International Research Journal of
BUSINESS STUDIES

ISSN: 2089-6271 | e-ISSN: 2338-4565 | https://doi.org/10.21632/irjbs

Vol. 18 | No. 3

Free Cash Flow and Profitability in Indonesian Energy Companies

Amrie Firmansyah[1], Nafis Dwi Kartiko[2]

1 Faculty of Economics and Business, Universitas Pembangunan Nasional Veteran Jakarta, Jl. Pondok Labu Raya, Pondok Labu, Cilandak, Jakarta Selatan, DKI Jakarta 12450, Indonesia
2 Directorate General of Taxes, Ministry of Finance of the Republic of Indonesia, Kav. 40-42, Jl. Gatot Subroto No.77, Senayan, Kebayoran Baru, Jakarta Selatan, DKI Jakarta 12190, Indonesia

ARTICLE INFO

Keywords:
Free Cash Flow,
Return on Assets,
Return on Equity,
Agency Theory, Energy Sector

Kata Kunci:
Arus Kas Bebas,
Return on Assets,
Return on Equity,
Teori Keagenan,
Sektor Energi

ABSTRACT

This study aims to examine the relationship between free cash flow (FCF) and firm profitability in the Indonesian energy sector. Using a quantitative approach and panel regression method, this study evaluates data from 978 annual observations of energy companies over the period 2002-2023. The analysis reveals that FCF generally has a significant negative impact on profitability, both in the short term (ROA, ROE) and the long term (LTROA, LTROE). This negative effect is most pronounced in the middle quantiles of the firm performance distribution, supporting the argument in agency theory that free cash accumulation without adequate supervision may trigger opportunistic managerial behavior and inefficient investment. In contrast, at the highest quantile, the effect of FCF tends to be insignificant, indicating that high-performing firms are able to manage FCF more optimally. This finding emphasizes the importance of strengthening corporate governance mechanisms to direct FCF allocation to productive investments and improve long-term profitability.

Corresponding author:
amriefirmansyah@upnvj.ac.id

SARI PATI

Penelitian ini bertujuan untuk menganalisis hubungan antara free cash flow *(FCF) dan profitabilitas perusahaan di sektor energi di Indonesia. Dengan menggunakan pendekatan kuantitatif dan metode regresi panel, studi ini mengevaluasi data dari 978 observasi tahunan perusahaan energi selama periode 2002–2023. Hasil analisis menunjukkan bahwa secara umum FCF memiliki pengaruh negatif yang signifikan terhadap profitabilitas, baik dalam jangka pendek (ROA, ROE) maupun jangka panjang (LTROA, LTROE). Pengaruh negatif ini paling kuat terlihat pada kuantil tengah dari distribusi kinerja perusahaan, mendukung argumen dalam teori keagenan bahwa akumulasi kas bebas tanpa pengawasan memadai dapat memicu perilaku oportunistik manajer dan investasi yang tidak efisien. Sebaliknya, pada kuantil tertinggi, pengaruh FCF cenderung tidak signifikan, mengindikasikan bahwa perusahaan dengan kinerja tinggi mampu mengelola FCF secara lebih optimal. Temuan ini menekankan pentingnya penguatan mekanisme tata kelola perusahaan untuk mengarahkan alokasi FCF ke investasi produktif dan meningkatkan profitabilitas jangka panjang.*

INTRODUCTION

Free cash flow (FCF) is a crucial financial indicator that impacts a company's overall performance. FCF is defined as the cash flow a company generates after deducting capital expenditures required to maintain or expand its asset base. The free cash flow acts as a reserve that allows the company to have financial flexibility, such as dividend payments, share buybacks, or investments in new projects (Estwick, 2016; Miglo, 2020; Priest & McClelland, 2011). However, excess FCF also has the potential to have a negative impact due to agency problems, where management may prioritize personal interests over those of shareholders. Jensen's free cash flow hypothesis states that firms with high levels of free cash tend to overinvest in unprofitable projects, which adversely affects firm performance through inefficient resource allocation (Lin & Lin, 2018; Richardson, 2006; Wang, 2010). Conversely, limited free cash flow can encourage earnings manipulation, as companies may be tempted to manipulate financial statements to meet investor and market expectations (Hastuti et al., 2018; Widiasmara & Saputri, 2022). Therefore, effective and balanced management of free cash flow is essential, as both excess and shortage of FCF can adversely affect operational efficiency and profitability (Agustia, 2013; Hong et al., 2014; Sapuan et al., 2021; Tristiarini & Pratiwi, 2018).

A growing body of research highlights the role of corporate governance in mitigating adverse outcomes associated with high free cash flow. Firms with strong governance structures are better equipped to align managerial incentives with shareholder interests and ensure more disciplined use of cash resources (Guo, 2023; Lai et al., 2020). In line with these findings, prior studies also emphasize that the impact of free cash flow on performance depends heavily on how stakeholders perceive and manage these resources, where adequate governance can reduce agency costs and support long-term sustainable performance (Prastiyono & Nurwulandari, 2024; Santoso, 2023; Shamsabadi et al., 2016). Therefore, strategies that encourage prudent and transparent cash flow management become crucial in enhancing firm value and minimizing agency conflicts. Furthermore, free cash flow plays a significant role in assessing a company's financial health, as it strongly influences managerial and investment decision-making processes. Combining effective governance with active cash management is thus essential to translate the potential benefits of FCF into real performance improvements (Chu, 2011; Djaddang et al., 2023; Kunaifi & Hakim, 2020).

The management of FCF is also closely linked to profitability. When managed properly, FCF enables firms to allocate surplus cash to value-generating projects with high returns, enhancing operational efficiency and profitability (Ali et al., 2018). In contrast, the free cash flow hypothesis posits that under conditions of weak governance, managers may potentially overinvest in projects that generate low or even negative returns, resulting in an inefficient use of capital that is detrimental to shareholder value and profitability (Lin & Lin, 2018; Saravia, 2014). These risks are even greater in environments with limited oversight, where managerial discretion over free cash can trigger suboptimal decisions that erode firm performance (Jain et al., 2023). Moreover, effective FCF management requires a balance between reinvestment and appropriate dividend policy; through this approach, firms can avoid agency cost issues as well as ensure that cash is not misused for projects that undermine firm value, so that profitability remains strong and sustainable growth is maintained (Oktaryani & Mannan, 2018). Empirical evidence from various industry sectors, such as banking and automotive, further supports the argument that disciplined cash management practices are correlated with increased profitability. As firms efficiently utilize free cash flow, they are better positioned to generate profits and reduce financial risk (Ali et al., 2018; Sedhai, 2022). Thus, firms with strong governance frameworks are more capable of optimizing FCF to strengthen long-term profitability.

This study aims to investigate the relationship between free cash flow (FCF) and firm profitability in the Indonesian energy sector. FCF is widely used as an indicator of financial strength, yet empirical studies specifically examining its impact on profitability, particularly in Indonesia, remain limited. The energy sector serves as an ideal context for this investigation due to its strategic importance and inherently high-cash-flow operational characteristics. The large amount of cash generated in this industry provides greater managerial discretion, which may increase agency risks if not properly governed (Jain et al., 2023). Therefore, this study seeks to fill the existing research gap by providing empirical evidence on how FCF affects profitability in the Indonesian energy sector, a topic that has received limited scholarly attention.

Theoretically, this research contributes to agency theory by examining how the separation of ownership and control affects managerial discretion over free cash flow. When excess funds are available, conflicts of interest between shareholders and managers become more pronounced, as managers may allocate FCF in ways that do not align with shareholder objectives (Jensen, 1986). By analyzing the link between FCF and profitability, this study enhances understanding of how monitoring mechanisms can reduce agency costs associated with discretionary cash. From a practical standpoint, the findings provide guidance for energy companies in developing more effective cash management strategies, which can support informed investment decisions and optimal dividend policies. Regulators and stakeholders may also benefit from insights regarding the importance of strengthening governance to prevent the misuse of FCF. For investors, FCF can serve as a key signal in evaluating a firm's performance and sustainability. Overall, this study provides both theoretical and practical contributions by highlighting the role of free cash flow management in achieving long-term profitability.

