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Research Article

Exploring Key Determinants of Indonesia Bank Profitability: An In-Depth Analysis

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Abstract
This study aims to examine the effect of Capital Adequacy Ratio (CAR), Non-Performing Financing (NPF), Operating Costs, Operating Income (BOPO), and Financing to Deposit Ratio (FDR) on bank profitability, measured by Return on Assets (ROA). The research originates from the need to evaluate financial performance indicators that influence profitability, especially in state-owned commercial banks listed on the Indonesia Stock Exchange (IDX). These banks play a pivotal role in Indonesia's financial system, making them critical subjects for analysis. The study uses secondary data from the IDX for the 2018–2020 period and applies purposive sampling to select 7 banks, resulting in 21 data samples. Data analysis involves both partial and simultaneous hypothesis testing. The findings indicate that NPF, BOPO, and FDR significantly affect profitability, while CAR does not. Simultaneously, all variables significantly influence ROA. Managerial implications highlight the importance of focusing on operational efficiency, managing asset quality, and optimizing credit distribution to enhance profitability. Understanding these financial ratios enables bank managers to formulate more targeted and practical strategies to improve performance and sustain long-term financial health.
Keywords: CAR, NPF, BOPO, FDR

JEL Classification: G21, D22, M21

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1. Introduction

The term "bank" originates from the Italian word "banco," which translates to "bench." A bank functions as a business that gathers funds from the community and redistributes them through various loans to enhance many individuals' living standards (Kasmir, 2019). A bank's operational performance is crucial in assessing the banking sector's success, particularly its financial performance. Banks serve a vital role as intermediaries, connecting financial resources with local communities and subsequently reinvesting those resources back into the community (Santosa et al., 2020).

Several key ratios used to assess profitability include CAR (Capital Adequacy Ratio), NPF (Non-Performing Financing), FDR (Financing to Deposit Ratio), and BOPO (Operating Expenses to Operating Income). Profitability involves gathering funds from the community through deposits, with banks serving as platforms for individuals to save money or invest. Generally, people save money primarily for the security of their funds, to invest with the expectation of earning interest on their savings, and to facilitate payment transactions (Gentle, 2017). To achieve these objectives, ensure the safety of funds and enable investment banks to offer various deposit options. The types of deposits available can differ significantly from one bank to another, but they typically include demand deposits, savings deposits, and time deposits. (Kasmir, 2019)

States that CAR is the adequacy of capital a bank owns to support assets that contain risk or generate risk, such as loans provided. CAR indicates the bank's ability to cover the decline in assets due to risky bank losses. A bank has costs that come from the bank's funds and receives additional funds from external sources. In addition to CAR and NPF, the factor that affects profitability is BOPO. According to Dendawijaya (2018), BOPO compares operating costs and the ratio of operating costs to operating income. The operating cost ratio measures the efficiency and capacity of the bank in operational activities. The smaller the BOPO, the more efficient the bank is in managing its operating costs; if cost efficiency is carried out, its profits will be higher (Apriadi et al., 2017).

In addition to CAR, NPF, and BOPO, FDR is another factor that affects profitability. FDR is a ratio used to measure the composition of the amount of credit provided compared to the amount of public funds and equity used. The financing-to-deposit ratio (FDR) measures a bank's liquidity in repaying withdrawals based on funding as a source of liquidity, namely dividing the amount of financing provided by the bank through third-party funds (Santosa et al., 2020).

According to published reports, operating costs have increased due to the decline in the value of financial assets (discount). The BOPO ratio shows that the level of bank efficiency in running its operations affects the income received by the bank; the higher the BOPO, the higher the profit, and it has a negative impact. On ROA, because the level of bank operational efficiency is not correct, it shows that operating costs must be low so that the net profit obtained by the bank increases (Rohmiati et al., 2019).
Although various studies have examined the factors that affect bank profitability, there is still a gap in identifying the simultaneous contribution between CAR, NPF, BOPO, and FDR comprehensively, especially in state-owned banks listed on the IDX in the current period. This study raises the issue of operational efficiency and financing risk management, which have not been studied in depth as determinants of profitability in Indonesian banking. The novelty of this study lies in its approach that combines four leading financial indicators in one regression model with an observation period after the global economic crisis and uses Return on Assets (ROA) as the leading profitability indicator, which can provide a more accurate picture of bank financial performance in dynamic market conditions (Jacoub et al., 2020).

