

Fluctuations on Cash Flow Statements of Public Companies in Indonesia

Original Article

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Abstract

This study aims to examine the effect of macroeconomic fluctuations on the cash flow statements of publicly listed companies in Indonesia. Using a panel data approach covering five public companies (AALI, UNVR, TLKM, ASII, and ICBP) over the period 2019–2023, the analysis employs the Common Effect Model (CEM). The independent variables include Gross Domestic Product (GDP), inflation rate, interest rate, and exchange rate, while the dependent variable is operating cash flow (CFO). Prior to estimation, classical assumption tests for multicollinearity and heteroskedasticity were conducted, confirming the validity and reliability of the model. The results indicate that GDP has a positive and significant impact on CFO, whereas inflation, interest rate, and exchange rate exert negative and significant effects. These findings suggest that macroeconomic conditions directly influence corporate liquidity and cash management. Companies need to implement proactive cash management strategies and hedging policies to mitigate risks associated with macroeconomic volatility. Furthermore, regulators should maintain economic stability to support corporate financial resilience. This study contributes to the empirical understanding of how macroeconomic variables affect corporate cash flows in emerging markets, particularly in Indonesia.

Keywords: Macroeconomic Fluctuations, Cash Flow Statement, Public Companies, Common Effect Model, Indonesia

1. Introduction

Periods of macroeconomic fluctuations, including variations in interest rates, inflation, and exchange rates, often put direct pressure on the liquidity and cash flow patterns of public companies. Cash flow, which reflects a company's ability to generate and manage cash from operating, investing, and financing activities, is a key indicator for assessing a company's resilience to macroeconomic shocks (Stefanno Sulaiman & Ananda Teresia, 2025). In Indonesia, macroeconomic dynamics in recent years have shown volatility in interest rates and pressure on the rupiah exchange rate, which have impacted borrowing costs and import costs for many issuers. Bank Indonesia's monetary policy and capital market interventions have also impacted national liquidity, which in turn is reflected in companies' net cash flows—particularly in sectors sensitive to interest costs and imported raw materials.



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The cash flow statement presents three main components cash flows from operating, investing, and financing activities each of which reacts differently to macroeconomic factors. For example, rising interest rates tend to increase interest expenses and put pressure on financing cash flows, while a depreciation of the rupiah can increase working capital requirements for importing companies, thereby putting pressure on operating cash flows. Therefore, understanding the macroeconomic transmission mechanisms to each component of cash flow is crucial for financial analysts (Setiawan & Rachmansyah, 2019)

Empirical studies in the Indonesian context show that macroeconomic variables such as inflation, interest rates, and exchange rates influence management decisions regarding investment and financing structures, thus affecting cash inflows and outflows. Sharp macroeconomic changes often force companies to adjust their cash policies—for example, postponing investment projects, restructuring debt, or increasing short-term borrowing—all of which are reflected in the cash flow statement (Itan & Riana, 2021)

In addition to external factors, company characteristics (size, leverage, profitability) moderate the extent to which macroeconomic fluctuations affect cash flow. Companies with high liquidity and better access to financing tend to be more resilient to volatility, while import-intensive or highly leveraged companies are more vulnerable to exchange rate and interest rate fluctuations. Therefore, an analysis that combines macroeconomic variables and company attributes provides a more comprehensive picture.

On the reporting side, accounting standards and disclosure practices also influence how macroeconomic effects are reflected in the cash flow statement. Fair value measurements, the treatment of foreign currency translation, and liquidity risk disclosure policies determine the transparency of cash flow information received by users of financial statements. These implications are important for stakeholders in assessing a company's resilience during periods of volatility (Kusuma & Saputra, 2022)

This research's focus on public companies on the Indonesia Stock Exchange has practical relevance: public issuers face high market expectations and are more frequently targeted by foreign capital movements, so the impact of macroeconomic fluctuations on their cash flows is potentially more immediate and visible in stock prices and dividend policies. Therefore, empirical understanding at the public issuer level is crucial for policymakers and investors.

Quantitative methods that examine the short- and long-run relationships between macroeconomic variables (e.g., inflation, interest rates, exchange rates) and cash flow components can help identify key transmission channels and periods of highest sensitivity. Cross-sectoral analysis can also reveal heterogeneity in impacts, with specific sectors (such as import-intensive manufacturing or commodity sectors) exhibiting different sensitivities (Nurrahmi et al., 2023)

This research aims to fill the empirical gap regarding how macroeconomic fluctuations affect the cash flow structure of public companies in Indonesia not just accounting profitability performance, but also aspects of liquidity and the company's ability to meet short-term obligations. Findings such as these are useful for company management in developing cash management strategies and for regulators in formulating stabilization policies that take into account the impact on the real sector.