Agency theory is a strong conceptual foundation for understanding the management of FCF within the company. The theory originates from Jensen & Meckling (1976), who define the firm as a nexus of contracts and explain that agency conflicts arise when managers, acting as agents, have objectives that differ from those of shareholders, who are the principals. This conflict becomes more pronounced when excess cash flow exists because managers may exercise discretion over financial resources without direct alignment with shareholder value. Building on this foundation, Jensen (1986) asserts that excess FCF can encourage managers to pursue personal goals that are not aligned with the interests of shareholders. In his seminal work, Jensen stated that high free cash flow creates incentives for managers to invest the funds into projects that are not profitable or outside the main focus of the company, which ultimately increases agency costs. Empirical research by Wang (2010) confirms that the presence of large FCF increases the likelihood of managers overinvesting and inefficient capital allocation. Similarly, Saravia (2013) shows that management tends to invest in projects that provide lower returns than the firm's cost of capital when FCF is available in large amounts.

Hjelmstad et al. (2006), in the context of open market share repurchases, support agency theory by showing that managerial decisions regarding cash distribution are often influenced by concerns about agency conflicts. Managers may choose to retain excess internal funds for self-interest or to maintain managerial control, rather than to increase shareholder value. Doğru & Sirakaya-Turk (2018) add that weak corporate governance exacerbates agency conflicts, as in this situation, CEOs are more likely to hold FCF rather than distribute it through dividends or share buybacks. As a result, there is an increased risk of inefficient investment practices. On the other hand, Chauhan & Rao (2022) highlight that in emerging markets, managerial behavior influenced by agency conflicts often results in excessive FCF accumulation. This condition creates

an opportunity for managers to overinvest, which can undermine firm value.

Previous research on the relationship between FCF and profitability has yielded mixed and complex results, depending on both managerial behavior and external factors that influence decision-making. FCF is generally defined as the cash left over after a company covers operating expenses and capital expenditures, which, if allocated efficiently, can signal healthy operations and a productive source of internal financing (Permata et al., 2018). In this context, FCF used to fund high-return projects can increase profitability and firm value. Permata et al. (2018) found that FCF, together with profitability and firm size, has a significant effect on firm value. This research confirms the importance of effective FCF management in supporting sustainable financial performance. Jasmine & Machdar (2024) examined the dynamics between FCF, profitability, and dividend policy, and found that firms with high profitability and optimal FCF levels tend to implement dividend policies that are favorable to shareholders. This reinforces the positive relationship between liquidity and profit creation. However, the literature also shows the problematic side of high FCF. Lin & Lin (2018) suggest that excess cash, especially in firms with low growth prospects, tends to increase the risk of agency conflicts. In such situations, managers have the discretion to use funds inefficiently through unprofitable investments or unnecessary expenditures.

Pasandidehfar et al. (2016) highlight that external pressures, such as political costs and managerial bonus schemes, complicate the relationship between FCF and profitability, indicating that FCF outcomes are not solely determined by internal policies. In addition, Wahyudi & Hatta (2024) added that although profitability can increase FCF, the opposite effect can be detrimental if cash allocation is not done strategically. These findings underline that the relationship between FCF and profitability is not linear, but context-dependent and sensitive to governance quality. Several empirical studies confirm that the positive impact of FCF on profitability is highly dependent on the existence of good governance and supportive financial policies. Bella & Yantri (2022), for example, research has found that in the food and beverage sector, FCF has a positive effect on profitability because companies can utilize it to finance growth, pay debts, and provide dividends. Angela et al. (2023) also support this view by showing that FCF managed with effective working capital management can increase firm value through improved profitability.

From an agency theory perspective, FCF can serve as an indicator of a firm's internal control effectiveness. Managers acting in the interest of shareholders tend to allocate FCF to productive projects, whereas opportunistic managers may misuse the funds for personal interests or low-return risk projects (Wang, 2010). Therefore, prior studies have increasingly emphasized the role of moderating mechanisms, such as dividend policy and capital structure, in ensuring that FCF does not trigger agency problems (Oktaryani & Mannan, 2018; Rakhman et al., 2020). Dividend policy, for example, acts as a disciplinary mechanism that can prevent managers from holding excess cash and using it for unproductive activities. Furthermore, industry context and firm characteristics are important factors in determining the relationship between FCF and profitability. In the food and beverage industry, as studied by Bella & Yantri (2022), the positive relationship between FCF and profitability is more pronounced when firms focus on stability and have limited investment opportunities. Other external factors, such as market pressures and shareholder expectations, also influence the decision to use FCF and its impact on profitability (Angela et al., 2023; Hastuti et al., 2018). Taken together, these studies demonstrate that the profitability effect of FCF is heavily dependent on governance strength, market environment, and firm-specific conditions.

Stronger governance mechanisms ensure that free cash flow is allocated to productive investments rather than being subject to managerial discretion,

thereby enhancing profitability. Meanwhile, external market conditions such as industry competition, liquidity pressures, and shareholder expectations shape how firms utilize available cash resources to generate returns. In addition, firm-specific characteristics, including growth opportunities, operational efficiency, and financial policies, further determine whether FCF translates into higher profitability or leads to potential agency-related inefficiencies.

H1: The higher the free cash flow value, the higher the firm's profitability.

METHODS

This research employs a quantitative approach, utilizing a documentary study method, to analyze secondary data obtained from the financial statements of energy sector companies listed on the Indonesia Stock Exchange. The population in this study consisted of 82 energy companies that were consistently listed on the stock exchange from 2002 to 2023. Researchers collected data through annual reports and financial reports published on the official website of the Indonesia Stock Exchange and the websites of each company. The sampling technique used was purposive sampling, with the criterion that the company must have complete and relevant data during the observation period. This criterion aims to ensure the validity of the data used in testing the research hypothesis. Based on this screening, a total of 978 annual observations were obtained, which were used as the unit of analysis. The data collected includes free cash flow variables, profitability, and other control variables.

The operationalization of variables in this study is explained systematically to ensure proper measurement of the concepts under study. The independent variable, namely free cash flow (FCF), is measured by dividing free cash flow by total assets to assess the efficient use of company funds. The dependent variables that reflect firm value consist of Return on Assets (ROA), Return on Equity (ROE), Long Term Return on Assets (LTROA), and Long Term Return on Equity (LTROE), each of which is calculated based on net income against assets or equity in both the short and long term. Firm-level control variables include firm size measured using the natural logarithm of total annual sales (LOG_SALES), net income-to-earnings ratio (NI_RATIO), and sustainable growth rate (SGR) calculated from ROE. Detailed information on the definition and measurement of these variables can be found in Table 1.

The econometric model in this study employs a panel data approach to simultaneously accommodate both time and individual dimensions. This approach enables a more accurate analysis of the dynamics between variables, as it can control for unobserved heterogeneity among companies. Researchers estimate the model using three approaches: the Common Effect Model (CEM), the Fixed Effect Model (FEM), and the Random Effect Model (REM). CEM assumes that differences between individuals are insignificant, while FEM controls for unobserved individual variables by including fixed effects, and REM treats these differences as random components. To determine the best model, the researcher conducted three types of model testing in sequence. The Chow test is used to determine whether to use CEM or FEM by testing whether the difference in fixed effects is statistically significant. If the Chow test result is significant, then FEM is more appropriate. Next, we conducted the Lagrange Multiplier (LM) test to compare CEM and REM; if the result is significant, REM is more appropriate than CEM. After that, the Hausman test was applied to choose between FEM and REM by evaluating the consistency of the estimates; FEM was selected if the test results showed significant differences.

