

## **Modelling Determinants of Return on Equity and Implications for Dividend Payout**

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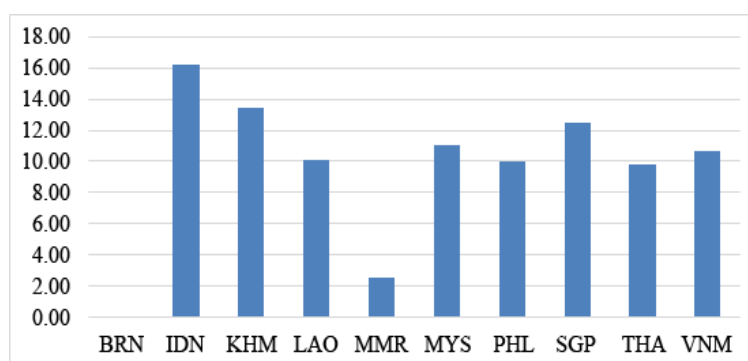
### **ABSTRACT**

*The purposes of this study is to examine and get exact proof on the effect of CAR, NPL, OER, LDR on ROE and its implications for DPR. This study uses quantitative methods. Path analysis is utilized to demonstrate the connection between the factors considered. The results of the analysis show several findings including CAR has negative effect on ROE. NPL has no effect on ROE. OER has negative effect on ROE. LDR has negative effect on ROE. ROE has positive effect on the DPR. ROE mediates the effect of CAR on DPR. ROE is can't to mediate the effect of the NPL on the DPR. ROE mediates the effect of OER on the DPR. ROE mediates the effect of the LDR on the DPR.*

**Keywords:** return on equity; dividend payout ratio; capital adequacy ratio; non performing loan; operational efficiency ratio; loan to deposit ratio

### **INTRODUCTION**

Banks assume a significant part in the monetary and financial solidness of a country, most countries apply a high level of regulation on banks. Banks are required to be in a healthy condition in order to carry out their functions properly. Banking health is reflected by good financial performance, because financial performance is an indicator of all activities that occur in the bank. Assessment of the level of performance and bank soundness can be measured using some ratios, such as return on equity (ROE). This analysis is utilized to gauge the bank's performance to control the available capital for raising earning after tax. The more prominent the ROE, the more prominent the degree of benefit accomplished by financial institutions so the chance of a bank in upset conditions is getting more modest. Figure 1 underneath depicts the ROE in the ASEAN nations. At the point when seen in general, ROE in Indonesia is the most noteworthy contrasted with ROE in other ASEAN nations.



Source: Global Financial Development Database-World Bank (2023)

**Figure 1**  
**Average Bank Return on Equity 2001-2020**

Based on Global Financial Development data published by The World Bank, Figure 1 shows that the average ROE Indonesian's banking has been the highest among other ASEAN countries in the last twenty years. The average ROE of Indonesian banking from 2001 to 2020 was 16.26%, then Cambodia was 13.42%; Singapore was 12.50%; Malaysia 11.01%; Vietnam 10.63%; Laos 10.09%; Philippines 10.02%; Thailand 9.79%; Myanmar 2.49%; but there is no ROE data for Brunei Darussalam banking. ROE is significant for a country, with a high ROE making Indonesia an appealing business sector, since turning clients' cash in Indonesia guarantees the best benefit. Yet,

then again banks face various dangers to maintain their business, and how well these dangers can be overseen and perceived is the primary driver behind bank productivity. A portion of the fundamental risks looked by banks incorporate macroeconomic, credit, notoriety, market, liquidity and operational risks. Therefore, banks can find out the determinants of ROE with the CAMEL Rating System, namely by measuring financial ratios such as the capital adequacy ratio (CAR), non performing loans (NPL), operational efficiency ratio (OER), loan to deposit ratio (LDR) and implications for the dividend payout ratio (DPR). The aim for this study is to reveal the correlation and significance between the ratios related to banking risk and ROE and their implications for the DPR.

The literature review in this study is partitioned into two sections. The first part is the concept and correlation between variables and the Codification of Bank Indonesia Regulations on Institutional Assessment of Bank Soundness published by Bank Indonesia (2012). The second section highlights several studies that have been carried out previously for consideration of the development of the proposed hypothesis.