2. Literature Review and Hypothesis

Literature Review Agency Theory

Several key ratios used to assess profitability include CAR (Capital Adequacy Ratio), NPF (Non-Performing Financing), FDR (Financing to Deposit Ratio), and BOPO (Operating Expenses to Operating Income). Profitability involves gathering funds from the community through deposits, with banks serving as platforms for individuals to save money or invest. Generally, people save money primarily for the security of their funds, to invest with the expectation of earning interest on their savings, and to facilitate payment transactions. To achieve these objectives, ensure the safety of funds and enable investment banks to offer various deposit options. The types of deposits available can differ significantly from one bank to another, but they typically include demand deposits, savings deposits, and time deposits. (Kasmir, 2019)

Definition of Profitability

Profitability is a ratio used to measure a firm's ability to generate profits from its normal business activities. Management is required to increase returns for firm owners while also improving employee welfare. This can only happen if the firm profits from its business activities. The firm's financial performance, the management side expects high net income before tax (earnings before tax) because the higher the firm's profit, the more flexible the firm is in carrying out the firm's operational activities. At the same time, the average total assets are the average volume of business or assets (Dendawijaya, 2018).

Hypothesis

The Influence of Capital Adequacy Ratio (CAR) on Profitability

Agreeing with the productivity hypothesis, banks involved in expanding benefits tend to have higher held profit, leading to an increment in CAR. Setiawan (2017) notes that CAR reflects a bank's capacity to retain misfortunes from its operations, illustrating a critical impact on Return on Resources (ROA) inside Indonesian banks (Haritsman & Usman, 2017). The next CAR shows a more favorable condition for a bank. When CAR is hoisted, the bank is well-positioned to back its operations, and this positive state will contribute to its benefit. Return on net resources measures the proficiency of capital administration in producing net benefit. As returns progress, disseminating profits favors enhancing profits and reinvestments alongside held profits (Kuncoro, 2019).

H1: CAR has a significant effect on profitability

The Effect of Non-Performing Financing (NPF) on Profitability

The financing hazard by the bank is one of the bank's trade dangers, which is caused by the bank's non-repayment of credits or speculations. (Muhammad, 2020) If this NPF proportion is tall, at that point, the level of benefit that the bank will get tends to be moo. The significant number of non-performing credits compared to beneficial resources can create openings to get a salary from advances given, decreasing benefits and negatively affecting bank productivity. To extend bank efficiency, each bank must maintain its own. Sholihah et al. (2019) concluded that NPF has a positive and noteworthy impact on ROA, suggesting that if NPF diminishes, the bank's ROA will increase.

H2: NPF has a significant effect on profitability

The Effect of Operating Costs Operating Income (BOPO) on Profitability

BOPO is utilized to degree the capacity of bank administration to control working costs against working pay. The smaller the BOPO proportion, the better since the bank in address can cover working costs with its working salary. The lower the BOPO, the more effective the bank is in controlling its working costs; with taking a toll proficiency, the more prominent the benefit gotten by the bank. Hakim et al. (2019) said that BOPO includes a positive and noteworthy impact on ROA. The positive esteem BOPO displays demonstrates that the smaller the BOPO, the more effective the bank is in carrying out its commerce exercises.