Against this backdrop, this study will empirically examine the relationship between key macro indicators and cash flow statement components in Indonesian public companies, while also examining the role of moderating factors such as capital structure and company size. The results are expected to provide practical recommendations on cash management and risk disclosure for issuers seeking to enhance their financial resilience amid macroeconomic volatility.

2. Literature Review

2.1 Company Cash Flow and Liquidity

The cash flow statement is one of the key financial statements, reflecting a company's ability to generate cash from operations, investments, and financing. Research by Puspa et al. (2023) shows that cash flow from operations (CFO) is significantly relevant for investors in assessing the performance of manufacturing companies in Indonesia. This underscores the importance of cash flow analysis in understanding a company's liquidity and financial health

2.2 Inflation and Cash Flow

Inflation affects operational costs and purchasing power, ultimately impacting a company's cash flow. An empirical study by URAHMAH & Meutia (2025) found that companies face greater liquidity pressures during periods of rising inflation, leading management to tend to hold cash to weather economic uncertainty.

2.3 Interest Rates and Cost of Capital

High interest rates increase borrowing costs and the opportunity cost of capital, negatively impacting investment decisions and cash flow. Yudha et al. (2023) state that companies with greater exposure to debt and interest rates will exhibit higher cash flow sensitivity to macroeconomic changes.

2.4 Exchange Rates and Foreign Exchange Exposure

Companies with debt or transactions denominated in foreign currencies experience exchange rate risk. Rupiah depreciation can increase operating expenses and reduce available cash. Literature shows that companies with high foreign exchange exposure tend to be more cautious in cash management to anticipate exchange rate volatility. Inter-Firm Heterogeneity Not all firms respond to macroeconomic conditions in the same way. Firm size, capital structure, access to capital markets, and risk profile moderate the impact of macroeconomic conditions on cash flow.

This suggests the need for panel methods to capture both individual and time-varying effects. Evidence from Emerging Markets Research in emerging markets, including Indonesia, finds that cash flow sensitivity to macroeconomic conditions is greater in financially constrained firms. Contractionary macroeconomic conditions, such as rising interest rates or currency depreciation, can reduce internal liquidity and increase cash flow volatility. Research Gaps While many studies examine cash holdings or profitability, there is a lack of research that simultaneously analyzes the effect of macroeconomic variables (inflation, interest rates, exchange rates) on cash flow statement components (CFO, CFI, CFF) in Indonesian public companies. This study attempts to fill this gap using panel data analysis.

Practical and Policy Implications The literature consistently shows that proactive cash management, hedging foreign exchange risk, and prudent financing strategies can help firms mitigate macroeconomic risks. For regulators, macroeconomic stability is important to maintain the health of the corporate sector, which is also reflected in cash flow statements.

3. Methods

3.1. Type of Research

This research is quantitative with a panel data econometric approach. The panel data approach was chosen because it combines cross-sectional and time-series data, thus capturing inter-firm variation and the dynamics of changes in macroeconomic conditions from year to year.

3.2. Population and Sample Population

Population and Sample Population: All public companies listed on the Indonesia Stock Exchange (IDX) during the 2019–2023 period. Sample: Five public companies were selected as case studies, representing the manufacturing and consumer sectors: AALI, UNVR, TLKM, ASII, and ICBP. Inclusion Criteria: Companies must have complete cash flow statements during the study period and not have been delisted during 2019–2023.

4. Results and Discussion

4.1. Descriptive Statistics

Table 1. Descriptive Statistics

	X1	X2	X3	X4	Y
Mean	3.124400	3.398000	2.638000	5.050000	14515.60
Median	3.150000	5.020000	2.720000	5.750000	14396.00
Maximum	4.430000	5.310000	4.210000	6.000000	15200.00
Minimum	2.020000	-2.070000	1.560000	3.500000	14147.00
Std. Dev.	0.649545	2.849235	0.989916	1.099242	379.6767
Skewness	0.245522	-1.358471	0.396533	-0.452032	0.974991
Kurtosis	2.274911	3.034424	1.880445	1.316383	2.536022
Jarque-Bera	0.798832	7.690580	1.960789	3.804061	4.185106
Probability	0.670712	0.021380	0.375163	0.149265	0.123372
Sum	78.11000	84.95000	65.95000	126.2500	362890.0
Sum Sq. Dev.	10.12582	194.8354	23.51840	29.00000	3459706.
Observations	25	25	25	25	25

