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The Effect of Bank Capacity and Loan to Deposit Ratio on Profitability and Credit Risk

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Abstract

This research aims to analyze the effect of bank scale and Loan to Deposit Ratio toward profitability within the credit risk as moderating variable in banking companies that listed on 2014-2018 Indonesia Stock Exchange. The population of this research include of banking companies that has listed on 2014-2018 Indonesia Stock Exchange. The sampling technique used purposive sam-pling, in order to obtain 28 companies within 5 years of observations to 140 observations. The data analysis used Statistical Package for Social Sciences (SPSS) version 25. The data analysis technique was done by residual test. The results of this research showed that bank scale has posi-tive and significant influence on profitability, loan to deposit ratio has no influence on profitabil-ity, the risk of bank is unable to moderate the effect of bank scale on profitability and the risk of bank is unable to moderate the effect of loan to deposit ratio on profitability. The scale of bank and loan to deposit ratio can explain the profitability of 27.3% while the other 72.7% was ex-plained by other variables outside of study. It is recommended for companies to increase supervi-sion of asset management, thus the scale of bank will be better and maintain the balance of LDR based on Indonesian Bank regulation number 15/ 7/ PBI / 2013 Article 10 of 78-92% with the aim of increasing profitability.

Keywords: *Bank Scale; Loan to Deposit Ratio; Credit Risk; Profitability*

Introduction

Nowadays, banking world was experiencing quite sharp competition which caused every bank competitive to increase thir profitability. Bank profitability can be measured by the profit which known as *Return on Assets*. Based on the view of banking companies, *Return on Assets* used as ratio analysis of company's ability to manage the assets. According Sudaryono (Sudaryono, 2015) Profitability ratio is a financial ratio to measure company's potential income. This ratio explains how successful a company in its business through information about the earned profits. For small companies, this ratio shows how efficient the management of company is.

The main activity of banking is inseparable from channeling funds to the public which known as *loan to deposit*. Banks that distributed their funds really well are able to generate higher levels of profit. Banks that have a high *Loan to Deposit* Ratio, will be able to obtain the higher the profits. According

Kasmir (2014), *Loan to Deposit Ratio* is the ratio to measure composition on the amount of credit extended compared to the amount of public funds and capital used.

The standard of bank is the main focus of attention where the bank is able to describe the economic condition of the banking company and the prospects for future growth in a better way. The standard of Banks can be measured by the owned total assets. According to Sartono (Sartono, 2012), well-established companies will find ieasier to obtain any funds in capital market compared to smaller companies. Because of those opportunities, a bigger company has a bigger flexibility.

According to Kasmir (Kasmir, 2014) Profitability ratio is a ratio to assess the company's ability of seeking profits. This profitability ratio also provides a measure of company management effectiveness. This is indicated by the profit generated from sales and investment income. the total of *return on assets* can be counted by the formula of *Return on Assets* = (Profit before tax / Total assets) x 100% (Harmono, 2011).

Latumaerissa stated that *Non Performing Loan* is an indicator of the progresslevel of commercial bank. Because the amount of NPL indicates the inability of general bank in the assessment process up to the disbursement of credit to the debtor indicated the inability of general bank on the assessment process and the disbursement of credit to debtor (Latumaerissa, 2014). According to Kasmir (Kasmir, 2014), NPL ratio can be formulated as: Non Performing Loan = (Bed Debts/Total Loans) x 100%.

According to Sunyoto (2013), the quality of company can be seen from the total assets of company. Assets are the future economic benefits that expected to be received by business entity as a result of past transactions. The assets have the main characteristic that has possibility of benefits in the future. The control variable that often used is logarithm size used logarithm (log) of natural assets. Bank Standard = Ln Total Assets (Rodoni & Ali, 2014).

Loan to Deposit Ratio is the ratio that states how far the bank has used depositors' money for its customers (Frianto, 2012). While other opinion stated that to measure the scale of company, investors observe the scale of firm (Sunyoto, 2013). The reason investors choose larger company is because usually larger company have good management and good company performance. By those, investor expected to obtain the higher benefit.

Credit risk was chosen as moderating variable because the main function of banks is to extend credit. In credit channeling, the bank will not be separated from the matter of credit risk. Thus, it can be predicted that high credit risk will have an impact on capital adequacy, credit distribution and company scale and the bank profitability will decrease. *Non Performing Loan* Shows that the problem arises as a result of output contraction on one side and an increase in company's debt will be burdened due to the increase interest rates (Umam, 2016).

The objectives of this research are to determine, test and analyze the effect of bank scale and *Loan to Deposit* Ratio on profitability of banking companies that listed on Indonesia Stock Exchange for 2014-2018 period, and credit risk that moderates bank scale and Loan to Deposit Ratio toward profitability of banking companies that was listed on Indonesia Stock Exchange for the period of 2014-2018.

