

Cash Flow Volatility and Financial Performance of Manufacturing Firms Listed at The Nairobi Securities Exchange

¹Beatrice Wambui Kariuki, ²Dr. CPA Hesbon Otinga & ³Dr. Julius Miroga

¹MBA (Finance) Candidate, Jomo Kenyatta University of Agriculture and Technology, Kenya

^{2&3}Lecturer, Jomo Kenyatta University of Agriculture and Technology, Kenya

Abstract:

Background: Manufacturing firms listed on the Nairobi Securities Exchange (NSE) have experienced pronounced declines and volatility in financial performance in recent years. Average return on assets fell from about 9.8% in 2018 to 5.4% in 2023, while firm-level returns on equity ranged from severe losses to strong gains, reflecting structural challenges and uneven financial resilience across firms.

Materials and Methods: The general objective of the study was to establish the effect of cash flow volatility on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange in Kenya. The specific objectives were to determine the influence of operating, investing, financing, and free cash flow volatility on financial performance. The theoretical foundation was grounded in liquidity preference theory, real options theory, pecking order theory, and free cash flow theory. The study adopted a quantitative causal-descriptive research design and a census of all eight manufacturing firms listed on the Nairobi Securities Exchange from 2018 to 2024. Secondary panel data were collected using a structured data collection schedule and analysed using descriptive statistics, Pearson correlation, and panel (fixed-effects) regression in STATA 15, following diagnostic tests for normality, linearity, multicollinearity, heteroscedasticity, serial correlation, stationarity, and model specification (Hausman test).

Results: Operating cash flow volatility had a strong negative and statistically significant relationship with financial performance ($r = -0.6398$, $p = 0.000$) and a negative significant effect on financial performance ($\beta = -0.698742$, $p = 0.004$). Investing cash flow volatility had a moderate negative and statistically significant relationship with financial performance ($r = -0.3369$, $p = 0.0065$) and a negative significant effect ($\beta = -0.44145$, $p = 0.000$). Financing cash flow volatility had a moderate negative and statistically significant relationship with financial performance ($r = -0.4847$, $p = 0.000$) and a negative significant effect ($\beta = -0.328755$, $p = 0.032$). Free cash flow volatility had a strong negative and statistically significant relationship with financial performance ($r = -0.5654$, $p = 0.000$) and a negative significant effect ($\beta = -0.330386$, $p = 0.006$). The overall regression model was statistically significant ($F = 12.41$, $p = 0.000$), with an overall R-squared of 0.7269, indicating that cash flow volatility jointly explained 72.69% of the variation in financial performance.

Conclusion: Increased cash flow volatility negatively affects the profitability, financial flexibility, liquidity stability, and shareholder returns of manufacturing firms listed at the Nairobi Securities Exchange. Manufacturing firms should strengthen cash flow management practices, improve liquidity planning, adopt prudent investment and financing strategies, and enhance financial monitoring systems to reduce cash flow instability and improve financial performance.

Key Words: Cash flow volatility; Operating cash flow; Investing cash flow; Financing cash flow; Free cash flow; Financial performance; Manufacturing firms; Nairobi Securities Exchange.

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I. Introduction

Cash flow volatility refers to fluctuations in cash flows across different periods resulting from changes in sources and uses of cash from operating, investing, and financing activities (Hadi, Bashir, Abolfazl & Maryam, 2023). For manufacturing firms listed at the Nairobi Securities Exchange (NSE), such volatility signals operational and financial risk because unpredictable cash flows constrain production planning, working-capital management and the financing of capital-intensive projects. High volatility may also undermine investor confidence, profitability and firm valuation. From an investor perspective, unstable cash flows create information risk by making it difficult to forecast firm performance and future cash positions. Conversely, stable cash flows signal financial stability and may enhance market attractiveness (Xu et al., 2021).