H3: BOPO has a significant effect on profitability

The Effect of Financing to Deposit Ratio (FDR) on Profitability

The Financing to Store Proportion (FDR) examined (Setiawan, 2017) positively impacts FDR and bank productivity. FDR states how remote the bank's capacity to pay contributors is by controlling the credit/payments given as its liquidity. The higher this proportion, the lower the liquidity of the bank concerned. Alternately, the lower the FDR outlines the bank's need for financing adequacy. The higher the FDR at a certain level, the bank's benefit will increment; with expanding benefits, productivity will increase since benefit could be a component in shaping benefit. Rafaela, Thyas, and Ardiyanto (2018) showed that FDR positively and critically impacts ROA. The positive esteem FDR gave the understanding that the greater the FDR, the more effective the bank was in carrying out its commerce exercises, which can increment the bank's ROA.

H4: FDR has a significant effect on profitability

The Effect of CAR, NPF, BOPO, and FDR on Profitability

This ponder is expecting to decide and analyze CAR, NPF, BOPO, and FDR on productivity simultaneously to determine whether all free factors included within the relapse demonstrate an impact on the subordinate variable found that CAR contains a noteworthy impact on ROA in Indonesian banks. (Haritsman & Usman, 2017). Sholihah, Nikmatus, and Sriyani (2019) concluded that NPF has a positive and noteworthy impact on ROA, implying that if NPF decreases, the bank's ROA will increase. Sholihah et al. (2019) concluded that NPF has a positive and critical impact on ROA, implying that if NPF diminishes, the ROA the bank will get will increase. The Financing to Store Proportion (FDR) examined (Setiawan, 2017) appeared to impact FDR and bank productivity positively. The four factors are proportions utilized to extend bank productivity. The four factors have a noteworthy impact on productivity since these proportions can back the supportability of banks in expanding benefits.

H5: CAR, NPF, BOPO, and FDR simultaneously affect profitability.

Conceptual Framework

In this study, the dependent and independent variables influenced are bank profitability, and the independent variables or variables that influence this study are CAR, NPF, BOPO, and FDR. The basis for the analysis of these factors is that the influence of each independent variable on bank profitability can be described in a conceptual framework, as shown in Figure 1 below:

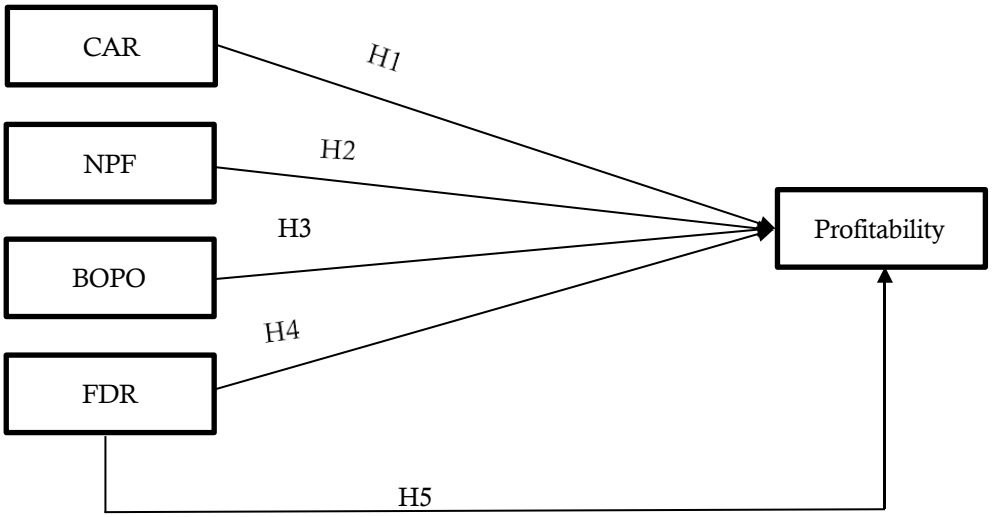

Figure 1. Conceptual Framework

3. Data and Method

Type of Research

The type of research used in this study is quantitative research with hypothesis testing. Quantitative research that uses mathematical and statistical formats. According to Sugiyono (2017), the definition of quantitative research methods is based on the philosophy of positivism used to measure samples and data collection using quantitative research instruments, aiming to test the established hypothesis.