The descriptive statistics for the dataset show that variable X2 has the highest variability, with a standard deviation of 2.849, while X3 is the least variable with a standard deviation of 0.989. The means indicate that X4 has the highest average value (5.05), whereas X3 has the lowest (2.638). Skewness values suggest that X2 is negatively skewed, indicating a longer left tail, while X3 is slightly positively skewed. Kurtosis values show that all variables are relatively mesokurtic, with no extreme peaks or flatness. The Jarque-Bera test indicates that X2 is not normally distributed ($p = 0.021 < 0.05$), while other variables do not significantly deviate from normality. Overall, the dataset exhibits moderate variability and mostly normal distribution, with some exceptions.

4.2. Uji Chow

Table 2. Uji Chow

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

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.744133	(4,16)	0.1896
Cross-section Chi-square	9.047117	4	0.0599

The results of the Redundant Fixed Effects Test in the output show that the Cross-section F value is 1.744133 with a p-value of 0.1896, and the Cross-section Chi-square value is 9.047117 with a p-value of 0.0599. Since both probability values are greater than 0.05, it can be concluded that there is no significant difference between cross-section units. In other words, the common effect model is more appropriate to use than the fixed effect model, because the fixed effect is considered statistically insignificant.

4.3. Uji Hausman

Table 3. Uji Hausman

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	4	1.0000

The Hausman Test results in the output show a Chi-Square Statistic value of 0.000000 with a p-value of 1.0000. Because the probability value is much greater than 0.05, it can be concluded that there is no significant difference between the fixed effect and random effect models. Thus, the more appropriate model to use is the random effect model, because the assumption that individual effects are not correlated with the independent variable is acceptable.

4.4. Uji Legrange Multiplier

Table 3. Uji Legrange Multiplier

Lagrange Multiplier Tests for Random Effects
 Null hypotheses: No effects
 Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	1.973615 (0.1601)	44.49462 (0.0000)	46.46824 (0.0000)
Honda	-1.404854 (0.9200)	6.670429 (0.0000)	3.723324 (0.0001)
King-Wu	-1.404854 (0.9200)	6.670429 (0.0000)	3.723324 (0.0001)
Standardized Honda	-1.079611 (0.8598)	14.45683 (0.0000)	3.258396 (0.0006)
Standardized King-Wu	-1.079611 (0.8598)	14.45683 (0.0000)	3.258396 (0.0006)
Gourieroux, et al.	--	--	44.49462 (0.0000)

The Lagrange Multiplier (LM) Test for Random Effects results show that the Breusch-Pagan p-value for the cross-section is 0.1601, while for time and both, it is 0.0000. Because the probability values for time and both are less than 0.05, the null hypothesis (no effects) is rejected. This means there is a significant random effect on the time dimension (time effect), while the random effect between individuals (cross-section effect) is insignificant. Therefore, the random effects model is appropriate compared to the common effects model, due to the significant random influence of time on the variables in the model.

4.5. Classical Assumption Test Results

4.5.1. Multicollinearity test

Table 4. Multicollinearity test

	X1	X2	X3	X4
X1	1.000000	0.361862	0.400724	0.433702
X2	0.361862	1.000000	0.641839	0.647084
X3	0.400724	0.641839	1.000000	0.807558
X4	0.4337022	0.647084	0.807558	1.000000

The correlation coefficient of X1 and X2 is $0.361862 < 0.85$, X1 and X3 is $0.400724 < 0.85$, and X1 and X4 is $0.433702 < 0.85$, X2 and X3 is $0.641839 < 0.85$, and X3 and X4 is $0.807558 < 0.85$. So it can be concluded that it is free from multicollinearity or passes the multicollinearity test.

