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Article

The Relationship between Non-Performing Loans and Size on Leverage in Indonesia Stock Exchange

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Abstract: Today, the banking sector plays a vital role in achieving national goals for increasing the living standards of the community and supporting the running of the economy, considering its function as an intermediary institution, payment transaction, and transmission tool for monetary policy. Thus, this study seeks to examine the effect of Non-Performing Loan (NPL), Size (SIZE) on Leverage (LEV). Panel data regression is applied to achieve the proposed objective. The data collected from commercial bank companies listed on the Indonesia stock exchange (IDX) started from 2016 to 2019 with 43 banks. The result shows that NPL and SIZE positively and significantly affect LEV. In conclusion, this study has identified the relationship between Non-Performing Loans (NPL), Size (SIZE) and Leverage (LEV). Also, the studied variable indicated that NPL and SIZE significantly and positively affect LEV.

Keywords: non-performing loan; size; leverage; commercial bank.

1. Introduction

Banking has a vital role in achieving national goals related to increasing equitable living standards of the community and supporting the economy, considering its function as an intermediary institution, payment transaction organizer, and transmission tool for monetary policy. According to Law of the Republic of Indonesia Number 10 of 1998 about Banking, it stated that a business entity that collects funds from the public in the form of savings and distributes them to the public in the form of credit or other forms to improve the standard of living of the people at large. In 2008, many banks were in trouble because of bad loans. It can happen because of the competitive climate of banks competing to attract customers with easy credit terms so that banks distributing credit are not based on the principle of prudence. As it is known, the financial sector is vital for a company to improve its ability to compete for its survival.

Table 1. Cash Flow Statement for Banking Companies on the Indonesia Stock Exchange

Code	Bank Name	Profit		
		2016	2017	2018
BABP	Bank MNC International, Tbk	3.037	1,499	1,695
BBCA	Bank Central Asia, Tbk	100,319	833,377	103.311
BBKP	Bank Bukopin, Tbk	16,203	15,213	10.059
BBMD	Bank Mestika Dharma, Tbk	871,840	1.044	21.188
BDMN	Bank Danamon, Tbk	15,153	14,561	18,599
BNBA	Bank Bumi Arta	1.169	1.303	1,281
BANGA	Bank CIMB Niaga, Tbk	3.261	34,666	27,728
BNII	Bank Mybank Indonesia, Tbk	19,473	16,000	17,671
BNLI	Permata Bank, Tbk	24,155	16.597	24,941
BSIM	Bank Sinarmas, Tbk	474.451	5,820	4.719

Source: www.idx.co.id

Table 1 displays that some financial distress explained that there were unstable cash flow fluctuations in 2015-2019. One was Bank Central Asia, Tbk (BBCA) for four consecutive years, which tended to increase and decrease. Even in 2017, the company experienced a very Drastic Increase, and then Bank Mestika Dharma, Tbk (BBMD) experienced a very drastic decline in 2017. In this way, banking companies are very good at examining why some of these companies have experienced a very drastic increase or decrease in the past 5 years. One factor that detects financial distress before the company goes bankrupt is operating capacity. The level of this ratio shows how well the company's asset management is in generating output to generate profits to avoid financial distress, according to Eminingtyas (2017). Financial distress is a condition in which the company experiences delisted due to net income and negative equity book value, respectively. The company has been merged (Herdinigtyas & Almilia, 2006). Financial distress is an early symptom of company bankruptcy. Factors that detect financial distress before the company goes bankrupt. The high or low this ratio shows how well the company's asset management is in producing output in order to generate profits so as to avoid financial distress Eminingtyas (2017).

According to Christine et al (2019), theys stated that one of the main variables that affect financial distress is company size (size). Large company sizes tend to diversify more business than small companies, so in running a bankruptcy business will be smaller, and are seen as more capable of dealing with crises and vice versa, small company sizes, have fewer total assets, so that it can allow companies to experience financial conditions. financial distress. Satriana (2017) provides a definition that leverage is the amount of debt used to finance/buy company assets. Companies that have debt greater than equity are said to be companies with a high level of leverage. Leverage is an alternative funding that can be used to regulate the extent of the company's assets. Sources of company funds can be divided into two, namely internal sources of funds originating from retained earnings, company owners as reflected in the shares or ownership presentations contained in the balance sheet and external sources of funds originating from outside the company, such as debt. On the basis of previous elaborations, this study uses a quantitative method with the ratio of non-performing loans and size to leverage.

