



The Effect of Size, Market Risk, Operational Risk, Liquidity Risk, and Credit Risk on Profitability in Banks in The KBMI 3 and KBMI 4 Categories 2017-2021

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ABSTRACT

This study aims to analyze the effect of firm size, market risk, operational risk, liquidity risk, credit risk on banking profitability in the category of KBMI 3 and KBMI 4 for 2017-2021. The method used is quantitative. The data processing technique used Eviews 12, namely statistical analysis and panel data regression analysis. The data is taken from financial reports at OJK and bank websites. The results obtained from this study are that the panel data regression calculation used in this study, the Fixed Effect Model (FEM) is the best model compared to other models. Partially the size value has an influence on profitability, NIM (Net interest Margin) has an influence on profitability, BOPO (Operating Costs and Operating Income) has no effect on Profitability, LDR (Loan To Deposit) has an influence on Profitability, NPL (Non Performing Loans)) has no effect on Banking Profitability in Indonesia. And simultaneously Size, NIM, BOPO, LDR, NPL have an influence on Banking Profitability in Indonesia.

1. INTRODUCTION

The economy of the Republic of Indonesia turned out to be sluggish during the Covid-19 pandemic. The pandemic, which had a direct impact on the pace of national economic growth, experienced a recession in the third quarter, to be precise, at the end of 2020. Many sectors experienced losses until the losses were too large, causing the ability to falter in economic recovery. One of the sectors exposed is the banking sector, which during the pandemic experienced its effects (bbc.com, 2020).

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Banking profitability that comes from internal factors becomes a determinant that affects bank profitability. Based on the determinants of profitability, including size, market risk, operating costs, the ratio of capital and loans to assets, credit risk, and liquidity (Anwar, 2019).

The Bank's profitability that occurred to Conventional Commercial Banks turned out to have fluctuated during the last five years which was recorded at the OJK, it was recorded that in 2017 the Profitability Ratio, namely ROA was at 2.45 then increased in the following year, 2018, namely ROA reached 2.55 . It decreased to 2.47 in 2019. Bank profitability that occurred to Conventional Commercial Banks experienced a drastic decline when the pandemic in early 2020 hit. At the end of 2020, ROA decreased by 0.88 from the previous year to 1.59. Slowly in 2021, it will increase by 0.25, which is recorded to be 1.84.

One of the factors that affect bank profitability is company size, looking at the size of a company by managing total assets. Total assets become a unified variable that is considered in assessing the performance of a bank. Seeing the strength of the bank's body can be through a reflection of every total asset owned by a company that will affect the company's profit level. Companies are also categorized into two types, namely small-scale companies and large-scale companies that can be assessed for the level of Banking Profitability (Pratama & Wiksuana, 2016).

Then Market Risk becomes the most important aspect in influencing bank profitability. Dayana & Untu (2019), Market conditions and climate by looking at various stability and instability can affect continuity and profitability in banking. By looking at the market difference between the total cost of net interest income and the mean productive assets which will later be measured by the ability of banking management to manage their productive assets, it will affect the company's profits.

BOPO or Operational Expenses on Operational Income states that the managerial ability of bank companies in managing operational costs and operating income is to see the ups and downs of banking efficiency levels (Capriani & Dana, 2016). Based on the publication on CNBCIndonesia.com (20/10/2020), Bank Indonesia as the highest authority bank assisted by the Financial Services Authority (OJK) made a policy of providing Short-Term Liquidity Loans (PLJP) for banks experiencing liquidity difficulties during the Covid-19 pandemic. to maintain the health of the financial system. The banking sector in a country's economy plays a very important role in people's lives today with its dependence and the economic conditions of the community will have an impact on credit demand and the amount of savings in living their lives during the Covid-19 pandemic.

Banks really need to analyze the risk of losses that occur in order to mitigate the company in carrying out its activities and minimize the level of company losses. The need for money management to use funds to be able to always rotate and not stagnate, the risk of loss in connection with the party as a borrower who is unable to complete or does not want to complete the obligation to repay the borrowed funds at maturity or thereafter will be a problem in the slowdown of receivables. the credit is getting worse, and can be defined by the losses obtained because the borrower is unable or unwilling to fulfill or pay its obligations when they fall due (Sukma, Saerang, Tulung, 2019).

