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FINANCIAL, INVESTMENT AND OPERATIONAL CASH FLOW ON BANKING PERFORMANCE IN INDONESIA

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ABSTRACT

This study analyzes the influence of cash flows from funding activities or financial (CFF), investment (CFI), and operations (CFO) on Return on Assets (ROA) in the banking sector in Indonesia. Data was obtained from 40 banks listed on the Indonesia Stock Exchange (IDX) during 2010–2022 and analyzed using a fixed effects model panel regression. The results showed that only CFOs had a significant influence on ROA, but in a negative direction, indicating that an increase in operating cash flow was actually correlated with a decrease in ROA. CFF and CFI did not have a significant effect on ROA, indicating that funding and investment activities had less impact on profitability. The implications of this study emphasize the need for more strategic operational cash flow management to support asset efficiency and financial performance of banks.

Keywords: cash flow, ROA, banking, Indonesia Stock Exchange, financial performance

INTRODUCTION

Return on Asset (ROA) is one of the main indicators used to assess how efficient a bank is in generating profits from its assets (Alshammari, 2020). ROA provides an overview of the rate of return on each unit of invested asset, thus assisting investors and management in evaluating the bank's performance. For banks listed on the Indonesia Stock Exchange (IDX), good cash flow management is expected to increase ROA and attract investors' interest in the company's performance (Rahman & Sharma, 2020). However, the dynamics of market conditions, regulations, and banking management policies can affect the relationship between cash flow and ROA.

The success of a bank's financial performance depends heavily on the institution's ability to manage cash flow effectively (Ramazani et al., 2019). Cash flow reflects the company's ability to meet operational needs, pay debts, and support the company's growth through the management of inflow and outflow of funds (Egwu et al., 2021). In the banking sector, strong and stable cash flow is essential to ensure a company's ability to maintain liquidity, reduce financial risks, and support long-term profitability.

The effect of cash flow from operational, investment, and financing activities on Return on Assets (ROA) is important to be researched for fundamental reasons related to the health and financial efficiency of companies. Cash flow from direct operating activities reflects a company's ability to generate revenue from its business activities. ROA, as a measure of the effectiveness of an asset in generating profits, is closely related to strong operating cash flows. If the operating

cash flow is positive and stable, it generally indicates high efficiency in operational activities, which directly supports ROA (Liandu et al., 2023).

The effect of cash flow on ROA profitability is important to be researched to evaluate investment decisions. Cash flow consists of 3 (three), namely financial cash flow (cff), cash flow investment (cfi), operational cash flow (cfo). Investment cash flow indicates the use of funds for fixed assets, acquisitions, or developments that can enhance the company's long-term capabilities. The study of its effect on ROA provides an overview of whether the investment has a positive or negative impact on the efficiency of the asset in generating profits. Improper or unproductive investments can damage the profitability of an asset (Arifaj et al., 2023).

Cash flow from financing activities (cff), which includes the issuance of shares, loans, or dividend payments, also affects ROA because financing can affect the capital structure and cost of debt. This research is important to see how the composition of a company's financing affects the efficiency of asset use, as well as whether the resulting cash flow can cover financial costs without burdening the ROA (Arifaj et al., 2023).

The three types of cash flow that a company has can assess the level of liquidity and potential financial risks. Strong operating cash flow with a balance in investment and financing activities will provide a clearer view of the company's financial stability and its ability to deal with market uncertainty without affecting asset profitability (Drobetz et al., 2017).

Therefore, it is important to understand how cash flow affects the ROA of IDX-listed banks in order to provide insights for stakeholders, including management, investors, and regulators, in making informed decisions. This study aims to analyze the impact of cash flow on ROA in banks listed on the Indonesia Stock Exchange as a step to understand the importance of cash flow management in improving banking financial performance.