2. Literature Review

2.1. Definition of Agency Theory

Agency theory describes the relationship between two individuals with different interests, namely the principal and the agent. Principals and investors deal for the contractual relationship to run smoothly, the principal. The manager as the manager of the company is responsible for the owner which then affects the company's funding from investors or creditors. The following are the research variables, as well as the measurement scale that is built based on Agency Theory and refers to the research model according to Mutmainah (2019). According to Ruroh & Rahmawati (2016), signaling theory discusses the reasons for companies to provide information to external parties, one of which is investors.

2.2. Theory of Risk and Return

According to Jones (2000), return is yield and capital gain (loss) (Suharli, 2005). Return is the result obtained from investment (Hartono et al., 2017). A company's stock return is influenced by several fundamental factors, such as return on equity, quick ratio, leverage ratio, asset growth, accounting beta, earning variability and dividend payout. Fundamental factors are factors that affect stock beta. The purpose of investment in general is to expect greater income (return) on investments that have been made for the results to be obtained in the future and of course with the level of risk that always accompanies it. This is reflected in stock transactions.

2.3. Non-Performing Loan

Non-performing loan (NPL) comparison of non-performing loans to total loans. Bank Indonesia (BI) sets the NPL ratio at 5% (Lukman, 2003). According to Fahrul & Rusliati (2016), non-performing loans are estimated to be insufficient to repay loans where payments are in danger, so that they have not reached the target desired by the bank. Shanjaya & Marlius (2017) stated that the ratio used to measure the risk of disbursed loans by comparing bad loans with the amount of loans disbursed. Non-performing loans (NPL). Mulyono (2021) added every current bank can manage its credit according to the terms and conditions in force so that it does not cause non-performing loans. Non-performing loans are intentional factors or due to external factors beyond the control of the debtor in repaying credit.

2.4. Leverage

In this leverage ratio, there are several ratios that are used as indicators for measuring leverage based on what is described by Kashmiri & Mahajan (2014), namely the debt ratio which is often also called the debt ratio to total assets (total debt to total assets ratio).

3. Materials and Methods

This study uses the variable of ratio of non-performing loan (NPL) and size (SIZE) to leverage (LEV). Also, this research was conducted on commercial bank companies listed on the Indonesia stock exchange (IDX) with the research year starting from 2016-2019 with 43 banks. The data collected using purposive sampling, namely all banking companies listed on the IDX with predetermined conditions. The names of the banks studied were obtained from the Indonesian Market Directory (IMD). The sample criteria studied in sampling are banking companies that have gone public on the Indonesia Stock Exchange (IDX) during the research period (2016-2019), available financial report data during the study period (2016-2019), banks that researched is still operating in the research period (2016-2019). The data analyzed using panel regression and involving the classical assumptions, namely normality, heteroscedasticity, multicollinearity.

4. Results and Discussion

This study applies static panel data regression. The results of panel data regression as seen in Table 2 below:

Table 2. Results of the Three Models

Variable	Common Effect Model (CEM)		Fixed Effect Model (FEM)		Random Effect Model (REM)	
	coefficient	Sig	coefficient	Sig	coefficient	Sig
C	2.996	0.172	2.878	0.186	2.878	0.186
Non-Performing Loan (NPL)	-1.591	0.000	-2.161	0.000	-2.161	0.000
Size (SIZE)	-0.015	0.021	0.004	0.027	0.004	0.027
Leverage (LEV)	-7.491	0.000	-6.041	0.000	-6.040	0.000

Table 2 displays that all coefficients and significance values for the panel data regression model are based on the Common Effect Model (CEM), Fixed Effect Model (FEM) and Random Effect Model (REM) in this study.

Table 3. The Result of Chow Test

Effects Test	Statistics	df	Prob.
Cross-section F	1.471218	-34,100	0.0726
Cross-section Chi-square	56.37949	34	0.0093

Table 3 that the probability value in the Chow test is 0.0093. This value is below the standard error tolerance value in this study, which is 0.05. Therefore, based on the results of the chow test, the best model in this study is the Fixed effect model (FEM). Multicollinearity test aims to test whether in the regression there is a correlation between the independent variables (Independent). If the correlation matrix between the independent variables is below 0.8 then multicollinearity does not occur, whereas if the correlation between the independent variables is above 0.8 then multicollinearity occurs. The following is a matrix table of the results of multicollinearity testing in this study. Table 4 shows that this model does not show symptoms of multicollinearity. By looking at the output between the independent variables in the regression, there is no output that exceeds 0.80.

