	MAYA	Bank Mayapada Internasional Tbk.
26.	MCOR	Bank China Construction Bank Indonesia Tbk.
27.	MEGA	Bank Mega Tbk
28.	PNBN	Bank Pan Indonesia Tbk.
29.	SDRA	Bank Woori Saudara Indonesia 1906 Tbk.

Source: The reprocessed secondary data of IDX Fact Books 2015, 2016, 2017, 2018, 2019

Method to analyze the data

This research operates the panel data regression model to analyze the data. In this model, there are two options: fixed or random effect. Therefore, we exploit the Hausman test to choose the best of them, as suggested by Widarjono (2013). This test has some steps. Firstly, formulating a statistical hypothesis that consists of a null hypothesis (H_0) and an alternative (Ha).

H_0: The random effect exists.
Ha: The fixed effect exists.

Secondly, obtaining the probability of the Chi-Square (χ^2) statistic based on the Hausman test for the cross-sectional random effect. Thirdly, setting the significance level (α) of 5%. Fourthly, contrasting the probability value of the χ^2 statistic to α. Finally, making the statistical inference by succeeding this rule:

i. If the probability value of the χ^2 statistic is equal to or more than α, H_0 gets accepted.
ii. If the probability value of the χ^2 statistic goes above α, H_0 gets refused.

The statistical procedure to test the hypothesis

The hypothesis test intends to refuse the null hypothesis by contrasting the probability value of the t-statistic of the regression coefficient for each determinant to the loosen significance level of 10% (α) by indicating this instruction:

- If the probability value goes beyond or is the same as 10%, the null hypothesis has to get accepted.
- If the probability value goes under 10%, the null hypothesis has to reject. Instead, the alternative has to get accepted.

RESULTS AND DISCUSSION

The statistics to describe the research variables

Table 2 informs the statistics to describe the research variables of 29 banks as the cross-sectional samples for four-year observation: 2015, 2016, 2017, and 2018. The intended statistics cover the average, the maximum, the minimum, and the standard deviation.

a. For bad loans measured by gross NPL, its average, minimum, maximum, standard deviation values are 0.036606, 0.007000, 0.158200, and 0.023513, one-to-one.
b. For supervising board number (SBN), its average, minimum, maximum, standard deviation values are 0.036606, 0.007000, 0.158200, and 0.023513, respectively.
c. For profitability measured by return on assets (ROA), its average, minimum, maximum, standard deviation values are 0.008691, -0.111500, 0.040100, and 0.024436, singly.
d. For firm size measured by the natural logarithm of total assets (ROA), its average, minimum, maximum, standard deviation values are 10.74059, 7.637075, 13.99971, and 1.648267, one by one.

Table 2. The descriptive statistics of research variables

Research Variable	GNPL	SBN	ROA	LOG(TA)
Average	0.036606	5.034483	0.008691	10.74059
Minimum	0.007000	2.000000	-0.111500	7.637075
Maximum	0.158200	11.00000	0.040100	13.99971
Std. Dev.	0.023513	2.059679	0.024436	1.648267
Observations	116	116	116	116
Cross sections	29	29	29	29

Source: The adjusted output of E-Views 6

The result of the Hausman test

Table 3 presents the Hausman test result with the probability value of the χ^2 statistic of the cross-section random of 0.0543. This value suppresses the significance level of α of 5%; therefore, the null hypothesis, declaring the random effect exists, needs receiving. This situation means estimating a panel data regression model by this effect is essential.

Table 3. The result of the Hausman test

Test Summary	Chi-Square Statistic	Degree of freedom	Prob.
Cross-section random	7.628655	3	0.0543

Source: The adjusted output of E-Views 6

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ISSN: 2186-845X ISSN: 2186-8441 Print
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The estimation result of the panel data regression model

By denoting the information from the above section, this research employs the panel data regression model by the random effect approach, as shown in Table 4.