Prior to estimation, we winsorized the data to reduce the influence of extreme outliers without removing observations from the dataset. This treatment maintains the stability of the regression results while maintaining the diversity of the data. In addition, the data has also been tested using a multicollinearity test to ensure that there is no high linear relationship

Table 1. Variable Operationalization

Variable	Operationalization
Independent Variables: Free Cash Flow	
Free Cash Flow (FCF)	Free Cash Flow divided by Total Assets (Fakhroni et al., 2018).
Dependent Variables: Firm Value	
Return-on-Assets (ROA)	ROA is measured by dividing net income by total assets to assess the company's efficiency in generating profits from its assets (Dharma & Riswan, 2025; Puspitasari et al., 2025; Yunanto & Putra, 2025).
Return-on-Equity (ROE)	ROE is calculated by dividing net income by total equity to evaluate the return on shareholders' investment (Dharma & Riswan, 2025; Puspitasari et al., 2025; Yunanto & Putra, 2025).
Long Term Return-on-Assets (LTROA)	LTROA is operationalized as the average ROA over a four-year period to measure the performance of the company's long-term assets (Liu & Hung, 2006).
Long Term Return-on-Equity (LTROE)	LTROE is measured through the average ROE over five years to illustrate the stability of return on equity in the long term (modified from Liu & Hung, 2006).
Control Variable – Firm Level	
Sales (LOG_SALES)	LOG_SALES is measured using the natural logarithm of the company's total annual sales as an indicator of size and scale of operations (Banerjee & Deb, 2023).
Net Income Ratio (NI_RATIO)	NI_RATIO is calculated by dividing net income by revenue to show the company's net profit margin (Farandy & Afkar, 2022; Nenobais et al., 2022; Rahmat & Fathimah, 2022).
Sustainable Growth Rate (SGR)	SGR is calculated using the following formula (Chen et al., 2021): $SGR_t = \frac{ROE_t}{1 - ROE_t}$

between the independent variables. This test is important because multicollinearity can destabilize the coefficient estimates and reduce the accuracy of model interpretation. Furthermore, additional econometric diagnostic tests were conducted to ensure model robustness, including the Breusch-Pagan test to detect heteroskedasticity and the Wooldridge test to detect autocorrelation. When necessary, heteroskedasticity-robust standard errors were applied to improve the reliability of coefficient estimates. The test results indicate that the data do not suffer from multicollinearity problems, as evidenced by variance inflation factor (VIF) values below the recommended threshold. Thus, the panel regression model used has the validity and reliability to empirically examine the relationship between free cash flow and firm profitability (Baltagi, 2008; Gujarati & Porter, 2009). The following is the econometric equation in this study.

$$ROA_{i,d} = \beta_0 + \beta_1 FCF_{i,d} + \sum_{i=2}^{4} \varphi_{i,d} + \varepsilon$$

$$ROE_{i,d} = \beta_0 + \beta_1 FCF_{i,d} + \sum_{i=2}^{4} \varphi_{i,d} + \varepsilon$$

$$LTROA_{i,d} = \beta_0 + \beta_1 FCF_{i,d} + \sum_{i=2}^{4} \varphi_{i,d} + \varepsilon$$

$$LTROE_{i,d} = \beta_0 + \beta_1 FCF_{i,d} + \sum_{i=2}^{4} \varphi_{i,d} + \varepsilon$$

Where ROA = Return-on-Assets; ROE = Return-on-Equity; LTROA = Long Term Return-on-Assets; LTROE = Long Term Return-on-Equity; FCF = Free Cash Flow; $\varphi_{i,d}$ = Control Variables (Sales (LOG_SALES), Net Income Ratio (NI_RATIO), and Sustainable Growth Rate (SGR)).

RESULTS AND DISCUSSION

Based on the results of descriptive statistics in Table 2, it can be seen that the Return-on-Assets

(ROA) variable has an average value of 0.0315 with a standard deviation of 0.0784, indicating that, in general, the company is able to generate net income of around 3.15% of its total assets, but there is considerable variation between companies. The minimum ROA value of -0.0982 and the maximum of 0.1679 reflect significant differences in operational efficiency between companies in the sample. The Return-on-Equity (ROE) variable shows an average value of 0.0834 with a standard deviation of 0.1663, which means the average return on shareholders' equity is 8.34%, but with a higher spread of data than ROA, indicating instability in return on equity. For long-term performance, Long Term ROA (LTROA) has a mean identical to ROA at 0.0315, but with a lower standard deviation of 0.0622, indicating the relative stability of long-term profitability based on assets. Similarly, the Long Term ROE (LTROE) has an average of 0.0832 and a standard deviation of 0.1223, indicating a generally stable trend in long-term return on equity.

The independent variable, namely Free Cash Flow (FCF), has a relatively low average value of 0.0071 with a standard deviation of 0.0833, which indicates that the free cash flow to the company's total assets is generally small, but the data distribution is quite high, reflected in the minimum value of -0.1303 to a maximum of 0.1460. This indicates a large difference in the ability of each company to generate free cash after capital investment. For the control variables, firm size represented by the logarithm of annual sales (LOG_SALES) has an average of 9.5887 with a standard deviation of 1.6888, indicating a fairly wide distribution of firm size within the sample. The net profit growth variable (NI_GROWTH) has an average of 0.2620, but with a high standard deviation of 1.1920, and a range of values from -1.6397 to 2.6415, indicating that some companies experience negative growth or even losses. Finally, the Sustainable Growth Rate (SGR) variable recorded an average of 0.1290 with a very large standard deviation of 2.3003, as well as a minimum value of -36.5486 and a maximum of 41.0496, indicating huge disparities in sustainable growth rates between companies, as well as the possibility of extreme influences from certain financial conditions.

Based on Table 3, which presents the correlation matrix between variables, it is evident that the independent variable, free cash flow (FCF), exhibits a significant relationship with all dependent variables. FCF exhibits a significant positive correlation with Return-on-Assets (ROA), with a coefficient of 0.130 ($p < 0.01$), indicating that an increase in FCF tends to be accompanied by an increase in the efficiency of asset utilization in generating profits. The positive correlation between FCF and Return-on-Equity (ROE) was also noted to be significant at 0.070 ($p<0.05$), albeit with a lower relationship strength compared to ROA, suggesting that free cash flow plays a role in increasing return on equity. Furthermore, FCF has a significant correlation with Long Term ROA (LTROA) of 0.183 ($p < 0.01$), indicating that effective free cash management impacts the sustainability of asset-based profitability in the long run.

Table 2. Descriptive Statistics

Variable	Obs	Mean	Std. dev.	Min	Max
ROA	978	0.0315	0.0784	-0.0982	0.1679
ROE	978	0.0834	0.1663	-0.1959	0.3816
LTROA	978	0.0315	0.0622	-0.0982	0.1679
LTROE	978	0.0832	0.1223	-0.1959	0.3816
FCF	978	0.0071	0.0833	-0.1303	0.1460
LOG_SALES	978	9.5887	1.6888	7.4584	12.1805
NI_GROWTH	978	0.2620	1.1920	-1.6397	2.6415
SGR	978	0.1290	2.3003	-36.5486	41.0496

Table 3. Correlation Matrix

This table presents the Pairwise correlation coefficients between the variables used for hypothesis testing (p-values are in parentheses).

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) ROA	1.000							
(2) ROE	0.746***	1.000						
	(0.000)							
(3) LTROA	0.738***	0.564***	1.000					
	(0.000)	(0.000)						
(4) LTROE	0.549***	0.683***	0.793***	1.000				
	(0.000)	(0.000)	(0.000)					
(5) FCF	0.130***	0.070**	0.183***	0.108***	1.000			
	(0.000)	(0.029)	(0.000)	(0.001)				
(6) LOG_SALES	0.055*	0.094***	-0.007	0.076**	-0.065**	1.000		
	(0.088)	(0.003)	(0.815)	(0.017)	(0.041)			
(7) NI_GROWTH	0.474***	0.431***	0.328***	0.287***	-0.042	0.015	1.000	
	(0.000)	(0.000)	(0.000)	(0.000)	(0.191)	(0.641)		
(8) SGR	0.156***	0.126***	0.131***	0.111***	0.061*	-0.008	0.095***	1.000
	(0.000)	(0.000)	(0.000)	(0.001)	(0.058)	(0.812)	(0.003)	

*** p<0.01, ** p<0.05, * p<0.1

The correlation between FCF and Long Term ROE (LTROE) is also significant and positive at 0.108 ($p < 0.01$), indicating that companies that can maintain FCF in the long term tend to exhibit stability in providing returns to shareholders' equity. This relationship is consistent with the prediction of agency theory, which states that effectively managed FCF can increase firm value and performance. In addition, the correlation between the dependent variables is also high and significant, as seen between ROA and ROE at 0.746 ($p < 0.01$), indicating that the two measures move in the same direction in reflecting the company's financial performance. ROA also has a strong correlation with LTROA, at 0.738 ($p < 0.01$), and ROE with LTROE, at 0.683 ($p < 0.01$), which confirms that the company's short-term and long-term performance are closely related.

The correlation of FCF with control variables, such as LOG_SALES (-0.065), NI_GROWTH (-0.042), and SGR (0.061), is relatively low, but the relationship with SGR remains significant at the $p < 0.01$ level. This suggests that while FCF is not strongly correlated with firm size or net income growth, it remains relevant in the context of sustainable growth. Overall, this correlation pattern supports the assumption that FCF makes a significant contribution to firm profitability, both in the short and long term.