#### *Return on Equity*

ROE is one of the most important financial fundamental indicators in the Indonesian capital market. ROE is measured by divided net income with shareholder’s equity (Kasmir, 2014). ROE shows how well the company is generating returns on investment from shareholders. ROE measures the net profit generated by the company based on the capital contributed by the shareholders. ROE has a close relationship with dividend distribution decisions. High ROE will bring about high DPR as well. Studies carried out by Melani (2022); Rita et al. (2022), Ompusunggu et al. (2022) and Edeltrudis et al. (2022) found that ROE had a positive effect on the DPR, while the research conducted by Medyawati and Yunanto (2022); Sembiring et al. (2022); Saputra et al. (2022); and Napitupulu et al. (2022) found that ROE had no effect on the DPR.

**Table 1**  
**ROE Rating Assessment Criteria**

<b>Rating</b>	<b>Category</b>	<b>Assessment Criteria</b>
1	Very healthy	ROE > 23%
2	Healthy	18% < ROE ≤ 23%
3	Healthy enough	13% < ROE ≤ 18%
4	Less healthy	8% < ROE ≤ 13%
5	Unhealthy	ROE ≤ 8%

Source: Bank Indonesia Circular Letter Number 13/24/DPNP (2011)

#### *Dividend Payout Ratio*

The DPR ratio concludes the value of after-tax earnings that paid to shareholders as dividends. The significant level of dividend payout reflects the company has a good performance, so it can increase investor confidence. Since Miller & Modigliani (1961) published their writings on dividends, many theories have developed that explain dividends like the clientele effect (Desai & Jin, 2011), the agency theory of FCF (Jensen, 1986), the signalling theory (Miller & Rock, 1985), and the catering theory (Baker & Wurgler, 2004). The determinants of dividends have always been an enigma (Black, 1976). This study uses the variables ROE, CAR, NPL, OER and LDR as suspected to influence the DPR.

#### *Capital Adequacy Ratio*

CAR also known as the risk-weighted asset-to-risk ratio. The CAR ratio indicates that the bank has sufficient capital to protect depositors' money. In general, banks with a high CAR ratio are considered healthy and able to meet their financial obligations, so that they are able to generate profits. High CAR will bring about high ROE as well. Research conducted by Putra (2022), Sebayang (2020) and Revita (2018) found that CAR has a positive effect on ROE, but studies carried out by Sudiyatno et al. (2021), Chandrasari (2021), Latifah and Kusjono (2021), Maguni et al. (2020) and Vellanita et al. (2019) found that CAR had a negative effect on ROE, while research conducted by Fajri (2018) and Monica (2018) found that CAR had no effect on ROE.

**Table 2**  
**CAR Rating Assessment Criteria**

Rating	Category	Assessment Criteria
1	Very healthy	$CAR \geq 11\%$
2	Healthy	$9.5\% \leq CAR < 11\%$
3	Healthy enough	$8\% \leq CAR < 9.5\%$
4	Less healthy	$6.5\% \leq CAR < 8\%$
5	Unhealthy	$CAR < 6.5\%$

Source: Bank Indonesia Circular Letter Number 13/24/DPNP (2011)

#### *Non Performing Loan*

Non-performing loans happen when the borrower has not paid or is unable to pay the monthly principal and interest installments for particular period, causing the firm's profits to decline. Banks that have too many non-performing loans will cause problems with cash flow and bank profits. The higher the NPL, the decrease the ROE. Research conducted by Putra (2022), Supriadi and Sjam (2021), Pardosi and Hutagalung (2021), Sudiyatno et al. (2021), Vellanita et al. (2019) and Monica (2018) concluded that NPL had a negative effect on ROE, but research conducted by Latifah and Kusjono (2021), Sebayang (2020) and Malik (2020) found that NPL had a positive effect on ROE, while studies carried out by conducted by Rahmawati et al. (2021), Jannah and Rimawan (2020) and Fajri (2018) found that NPL has no effect on ROE.

**Table 3**  
**NPL Rating Assessment Criteria**

Rating	Category	Assessment Criteria
1	Very healthy	$NPL < 2\%$
2	Healthy	$2\% \leq NPL < 5\%$
3	Healthy enough	$5\% \leq NPL < 8\%$
4	Less healthy	$8\% \leq NPL < 12\%$
5	Unhealthy	$NPL \geq 12\%$

Source: Bank Indonesia Circular Letter Number 13/24/DPNP (2011)

#### *Operational Efficiency Ratio*

OER shows a measure of company efficiency used by management to determine the company's operational performance. OER assesses how effective a company is in maintaining lower operating costs while generating high revenues. The higher the OER, the lower the ROE. Research conducted by Supriadi and Sjam (2021), Sudiyatno et al. (2021), Chandrasari (2021), Maguni et al. (2020), Fajri (2018) and Monica (2018) found that OER has a negative effect on ROE.