Table 4. The Result of Multicollinearity Test

Variable	NPL	SIZE	LEV
Non-Performing Loan (NPL)	1.000	-0.011	-0.007
Size (SIZE)	-0.011	1.000	-0.038
Leverage (LEV)	-0.007	-0.038	1.000

Table 4 shows that this model does not occur symptoms of multicollinearity by looking at the output between the independent variables in the regression there is no output that exceeds 0.8.

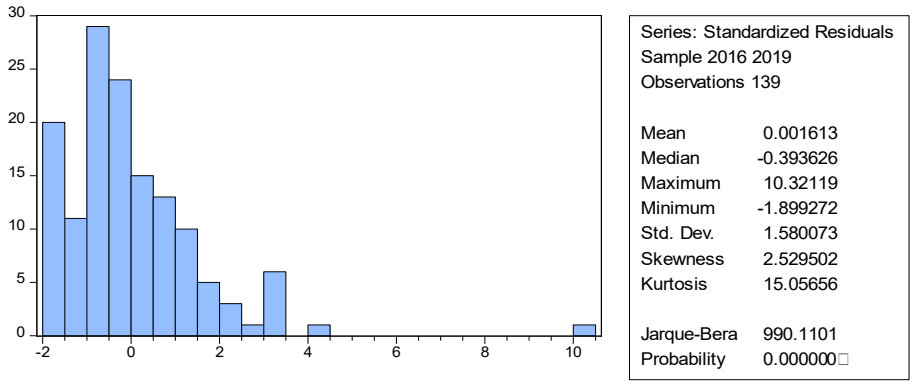

Figure 1. The Result of Normal Distribution

Figure 1 captures the Jarque-Bera test value is 990.1101 and the probability value is 0.000000 where this value is below the standard error tolerance value (5%). The heteroscedasticity test aims to test whether in the regression model there is an inequality of variance and residuals from one observation to another, if the variance of the residuals from one observation to another is fixed then it is called homoscedasticity, and if it is different, it is called heteroscedasticity (Ghozali, 2012). Table 5 describes all independent variables in the Glajser test are above 0.05. However, the correlation between experiencing multicollinearity problems is because the correlation matrix is smaller than 0.05.In addition, the autocorrelation test aims to examine whether or not there is a correlation between the residual in period t and the error in period t-1. Ghozali (2012) states that a good regression model is a model that does not have autocorrelation. The autocorrelation test can be seen from the value of *Durbin Watson*in this research. The value of Durbin Watson in this study is 1.693488 and the number of samples is 40 (n), the number of independent variables is 2 (k=2), then the Durbin-Watson value, DW 1.693488 greater than the upper limit (du) 1.6000 and less (dl) 1.3908, with the table value at a significance level of 5%, it can be concluded that there is no autocorrelation in this regression model, or the calculation can be concluded that the DW value lies in test area with an upper limit value (du) of 1.6000 and a lower limit (dl) of 1.3908 (see Table 6).

Table 5. The Result of Heteroscedasticity Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	22.579	5.336	4.232	0.000
NPL	0.325	0.325	0.998	0.320
SIZE	-7.459	2.955	-2.524	0.112
LEVERAGE	3.131	6.872	0.456	0.649
Effects Specification				
			SD	Rho
Cross-section random			11.09357	0.2682
Idiosyncratic random			18.32365	0.7318

Multiple regression (panel) model is a statistical test model that aims to analyze the effect of the independent variable on the dependent variable. On the basis of the model selection above, the best model is Random Effect Model (REM). The results of panel data regression with the Random Effect Model (REM) are as follows:

Table 6. The Result of Hypothesis Testing

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	24.371	7.220	3.376	0.001
NPL	0.403	0.414	2.973	0.000
SIZE	5.948	3.085	1.928	0.047
R-squared	0.210	Mean dependent var		9.579
Adjusted R-squared	0.380	SD dependent var		21.878
SE of regression	21.920	Sum squared residual		94176.490
F-statistics	7.473	Durbin-Watson stat		1.693

Table 6 displays the result of hypothesis testing. This study found that NPL and SIZE have significant effect on LEV. NPL regression coefficient is 0.403, std deviation is 0.414, t-stat is 2.973 and sig. 0.000. It means that assuming the NPL increases 1 percent. Then, the LEV will increase as much as 40.3 percent. Besides that, SIZE has a positive effect on LEV. The regression coefficient of SIZE is 5.948, std. deviation is 3.085, t-statistics is 1.928 and sig. at 0.047. It means that assuming the SIZE increases 1 percent. Then, the LEV will increase as much as 0.05948 percent.