Research Hypothesis

H1. Bank scale has an effect on profitability of banking companies that listed on 2014-2018 Indonesia Stock Exchange for the period.

H2. *Loan to Deposit Ratio* affects the profitability of banking companies listed on 2014-2018 Indonesia Stock Exchange.

H3. Credit risk moderates bank scale on profitability of banking companies that listed on 2014-2018 Indonesia Stock Exchange.
H4. Credit risk moderates *Loan to Deposit Ratio* against profitability in banking companies that listed on 2014-2018 Indonesia Stock Exchange.

Research Methodology

Population is a generalization área that consist of objects/ subjects that have certain qualities and characteristics and determined by researcher to study and make a conclusions. The sample is part and characteristics of the population (Sugiyono, 2016). Population in this study was 45 banking companies that listed on 2014-2018 Indonesia Stock Exchange.

This research used quantitative research approach. According to Sugiyono (2016) Quantitative research can be defined as research method that used to examine particular population or sample, sampling techniques are generally carried out randomly, data collection uses research instruments, and data analysis technique uses quantitative / statistical in order to test predetermined hypotheses.

The data source of this research is secondary data obtained from the financial statements of banking companies that listed on 2014-2018 Indonesia Stock Exchange inside the website www.idx.co.id

This research uses Classical Assumption test. There are four kinds of tests in classical assumption that included:

1. Normality Test
2. Multicollinearity Test
3. Autocorrelation Test
4. Heteroscedasticity Test

According to Ghozali (2018) Moderating variables are independent variables that strengthen or weaken the relationship between other independent variables and the dependent variable. “The coefficient determination (R2) measures how far the model's ability to explain the variation in dependent variable.” Significance test of each regression coefficient is needed to determine whether the significant effect of each independent variable (X) on the dependent variable (Y) is significant (Anwar, 2016).

Result and Discussion

Descriptive Analysis

Descriptive analysis was carried out in order to assess the characteristics of data. In this research, descriptive analysis was carried out through Minimum, Maximum, Mean, and Standard Deviation values.

Table 1 Decriptive Analysis

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
UK	140	28.27	34.80	31.6387	1.70836
LDR	140	42.12	146.38	85.5286	14.16890
ROA	140	0.11	3.97	1.7019	1.00434
NPL	140	0.07	4.87	1.7026	1.09632
Valid N (listwise)	140				

Based on the table above, indicates the minimum value, maximum value, mean value and standard deviation that the bank scale variable 140 total samples, within the minimum of 28,27 (Bank Mitraniaga) in 2014 and the maximum of 34,80 (Bank Rakyat Indonesia) in 2018 while the mean value is 31.6387 with a standard deviation of 1.70836.

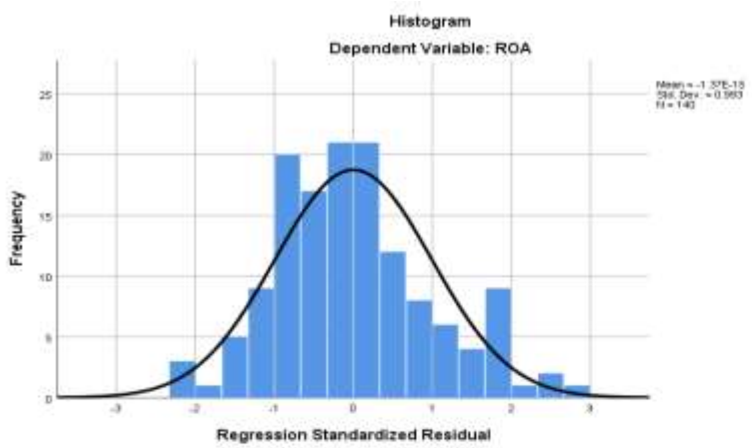
The Loan of Deposit Ratio variable has total sample size of 140, by minimum value of 42.12 at PT. Bank Mitraniaga in 2017 and maximum value of 146.38 at PT. Bank Woori Saudara Indonesia in 2018 while the mean value was 85.5286 with a standard deviation of 14.16890

The credit risk variable has total sample size of 140, by minimum value of 0.11 at PT. Bank Bukopin in 2017 and a maximum value of 3.97 at PT. Bank Central Asia in 2018 while the mean value is 1.7019 with a standard deviation of 1.00434.

The profitability variable has total sample size of 140, with minimum value of 0.07 at PT. Bank CIMB Niaga in 2017 and maximum value of 4.87 at PT. Artha Graha International in 2018 while the mean value is 1.7026 with a standard deviation of 1.09632.

Normality Test

Normality test is a test that carried out with the aim of assessing the distribution of data in groups of data or variables, whether the distribution of the data is normally distributed or not.