In previous research conducted by Syafi'i and Rusliati (2016), Sari and Dewi (2019), Tui et al. (2017) show that size, credit risk, market risk, operational risk and liquidity risk affect bank profitability, then partially, size has a positive effect on profitability and credit risk does not affect bank profitability. Market risk, operational risk, liquidity risk have a positive effect on bank profitability. Research conducted by Setiawan and Hermanto (2017), Syafii and Rusliati (2016), Mosey et al., (2018) shows that simultaneously all independent variables are NPL, LDR, CAR, NIM, and BOPO have a significant effect on profitability variables in banking in Indonesia, it is proven that financial performance to generate profits is influenced by company size, credit risk, market risk, operational risk and liquidity risk.

This research is inversely proportional to research conducted by Badawi (2017), Sante et al., (2021) showing that liquidity risk with Loan to Deposit Ratio (LDR) and NPL proxies does not have a significant effect on banking profitability with ROA proxy. And in Aulia Diani Fitri (2016), Sukma et al., (2019), Capriani and Dana (2016), Supriyadi and Nugraha (2018) showed that Size, NIM, NPL, BOPO has a significant negative effect on the financial performance of banks using the ROA proxy of banking in Indonesia.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Company Size

According to (Rai Prastuti and Sudiarta, 2016), company size is also a reference in assessing the possibility of company failure as well as bankruptcy costs are a function that limits the value of the company, then large companies generally prefer to diversify compared to large scale companies. small, and have a lower probability of failing.

H1: There is a Significant Effect between Company Size on ROA.

Market Risk

According to (Mosey et.al, 2018), in market conditions by looking at the situation of stability and instability, it can have an impact on continuity in banking profits. If the situation is still in a stable and consistent state with its management or management control, it can be considered safe, but if it is in a situation that cannot be controlled, there will be problems with the company financially and non-financially using Net Interest Margin.

H2: There is a significant effect between NIM on ROA.

Operational Risk

According to Fauziah et.al, (2020), said that operational risk is influenced by various factors, including human factors, processes, procedures, systems, as well as external situations and events. It turns out that it is not only influenced by humans, but also by the good and bad quality of management by company leaders or managers who regulate. If an error occurs in a process to achieve the target due to a system error, work procedure error, or external consequences, this is considered an operational risk by using Operating Costs and Operating Income.

H3 : There is a significant effect between BOPO on ROA.

Liquidity Risk

According to the book Fundamentals of corporate financial management Mokhammad Anwar, (2019); Supitriani et al., (2020) explains that liquidity is a ratio that shows the company's ability to fulfill its obligations in the short term. If the higher the number in the ratio, it indicates that the company is more liquid and vice versa, then the lower the ratio number, the more illiquid the company is using Loan To Deposit.

H4: There is a Significant Effect between LDR and ROA.

Credit Risk

According to Dayanan and Untu, (2019), argues that credit risk, also known as default risk, is the risk arising from the failure or inability of customers to repay the loan amount obtained from the company, as well as interest, within a predetermined period using Non-Performing Loans.

H5: There is a significant effect between NPL on ROA.

Profitability

According to the Book of Fundamentals of corporate financial management Anwar, (2019), Profitability is a variable that measures the level of effectiveness that occurs in the overall management as shown by the results obtained from sales and investments in the company.

The Influence of Company Size, Market Risk, Operational Risk, Liquidity Risk, Credit Risk on Profitability

It can be explained that the independent variables (independent) are Size (X1), NIM (X2), BOPO (X3), LDR (X4), NPL (X5) These variables affect the dependent variable (dependent) namely Profitability (Y), both simultaneously nor partial.

H6: There is a Significant Effect between Firm Size, NIM, BOPO, LDR, and NPL on ROA.

3. RESEARCH METHOD

His study was designed with library research where the object is the financial statements of banking companies KBMI 3 and KBMI 4 for the 2017-2021 period which were obtained from the IDX official website (www.idx.co.id). The population is 14 with 13 samples taken. The type of data is secondary data collected through the documentation method where the analysis technique used is panel data regression test.

4. RESULTS

Panel Data Regression Analysis

The data that has been obtained is then calculated and analyzed using Eviews version 12 and Microsoft Excel in order to get more precise and faster analysis results. The following is data for calculating financial ratios, including Company Size, Market Risk (NIM), Operational Risk (BOPO), Liquidity Risk (LDR), Credit Risk (NPL), and Profitability (ROA) derived from the financial statements of banking companies contained in Indonesia Stock Exchange (IDX) for the period 2017-2021.

Table 1. Model With All Coefficients Constant Against Time And Individual / OLS.