**Table 4**  
**OER Rating Assessment Criteria**

Rating	Category	Assessment Criteria
1	Very healthy	$OER \leq 83\%$
2	Healthy	$83\% < OER \leq 85\%$
3	Healthy enough	$85\% < OER \leq 87\%$
4	Less healthy	$87\% < OER \leq 89\%$
5	Unhealthy	$OER > 89\%$

Source: Bank Indonesia Circular Letter Number 13/24/DPNP (2011)

#### *Loan to Deposit Ratio*

LDR is the ratio used to evaluate liquidity of the bank. If the bank does not increase its deposits, it will have less money to lend. Banks that borrow debt to customers will have lower earning margins and increasing debt. High LDR will bring about lower ROE. Studies carried out by Supriadi and Sjam (2021), Chandrasari (2021), Rahmawati et al. (2021), Putra et al. (2021), Vellanita et al. (2019) and Revita (2018) found that LDR had a negative effect on ROE, but research conducted by

Putra (2022), Pardosi and Hutagalung (2021), Lawati (2021) and Malik (2020) found that LDR had a positive effect on ROE, while the study conducted by Sudiyatno et al. (2021), Fajri (2018) and Monica (2018) get the results that LDR has no effect on ROE.

**Table 5**  
**LDR Rating Assessment Criteria**

Rating	Category	Assessment Criteria
1	Very healthy	$LDR < 75\%$
2	Healthy	$75\% < LDR \leq 85\%$
3	Healthy enough	$85\% < LDR \leq 100\%$
4	Less healthy	$100\% < LDR \leq 120\%$
5	Unhealthy	$LDR > 120\%$

Source: Bank Indonesia Circular Letter Number 13/24/DPNP (2011)

## METHODS

This research model uses several variables, namely the CAR, NPL, OER and LDR variables are independent variables, while ROE is the intervening variable and DPR is the dependent variable. The following is the variable calculation matrix used in this study. This studies changed into carried out on all banking sector emiten listed on the Indonesia Stock Exchange (IDX). The 2018 to 2020 data is used in this study. This study utilizes quantitative methods and uses secondary data obtained by accessing the web addresses of every company. The information sources utilized in this study are yearly report information as of December 31, 2018 to 2020. The examination strategy used in sampling is the purposive sampling. The reason for using purposive sampling is to get a delegate test and as per foreordained standards.

**Table 6**  
**Research Variable Calculation Matrix**

Variable	Formula	Destination
Divided Pay Out Ratio (DPR)	Dividend/Net Income	Measuring the bank's ability to distribute dividends.
Return On Equity (ROE)	Net Income/Shareholders' Equity	Measuring the capacity of the bank's paid-in funding to produce profits.
Capital Adequacy Ratio (CAR)	Bank Capital/Risk Weighted Assets	Measuring the adequacy of bank capital in absorbing losses.
Non-Performing Loans (NPL)	Nonperforming Loans/Total Loans	Measuring the level of problems in bank financing.
Operational Efficiency Ratio (OER)	Operating Costs/Operating Income	Measuring bank operational efficiency.
Loan to Deposit Ratio (LDR)	Total Loans/Total Deposits	Measuring the level of bank liquidity.

Source: Bank Indonesia Circular Letter Number 13/24/DPNP (2011)

**Table 7**  
**Research Sample Selection**

Sample Criteria	Total
IDX-listed banking sector companies	45
Banking sector companies that didn't distribute the expected information during the 2018-2020 exploration time frame	0
Banking sector companies that do not earn profits and do not distribute dividends in a row during the study period 2018-2020	33
Number of Samples	12
Research Period	3
Total Observation Data	36

Source: Data processed by researchers, 2023

Table 7 shows the population is the banking sector emitens listed on the IDX as many as 45 companies, while the sample that has been selected is 12 companies according to predetermined criteria. Furthermore, time-series information was utilized to build the quantity of perceptions that were conceivable, so that the 12 samples were observed in 3 periods from 2018-2020 to 36 observational data. Furthermore, to obtain the results of the study, hypothesis testing was carried out using path analysis with a single indicator on the SmartPLS software version 3.3.7. The following stage is the interpretation of the results of the examination in order to answer the hypothesis and as material to confirm the exact past investigation. The closing step is to conclude and make suggestions for other research.