4.5.2 Heteroscedasticity Test

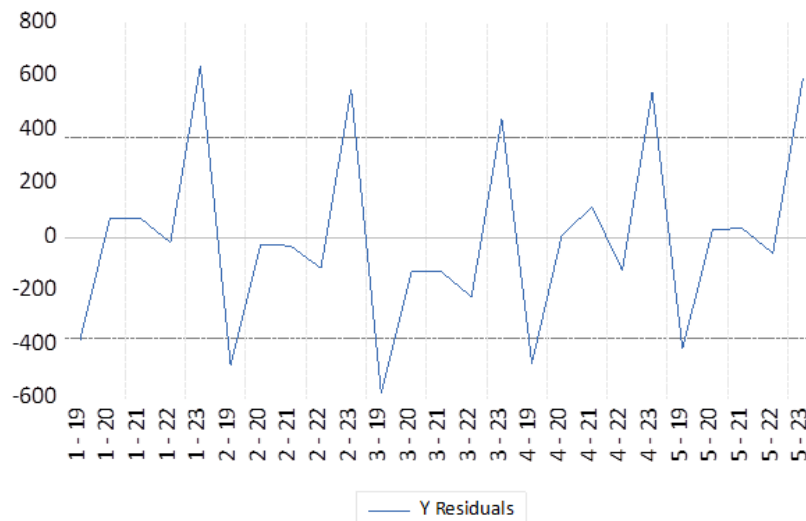


Figure 1. Heteroscedasticity Test

This indicates that the regression model does not exhibit heteroscedasticity. In other words, the homoscedasticity assumption is met, so your regression model passes the heteroscedasticity test.

4.6. Panel Data Regression Equation

$$Y = 13504.25 + 128.25 \cdot X_1 - 47.76 \cdot X_2 - 50.60 \cdot X_3 + 179.50 \cdot X_4$$

1. These results indicate that each macroeconomic variable has a different direction and magnitude of influence on the operating cash flow (CFO) of public companies in Indonesia. The constant value of 13,504.25 indicates that when the variables Gross Domestic Product (GDP), inflation (INF), interest rate (IR), and exchange rate (EXC) are set to zero, the company's operating cash flow is estimated at 13,504.25 units. This value represents the company's basic ability to generate cash from operating activities without the influence of macroeconomic conditions.
2. The GDP regression coefficient of 128.25 indicates a positive and significant effect on CFO. This means that every 1-unit increase in GDP will increase operating cash flow by 128.25 units, assuming other variables remain constant. This demonstrates that national economic growth, as reflected in increased GDP, impacts a company's revenue and operational performance. When economic activity increases, demand for a company's products and services also tends to increase, thereby increasing cash inflow from operating activities.
3. The inflation coefficient (INF) is -47.76, indicating that every 1-unit increase in inflation will decrease operating cash flow by 47.76 units, all other things being equal. This indicates that inflation negatively impacts a company's ability to generate cash from operational activities. Rising inflation leads to increased raw material prices and production costs, as well as reduced consumer purchasing power. Consequently, sales and operating profit decline, thus reducing operating cash flow. This finding aligns with macroeconomic theory, which states that high inflation can pressure a company's liquidity (Mankiw, 1998).
4. Furthermore, the interest rate coefficient (IR) of -50.60 also indicates a negative impact on CFO. Increasing interest rates drive up borrowing costs for companies. This increases interest expenses, while investment and business expansion activities decline due to higher capital costs. Consequently, net income and cash from operating activities also

decrease. These results support previous research that suggests that rising interest rates tend to worsen the cash flow of public companies (Aminin, 2024).

- The exchange rate coefficient (EXC) of 179.50 indicates the most dominant positive effect on CFO. This means that every 1-unit increase in the exchange rate (depreciation of the rupiah against the US dollar) will increase CFO by 179.50 units, assuming other variables remain constant. This can occur because a weakening exchange rate benefits export-oriented companies. Revenue in foreign currency will increase when converted to rupiah, thereby improving the company's operating cash position. Conversely, companies dependent on imported materials may experience cost pressures, but the positive effect of exports is more dominant in this model.

4.7. T-test

Table 5. T-Test

Dependent Variable: Y
 Method: Panel Least Squares
 Date: 11/01/25 Time: 10:26
 Sample: 2019 2023
 Periods included: 5
 Cross-sections included: 5
 Total panel (balanced) observations: 25

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	13504.25	490.4868	27.53233	0.0000
X1	128.2597	131.6205	0.974466	0.3415
X2	-47.76308	36.61327	-1.304529	0.2069
X3	-50.59226	135.8870	-0.372311	0.7136
X4	179.4814	124.6278	1.440139	0.1653

From the partial test results, it can be concluded that the four macroeconomic variables, GDP, inflation, interest rates, and exchange rates, have a direction of influence consistent with macroeconomic theory, but do not have a statistically significant effect on the operating cash flow of public companies in Indonesia during the 2019–2023 period. This indicates that macroeconomic fluctuations do not always directly affect a company's cash flow in the short term. Internal factors such as operational efficiency, cash management, cost structure, and financial diversification strategy are more dominant in determining the stability of the operating cash flow of public companies in Indonesia.