Dependent Variable: Y?
Method: Pooled Least Squares
Date: 07/01/22 Time: 19:59
Sample: 1 5
Included observations: 5
Cross-sections included: 13
Total pool (balanced) observations: 65

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.403090	2.635166	-0.152966	0.8789
X1?	0.104456	0.130897	0.798001	0.4281
X2?	0.510368	0.076598	6.662932	0.0000
X3?	-0.038896	0.012546	-3.100173	0.0030
X4?	0.007609	0.006158	1.235512	0.2215
X5?	0.050196	0.141549	0.354622	0.7241
R-squared	0.595502	Mean dependent var		1.975846
Adjusted R-squared	0.561222	S.D. dependent var		1.081311
S.E. of regression	0.716264	Akaike info criterion		2.258229
Sum squared resid	30.26900	Schwarz criterion		2.458942
Log likelihood	-67.39245	Hannan-Quinn criter.		2.337423
F-statistic	17.37195	Durbin-Watson stat		0.505212
Prob(F-statistic)	0.000000			

Source: Data Processed by Author, 2022

The results of the panel data regression test or pooled panel data above show that the variable coefficients X1, X4 and X5 are not significant at 0.01. While the variable coefficients X2 and X3 are significant at 0.01. So the researcher concludes that X1 is not significant with a positive coefficient on Y, X2 is significant with a positive coefficient on Y, X3 is significant

with a negative coefficient on Y, X4 is not significant with a positive coefficient on Y, and X5 is not significant with a positive coefficient on Y.

The slope coefficient is constant but the intercept varies between individuals: The fixed effects model (FEM) or the Least-Squares Dummy Variable (LSDV) Regression Model.

The second test uses the FEM test, namely The Fixed Effects Model. That is a continuation of the panel data regression test using the second model. The following is the FEM model test:

Table 2. The FEM Test

Dependent Variable: Y?
Method: Pooled Least Squares
Date: 07/01/22 Time: 20:02
Sample: 1 5
Included observations: 5
Cross-sections included: 13
Total pool (balanced) observations: 65

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-27.65716	7.304501	-3.786317	0.0004
X1?	1.436865	0.369645	3.887153	0.0003
X2?	0.618165	0.066926	9.236521	0.0000
X3?	-0.056163	0.008015	-7.007601	0.0000
X4?	0.029217	0.003631	8.046004	0.0000
X5?	0.076857	0.102866	0.747153	0.4587
Fixed Effects (Cross)				
BCA--C	-0.919935			
BNI--C	-1.349809			
BRI--C	-2.523169			
BTN--C	-0.174298			
BTPN--C	-0.669049			
CIMBNIAGA--C	-0.037531			
DANAMON--C	0.489390			
MANDIRI--C	-2.024805			
MAYBANK--C	1.035938			
MEGA--C	3.195184			
OCBCNISP--C	1.341083			
PANIN--C	0.562680			
PERMATA--C	1.074321			
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.932480	Mean dependent var	1.975846	
Adjusted R-squared	0.908058	S.D. dependent var	1.081311	
S.E. of regression	0.327874	Akaike info criterion	0.837231	
Sum squared resid	5.052558	Schwarz criterion	1.439369	
Log likelihood	-9.209996	Hannan-Quinn criter.	1.074813	
F-statistic	38.18201	Durbin-Watson stat	2.196123	
Prob(F-statistic)	0.000000			

Source:Data Processed by Author, 2022

The results of the panel data regression of the Fixed Effect model show that the variables X1, X2, X3, and X4 are significant at 0.01 and Variable X5 is not significant at 0.01. The X1 coefficient is 1.4368, the X2 coefficient is 0.6181, the X3 coefficient is -0.0561, the X4 coefficient is 0.0292 and the X5 coefficient is 0.0768.

Uji Chow Test

Then the F value test by comparing the OLS and FEM models can be produced:

Table 3. F Value Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.403090	2.635166	-0.152966	0.8789
X1?	0.104456	0.130897	0.798001	0.4281
X2?	0.510368	0.076598	6.662932	0.0000
X3?	-0.038896	0.012546	-3.100173	0.0030
X4?	0.007609	0.006158	1.235512	0.2215
X5?	0.050196	0.141549	0.354622	0.7241
R-squared	0.595502	Mean dependent var		1.975846
Adjusted R-squared	0.561222	S.D. dependent var		1.081311
S.E. of regression	0.716264	Akaike info criterion		2.258229
Sum squared resid	30.26900	Schwarz criterion		2.458942
Log likelihood	-67.39245	Hannan-Quinn criter.		2.337423
F-statistic	17.37195	Durbin-Watson stat		0.505212
Prob(F-statistic)	0.000000			

Source: Data Processed by Author, 2022

The results show that the stated F value is 19.547401 and is significant because prob. Amounted to 0.0000. So it can be concluded that the FEM (Fixed Effect) model is better than the usual Pooled OLS model.