Hypothesis of the Effect of Cash Flow on ROA

CFF reflects the funding activities carried out by the company, such as the issuance of shares or bonds, as well as debt payments. If this funding activity is used effectively, a positive CFF is expected to increase ROA. However, if CFF shows an increase in debt without a strategic purpose, then CFF could negatively impact ROA in Nepal's commercial banks (Gautam et al., 2024). (Seyhan et al., 2024) It also shows that the cash flow relationship between investment, financing and operations has a significant influence on ROA. CFI indicates the use and receipt of funds from investment activities, such as the purchase or sale of fixed assets. A positive CFI can show the return on a productive investment and have a good impact on ROA. However, CFI has a negative impact on ROA (Gautam et al., 2024). The CFO describes the company's ability to generate cash flow from its operational activities. A positive CFO indicates that the company is able to generate sufficient operating profit to support key activities, which should contribute directly to the increase in ROA. Stable and positive CFOs are generally considered to have a positive impact on profitability performance, including ROA (Rahman & Sharma, 2020). (Gautam et al., 2024) shows that CFOs have a negative influence on profitability. Likewise (Eksandy & Abbas, 2020; Liandu et al., 2023) Finding cash flow has a significant relationship with ROA.

Hipotesis Alternatif (H1): Cash flow from financing activities (CFF),), Cash flow from investing activities (CFI), Cash flow from operating activities (CFO) affect Return on Assets.

METHODOLOGY

Type of Research

This study uses a quantitative approach, which aims to examine the influence of independent variables, namely cash flow from financing activities (CFF), cash flow from investing activities (CFI), and cash flow from operating activities (CFO) on the dependent variables of Return on Assets (ROA) in banks listed on the Indonesia Stock Exchange. With this approach, research can generate numerical data and in-depth statistical analysis.

Population and Sample

The population in this study includes all banks listed on the Indonesia Stock Exchange (IDX) during a certain period, for example from 2018 to 2023. Banks listed on the IDX were chosen because of the availability of financial statement data that is open to the public and allows analysis based on secondary data.

Samples were taken from the population using the purposive sampling method, with certain criteria, namely

Table 1. Sample determination

1. Number of banks listed on the Indonesia stock exchange from 2018-2022	46 bank
2. Banks that have complete cash flow and ROA reports	40 bank

Source: Data processed (2024)

So that the number of samples used is 40 banks registered on the IDX until 2022.

Data and Data Sources

The data used in this study is secondary data in the form of cash flow statements and profit and loss statements from each bank listed on the IDX. This data can be obtained through S&P Capital and mixed with the official website of the Indonesia Stock Exchange (www.idx.co.id).

Data Collection Techniques

Data collection is carried out by the documentation method, namely by downloading relevant company financial data from S&P Capital, especially data related to CFF, CFI, CFO, and ROA for each company in the research sample.

Variable Operational Definition

Cash Flow from Financing Activities (CFF): Cash flow from funding activities, which includes receipts and payments from activities such as stock issuance, debt issuance, and debt payments.

Cash Flow from Investing Activities (CFI): Cash flow from investment activities, such as the purchase or sale of fixed assets or other investments.

Cash Flow from Operating Activities (CFO): Cash flow generated from the company's core operating activities, which reflects the company's ability to generate cash from operating activities.

Return on Assets (ROA): A ratio that measures a company's ability to generate profits from its assets, calculated as the ratio between net profit and total assets.

Data Analysis Techniques

1. Model selection
   a) Chow Test

      The Chow test is used to determine whether a Common Effect Model (CEM) or a Fixed Effect Model (FEM) is more appropriate for use in panel data analysis. If the value of the cross section prob of the chow test is < 0.05, then the FEM model is used, if the prob is > 0.05, then the CEM (Common Effect Model) model is used.

   b) Hausman Test

      The Hausman test is used to choose between a Fixed Effect Model (FEM) and a Random Effect Model (REM). This tests whether individual (or cross-sectional) variables have a correlation with independent variables. If the value of the cross section prob of the chow test is < 0.05, then the FEM model is used, if the prob is > 0.05, then the REM (Random Effect Model) model is used.

   c) LM Test (Lagrange Multiplier Test)

      The LM Test or Breusch-Pagan Lagrange Multiplier Test is used to choose between the Common Effect Model (CEM) and the Random Effect Model (REM). This test looks at whether or not there is significant variability between cross-section units.

      If the prob value of the cross section test is < 0.05, then the CEM model is used, if the prob is > 0.05, then the REM (Random Effect Model) model is used.

2. Classical Assumption Test

   Before conducting a regression analysis, a classical assumption test is performed to ensure that the data meets the requirements of the regression analysis, including:

   1. Multicollinearity Test
      Testing the correlation between independent variables to avoid multicollinearity issues.
   2. Heteroscedasticity Test
      To ensure constant residual variance.
   3. Uji Autokorelasi
      To detect the presence of autocorrelation in residuals.