From the histogram, it can be concluded that the residual data is normally distributed because it can be seen from the direction of histogram which is not tilted to the right or left and forms an inverted bell.

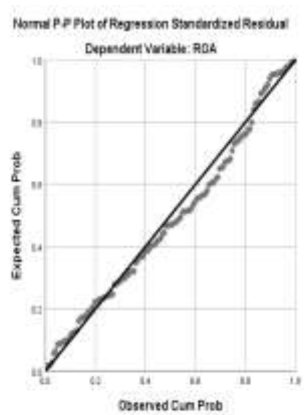


Figure 2 Normal Probability Plot

From the results of normal probability plot, it can be seen that the points spread around diagonal line, and follow the direction of diagonal line. Thus, the data is normally distributed.

The results of normality test by Kolmogorov Smirnov Test statistic can be seen as below:

Table 2 One-Sample Kolgomorov Smirnov Test

		Unstandardized Residual
N		140
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	.85623236
Most Extreme Differences	Absolute	.073
	Positive	.073
	Negative	-.050
Test Statistic		.073
Asymp. Sig. (2-tailed)		.063[c]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

Based on table 2, normality test by Kolmogorov-Smirnov statistics above, it can be seen that the variables of bank scale, *Loan to Deposit Ratio*, credit risk and profitability have met the normal distribution requirements because the sig value is 0.063> 0.05 thus the data is normal.

Multicollinearity Test

Table 3 Multicollinearity Test Results

Model		Collinearity Statistics Tolerance	VIF
1	(Constant)		
	UK	.872	1.147
	LDR	.872	1.147

Based on the table above it can be seen the tolerance value for bank scale variable, *Loan to Deposit Ratio* is higher than 0.872 from 0.10, it can be concluded that there is no multicollinearity. The VIF value obtained for bank scale variable and *Loan to Deposit Ratio* is 1.147 below 10. it can be concluded that there is no multicollinearity happen between independent variables in regression model.

Autocorrelation Test

Table 4 Autocorrelation Test Results
Summary Model

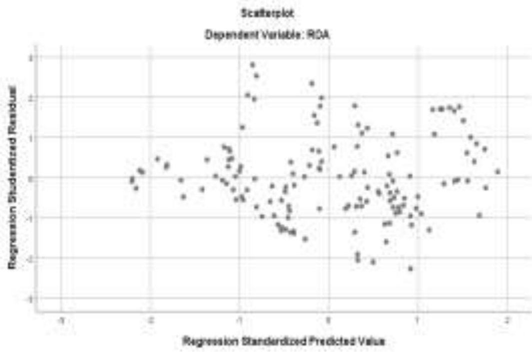
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.523[a]	.273	.263	.86246	2.156

a. Predictors: (Constant), LDR, UK
b. Dependent Variable: ROA

Based on table 4, the Durbin-Watson test results show a figure of 2.156. The method of measuring the autocorrelation test is du <dw <4 - du. The value of dl = 1.6950 and du = 1.7529 with total of 2 variables and 140 samples. The measurement result is 1.7529 <2.156 <(4-1.7529), which is 1.7529 <2.156 <2.2471, it can be concluded that there is no autocorrelation in this study.

Heteroscedasticity Test

Figure 3 Scatterplot



Based on the Figure 3 above, it can be seen that the Scatterplot graph produced by SPSS almost all the points spread randomly, did not form clear pattern and spread above or below 0 on Y axis. This means that there is no heteroscedasticity in regression model.

The Glejser test aims to regress the absolute residual value of independent variables. Meanwhile, statistical tests can be done by Glejser test in table 5 below:

Table 5 Glejser Test Result
Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-1.223	.833		-1.469	.144
	UK	.055	.028	.176	1.962	.052
	LDR	.002	.003	.044	.489	.625

a. Dependent Variable: Abs_ut

Based on table 5 above, it indicated that the significant value of bank scale variable is 0.052 and significant value of *Loan to Deposit Ratio* of 0.625 is above 0.05, it is concluded that there is no heteroscedasticity.

Determination Coefficient

Coefficient of determination test used to measure how much influence that independent variable can explain dependent variable. The higher determination coefficient, the better ability of variants. Independent variables used to explain dependent variable. The table below include the value of Determination Coefficient:

Table 6 Determination Coefficient
Summary Model[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.523[a]	.273	.263	.86246

a. Predictors: (Constant), LDR, UK
b. Dependent Variable: ROA

Based on table 6 above, it is obtained that the value of R Square (R2) determination coefficient is 0.273 or equal to 27.3% influenced by independent variables on dependent variable such as bank scale and *Loan to Deposit Ratio*. While the rest 72,7% influenced by other variables not examined on capital adequacy, the growth in number of customers and Operating Expenses to Operating Income.