Research Population and Sample

This study focuses on the banking sector, specifically the banks listed on the Indonesia Stock Exchange from 2018 to 2020. This timeframe was selected to gather more recent data, which will provide a better understanding of the current conditions in the industry. The sampling method employed for this study is purposive sampling, a form of non-probability sampling. This finding means that not every element in the population has an equal chance of being included in the sample. Instead, specific criteria must be met to qualify as a research sample. Forty-six banks were listed on the Indonesia Stock Exchange during the specified period.

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Data Sources and Types

Data collection is a systematic and standard procedure for obtaining the required data. There is always a relationship between the data collection method and the research problem to be solved. Secondary data refers to information collected from existing sources in the form of evidence, records, or reports arranged in archives in a finished form in the form of publications. The data collection methods used in this study consist of Secondary data, namely data obtained in a finished form, which has been collected and processed by other parties, usually in the form of publications. This type of data has been collected by other parties for specific purposes that are not specifically for the research needs of the researcher.

Data Collection Technique

This technique is carried out by collecting and utilizing bank financial report data for the 2018-2020 period obtained from the Indonesian Stock Exchange. The data collection technique in this study uses literature studies and documentation. Literature study, namely reviewing references using relevant books, articles, laws and regulations regarding Islamic banking, and other materials related to this research.

Multiple Regression Analysis

The relationship between Y and one or more independent variables. To analyze the independent variables against the dependent variables. The data analysis technique used is a multiple linear analysis model using data pooling. The use of pooling data in this study was chosen because of the limited number of samples, which is only 7 banks with data for 3 years (2018–2020), so the number of observations is only 21. This number does not meet the minimum requirements for panel data analysis, requiring more extraordinary individual (cross-section) and time (time series) variations to make model estimates more robust and accurate. In addition, pooling data is simpler and suitable for use when there is not enough data to significantly distinguish individual and time effects, so multiple linear regression models can still be used effectively to test the relationship between variables.

$$Y = \alpha + \beta 1CAR + \beta 2\ NPF + \beta 3\ BOPO + \beta 4\ FDR \quad (1)$$

4. Results

Data Normality Test

The Normality Test is used to test whether or not the independent variable and the dependent variable have a normal distribution in a regression model. According to Santoso (2019), Data normality can be seen using the Kolmogorov-Smirnov normality test. Data is normally distributed if its significance value is greater than the 5% significance level (Asymp. Sig (2-tailed) > 0.05). The table of One-Sample Kolmogorov Smirnov (K-S) test results is as follows:

Table 1. Normality Test Results

		Unstandardized Residual
N		21
Normal Parameters	Mean	.0000000
	Std. Deviation	.57906443
Most Extreme Differences	Absolute	.097
	Positive	.075
	Negative	-.097
Test Statistic		.097
Asymp. Sig. (2-tailed)		.200[c,d]

Source: Processed Data (2023)

Based on Table 1 above, the Kolmogorov value is 0.097 for Asymp. Sig (2-tailed), which is 0.200, is more significant than (0.05). Thus, it can be concluded that the residual value is normally distributed and meets the normality assumption.

Heteroscedasticity Test

The heteroscedasticity test is carried out on the regression model to test the opinion of the inequality of variance from the residuals from one observation to another (Juliandi, 2017). Predicting the presence or absence of heteroscedasticity in a model can be seen from the scatterplot image pattern of the model. Analysis of the scatterplot image stating that the multiple linear regression model does not have heteroscedasticity if:

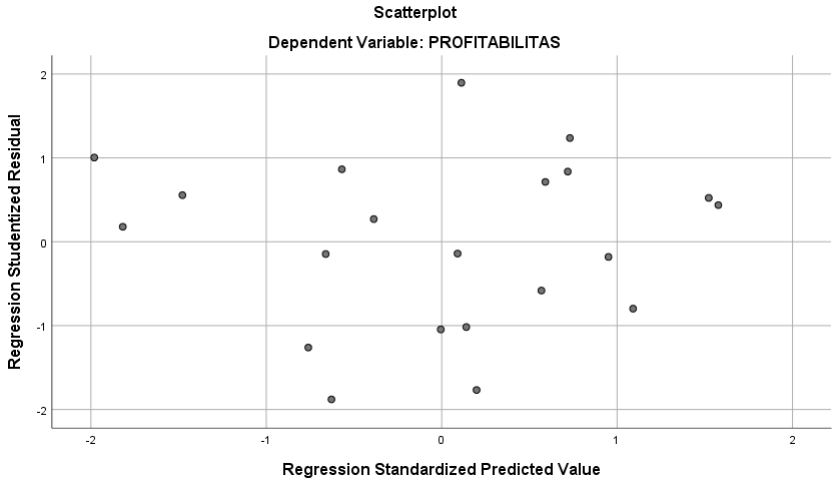

Figure 2. Heteroscedasticity Test Results

The scatterplot graph above shows that the points are spread randomly and do not form a clear pattern. The data are distributed both above and below zero. This result is heteroscedastic in the regression model, making it suitable for research use.

Multicollinearity Test

We test the presumption that multicollinearity, VIF (Fluctuation Expansion Figure), and TOL (resilience) can be utilized; where concurring with Ghozali (2018) said that on the off chance that the VIF esteem is more than 10, it implies that multicollinearity is exceptionally tall and bad habit versa. If the VIF esteem is more than 10, it is not collinear. On the off chance that the TOL esteem is less than 0.10, it is said that the relapse show is free from multicollinearity.

Table 2. Multicollinearity Test Results

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	6.790	2.500		2.716	.015
	CAR	-.053	.043	-.181	-1.255	.227
	NPF	-1.035	.183	-.772	-5.654	.000
	BOPO	-.020	.011	-.252	-1.834	.025
	FDR	.009	.021	.062	.428	.047

Source: Processed Data (2023)

Based on Table 2, it can be seen that the VIF value of the CAR variable (X1) is 1.294 <10, and the tolerance value is 0.773> 0.1, so the data does not experience multicollinearity in this study.

Autocorrelation Test

The autocorrelation test is the correlation between the variables in observations at different times or individuals. We determine whether there is autocorrelation, and the Durbin Watson (DW) test can be carried out. The results of the correlation test can be seen below:

Table 3. Autocorrelation Test Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.862[a]	.743	.678	.64737	1.733

Source: Processed Data (2023)

Based on Table 3 above, the D-W value in the output above is 1.733, between -2 and 2. Thus, the regression model used is free from autocorrelation interference.

Multiple Linear Regression Analysis

The reason for the numerous straight relapse tests is to foresee the esteem of the subordinate variable/response (Y) on the off chance that the values of the autonomous indicator factors are known. In expansion, it is also important to discover how the heading of the relationship between the subordinate variable and the autonomous factors is heading. The comes about of numerous straight relapse tests can be seen in the taking after table:

Table 4. Results of Regression Analysis

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	6.790	2.500		2.716	.015
	CAR	-.053	.043	-.181	-1.255	.227
	NPF	-1.035	.183	-.772	-5.654	.000
	BOPO	-.020	.011	-.252	-1.834	.025
	FDR	.009	.021	.062	.428	.004

Source: Processed Data (2023)

The comes about of relapse test in Table 4 shows that of the four free factors, NPF (Non-Performing Financing) and BOPO (Operational Costs to Working Pay) have a critical impact on productivity (ROA), with critical values of 0.000 and 0.025, individually, which are underneath the importance restrained of 0.05. NPF features a huge negative coefficient (-1.035), showing that the higher the NPF, the lower the bank's productivity. BOPO, moreover, has a negative impact, meaning that poor operational proficiency will decrease benefits. On the other hand, the CAR (Capital Ampleness Proportion) variable includes a critical esteem of 0.227 and FDR (Financing to Store Proportion) of 0.004. Still, indeed, even though the FDR noteworthiness esteem is.