5. Conclusions

This study has identified the relationship between Non-Performing Loan (NPL), Size (SIZE) and Leverage (LEV). Also, the studied variable indicated that NPL and SIZE have a significant positive effect on LEV.

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References

Christine, D., Wijaya, J., Chandra, K., Pratiwi, M., Lubis, M. S., & Nasution, I. A. (2019). Pengaruh profitabilitas, leverage, total arus kas dan ukuran perusahaan terhadap financial distress pada perusahaan property dan real estate yang terdapat di bursa efek indonesia tahun 2014-2017. *Jesya (Jurnal Ekonomi Dan Ekonomi Syariah)*, *2*(2), 340–350.

Eminingtyas, R. (2017). *Pengaruh ukuran perusahaan, likuiditas, leverage, Sales growth dan operating capacity terhadap Financial distress pada perusahaan Manufaktur (terdaftar di BEI)*. STIE Perbanas Surabaya.

Fahrul, M., & Rusliati, E. (2016). Credit risk, market risk, operational risk and liquidity risk on profitability of banks in Indonesia. *Trikonomika*, *15*(2), 78–88.

Hartono, M., Santoso, A., & Prayogo, D. N. (2017). How Kansei Engineering, Kano and QFD can improve logistics services. *International Journal of Technology*, *8*(6), 1070–1081.

Herdinigtyas, W., & Almilia, L. S. (2006). Analisis rasio CAMEL terhadap prediksi kondisi bermasalah pada lembaga perbankan perioda 2000-2002. *Jurnal Akuntansi Dan Keuangan*, *7*(2), pp-131.

Jones, A. J. (2000). *Game theory: Mathematical models of conflict*. Elsevier.

Kashmiri, S., & Mahajan, V. (2014). Beating the recession blues: Exploring the link between family ownership, strategic marketing behavior and firm performance during recessions. *International Journal of Research in Marketing*, *31*(1), 78–93.

Lukman, D. (2003). *Manajemen Perbankan*. Ghalia Indoesia.

Mulyono, K. B. (2021). Decision Model for Saving Stocks Based on TPB and Financial Literacy. *Dinamika Pendidikan*, *16*(1), 94–102.

Mutmainah, M. (2019). *Persepsi Guru Man Rejang Lebong Dan Guru Sman 2 Rejang Lebong Terhadap Bank Syariah Di Kota Curup*. IAIN Curup.

Ruroh, F. M., & Rahmawati, D. (2016). Pengaruh Pergantian Manajemen, Kesulitan Keuangan, Ukuran Kap, dan Audit Delay terhadap Auditor Switching Studi Kasus pada Perusahaan Manufaktur yang Terdaftar di Bursa Efek Indonesia Tahun. *Nominal: Barometer Riset Akuntansi Dan Manajemen*, *5*(2), 68–80.

Satriana, G. C. (2017). *Pengaruh Likuiditas, Petumbuhan Penjualan, Efisiensi Modal Kerja, Dan Leverage Terhadap Profitabilitas (Studi Kasus Pada PT. Kereta Api Indonesia (Persero) Tahun 2008-2014)*. Universitas Mercu Buana Yogyakarta.

Shanjaya, A. R., & Marlius, D. (2017). Peranan Laporan Keuangan Dalam Kebijaksanaan Pemberian Kredit Kepada Calon Nasabah Pada PT. BPR Batang Kapas. In *Bank dan Lembaga Keuangan Lainnya* (Vol. 478, pp. 1–12).

Suharli, M. (2005). Studi empiris terhadap dua faktor yang mempengaruhi return saham pada industri food & beverages di bursa efek jakarta. *Jurnal Akuntansi Dan Keuangan*, *7*(2), 99–116.