## RESULTS

The reliability test of the research model was strengthened by the Cronbach's alpha score and composite reliability. The limit value of Cronbach's alpha reliability test and composite reliability is 0.7 (Hussein, 2015). Cronbach's alpha and composite reliability values of 1.0 prove that all variables have values above 0.7. This means that all constructs are proven to be accurate and consistent, there are no problems in measuring reliability. The validity test of the research model was strengthened by the AVE score. The limit value of the AVE validity test is 0.5 (Hussein, 2015). In this study, the AVE value of each variable is 1.0, this shows that all constructs are proven valid and there is no problem of convergent validity in the model being tested. Multicollinearity test is used to see whether the relationship between variables has multicollinearity problems or not. The VIF value between 5 to 10 can be said that the variable has multicollinearity problems. Here are the Collinearity Statistics from VIF. Table 8 shows that all variables have a VIF value of 1.0 or less than 5, so it can be concluded that for each of these variables there is no multicollinearity problem.

**Table 8**  
**Construct Reliability, Validity, Collinearity Statistics and R2 Value**

Variable	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)	VIF	R <sup>2</sup> Value
ROE	1.000	1.000	1.000	1.000	0.716
DPR	1.000	1.000	1.000	1.000	0.248
CAR	1.000	1.000	1.000	1.000	
NPL	1.000	1.000	1.000	1.000	
OER	1.000	1.000	1.000	1.000	
LDR	1.000	1.000	1.000	1.000	

Source: Output SmartPLS v3.3.7 (2023)

The R2 value in this study contained two variable constructs, namely ROE and DPR. The R2 values for these constructs are presented in Table 8 above. The R2 value of the ROE variable construct is 0.716, because the value is more than 0.19, it means that the influence model of CAR, NPL, OER and LDR is moderate. The R2 value of the DPR variable construct is 0.248, because the value is more than 0.19, it means that the ROE influence model is moderate. Based on the value of R2 can be determined and assessed predictive relevance with the Stone Geiser Q Square Test (Q2). Calculation of Q2 shows the result that is 0.787 which has good predictive relevance, so the model is suitable for predicting. The Q2 figure of 0.787 means that 78.7 percent of the variation of ROE and DPR is influenced by CAR, NPL, OER and LDR.

**Table 9**  
**Test Results of Direct Effects Between Construct Variables**

Variable Relationship	Original Sample	Standard Deviation	t Statistic	P Values	Hypothesis
CAR -> ROE	-0.351	0.122	2.890	0.002	Rejected
NPL -> ROE	-0.190	0.147	1.295	0.098	Rejected
OER -> ROE	-0.761	0.099	7.686	0.000	Accepted
LDR -> ROE	-0.331	0.104	3.185	0.001	Accepted
ROE -> DPR	0.498	0.107	4.671	0.000	Accepted

Source: Output SmartPLS v3.3.7 (2023)

Table 9 shows the results of testing the five hypotheses for direct effect testing, there are three results that match the hypothesis proposed in this study and there are two hypotheses that are rejected. In addition to testing the direct effect, this study also examines the indirect or mediating relationship between the variables in this study, which can be seen in Table 9 below.

**Table 10**  
**Test Results of Indirect Effects Between Construct Variables**

Variable Relationship	Original Sample	Standard Deviation	t Statistic	P Values	Hypothesis
CAR -> ROE -> DPR	-0.175	0.077	2.271	0.012	Accepted
NPL -> ROE -> DPR	-0.095	0.079	1.204	0.115	Rejected
OER -> ROE -> DPR	-0.379	0.095	3.997	0.000	Accepted
LDR -> ROE -> DPR	-0.165	0.064	2.584	0.005	Accepted

Source: Output SmartPLS v3.3.7 (2023)

Table 10 above shows that the ROE variable mediates the effect of CAR on the DPR with an Original Sample value of -0.175 and a P Value of 0.012 so that it is classified as partial mediation where the independent variable has significant effect on the dependent variable, but the independent variable has significant effect on the mediation variable, and then the mediation variable has significant effect on the dependent variable. The ROE variable is not able to mediate the effect of NPL on DPR with an Original Sample value of -0.095 and P Values of 0.115 so it is classified as not mediating. The ROE variable mediates the effect of OER on DPR with an Original Sample value of -0.379 and P Values of 0.000 so it is classified as partial mediation. The ROE variable mediates the effect of LDR on DPR with an Original Sample value of -0.165 and P Values of 0.005 so it is classified as partial mediation.