Coefficient of Determination

The coefficient of assurance is utilized to determine how distant the model's capacity is to clarify the subordinate variable's variety. The coefficient of assurance is between zero and one; on the off chance that the esteem is little or net zero, at that point, the variety of the subordinate variable is exceptionally constrained. Whether the esteem is expansive or near to one, at that point, nearly all the data is required to foresee the subordinate variable. The coefficient of the coefficient of assurance test can be seen below:

Table 6. Results of the Coefficient of Determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.862[a]	.743	.678	.64737	1.733

Source: Processed Data (2023)

The table above shows that the R square test results show 0.743. This result indicates that 74.3% of the profitability variables can be explained by the CAR, NPF, FDR, and BOPO variables, while other variables influence 25.7%.

5. Discussion

The Effect of CAR on Profitability

Based on the t-test table, the esteem of the Capital Ampleness Proportion (CAR) for Unstandardized Beta Coefficients shows that CAR includes a centrality level surpassing the foreordained limit. The investigation shows that the CAR esteem is higher than the anticipated importance esteem, concluding that CAR does not have a noteworthy effect on productivity. A reliably tall CAR proposes that the bank is in a strong position, which ordinarily contributes to progressed execution in creating benefits. The discoveries of this consideration illustrate that the size of the bank's capital ampleness (CAR) does not fundamentally relate to an increment in profit. These discoveries conflict with the investigation conducted by Setiawan (2017), which declared that the Capital Ampleness Proportion (CAR) altogether influences productivity. Also, this thought does not adjust with the conclusions drawn by Haritsman and Usman (2017), who found that CAR incorporates a critical impact. Based on the T-test table, the esteem of the Capital Ampleness Proportion (CAR) for Unstandardized Beta Coefficients shows that CAR incorporates a centrality level that surpasses the foreordained edge. The investigation demonstrates that CAR esteem is higher than anticipated centrality esteem, concluding that CAR does not have a critical effect on benefits. A reliably tall CAR recommends that the bank is in a robust position, which ordinarily contributes to making strides in creating benefits. In any case, the discoveries of this ponder illustrate that the size of the bank's capital ampleness (CAR) does not relate to an increment in productivity. These discoveries conflict with the investigation conducted by Setiawan (2017), which stated that the Capital Ampleness Proportion (CAR) altogether influences productivity.

Furthermore, this consideration does not adjust to the conclusions drawn by Haritsman and Usman (2017), who found that CAR has a critical impact. The t-test table over the Capital Ampleness Proportion (CAR) esteem of Unstandardized Beta Coefficients shows that CAR features a critical level that is more noteworthy than the significant level. Based on the investigation that has been done, CAR esteem is more prominent than anticipated centrality, so it can be concluded that CAR does not have a noteworthy impact on productivity. If capital ampleness proceeds to be tall or huge, the more grounded the condition or condition of the bank is, the better the execution of the bank in creating benefits. This consideration shows that the measure of the bank's capital ampleness (CAR) does not alter the estimate of the bank's benefit. The coming of this study is not in line with the investigation conducted by Setiawan (2017), which concluded that the capital ampleness proportion (CAR) encompasses a critical impact on benefit. The investigation conducted by Haritsman and Usman (2017) does not back up the fact that Ha contains a noteworthy impact.

The Effect of NPF on Profitability

Based on the t-test table, the Non-performing Financing (NPF) esteem of the Unstandardized Beta Coefficients. It is known that NPF contains a significant level smaller than H2, and it states that NPF has a critical impact on productivity. Based on the research that has been done, it is gotten so that it can be concluded that NPF features a critical impact on the productivity of banks recorded on the IDX 2018-2020. If the NPF proportion increases, the quality of financing possessed by the bank will be more regrettable, which will cause the sum of risky financing to extend. Banks with tall NPFs will increase costs, both profitable resource savings and other costs, so there is the potential for bank misfortunes. Because of misfortunes, the bank's benefit will diminish. The conclusions of this consideration align with ithe investigation conducted by (Edhi, 2018), which states that benefit features have a critical impact on NPF. The pondering of the inquiry conducted by Sholihah et al. (2019) concludes that Ha includes a critical impact.