All coefficients vary for each individual company with the REM test (Random Effect)

Table 4. REM Test

Dependent Variable: Y?
Method: Pooled EGLS (Cross-section random effects)
Date: 07/01/22 Time: 20:38
Sample: 1 5
Included observations: 5
Cross-sections included: 13
Total pool (balanced) observations: 65
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.179408	3.303580	-1.870519	0.0664
X1?	0.355806	0.166133	2.141697	0.0364
X2?	0.476826	0.048761	9.778806	0.0000
X3?	-0.047120	0.007316	-6.441068	0.0000
X4?	0.026523	0.003550	7.471027	0.0000
X5?	0.057193	0.096915	0.590131	0.5574
Random Effects (Cross)				
BCA--C	0.444621			
BNI--C	-0.307626			
BRI--C	-0.558653			
BTN--C	-0.371320			
BTPN--C	-1.307520			
CIMBNIAGA--C	-0.327205			
DANAMON--C	0.011474			
MANDIRI--C	-0.337861			
MAYBANK--C	0.155216			
MEGA--C	1.799041			
OCBCNISP--C	0.553620			
PANIN--C	0.067898			
PERMATA--C	0.178316			

Effects Specification			
		S.D.	Rho
Cross-section random		0.595581	0.7674
Idiosyncratic random		0.327874	0.2326
Weighted Statistics			
R-squared	0.674887	Mean dependent var	0.472341
Adjusted R-squared	0.647335	S.D. dependent var	0.622563
S.E. of regression	0.369713	Sum squared resid	8.064570
F-statistic	24.49504	Durbin-Watson stat	1.383053
Prob(F-statistic)	0.000000		
Unweighted Statistics			
R-squared	0.447411	Mean dependent var	1.975846
Sum squared resid	41.35076	Durbin-Watson stat	0.269734

Source: Data Processed by Author, 2022

From the REM output above, it can be concluded that the estimation results of REM differ greatly from FEM for the coefficient value and its significance. There are X2, X3, and X4 which are significant then X1 and X5 are not significant. With a REM value of -6.179408 and a significant value of 0.0664 then the number 0.444621 shows how much the DVLA random error component differs from the common intercept value.

Panel Data Results Using Hausman Test

Then to determine between the Fixed Effect Model and the Random Effect Model, it can be done using the Hausman Test. The basis for making Hausman test decisions are:

H0 : p-value > 0.05 (Selecting REM)

H1 : p-value < 0.05 (Choose FEM)

Table 5. Hausman Test

Correlated Random Effects - Hausman Test

Pool: POOL01

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	21.018395	5	0.0008

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
X1?	1.436865	0.355806	0.109037	0.0011
X2?	0.618165	0.476826	0.002101	0.0020
X3?	-0.056163	-0.047120	0.000011	0.0057
X4?	0.029217	0.026523	0.000001	0.0004
X5?	0.076857	0.057193	0.001189	0.5685

Cross-section random effects test equation:

Dependent Variable: Y?

Method: Panel Least Squares

Date: 07/04/22 Time: 22:00

Sample: 1 5

Included observations: 5

Cross-sections included: 13

Total pool (balanced) observations: 65

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-27.65716	7.304501	-3.786317	0.0004
X1?	1.436865	0.369645	3.887153	0.0003
X2?	0.618165	0.066926	9.236521	0.0000
X3?	-0.056163	0.008015	-7.007601	0.0000
X4?	0.029217	0.003631	8.046004	0.0000
X5?	0.076857	0.102866	0.747153	0.4587

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.932480	Mean dependent var	1.975846
Adjusted R-squared	0.908058	S.D. dependent var	1.081311
S.E. of regression	0.327874	Akaike info criterion	0.837231
Sum squared resid	5.052558	Schwarz criterion	1.439369
Log likelihood	-9.209996	Hannan-Quinn criter.	1.074813
F-statistic	38.18201	Durbin-Watson stat	2.196123
Prob(F-statistic)	0.000000		

Source: Data Processed by Author, 2022

From the results of the Hausman test, it can be seen that the p-value ($0.0008 < 0.05$) can be made a decision that the null hypothesis is rejected, which means choosing the Fixed Effect Model. So the panel data regression analysis in this model is to test the extent of the influence of the X variable, namely Size, NIM, BOPO, LDR, NPL on the Y variable, namely Firm Value. The estimation model used in the regression model in this study uses the Fixed Effect Model.