This section presents the estimation results of the panel regression model to examine the effect of free cash flow (FCF) on Return-on-Assets (ROA), with a comparison between three estimation approaches, namely Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM), as shown in Table 4. The first model (CEM) reveals that FCF has a significant positive effect on ROA, with a coefficient of 0.1386 ($t = 5.3171$; $p < 0.01$). This indicates that an increase in free cash flow can enhance the company's ability to generate profits from its assets. However, the Chow test yields a probability value of 0.0000, which leads to the use of the FEM model. In the second model (FEM), the results indicate that FCF has a significant negative effect on ROA, with a coefficient of -0.0463 ($t = -2.0412$; $p < 0.05$). This change in the direction of the coefficient confirms the importance of controlling for inter-firm fixed effects in explaining

Table 4. Regression Results

	CEM ROA	FEM ROA	REM ROA
FCF	0.1386***	-0.0463**	-0.0101
	(5.3171)	(-2.0412)	(-0.4386)
LOG_SALES	0.0027**	0.0213***	0.0070***
	(2.1009)	(5.9713)	(3.4034)
NI_GROWTH	0.0309***	0.0244***	0.0262***
	(16.9580)	(17.1393)	(17.7340)
SGR	0.0035***	0.0021***	0.0025***
	(3.7067)	(2.7883)	(3.1742)
Constant	-0.0038	-0.1790***	-0.0432**
	(-0.3060)	(-5.2326)	(-2.0960)
N	978	978	978
R^2-Adj	0.2583	0.2394	
F_Stat	86.0567	98.1343	
Prob > F	0.0000	0.0000	0.0000
Chow Test		0.0000 (FEM)	
LM Test			0.0000 (REM)
Hausman Test		0.0000 (FEM)	
Mean VIF		1.100	

"The table includes regression coefficients and t-statistics $\left(\frac{b}{t_{stat}}\right)$. The significance levels are denoted by ***, **, and *, corresponding to 1%, 5%, and 10% respectively"

the relationship between FCF and ROA. The model also has an adjusted R^2 value of 0.2394 and an F-stat of 98.1343, indicating that the model as a whole is significant in explaining variations in ROA.

Further testing with the LM Test yields a value of 0.0000, indicating that the REM model is more appropriate than the CEM. However, the Hausman test again supports the selection of the FEM model as the best model, with a probability value of 0.0000. The results of the third model (REM) indicate that the effect of FCF on ROA is insignificant, with a coefficient of -0.0101 (t = -0.4386), which reinforces the finding that the effect of FCF on ROA becomes meaningful only after controlling for fixed effects. Meanwhile, all control variables, including LOG_SALES, NI_GROWTH, and SGR, exert a significant positive influence on ROA in all models, with NI_GROWTH having the strongest and most consistently significant impact.

Table 5 presents the quantile regression results using the Fixed Effect Model approach as the best model based on the previous Chow, LM, and Hausman test results. This analysis aims to identify the effect of Free Cash Flow (FCF) on Return-on-Assets (ROA) in more depth at various quantile distributions, ranging from Q=0.05 to Q=0.95. The results show that FCF has a significant negative effect on ROA in almost all quantiles, especially at Q=0.25 to Q=0.75, with the highest coefficient value recorded at Q=0.45 of -0.0683 (t = -2.8033; $p < 0.01$). This indicates that in companies with medium profitability, an increase in FCF tends to reduce the efficiency of asset utilization. This finding aligns with the agency theory argument that excess cash not managed effectively can encourage managers to make unproductive investments.

Meanwhile, at the lower quantiles (Q=0.05 and Q=0.15), the negative effect of FCF on ROA is not statistically significant, suggesting that in very low-performing companies, free cash flow has a minimal impact. In contrast, in the upper quantiles (Q=0.85 and Q=0.95), although the coefficient of FCF remains negative, its significance decreases,

Table 5. Quantile Regression Results with Fixed Effects Model

	Q=0.05	Q=0.15	Q=0.25	Q=0.35	Q=0.45	Q=0.55	Q=0.65	Q=0.75	Q=0.85	Q=0.95
	ROA	ROA	ROA	ROA	ROA	ROA	ROA	ROA	ROA	ROA
FCF	-0.0699	-0.0693*	-0.0689**	-0.0686**	-0.0683***	-0.0680***	-0.0677**	-0.0674**	-0.0672*	-0.0666
	(-1.3039)	(-1.7049)	(-2.0985)	(-2.5036)	(-2.8033)	(-2.8080)	(-2.5056)	(-2.1755)	(-1.8503)	(-1.3546)
Log_Sales	0.0201**	0.0206***	0.0209***	0.0212***	0.0215***	0.0218***	0.0221***	0.0223***	0.0225***	0.0231***
	(2.5551)	(3.4500)	(4.3396)	(5.2758)	(6.0100)	(6.1397)	(5.5729)	(4.9083)	(4.2383)	(3.2000)
NETINCOME	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***
	(8.5614)	(11.0099)	(13.3822)	(15.7882)	(17.4918)	(17.3136)	(15.2979)	(13.1667)	(11.0883)	(7.9457)
SGR	0.0042**	0.0037***	0.0034***	0.0031***	0.0029***	0.0026***	0.0023***	0.0021**	0.0018	0.0013
	(2.4521)	(2.8684)	(3.2366)	(3.5515)	(3.6530)	(3.2869)	(2.6439)	(2.0799)	(1.5708)	(0.8455)
N	978	978	978	978	978	978	978	978	978	978

indicating that companies with high profitability tend to manage FCF more effectively. The control variables LOG_SALES, NETINCOME, and SGR show significant positive effects on ROA in almost all quantiles, reinforcing the importance of operating scale, net income growth, and sustainable growth as key determinants of profitability.

The coefficient of LOG_SALES remains stable and significant across quantiles, ranging from 0.0201 to 0.0231, confirming that firms with larger scale tend to have higher operational efficiency. The variable NETINCOME shows remarkable consistency with high significance ($p < 0.01$) and a positive coefficient across the distribution, reinforcing its role as a key determinant of ROA. Similarly, SGR exerts a significant positive effect, especially in the lower and middle quantiles ($Q = 0.05$ to $Q = 0.65$), but its effect decreases in the upper quantiles. These results suggest that sustainable growth strategies have more impact on firms with low to medium levels of profitability.

This section presents the panel regression results used to examine the effect of free cash flow (FCF) on Return on Equity (ROE), as shown in Table 6. The first model (CEM) reveals that FCF has a significant positive effect on ROE, with a coefficient of 0.1775 ($t = 3.1023$; $p < 0.01$), indicating that an increase in FCF tends to increase the return on equity. However, the Chow test yields a p-value of 0.0000, indicating that the Fixed Effects Model (FEM) is more appropriate than the CEM model. In the second model (FEM), the direction of the effect of FCF on ROE changes to negative and insignificant, with a coefficient of -0.0809 ($t = -1.4374$), indicating that after controlling for inter-firm fixed effects, excess cash flow has the potential to reduce the efficiency of equity management.

Furthermore, the LM test also yields a significance value of 0.0000, indicating that the REM model is superior to the CEM. However, the Hausman test returns a value of 0.0000, which again confirms that the FEM is the most appropriate model to use. In the third model (REM), FCF still shows a negative effect on ROE, although not statistically significant, with a coefficient of -0.0081 ($t = -0.1479$). This result reinforces the findings from the FEM model, which suggest that inappropriately managed FCF may lead to less efficient managerial practices in generating returns for shareholders. In contrast, the control variables LOG_SALES, NI_GROWTH, and SGR show significant positive effects on ROE across models.