Discussion

- **The Effect of Bank Scale on Profitability**

Table 7 Hypothesis test result on the effect of Bank Scale toward Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-7.872	1.358		-5.799	.000
	UK	.287	.046	.489	6.264	.000

a. Dependent Variable: ROA

Based on the explanation of tha table above, Bank scale has t-count is 6,264 and it significant value of 0,000 < 0,05, while the value of t-table (140-2=138) is around 1,977 thus the decision is H_o accepted and H_a rejected, it means that the bank scale has positive and significant influence toward the profitability of banking company that listed on 2014-2018 Indonesia stock exchange.

The analysis result indicates that, if the scale of company is bigger, then the profitability achieved tend to be greater. Large companies are relatively more stable and able to generate profits compared to small companies in terms of assets owned by companies and small companies that generally have a low level of efficiency and high financial *leverage*.

- **The Effect of *Loan to Deposit Ratio* on Profitability**

Table 8 Hypothesis Test Results on the Effect of *Loan to Deposit Ratio* toward Profitability Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-7.872	1.358		-5.799	.000
	LDR	.006	.006	.080	1.023	.308

a. Dependent Variable: ROA

Loan to Deposit Ratio has the value of t_{count} of 1,023 within the significant of 0,308 > 0,05, while t_{table} obtain 1,977. Thus, the conclusion is $t_{count} < t_{table}$ which scored 1,023 < 1,977 and the decision is H_o rejected and H_a accepted, which means *Loan to Deposit Ratio* has no influence toward profitability of banking company that was listed on 2014-2018 Indonesia stock exchange.

The results of analysis showed that, if the company distributes credit in large or small amounts, it will not affect any bank's profit. Not every bank obtains their profits from credit, there are some banks that rely on *fee based income*.

Credit Risk Moderates the Effect of Bank Scale on Profitability

Table 9 Credit Risk Hypothesis Test Moderates the Effect of Bank Scale on Profitability
Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.946	.109		8.666	.000
	ROA	-.041	.055	-.063	-.739	.461

a. Dependent Variable: ABSRes1

Based on the results of conducted statistical tests, it is known that the value of ROA coefficient is negative, which is -0.063 and has a sig > 0.05, which is 0.461. Therefore, it can be concluded that credit risk is not able to moderate the effect of bank size on profitability in banking companies that are listed on 2014-2018 Indonesia Stock Exchange.

The analysis showed that credit risk does not moderate in banking companies. it is because investors did not only look any credit risk, but more primarily observe the scale of bank which shows the company's performance. Profitability is strongly influenced by the scale of the bank because it can be seen from the results of credit risk hypothesis test that it is not able to moderate the effect of bank scale toward profitability.

Credit Risk Moderates the Effect of *Loan to Deposit Ratio* on Profitability

Table 10 Hypothesis Test Dividend Policy Moderates the Effect of Capital Structure on Firm Value
Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.948	.109		8.678	.000
	ROA	-.042	.055	-.065	-.760	.449

a. Dependent Variable: ABSRes2

Based on the results of statistical tests, it is known that the value of ROA coefficient is negative, which is -0.065 and has a sig > 0.05, which is 0.449. Therefore, it can be concluded that credit risk is unable to moderate the effect of *Loan to Deposit Ratio* on profitability in banking companies that listed on 2014-2018 Indonesia Stock Exchange for the 2014-2018.

The results of analysis showed that there are other factors that are not examined in this study such as Capital Adequacy Ratio, Net Interest Margin, and Operational Costs Operational Costs which can affect profitability.

Conclusion and Suggestion

From the result above, it can be concluded that:

Bank scale has positive and significant impact on profitability of banking companies that listed on Indonesia Stock Exchange 2014-2018 period. *Loan to Deposit* ratio did not has impact on profitability of banking companies listed on Indonesia Stock Exchange for 2014-2018.

Credit risk is unable to moderate the effect of bank scale on profitability of banking companies that listed on 2014-2018 Indonesia Stock Exchange. Credit risk is unable to moderate the effect of *Loan to Deposit* ratio on profitability of banking companies that listed on 2014-2018 Indonesia Stock Exchange.

Based on the conclusion above, there are several suggestions as explained below:

Investors who want to invest in banking companies are advised to choose companies with high scale ratios and avoid investments with low scale ratios. The higher company scale, the better its profitability will be.

For further researcher It is suggested to examine the subsectors of other banking companies, such as such as state-owned and private banking companies which listed on the Indonesia Stock Exchange, It is also suggested to examine other factors as moderating variables, such as Capital Adequacy Ratio, the number of customers growth and examine other factors which has not been examined in this study that affect profitability, such as Net Interest Margin, Operating Costs, Operating Income and others.

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