Table 4. The estimation result of the panel data regression model with a random effect approach: The determinants of bad loans

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.060797	0.016132	3.768822	0.0003
SBN?	0.003237	0.001379	2.347825	0.0206
LOG(TA?)	-0.003279	0.001956	-1.676730	0.0964
ROA?	-0.606416	0.080450	-7.537806	0.0000
Random Effects (Cross)				
_AGRS--C	0.000164			
_BABP--C	-0.001268			
_BACA--C	-0.003512			
_BBCA--C	0.001412			
_BBKP--C	0.006315			
_BBMD--C	0.001407			
_BBNI--C	-0.001415			
_BBTN--C	-0.002336			
_BBYB--C	0.010358			
_BCIC--C	-0.007939			
_BDMN--C	0.002181			
_BEKS--C	-0.005871			
_BJBR--C	-0.001842			
_BJTM--C	0.008779			
_BMRI--C	0.001823			
_BNGA--C	-0.001861			
_BNII--C	-0.000296			
_BNLI--C	-0.000471			
_BSIM--C	0.002599			
_BSWD--C	0.007059			
_BTPN--C	-0.007389			
_BVIC--C	0.000430			
_DNAR--C	-0.001209			
_INPC--C	-0.001522			
_MAYA--C	0.002847			
_MCOR--C	-0.003761			
_MEGA--C	-6.97E-05			
_PNBN--C	-0.000206			
_SDRA--C	-0.004406			
Effects Specification				
			S.D.	Rho
Cross-section random			0.006622	0.1572
Idiosyncratic random			0.015335	0.8428
Weighted Statistics				
R-squared	0.455164	Mean dependent var		0.027703
Adjusted R-squared	0.440571	S.D. dependent var		0.020922
S.E. of regression	0.015648	Sum squared resid		0.027425
F-statistic	31.18887	Durbin-Watson stat		1.406981
Prob(F-statistic)	0.000000			

Source: The adjusted output of E-Views 6

The test result of statistical hypothesis

The regression coefficient of NSB shows a positive sign with the probability of the t-statistic of 0.0206, as displayed by Table 4. Therefore, this study refuses the first null hypothesis because the probability value is lower than α of 10%. Instead, the first alternative one declaring the supervising board number affects bad loans positively gets recognized.

Each regression coefficient of ROA and LOG(TA) shows a negative sign with the probability of the t-statistic of 0.0000 and 0.0964, respectively (see Table 4). Therefore, this study refuses the second null hypothesis and the third one because these values are lower than α of 10%. Instead, the second and third alternative ones declaring the profitability and bank size affect bad loans negatively get recognized.

Discussion

The approval of the first alternative hypothesis indicates that bad loans get positively influenced by the number of supervising boards. It means that the few persons in this position are essential for realizing this situation. By having a small size of boards, banks can reduce these loans because the president commissioner and the members can effectively coordinate the monitoring function on the directors. Consequently, this study confirms the agency theory as well as the research result of Ahmad et al. (2016) and Khatun & Gosh (2019).

The approval of the second alternative hypothesis indicates that bad loans get negatively affected by profitability. This situation confirms that the profits will be the buffering of the losses caused by these loans. Consequently, this study supports the research result of Messai & Jouini (2013) and Waqas et al. (2017).

The approval of the third alternative hypothesis indicates the bad loans get negatively caused by bank size. It means that the large banks get proven to manage the credit risk well by the diversification of their assets so that they can shrink bad loans. By having this evidence, this study affirms the study result of Curak et al. (2013), Dimitrios, et al. (2016), Waqas et al. (2017), Yulianti et al. (2018).

CONCLUSION AND RECOMMENDATIONS

This study owns the goal to test and analyze the effect of the number of supervising board, bank profitability, and bank size on bad loans of the banks listed on the Indonesia capital market between 2015 and 2018. By employing the random effect approach as the method to analyze these panel data, this research summarizes that:

a. The decrease in the supervising board number makes bad loans go down.
b. The increase in profitability and bank size make bad loans low.

Although the study shows a significant effect on three determinants of the bad loans of the banks, the adjusted R-square of the regression model is relatively small, 0.440571 for weighted statistics (see Table 4). It implies that the model cannot predict factors well affecting these bad loans yet. This circumstance opens the chance for the next researchers to add the other variables in their research model, such as foreign ownership, audit committee independence, board diversity, board independence, capital adequacy ratio, operating expense to operating income ratio, bank credit growth, loans to deposits ratio, profitability, unemployment, inflation, real GDP growth, government debt, income tax rate, and reserve ratio.

The number of years observed in this study is only four. This situation opens the opportunity for the next researchers to encompass it to be 20 years. By doing it, they can add the global crisis in 2008 by two dummy variables to test the difference of bad loans by setting the pre-crisis and post-crisis situations as the reference category and the condition during the crisis as the base category.

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ISSN: 2186-845X ISSN: 2186-8441 Print
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