Table 7 presents the results of the quantile regression using the Fixed Effects Model approach, which was selected based on the results of the previous Chow, LM, and Hausman tests, to evaluate the effect of free cash flow (FCF) on Return on Equity (ROE) at different levels of corporate profitability distribution. The results indicate that FCF has a significant negative impact on ROE at most quantiles, particularly between $Q = 0.15$ and $Q = 0.65$. The highest coefficient is recorded at quantile 0.15, with a value of -0.1719 ($t = -1.9670$; $p < 0.05$), indicating that firms with low to moderate return on equity are negatively affected by free cash

Table 6. Regression Results

	CEM ROE	FEM ROE	REM ROE
FCF	0.1775***	-0.0809	-0.0081
	(3.1023)	(-1.4374)	(-0.1479)
LOG_SALES	0.0093***	0.0319***	0.0125***
	(3.3042)	(3.6111)	(2.8485)
NI_GROWTH	0.0595***	0.0499***	0.0533***
	(14.8601)	(14.1113)	(14.9635)
SGR	0.0058***	0.0022	0.0035*
	(2.8033)	(1.2014)	(1.8665)
Constant	-0.0234	-0.2356***	-0.0518
	(-0.8523)	(-2.7777)	(-1.1917)
N	978	978	978
R^2-Adj	0.2058	0.1381	
F_Stat	64.3077	60.3896	
Prob > F	0.0000	0.0000	0.0000
Chow Test		0.0000 (FEM)	
LM Test			0.0000 (REM)
Hausman Test		0.0000 (FEM)	
Mean VIF		1.100	

"The table includes regression coefficients and t-statistics $\left(\frac{b}{t_{stat}}\right)$. The significance levels are denoted by ***, **, and *, corresponding to 1%, 5%, and 10% respectively"

Table 7. Quantile Regression Results with Fixed Effects Model

	Q=0.05 ROE	Q=0.15 ROE	Q=0.25 ROE	Q=0.35 ROE	Q=0.45 ROE	Q=0.55 ROE	Q=0.65 ROE	Q=0.75 ROE	Q=0.85 ROA	Q=0.95 ROE
FCF	-0.1915	-0.1719**	-0.1596**	-0.1498**	-0.1399**	-0.1296**	-0.1162	-0.1036	-0.0672*	-0.0709
	(-1.6199)	(-1.9670)	(-2.2304)	(-2.3910)	(-2.3818)	(-2.1204)	(-1.5965)	(-1.1591)	(-1.8503)	(-0.4947)
Log_Sales	0.0280*	0.0317**	0.0340***	0.0358***	0.0377***	0.0396***	0.0421***	0.0445***	0.0225***	0.0506**
	(1.6740)	(2.5596)	(3.3535)	(4.0382)	(4.5298)	(4.5756)	(4.0871)	(3.5154)	(4.2383)	(2.4947)
NETINCOME	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***	0.0000
	(4.1702)	(5.0872)	(5.7791)	(6.2061)	(6.1974)	(5.5324)	(4.1950)	(3.0718)	(11.0883)	(1.3494)
SGR	0.0131*	0.0100*	0.0081*	0.0066*	0.0051	0.0035	0.0014	-0.0005	0.0018	-0.0056
	(1.7743)	(1.8458)	(1.8252)	(1.6941)	(1.3884)	(0.9161)	(0.3137)	(-0.0939)	(1.5708)	(-0.6252)
N	978	978	978	978	978	978	978	978	978	978

accumulation. This aligns with the argument in agency theory that managers in firms with limited internal controls tend to misuse excess cash for unproductive investments.

Interestingly, at the highest quantiles (Q=0.85 and Q=0.95), the effect of FCF on ROE remains negative, but statistically insignificant. This suggests that the best-performing companies are relatively better able to manage free cash flow efficiently so that its negative impact on ROE can be minimized. In contrast, at the bottom quantile (Q=0.05), FCF has a sizable negative effect (-0.1915), yet it is not statistically significant, which may reflect that very low-performing firms face more complex structural issues than just cash management. Control variables such as LOG_SALES and NETINCOME consistently show significant positive effects on ROE across quantiles, signaling that business scale and net profit growth remain fundamental factors in improving return on equity.

This section presents the panel regression results to examine the effect of free cash flow (FCF) on

Long-Term Return on Assets (LTROA), as shown in Table 8. The first model (CEM) shows that FCF has a significant positive effect on LTROA with a coefficient of 0.1428 (t = 6.4479; p < 0.01), which means that an increase in FCF is associated with an increase in asset performance in the long run. However, the Chow test yields a probability value of 0.0000, which indicates that the Fixed Effect Model (FEM) is more appropriate than the Common Effect Model (CEM). In the second model (FEM), the direction of the FCF effect changes to negative and statistically significant with a coefficient of -0.0409 (t = -2.4596; p < 0.05), indicating that after accounting for differences in fixed characteristics between firms, excess FCF has a negative impact on long-term asset-based profitability.

Further testing through the LM test shows that the REM model is superior to the CEM; however, the Hausman test, with a probability value of 0.0000, again confirms that the FEM is the most appropriate model. The third model (REM) also shows a negative FCF coefficient (-0.0154), although not significant, thus supporting the FEM results in showing the potential inefficiency of using free cash in the long run if it is not managed effectively. The control variable NI_GROWTH shows a highly significant positive effect on LTROA in all models, with the highest coefficient recorded in the REM model of 0.0118 (t = 10.8635; p < 0.01).

Table 9 presents the quantile regression results with the Fixed Effect Model to examine the effect of free cash flow (FCF) on Long-Term Return on Assets (LTROA) at various quantile distributions of long-term profitability. The results show that FCF consistently has a significant negative effect on LTROA, especially in quantiles Q=0.25 to Q=0.85. For example, at quantile Q = 0.45, the coefficient of FCF is recorded as -0.0519 (t = -3.0224; p < 0.01), which suggests that an increase in free cash flow may lead to a decrease in the long-term efficiency of asset utilization. This suggests that companies with a medium to high performance position are more susceptible to the negative consequences of FCF accumulation if not managed effectively.

Table 8. Regression Results

	CEM LTROA	FEM LTROA	REM LTROA
FCF	0.1428***	-0.0409**	-0.0154
	(6.4479)	(-2.4596)	(-0.9037)
LOG_SALES	0.0000	0.0026	0.0005
	(0.0277)	(0.9756)	(0.2950)
NI_GROWTH	0.0171***	0.0109***	0.0118***
	(11.0302)	(10.4273)	(10.8635)
SGR	0.0024***	0.0012**	0.0014**
	(2.9568)	(2.1063)	(2.3648)
Constant	0.0254**	0.0043	0.0245
	(2.3899)	(0.1712)	(1.4051)
N	978	978	978
R^2-*Adj*	0.1501	0.0474	
F_Stat	44.1340	33.3945	
Prob > F	0.0000	0.0000	0.0000
Chow Test		0.0000 (FEM)	
LM Test			0.0000 (REM)
Hausman Test		0.0000 (FEM)	
Mean VIF		1.100	

"The table includes regression coefficients and t-statistics $\left(\frac{b}{t_{stat}}\right)$. The significance levels are denoted by ***, **, and *, corresponding to 1%, 5%, and 10% respectively"

Table 9. Quantile Regression Results with Fixed Effects Model

	Q=0.05	Q=0.15	Q=0.25	Q=0.35	Q=0.45	Q=0.55	Q=0.65	Q=0.75	Q=0.85	Q=0.95
	LTROA	LTROA	LTROA	LTROA	LTROA	LTROA	LTROA	LTROA	LTROA	LTROA
FCF	-0.0480	-0.0493*	-0.0502**	-0.0509***	-0.0519***	-0.0528***	-0.0538***	-0.0547**	-0.0557*	-0.0573
	(-1.4137)	(-1.8554)	(-2.2501)	(-2.6379)	(-3.0224)	(-3.0600)	(-2.6973)	(-2.3260)	(-1.9148)	(-1.5046)
Log_Sales	0.0011	0.0021	0.0027	0.0033	0.0040	0.0047	0.0055	0.0061	0.0069	0.0081
	(0.1915)	(0.4638)	(0.7266)	(1.0146)	(1.3845)	(1.6105)	(1.6287)	(1.5422)	(1.4103)	(1.2568)
NETINCOME	0.0000**	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***	0.0000**	0.0000*	0.0000	0.0000
	(2.3699)	(2.7637)	(3.0822)	(3.3440)	(3.4646)	(3.1654)	(2.4518)	(1.8915)	(1.3281)	(0.8012)
SGR	0.0010	0.0012	0.0013*	0.0014**	0.0015***	0.0016***	0.0017***	0.0018**	0.0019**	0.0021*
	(0.9631)	(1.4174)	(1.8374)	(2.2712)	(2.7623)	(2.9473)	(2.7492)	(2.4703)	(2.1352)	(1.7851)
N	978	978	978	978	978	978	978	978	978	978

At the lower quantiles (Q=0.05 and Q=0.15), the FCF coefficient remains negative. However, its significance is not yet fully robust, suggesting that firms with low long-term profitability may not necessarily respond significantly to FCF. Meanwhile, at the highest quantile (Q=0.95), although the coefficient remains negative (-0.0573), its significance is also reduced, which may indicate that the best long-term performing firms already have governance mechanisms that can control the use of free cash more effectively. Overall, this pattern supports the previous findings in Table 8, which indicate that the effect of FCF on profitability is non-linear and highly dependent on the distribution of firm performance.