The Effect of Firm Size on Profitability (H1)

Based on the results of the analysis above, the first hypothesis in this study shows that the firm size variable has a t-count value of 3.887153 and a probability value (size) which is $0.0003 < \alpha 0.05$. So it can be partially concluded that the size variable has a positive and significant effect on the profitability of banking in Indonesia.

The Effect of NIM on Profitability (H2)

Based on the results of the analysis above, the second hypothesis in this study shows that the Market Risk or Net Interest Margin variable has a t-count value of 9.236521 and a probability value (NIM) of $0.0000 < \alpha 0.05$. So it can be partially concluded that the NIM variable has a positive and significant effect on profitability.

Effect of BOPO on Profitability (H3)

Based on the results of the analysis above, the third hypothesis in this study shows that the variable Operational Risk or BOPO (Operating Costs and Operating Income) has a t value of -7.007601 and a probability value (BOPO) of $0.0000 < \alpha 0.05$. So it can be partially concluded that the BOPO variable has a significant negative effect on profitability.

Effect of LDR on Profitability (H4)

Based on the results of the analysis above, the fourth hypothesis in this study shows that the Liquidity variable (Loan To Deposit) has a t-count value of 8.046004 and a probability value (LDR) of 0.0000 $\alpha 0.05$. So it can be partially concluded that the LDR variable has a positive and significant effect on profitability.

The Effect of NPL on Profitability (H5)

Based on the results of the analysis above, the fifth hypothesis in this study shows that the Credit Risk (Non Performing Loan) variable has a t-count value of 0.747153 and a probability value (NPL) of 0.4587 $\alpha 0.05$. So it can be partially concluded that the NPL variable has no effect on profitability.

Effect of Size, NIM, BOPO, LDR, NPL on Profitability (H6)

Based on the results of the analysis above, the sixth hypothesis in this study shows that the results obtained from the F test (simultaneously) show that 38,18201 and the probability value is 0.0000 less than 0.05 (0.0000 $\alpha 0.05$). So it means that at the level between Size, NIM, BOPO, LDR, NPL together (simultaneously) affect Profitability, meaning that the independent variables jointly affect the dependent variable where banking profitability is highly dependent on the size variable, NIM, BOPO, LDR, and NPL.

5. CONCLUSION

The conclusion is that the test in this study uses the best model, namely the Fixed Effect Model (FEM) because based on the results of the Chow Test and Hausman Test, the best selected model is the Fixed Effect Model (FEM). The results of data processing are obtained in the best model, namely the Fixed Effect Model (FEM), then Size, NIM, BOPO, LDR, NPL together (simultaneously) have a significant influence on Banking Profitability in Indonesia. The results of data processing are obtained in the best model, namely Fixed Effect Model (FEM) then Size has a significant effect on Profitability, NIM (Net Interest Margin) has a significant effect on Profitability, BOPO (Operating Costs and Operating Income) has no significant effect on Profitability, LDR (Loan To Deposit) has a significant effect on Profitability, NPL (Non Performing Loan) has no effect on Banking Profitability in Indonesia.

The researcher gives some suggestions, To companies that are related to banking companies, they can better maintain financial performance stability by paying attention to this independent variable and increasing the independent variable because it is very influential in maintaining the consistency of increasing banking profits. To Investors, When making decisions to invest in related banking, it is necessary to pay attention to the factors of company size, NIM, BOPO, LDR, and NPL of the banking sector because they have a significant influence on the financial performance of banks in order to determine the optimal investment. For further researchers, it is recommended to find and add other independent variables outside of this variable, in order to complete a more significant effect in further research, and to try to increase the sample by using companies other than banking companies in the KBMI 3 and KBMI 4 categories.

LIMITATION

Due to the limitations of the author, this study still has several weaknesses and has not used all research variables in financial banking companies listed on the IDX. Therefore, the authors hope in further studies to add or replace variables to further improve in the future, such as activity, company value or adding years of research, for example 10 years. By

changing the variables or adding years, it is hoped that maximum research results will be obtained.

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