The results of the first hypothesis analysis (H1) state that the CAR variable has a negative effect on ROE, so the hypothesis is rejected. The results of the analysis of this study are supported by research from Sudiyatno et al. (2021), Chandrasari (2021), Latifah and Kusjono (2021), Maguni et al. (2020) and Vellanita et al. (2019) shows that CAR has negative effect on ROE. This shows that the higher the CAR, the lower the ROE. The higher the capacity of the bank's cash-flow to keep up with the chance of hazard of loss, the lower the profit from tasks of the bank. A high CAR can lessen a bank's capacity to extend its business as a result of the bigger capital stores used to cover the risk of loss, which thusly will influence ROE. The results of the second hypothesis analysis (H2) state that the NPL variable has no effect on ROE, so the hypothesis is rejected. The results of the analysis of this research are supported by research from Rahmawati et al. (2021), Jannah and Rimawan (2020) and Fajri (2018) who get the results that NPL has no effect on ROE. NPL which has no effect on ROE, this is probably due to the average NPL of banks in Indonesia already below the maximum NPL recommended by Bank Indonesia, which is 5% because the average NPL of banks in Indonesia is still relatively low, so losses due to bad credit can still be covered by the cost reserves established by the bank. So, not all banks with small NPLs are unable to make profits and vice versa.

The results of the third hypothesis analysis (H3) state that the OER variable has negative effect on ROE, so that the hypothesis is accepted. The results of the analysis of this research are supported by research from Supriadi and Sjam (2021), Sudiyatno et al. (2021), Chandrasari (2021), Maguni et al. (2020), Fajri (2018) and Monica (2018) who get the results that OER has negative effect on ROE. This conclude that the lower the OER, the higher the ROE. The lower the OER indicates the bank is more efficient using its operational costs so that the bank's income will increase and vice versa. The lower the operational efficiency, the bank is said to be more inefficient, in other words, if the operating costs incurred are high, the profit earned is smaller (Taswan, 2010). The results of the fourth hypothesis analysis (H4) state that the LDR variable has negative effect on ROE, so that the hypothesis is accepted. The results of the analysis of this study are supported by research from Supriadi and Sjam (2021), Chandrasari (2021), Rahmawati et al. (2021), Putra et al. (2021), Vellanita et al. (2019) and Revita (2018) found that LDR had negative effect on ROE. This shows that the higher the LDR, the lower the ROE, where a high LDR indicates that the lower the bank's liquidity capacity, of course, this will affect the bank's income which tends to decrease. Bank liquidity will be more guaranteed if it invests capital in the form of assets that can shift quickly (Hery, 2019).

The results of the analysis of the fifth hypothesis (H5) state that the ROE variable has a positive effect on the DPR, so the hypothesis is accepted. The results of this research are supported by research from Chaniago and Ekadjaja (2022), Melani (2022), Misrofingah and Ginting (2022), Rita et al. (2022), Ompusunggu et al. (2022) and Edeltrudis et al. (2022) who get the results that ROE has a positive effect on the DPR. This shows that the higher the ROE, the higher the DPR. Companies that generate profitability will have a greater opportunity to distribute dividends. The distribution of dividends is sourced from the profits obtained by the company after fulfilling its obligations in the form of interest and taxes. The consequences of the hypothesis analysis (H6) express that the ROE variable mediates the effect of CAR on the DPR, so that the hypothesis is accepted. The consequences of the hypothesis analysis (H7) express that the ROE variable is not able to mediate the effect of NPL on DPR, so the hypothesis is rejected. The consequences of the hypothesis analysis (H8) express that the ROE variable mediates the effect of OER on the DPR, so that the hypothesis is accepted. The consequences of the hypothesis analysis (H9) express that the ROE variable mediates the effect of LDR on the DPR, so that the hypothesis is accepted.

## CONCLUSION

This research aims to examine and get exact proof on the determinants of Return on Equity and its implications for Dividend Payout. This study used 12 banking companies as samples obtained by using purposive sampling technique. The data analysis and discussion of research results can be concluded as follows CAR has negative effect on ROE, NPL has no effect on ROE, OER has negative effect on ROE, LDR has negative effect on ROE, ROE has positive effect on the DPR, ROE mediates the effect of CAR on DPR, ROE is not able to mediate the influence of NPL on DPR, ROE mediates the influence of OER on DPR, ROE mediates the influence of the LDR on the DPR. In light of hypothetical and exact examinations as well as the outcomes of data evaluation that has been carried out, the researchers provide the following suggestions. Banks are exhorted not exclusively to focus on inside factors that influence ROE yet in addition the development of macroeconomic elements, since this can be the reason for making changes to business systems to get most extreme benefit. Banks are encouraged to be more proficient and more creative in the advancement of items and administrations offered, both on the resources owned by the bank or on the risks faced, so they don't rely upon the market and certain gatherings of borrowers and are more ready to contend. The value of Q2 is 0.787 or 78.7 percent the variation of ROE and DPR is influenced by CAR, NPL, OER and LDR, so for further research the researcher recommends examining other internal and external factors that are thought to influence ROE and DPR.

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