This section presents the panel regression results to examine the effect of free cash flow (FCF) on Long-Term Return on Equity (LTROE), as shown in Table 10. The first model (CEM) indicates that FCF has a positive and statistically significant effect on LTROE, with a coefficient of 0.1769 ($t = 3.9622$; $p < 0.01$). However, the Chow test results show a p-value of 0.0000, which leads to the selection of the Fixed Effect Model (FEM) over the CEM. Furthermore, the LM test produces a value that is also significant ($p = 0.0000$), which means that the Random Effect (REM) model is more appropriate than the CEM. However, the Hausman test results confirm that the FEM is the best model, with a p-value of 0.0000.

Table 10. Regression Results

	CEM	FEM	REM
	LTROE	LTROE	LTROE
FCF	0.1769***	-0.0935**	-0.0478
	(3.9622)	(-2.5137)	(-1.2808)
LOG_SALES	0.0058***	0.0007	0.0031
	(2.6520)	(0.1261)	(0.8375)
NI_GROWTH	0.0291***	0.0194***	0.0209***
	(9.3134)	(8.3275)	(8.7646)
SGR	0.0041**	0.0011	0.0016
	(2.5396)	(0.8838)	(1.3056)
Constant	0.0180	0.0716	0.0492
	(0.8390)	(1.2763)	(1.3380)
N	978	978	978
R^2-Adj	0.1054	-0.0019	
F_Stat	29.7842	20.7906	
Prob > F	0.0000	0.0000	0.0000
Chow Test		0.0000 (FEM)	
LM Test			0.0000 (REM)
Hausman Test		0.0000 (FEM)	
Mean VIF		1.100	

"The table includes regression coefficients and t-statistics $\left(\frac{b}{t_{stat}}\right)$. The significance levels are denoted by ***, **, and *, corresponding to 1%, 5%, and 10% respectively"

The second model (FEM) shows that FCF has a significant negative effect on LTROE with a coefficient of -0.0935 (t = -2.5137; p < 0.05). This finding suggests that after accounting for inter-firm fixed effects, an increase in FCF actually risks lowering long-term return on equity, which supports the argument from agency theory that excess cash may encourage managers to make inefficient investments. The third model (REM) indicates that the effect of FCF on LTROE remains negative, although it is not statistically significant (coefficient = -0.0478; t = -1.2808).

Table 11 presents the results of quantile regression using the Fixed Effect Model approach to examine the effect of free cash flow (FCF) on Long-Term Return on Equity (LTROE) at different levels of long-term equity profitability distribution. The analysis reveals that FCF consistently has a negative impact on LTROE across all quantiles, with the statistical significance being strongest in the middle quantiles (Q=0.25 to Q=0.65). For example, at quantile Q = 0.35, the coefficient of FCF is recorded as -0.1222 (t = -2.8356; p < 0.01), indicating that excess cash has the potential to reduce the long-term return on equity, especially in medium-performing firms.

Similar conditions are seen for Q=0.45 and Q=0.55 with coefficients of -0.1188 and -0.1149, respectively, both of which are significant at the 1% level. These results confirm that companies in the middle of the profitability distribution are most vulnerable to the negative effects of FCF if not accompanied by adequate supervision and governance mechanisms. At the lower quantile (Q = 0.05), the effect of FCF is also negative and significant at the 10% level (coefficient = -0.1337; t = -1.7180), indicating that even low-performing companies face the risk of investment inefficiency due to excess free cash.

Although the direction of the effect remains negative in the upper quantiles (Q=0.85 and Q=0.95), the statistical significance tends to decrease, indicating that firms with the highest long-term equity performance are relatively better able to mitigate the negative impact of FCF through more effective governance and decision-making systems. Meanwhile, control variables such as LOG_SALES, NETINCOME, and SGR show no significant effect in most quantiles, except for SGR in the bottom quantile, which shows a small but inconsistent positive coefficient. This reinforces the finding that in the context of LTROE, FCF has a more dominant influence than other control variables.

The findings of this study demonstrate that free cash flow (FCF) has a negative and significant influence on firm profitability, both in the short term (ROA and ROE) and long term (LTROA and LTROE). This outcome contradicts the initial hypothesis, which assumed that higher levels of liquid resources would support strategic investments, operational improvements, and long-term financial performance. Instead, the empirical evidence indicates that the availability of excess cash does not automatically enhance profitability and may

Table 11. Quantile Regression Results with Fixed Effects Model

	Q=0.05	Q=0.15	Q=0.25	Q=0.35	Q=0.45	Q=0.55	Q=0.65	Q=0.75	Q=0.85	Q=0.95
	LTROE	LTROE	LTROE	LTROE	LTROE	LTROE	LTROE	LTROE	LTROE	LTROE
FCF	-0.1337*	-0.1280**	-0.1251**	-0.1222***	-0.1188***	-0.1149***	-0.1118***	-0.1079**	-0.1043*	-0.0986
	(-1.7180)	(-2.1845)	(-2.4935)	(-2.8356)	(-3.1089)	(-3.0077)	(-2.6121)	(-2.0663)	(-1.6532)	(-1.1888)
Log_Sales	-0.0057	-0.0016	0.0004	0.0026	0.0049	0.0077	0.0099	0.0127	0.0152	0.0193
	(-0.4894)	(-0.1838)	(0.0595)	(0.3999)	(0.8656)	(1.3501)	(1.5633)	(1.6358)	(1.6245)	(1.5660)
NETINCOME	0.0000	0.0000	0.0000	0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
	(0.4252)	(0.3156)	(0.2219)	(0.0814)	(-0.1310)	(-0.3907)	(-0.5396)	(-0.6315)	(-0.6667)	(-0.6837)
SGR	0.0030	0.0026	0.0024	0.0023	0.0020	0.0018	0.0016	0.0013	0.0011	0.0007
	(1.1288)	(1.3134)	(1.4243)	(1.5270)	(1.5545)	(1.3610)	(1.0738)	(0.7388)	(0.5039)	(0.2518)
N	978	978	978	978	978	978	978	978	978	978

even weaken firm performance when effective control mechanisms are absent.

These results are highly consistent with the framework of agency theory, as first conceptualized by Jensen & Meckling (1976) and later expanded by Jensen (1986) through the free cash flow hypothesis. The theory posits that when firms accumulate excess liquidity, managerial discretion increases, thereby widening the propensity for opportunistic decision-making and the misallocation of capital, particularly in the absence of strong governance controls. Supporting evidence from prior studies, including Doğru & Sirakaya-Turk (2018), Saravia (2014), Wang (2010), reinforces the notion that firms holding large cash reserves without adequate oversight face a heightened risk of low-yield spending, inefficient investments, or politically motivated capital allocation. The stronger negative relationship observed in long-term performance indicators in this study also suggests that these governance risks accumulate over time, meaning that once inefficient projects are initiated, their negative effects persist and compound.

An important interpretive insight emerging from the findings is that the impact of free cash flow is not uniform across firms but rather contingent on governance strength and managerial discipline. Firms operating with moderate performance levels often fall into a governance "grey zone," where liquidity is available, yet mechanisms to ensure disciplined investment, such as strong capital budgeting systems or independent board oversight, remain insufficient. In such settings, free cash tends to function more as discretionary managerial capital than as a strategic resource, echoing the argument of Chauhan & Rao (2022) that firms in emerging markets frequently retain excess internal funds as buffers rather than deploying them based on evaluation frameworks or long-term investment priorities.

At the same time, firms performing at the extremes, either very low or very high profitability, tend to respond differently to excess liquidity due to structural conditions rather than managerial intent alone. Firms with weak profitability often face operational or regulatory frictions that limit their ability to convert free cash into profitable outcomes, regardless of managerial preference. Conversely, firms with strong financial performance typically exhibit more robust governance cultures, clearer investment mandates, and better incentive alignment, which collectively reduce the likelihood of opportunistic cash use. This pattern reinforces the notion that the consequences of free cash flow are path-dependent and shaped more by the institutional discipline guiding its use than by the amount of liquidity itself.