3. Multiple Regression Analysis
   To test the influence of CFF, CFI, and CFO on ROA, the following multiple regression model was used:

$$\mathbf{ROA} = \alpha + \beta 1\mathbf{CFF} + \beta 2\mathbf{CFI} + \beta 3\mathbf{CFO} + \epsilon$$

Where:

α is a constant,

β1,β2,β3 is the regression coefficient for each variable,
ε is an error term.

Hypothesis Test (t-Test and F-Test):
Test t: To determine the effect of each independent variable (CFF, CFI, CFO) partially on ROA.
Test F: To determine the simultaneous influence of the three independent variables on ROA.
Coefficient of Determination (R^2): To measure how much variation in ROA can be explained by the independent variables of CFF, CFI, and CFO.

4. Interpretation of Results

The results of the regression analysis will be interpreted to understand the relationship between the cash flow of each activity (funding, investment, and operational) to ROA. The interpretation will explain the significance of the relationship, direction of influence, and strength of each variable to ROA, which will be the basis for discussion and managerial implications.

RESULTS

1. Model Selection
   a. Chow Test

Table 2. Chow test results

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	6.067832	(39,477)	0.0000
Cross-section Chi-square	209.492280	39	0.0000

Source : data processed e-views-13 (2024)

Test Chow in the context of panel regression to determine if a model with fixed effects is more suitable than a common effect model or a model without a fixed effect. The results of the Chow Test (represented by Cross-section F and Chi-square Test) show that a model with a fixed effect is more appropriate to use because a significant Chi-square value < 0.05, i.e. a prob of 0.000, indicates that rejecting the null hypothesis, supports the use of the fixed effect model. Then continued with the Hausman test.

   b. Hausman test

Table 3. Hausman test results

Correlated Random Effects - Hausman Test
Equation: Untitled

Test period random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	18.538308	3	0.0003

Source: Data processed by e-views 13 (2024)

The Hausman Test is a statistical test used in panel data analysis to determine whether random effects or fixed effects are more suitable to use. A very small p-value = 0.0003 ($p < 0.05$ is considered significant), meaning it rejects the null hypothesis. This means that there is a correlation between the free variable and the random effect. In other words, the fixed effect model is more suitable for use than random effects. The chow test is superior to the fixed effect model, the hausman test is also superior to the fixed effect model, so there is no need to continue the Langran test or LM test. The model used for classical assumptions and regression tests is the fixed effect model.

2. Classic asusmsi test

Table 4. Multicollinearity test results

	C	CFF	CFI	CFO
C	0.010235	-2.65E-10	9.29E-11	2.45E-10
CFF	-2.65E-10	6.08E-17	3.56E-17	4.44E-17
CFI	9.29E-11	3.56E-17	8.63E-17	3.82E-17
CFO	2.45E-10	4.44E-17	3.82E-17	1.01E-16

Based on the results of the covariance matrix analysis on the independent variables, namely C, CFF, CFI, and CFO, it can be concluded that there is no significant indication of multicollinearity between these variables. This is shown by the covariance value between very small variables, even close to zero. The covariance between C and CFF is -2.65E-10, between C and CFI is 9.29E-11, and between CFF and CFO is 4.44E-17. These values indicate a weak linear relationship between variables, thus indicating the absence of a strong correlation that can lead to multicollinearity.

Table 5. Heteroscedasticity test results

Dependent Variable: BSRES
Method: Panel EGLS (Cross-section random effects)
Date: 11/03/24 Time: 19:17
Sample: 2010 2022
Periods included: 13
Cross-sections included: 40
Total panel (balanced) observations: 520
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.217897	0.143238	8.502634	0.0000
CFF	-1.88E-09	6.53E-09	-0.287285	0.7740
CFI	-3.97E-09	8.24E-09	-0.482585	0.6296

CFO	1.35E-08	8.74E-09	1.539836	0.1242

Source: data processed by e-views 13 (2024)

The data showed that there was no heteroscedasticity. Based on an autocorrelation test with a DW value of 1.044211, which is close to 1 and well below 2, this model has a fairly strong indication of positive autocorrelation. That is, the residuals of regression models tend to correlate positively with each other, which is often a problem in regression models because they violate the assumption of residual independence. The solution use a model that can handle autocorrelation Generalized Least Squares (GLS).