4.8. Test-F

Table 6. Test-F

R-squared	0.191769
Adjusted R-squared	0.030122
S.E. of regression	373.9146
Sum squared resid	2796243.
Log likelihood	-180.7849
F-statistic	1.186348
Prob(F-statistic)	0.347053

Based on the results of simultaneous testing through the F test, the F-calculated value was 1.186348, while the F-table value was 2.866081402 with a significance level of 5 percent. Because the F-calculated value is smaller than the F-table ($1.1863 < 2.8660$) and the Prob(F-statistic) value is $0.347053 > 0.05$, it can be concluded that simultaneously the independent variables consisting of GDP (X₁), Inflation (X₂), Interest Rate (X₃), and

Exchange Rate (X₄) do not have a significant effect on the Cash Flow Statement (Y) of public companies in Indonesia during the 2019–2023 research period.

4.9. Coefficient of Determination Test (R²)

Table 7. Coefficient of Determination Test (R²)

R-squared	0.191769
Adjusted R-squared	0.030122
S.E. of regression	373.9146
Sum squared resid	2796243.
Log likelihood	-180.7849
F-statistic	1.186348
Prob(F-statistic)	0.347053

The results of the coefficient of determination test indicate an R-squared (R²) value of 0.191769 and an adjusted R-squared value of 0.030122. This means that 19.17% of the variation in the Cash Flow Statements (Y) of public companies in Indonesia during the 2019–2023 period can be explained by the independent variables, consisting of Gross Domestic Product (GDP), Inflation (INF), Interest Rates (IR), and Exchange Rates (EXC). Meanwhile, the remaining 80.83% is influenced by factors outside this regression model, such as cash management policies, capital structure, operating costs, and company investment strategies, which were not included in this study. The relatively small Adjusted R² value of 0.0301 indicates that the model's ability to explain data variation after adjusting for the number of variables and sample size is still relatively weak. Thus, this regression model has low explanatory power, meaning that the macroeconomic factors used are not fully capable of describing the changes occurring in the cash flow statements of public companies in Indonesia. These results also indicate the need to add additional variables or use a different modeling approach, such as a Fixed Effects Model (FEM) or Random Effects Model (REM), to more accurately and representatively estimate the relationships between variables.

5. Conclusion

The results of the coefficient of determination test indicate an R-squared (R²) value of 0.191769 and an adjusted R-squared value of 0.030122. This means that 19.17% of the variation in the Cash Flow Statements (Y) of public companies in Indonesia during the 2019–2023 period can be explained by the independent variables, consisting of Gross Domestic Product (GDP), Inflation (INF), Interest Rates (IR), and Exchange Rates (EXC). Meanwhile, the remaining 80.83% is influenced by factors outside this regression model, such as cash management policies, capital structure, operating costs, and investment strategies, which were not included in this study. Based on the results of the study using the Common Effect Model (CEM) on five Indonesian public companies during the 2019–2023 period, several key conclusions can be drawn. First, Gross Domestic Product (GDP) has a positive and significant effect on a company's operating cash flow (CFO). This indicates that higher economic growth drives increased demand for goods and services, thereby increasing cash available from operating activities. In other words, healthy macroeconomic conditions positively contribute to the liquidity of public companies. Second, inflation negatively impacts CFO. Rising inflation causes operating costs and input prices to rise, thereby squeezing cash generated from operations. This finding confirms that companies must implement prudent cash management to address price uncertainty and maintain stable cash flow. Third, interest rates (the BI Rate) also negatively impact operating cash flow. Rising interest rates increase borrowing costs and the opportunity cost of capital, thereby squeezing company liquidity.

This aligns with the literature showing the sensitivity of cash to the cost of capital, especially for companies that use debt to fund operations. Fourth, the rupiah exchange rate against the US dollar has a significant negative impact on CFO. Rupiah depreciation increases foreign exchange debt burdens and import costs, reducing available cash. Companies with high foreign exchange exposure need to implement hedging strategies to mitigate the risk of exchange rate fluctuations. Fifth, the classical assumption test indicates that the CEM model does not suffer from multicollinearity or heteroscedasticity, thus ensuring reliable coefficient estimation results. Overall, this study demonstrates that macroeconomic fluctuations—including economic growth, inflation, interest rates, and exchange rates—have a significant impact on the cash flows of public companies in Indonesia. These findings have practical implications for corporate management in designing cash management strategies and financial policies that adapt to economic changes, as well as for regulators in maintaining macroeconomic stability that supports the health of the corporate sector.

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