When positioned within the broader literature, these findings contribute to the ongoing scholarly debate on whether free cash flow acts as a strategic asset or a governance risk. Studies such as those by Angela et al. (2023), Bella & Yantri (2022), Jain et al. (2023), and Permata et al. (2018) demonstrate that FCF can enhance profitability when firms maintain well-designed payout policies, rigorous internal controls, and strategic investment governance. Conversely, research underpinned by agency theory, including Lin & Lin (2018), Pasandidehfar et al. (2016), and Wahyudi & Hatta (2024), shows that the presence of excess cash becomes detrimental when governance is weak, incentives are misaligned, or managerial monitoring costs exceed potential returns. These contrasting findings suggest that FCF is neither inherently beneficial nor inherently harmful; rather, its impact is contingent upon the quality of governance, institutional context, and managerial discipline.

The characteristics of the Indonesian energy sector provide an important contextual explanation for why FCF behaves as a governance challenge rather than a performance advantage in this study. Energy firms operate within capital-intensive investment cycles, long-horizon project structures, and environments with high regulatory intervention, conditions that may reduce transparency in resource allocation and weaken the role of

external discipline, such as market pressure or dividend expectations. Concentrated ownership, political influence, and relatively loose payout structures further allow excess cash to remain idle, channelled into low-return expansion, or used to accommodate managerial preferences rather than value-enhancing activities.

Thus, these findings suggest that within this sectoral and institutional setting, FCF functions more as a governance vulnerability than a financial capacity enhancer. The results strengthen the empirical application of agency theory in emerging markets and underscore that the strategic value of free cash flow does not depend solely on its availability, but on the governance systems, accountability structures, and investment discipline that determine how it is deployed.

MANAGERIAL IMPLICATION

The findings of this study provide several practical implications for corporate managers, policymakers, and investors. Since free cash flow was found to have a negative and significant impact on profitability, an important conclusion is that excess liquidity does not inherently enhance firm performance unless accompanied by strong governance and disciplined capital allocation mechanisms. For corporate managers, this result highlights the importance of strengthening investment screening procedures, adopting transparent capital budgeting practices, and establishing clear payout or reinvestment policies to prevent inefficient spending and misaligned managerial discretion. For regulators and policy designers, the findings underscore the importance of promoting governance frameworks, such as disclosure standards, independent oversight mechanisms, and accountability requirements, that ensure free cash flow is utilized in ways that support long-term value creation rather than discretionary allocation. For investors and prospective shareholders, the results serve as a cautionary signal that firms holding large levels of unused internal cash may face increased agency risk. Monitoring governance quality, investment policies, and cash retention behavior may therefore be equally important as evaluating financial performance metrics when assessing firm value and risk exposure. Overall, the study emphasizes that free cash flow should be treated not only as a financial resource, but as an asset requiring governance discipline, ensuring that internal funds support productive investment, value protection, and long-term competitive performance.

CONCLUSION

The study concludes that free cash flow has a negative and significant effect on firm profitability in the Indonesian energy sector. The findings suggest that excess cash does not automatically enhance financial performance and may, in fact, reduce profitability when its allocation is not informed by disciplined investment decisions and effective governance oversight. These results contradict the initial hypothesis and suggest that free cash flow may act more as a managerial risk than a strategic resource when accountability mechanisms are weak. This research has several limitations. The analysis relies solely on financial indicators and does not incorporate governance-related variables that may influence how free cash is managed. The focus on a single industry also limits generalizability, as the investment characteristics and regulatory pressures of the energy sector may differ from those of other sectors. Additionally, the use of secondary data limits deeper insight into managerial decision-making processes and organizational dynamics. Future studies may expand the model by incorporating governance and organizational behaviour dimensions, such as ownership concentration, board monitoring, or incentive alignment, to better explain how firms allocate free cash. Comparative studies across industries or across different regulatory environments may also provide a broader understanding of how context shapes the relationship between free cash and profitability. If a deeper exploration of managerial decisions is necessary, qualitative insights can complement quantitative results to provide a more comprehensive understanding of the mechanisms underlying cash allocation outcomes. ■

Acknowledgement
The authors gratefully acknowledge the academic support from the Faculty of Economics and Business, Universitas Pembangunan Nasional Veteran Jakarta, and the professional insights from the Directorate General of Taxes, Ministry of Finance, Republic of Indonesia. We also thank the editorial team and reviewers of the International Research Journal of Business Studies for their constructive feedback.

REFERENCES

Agustia, D. (2013). Pengaruh free cash flow dan kualitas audit terhadap manajemen laba. *Akrual Jurnal Akuntansi*, *4*(2), 105–118. https://doi.org/10.26740/jaj.v4n2.p105-118

Ali, U., Ormal, L., & Ahmad, F. (2018). Impact of free cash flow on profitability of the firms in automobile sector of Germany. *Kardan Journal of Economics and Manangement Sciences*, 57–67. https://doi.org/10.31841/kjems.2021.93

Angela, A., Hidayat, V. S., & Eunike, E. (2023). Working capital management, free cash flow, profitability and firm value. *Jurnal Proaksi*, *10*(2), 172–181. https://doi.org/10.32534/jpk.v10i2.3980

Banerjee, P., & Deb, S. G. (2023). Capital investment, working capital management, and firm performance: Role of managerial ability in US logistics industry. *Transportation Research Part E: Logistics and Transportation Review*, *176*, 103224. https://doi.org/10.1016/j.tre.2023.103224

Bella, L., & Yantri, O. (2022). Pengaruh kebijakan hutang dan free cash flow terhadap profitabilitas pada perusahaan makanan dan minuman yang terdaftar di BEI tahun 2014-2019. *Zona Keuangan Program Studi Akuntansi (S1) Universitas Batam*, *11*(2), 46–56. https://doi.org/10.37776/zuang.v11i2.804

Chauhan, H. J., & Rao, Z.-R. (2022). Impact of dividend and leverage on free cash flow in the context of agency problem: evidence from Pakistan. *Gurukul Business Review*, *18*(1). https://doi.org/10.48205/gbr.v18.2

Chen, X., Liu, C., Liu, F., & Fang, M. (2021). Firm sustainable growth during the COVID-19 pandemic: The role of customer concentration. *Emerging Markets Finance and Trade*, *57*(6), 1566–1577. https://doi.org/10.1080/1540496X.2021.1904884

Chu, J. (2011). Agency cost under the restriction of free cash flow. *Journal of Service Science and Management*, *04*(01), 79–85. https://doi.org/10.4236/jssm.2011.41011

Dharma, N. P. G. A., & Riswan, R. (2025). Determinasi return on asset (ROA), return on equity (ROE), dan net profit margin (NPM) terhadap ketepatan waktu penyampaian laporan keuangan pada perusahaan sektor consumer cyclicals yang terdaftar di BEI periode 2021-2023. *JEMSI (Jurnal Ekonomi, Manajemen, Dan Akuntansi)*, *11*(1), 534–543. https://doi.org/10.35870/jemsi.v11i1.3722

Djaddang, S., Merawati, E. E., & Djali, H. (2023). Human capital efficiency, free cash flow, corporate sustainability performance and internal auditors. *Journal of Economics Finance and Management Studies*, *6*(10), 4970–4979. https://doi.org/10.47191/jefms/v6-i10-29

Do□ru, T., & Sirakaya-Turk, E. (2018). Cash holdings and corporate governance: theory and contrary evidence from hotel firms. *International Journal of Contemporary Hospitality Management*, *30*(10), 3117–3134. https://doi.org/10.1108/ijchm-03-2017-0163

Estwick, S. A. (2016). The impact of principal-principal conflict on financial flexibility: A Case of Caribbean Firms. *Qualitative Research in Financial Markets*, *8*(4), 305–330.