3. Regression Test

Regression Test

Cross-section fixed effects test equation:
Dependent Variable: ROA
Periods included: 13
Cross-sections included: 40
Total panel (balanced) observations: 520

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.400034	0.097986	4.082569	0.0001
CFI	5.21E-10	1.07E-08	0.048441	0.9614
CFF	1.18E-08	8.12E-09	1.458880	0.1452
CFO	-2.67E-08	1.12E-08	-2.384314	0.0175

R-squared	0.090051	Mean dependent var	0.677936
Adjusted R-squared	0.084761	S.D. dependent var	2.139266
S.E. of regression	2.046596	Akaike info criterion	4.277895
Sum squared resid	2161.294	Schwarz criterion	4.310617
Log likelihood	-1108.253	Hannan-Quinn criter.	4.290713
F-statistic	17.02165	Durbin-Watson stat	2.014011
Prob(F-statistic)	0.000000		

Source: data processed by e-views 13 (2024)

Based on the regression test, the interpretation of the data processing results is:

i. The coefficient of the constant was significant at the level of 1% ($p < 0.01$), indicating that there was a significant influence of the constant on ROA. A coefficient value of 0.400034 means that, if all independent variables are zero, the ROA will be at this level.
ii. The variable coefficient of CFI was not significant ($p = 0.9614 > 0.05$), indicating that cash flow from investments had no significant influence on ROA in this model.
iii. The CFF variable was also insignificant ($p = 0.1452 > 0.05$), indicating that cash flow from financing had no significant effect on ROA.
iv. The CFO variable was significant at the level of 5% ($p < 0.05$), indicating that cash flow from operations had a significant influence on ROA. A negative coefficient (-2.67E-08) indicates that an increase in CFO is related to a decrease in ROA, which may reflect the allocation of operating cash to activities that do not directly increase profitability.

v. The low R-squared value indicates that the independent variables in the model are only able to account for about 9% of the variation in ROA. This shows that most of the variation in ROA is not explained by the CFF, CFI, and CFO variables, indicating the existence of other factors that affect ROA.
vi. The F-statistic shows the overall significance of the model. A very small p-value ($p < 0.01$) indicates that the model as a whole is significant in explaining the variation in ROA despite the low R-squared.

The findings of this study on the influence of cash flow (cash flow from funding, investment, and operational activities) on Return on Assets (ROA) in the banking industry in Indonesia are supported (Liandu et al., 2023) which found that operational cash flow has a significant relationship with ROA, because operational cash flow reflects the ability to generate profits from core business activities. This finding is supported (Gautam et al., 2024) In the context of banking, it is stated that cash flow from financing (CFF) and investment cash flow (CFI) can have different effects on ROA, both positively and negatively, depending on the effectiveness of the use of the cash. These findings show that cff and cfi do not have a significant influence on ROA.

CONCLUSION

The results show that CFF (Cash Flow from Financing) has no significant influence on ROA (p-value = 0.1452 > 0.05). This shows that cash flows obtained from funding activities, such as stock issuance, debt issuance, or debt repayment, are not strong enough to affect asset efficiency in generating profits in the banking sector in Indonesia.
The study also showed that CFI (Cash Flow from Investing) had no significant effect on ROA (p-value = 0.9614 > 0.05). This indicates that the expenditure and receipt of funds from investment activities, such as the purchase or sale of fixed assets, has no significant impact on the bank's ability to improve the efficiency of the asset in generating profits.
CFO (Cash Flow from Operations) has a significant influence on ROA, with p-value = 0.0175 < 0.05. However, the coefficient is negative, which means that the increase in cash flow from operational activities is actually correlated with a decrease in ROA. This may indicate that operating cash management may not be fully directed towards activities that increase asset profitability, or that there is an inefficient cash allocation in the bank's operations.
The study concluded that only cash flow from operational activities (CFO) had a significant influence on ROA, but with a negative direction of influence. This shows that operational efficiency needs to be improved in order to make a positive contribution to the bank's profitability. Cash flows from funding activities (CFF) and investment (CFI) do not have a significant effect on ROA, indicating that other factors may play a greater role in determining the profitability and efficiency of assets in the banking industry.

These results provide important insights for bank management to focus more on managing and allocating operating cash strategically, and for investors to consider the effectiveness of operating cash flow management in assessing the bank's financial health.

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