The Effect of BOPO on Profitability

Based on the T-test table over, the esteem of Working Costs Working Wage (BOPO) Unstandardized Beta Coefficients esteem, and it is known that BOPO contains an altogether lower level than, so it can be concluded that BOPO features a significant effect on the productivity of banks recorded on the IDX 2018-2020. H3 states that BOPO contains a noteworthy impact on benefits. The more prominent the BOPO, the lower the bank's benefit. On

the other hand, usually due to the taking a toll of work, the benefits produced by the bank increase. On the off

The chance that working costs are more noteworthy, working pay will diminish. This finding influences the increment within the bank's total profit, sometimes recently charged, and eventually increments in productivity. Based on the investigation that has been done, the conclusions of this ponder are in line, which states that productivity encompasses a critical impact on BOPO. The results of this study bolster the inquiries conducted by Hakim et al. (2019), who concluded that Ha has a critical impact.

The Effect of FDR on Profitability

Based on the T-test table, the Financing to Store Proportion (FDR) esteem of the Unstandardized Beta Coefficients and it is known that FDR encompasses an altogether smaller level than, so it can be concluded that FDR incorporates a critical impact on the benefit of banks recorded on the IDX 2018-2020 since the FDR proportion increases, the bank's benefit will increase. H4 states that FDR had a critical impact on benefits. A tall FDR shows that the sum of financing given by the bank to open is more noteworthy. The more prominent the financing given by the bank to clients, the more noteworthy the bank's benefits. The bank's benefits are designated to capital, so the more noteworthy the financing, the more capital is gotten. Based on the inquiry that has been conducted, the conclusion of this ponders is in line with the investigation conducted (Setiawan, 2018), which states that productivity encompasses a noteworthy impact on FDR. The Impact of CAR, NPF, BOPO, and FDR on Benefit. H5 states that NPF, BOPO, and FDR impact productivity. Based on the table, the Unstandardized Beta coefficient esteem is obtained, and it is known that NPF, BOPO, and FDR have a critical level with esteem smaller than the critical level, so it can be concluded that NPF, BOPO, and FDR at the same time influence bank productivity. The lower the NPF, BOPO, and FDR, the smaller the credit hazard borne by the bank, the more efficient the operational costs, and the lower the chance of financing estimation for the bank. The comes about of this considers back the investigations conducted by (Rafaela, Thyas, and Ardiyanto, 2018), concluding that NPF, BOPO, and FDR have a critical impact on benefit.

6. Conclusion

Based on the examination and discussion of the inquiries and speculations conducted and tried, the following conclusions can be drawn concerning the impact of free factors on firm esteem: Non-performing financing includes a noteworthy effect on bank benefits. Furthermore, Working Costs and Working Income significantly influence bank productivity. The financing-to-deposit proportion additionally appeared to have a critical impact on productivity in commercial banks, as recorded on the Indonesia Stock Trade from 2018 to 2020.

Managerial Implications: Firm management should prioritize strengthening fundamental factors such as profitability and capital structure to enhance share attractiveness in the eyes of investors. Firms can boost market confidence and improve stock returns by optimizing the Net Profit Margin (NPM) and maintaining a balanced debt-to-equity Ratio (Drns). Furthermore, firms with significant market capitalization must ensure stable financial performance to retain a competitive edge and attract long-term investment. Transparency and operational efficiency are also crucial for enhancing the firm's value in the capital market.

Recommendation

For banking practitioners, it is recommended to focus on managing operational efficiency (BOPO) and suppressing the non-performing financing ratio (NPF) so that bank profitability increases sustainably. Practitioners also need to utilize the FDR ratio optimally to maintain a balance between credit distribution and liquidity. Meanwhile, for further researchers, it is recommended to expand the scope of the observation year and consider adding other variables such as Return on Equity (ROE), Net Interest Margin (NIM), or external factors such as inflation and benchmark interest rates so that the profitability analysis is more comprehensive and relevant to current market conditions.

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