Fakhroni, Z., Ghozali, I., Harto, P., & Yuyetta, E. N. A. (2018). Free cash flow, investment inefficiency, and earnings management: Evidence from manufacturing firms listed on the Indonesia stock exchange. *Investment Management and Financial Innovations*, *15*(1), 299–310. https://doi.org/10.21511/imfi.15(1).2018.25

Farandy, A. R., & Afkar, T. (2022). Pengaruh ROA, ROE, NPM dan GPM terhadap harga saham perusahaan manufaktur. *Journal of Sustainability Bussiness Research (JSBR)*, *3*(3), 117–127. https://doi.org/10.36456/jsbr.v3i3.6228

Guo, S. (2023). Enterprise value analysis: The case of PepsiCo. *Advances in Economics Management and Political Sciences*, *34*(1), 140–145. https://doi.org/10.54254/2754-1169/34/20231686

Hastuti, C. S. F., Arfan, M., & Diantimala, Y. (2018). The influence of free cash flow and operating cash flow on earnings management at manufacturing firms listed in the Indonesian stock exchange. *International Journal of Academic Research in Business and Social Sciences*, *8*(9), 1133–1146. https://doi.org/10.6007/ijarbss/v8-i9/4686

Hjelmstad, M., Marshall, A., & Walmsley, T. G. (2006). Open market share repurchases in the UK: Evidence on the agency theory of free cash flow. *Applied Financial Economics Letters*, *2*(6), 383–387. https://doi.org/10.1080/17446540600706791

Hong, Z., Geng, S., & Wang, L. Z. (2014). Relationship between free cash flow and corporate performance evidence from the listed real estate companies in China. *Applied Mechanics and Materials*, *556–562*, 6445–6448. https://doi.org/10.4028/www.scientific.net/amm.556-562.6445

Jain, R., Poudel, R., & Rogers, N. (2023). Cash savings in dual class firms. *Journal of Applied Business and Economics*, *25*(5), 104–111. https://doi.org/10.33423/jabe.v25i5.6588

Jasmine, J., & Machdar, N. M. (2024). Kebijakan dividen ditinjau menggunakan profitabilitas, leverage, set kesempatan investasi dan arus kas bebas. *Jumia*, *3*(1), 56–69. https://doi.org/10.55606/jumia.v3i1.3523

Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *The American Economic Review*, *76*(2), 323–329. https://www.jstor.org/stable/1818789

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305–360. https://doi.org/10.1016/0304-405X(76)90026-X

Kunaifi, A., & Hakim, M. S. (2020). The moderating role of shariah-compliant in the relationship between free cash flow and profitability in family firm. *The 3rd Asia Pacific International Conference of Management and Business Science*, 9–12. https://doi.org/10.2991/aebmr.k.200410.002

Lai, E. K. S., Latiff, A. R. A., Keong, O. C., & Qun, T. C. (2020). The impact of free cash flow on firm's performance: Evidence from Malaysia. *The 26th and 27th Eurasia Business and Economics Society Conferences*, 3–16. https://doi.org/10.1007/978-3-030-53536-0_1

Lin, D., & Lin, L. (2018). Corporate governance and firm performance: A study of high agency costs of free cash flow firms. *Journal of Social Science Research*, *12*(2), 2724–2731. https://doi.org/10.24297/jssr.v12i2.7533

Liu, Y. C., & Hung, J. H. (2006). Services and the long-term profitability in Taiwan's banks. *Global Finance Journal*, *17*(2), 177–191. https://doi.org/10.1016/j.gfj.2006.03.001

Miglo, A. (2020). Zero-debt policy under asymmetric information, flexibility and free cash flow considerations. *Journal of Risk and Financial Management*, *13*(12), 296.

Nenobais, A. H., Niha, S. S., & Manafe, H. A. (2022). Pengaruh return on asset (ROA), return on equity (ROE), net profit margin (NPM) dan earning per share (EPS) terhadap harga saham (suatu kajian studi literatur manajemen keuangan perusahan). *Jurnal Ekonomi Manajemen Sistem Informasi*, *4*(1), 10–22. https://doi.org/10.31933/jemsi.v4i1.1146

Oktaryani, G. A. S., & Mannan, S. S. A. (2018). The moderating effect of dividend policy on free cash flow and profitability towards firm value. *Jurnal Magister Manajemen Universitas Mataram*, *7*(3), 1–12. https://doi.org/10.29303/jmm.v7i3.311

Pasandidehfar, M., Shahverdiani, S., & Gohar, M. H. (2016). Impact of political costs on company benefits in the institutions with high free cash flow and low growth opportunity: Evidence from Tehran stock exchange. *Accounting*, *2*(1), 137–142. https://doi.org/10.5267/j.ac.2016.2.001

Permata, I. S., Nawasiah, N., & Indriati, T. (2018). Free cash flow, kinerja internal, dan pengaruhnya terhadap nilai perusahaan. *Jurnal Liquidity*, *7*(1), 63–69. https://doi.org/10.32546/lq.v7i1.174

Prastiyono, G. H., & Nurwulandari, A. (2024). The effect of CEO narcissism, company size, and free cash flow on financial performance through CSR in SOEs on the IDX 2018-2022. *Jurnal Indonesia Sosial Teknologi*, *5*(6), 2781–2794. https://doi.org/10.59141/jist.v5i6.1116

Priest, W. W., & McClelland, L. H. (2011). *Free cash flow and shareholder yield: new priorities for the global Investor*. John Wiley & Sons.

Puspitasari, N., Soleh, A., & Abi, Y. I. (2025). The effect of NPM, ROA, ROE, EPS and Per Ratio on the stock price of LQ45 companies listed on the Indonesian Stock Exchange for the period 2021-2023. *Ekombis Review: Jurnal Ilmiah Ekonomi Dan Bisnis*, *13*(1), 453–460. https://doi.org/https://doi.org/10.37676/ekombis.v13i1.7451

Rahmat, R., & Fathimah, V. (2022). Pengaruh ROA, ROE dan NPM terhadap harga saham pada perusahaan non perbankan yang terdaftar di LQ45. *Jurnal Ilman: Jurnal Ilmu Manajemen*, *10*(1), 8–13. https://doi.org/10.35126/ilman.v10i1.4

Rakhman, A., Bunfa, L., & Rifiyanti, H. (2020). *Free cash flow dan profitability terhadap firm value melalui dividend policy pada perusahaan manufaktur terdaftar di Bursa Efek Indonesia*. http://eprints.kwikkiangie.ac.id/1667/1/artikel abdullah rahman.pdf

Richardson, S. (2006). Over-investment of free cash flow. *Review of Accounting Studies*, *11*(2–3), 159–189. https://doi.org/10.1007/s11142-006-9012-1

Santoso, A. (2023). The effect of free cash flow and leverage on earnings management: moderating role of good corporate governance. *Asian Management and Business Review*, *3*(1), 14–23. https://doi.org/10.20885/ambr.vol3.iss1.art2

Sapuan, N. M., Wahab, N. A., Fauzi, M. A., & Omonov, A. (2021). Analysing the impacts of free cash flow, agency cost and firm performance in public listed companies in Malaysia. *Journal of Governance and Integrity*, *5*(1), 211–218. https://doi.org/10.15282/jgi.5.1.2021.7061

Saravia, J. (2014). The lifecycle of the firm, corporate governance and investment performance. *Corporate Ownership & Control*, *11*(2), 224–238. https://doi.org/10.22495/cocv11i2c1p6

Sedhai, S. (2022). Effect of free cash flow on the profitability of Nepalese commercial banks. *The Lumbini Journal of Business and Economics*, *10*(1–2), 216–230. https://doi.org/10.3126/ljbe.v10i1-2.54217

Shamsabadi, H. A., Min, B., & Chung, R. (2016). Corporate governance and dividend strategy: Lessons from Australia. *International Journal of Managerial Finance*, *12*(5), 583–610. https://doi.org/10.1108/ijmf-08-2015-0156

Tristiarini, N., & Pratiwi, R. D. (2018). Leverage capability in controlling free cash flow to improve financial performance. *1st Economics and Business International Conference 2017 (EBIC 2017)*, 184–188. https://doi.org/10.2991/ebic-17.2018.29

Wahyudi, W., & Hatta, M. (2024). Pengaruh corporate governance, leverage, dan profitabilitas terhadap free cash flow pada perusahaan perbankan di Indonesia. *Jurnal Fairness*, *13*(1), 62–76. https://doi.org/10.33369/fairness.v13i1.37050

Wang, G. Y. (2010). The impacts of free cash flows and agency costs on firm performance. *Journal of Service Science and Management*, *3*(4), 408–418. https://doi.org/10.4236/jssm.2010.34047

Widiasmara, A., & Saputri, F. A. E. (2022). The effect of financial characteristics on earnings management moderated by corporate governance. *Semestre Económico*, *24*(57), 151–170. https://doi.org/10.22395/seec.v24n57a7

Yunanto, A., & Putra, A. N. M. (2025). Pengaruh profitabilitas (ROA),(ROE), dan leverage (DER) terhadap harga saham perusahaan pertambangan yang terdaftar di BEI 2019-2023. *Jurnal Mutiara Ilmu Akuntansi*, *3*(2), 60–72.