Cash flows comprise operating, investing, financing and free cash flows. Operating cash flow is particularly important because it arises from the firm's main revenue-generating activities and reflects its capacity to generate internal funds for dividends and reinvestment (Cheng & Hollie, 2008). Investing cash flows represent expenditure on or disposal of long-term assets and securities, thereby reflecting strategic investment decisions (Higson, 2023), while financing cash flows involve raising capital and servicing financing obligations such as debt repayment and dividends (Farshadfar & Monern, 2023). Together, these components influence liquidity, investment capacity and financial resilience.

Globally, cash flow volatility affects liquidity, profitability and financial stability. Evidence indicates that firms with stable cash flows are better positioned to plan investments, meet obligations and sustain growth, whereas high volatility increases risk and can reduce firm valuation (Gibson, 2021; Almeida & Campello, 2020). In the United States, firms use liquidity reserves, hedging and revenue diversification to manage unpredictable cash flows, with stable operating cash flows associated with profitability and lower financial risk (Kim et al., 2019). In the United Kingdom and Japan, cash-flow stability supports debt servicing, investment planning and resilience, while volatility increases borrowing costs and operational constraints (Molyneux & Thornton, 2020; Suzuki & Tanaka, 2021). Similarly, firms in the United Arab Emirates use liquidity buffers, short-term financing and revenue diversification to manage volatility and sustain profitability (Al-Shammari & Al-Saleh, 2022).

In Africa, evidence also links cash flow stability to firm performance. South African firms facing high operating and financing cash-flow volatility experience constrained investment and greater dependence on external financing, with implications for profitability and firm value (Vengesai & Kwenda, 2018). Nigerian evidence indicates that volatile operating and investing cash flows reduce profitability through increased liquidity risk and inefficient capital allocation (Odo & Ohazuluike, 2021). In Ethiopia, unstable cash inflows weaken liquidity, constrain reinvestment and heighten exposure to inflation and exchange-rate shocks (Hailu & Tasew, 2018). Evidence from Uganda and Tanzania remains mixed, suggesting that firm size, sectoral characteristics and cost structures may influence the relationship between cash-flow volatility and performance (IAJEF, 2019; Massawe & Mosha, 2020).

In Kenya, cash flow volatility is increasingly recognized as an important determinant of financial performance, influencing liquidity, profitability and market valuation. Unstable operating, investing and financing cash flows heighten financial risk and weaken earnings sustainability (Momanyi, Bichanga, & Nyangau, 2017; Maina, 2024). Kenyan firms experiencing high volatility may face difficulties meeting short-term obligations and financing long-term investments without costly external financing (Njuguna et al., 2022; Naser et al., 2024). The manufacturing sector is particularly exposed because of capital-intensive operations, fluctuating input costs and exchange-rate risks. Evidence indicates that volatile operating and investing cash flows adversely affect profitability, liquidity and earnings stability among manufacturing firms (Odhwa & Mutswenje, 2022; Ngaruiya, 2022). Among NSE-listed firms, cash-flow volatility is also associated with firm value, stock returns and earnings uncertainty (Maina, 2024; Njuguna et al., 2022).

Kenyan listed manufacturing firms span food and beverages, industrial goods and consumer products, including Carbacid Investments Ltd, B.O.C Kenya Ltd, British American Tobacco Kenya Plc, East African Breweries Ltd, Eveready East Africa Ltd, Unga Group Ltd and Flame Tree Group Holdings Ltd (NSE, 2025). Their participation in the NSE facilitates access to public capital, transparency and corporate governance while supporting industrial development, employment and economic diversification. Given the capital-intensive nature of manufacturing and the documented consequences of unstable cash flows, examining cash flow volatility and financial performance among listed manufacturing firms provides an important basis for understanding financial resilience and market performance in Kenya.

Statement of the Problem

In theory, stable and well-managed cash flows should enable manufacturing firms to plan production, sustain working capital, and fund long-term investment, thereby supporting consistent profitability and shareholder returns. In practice, however, firms listed at the Nairobi Securities Exchange (NSE) have exhibited pronounced instability in financial performance. According to Okumu (2024), listed firms have recorded declining profitability and highly volatile Return on Equity (ROE), with several firms transitioning from strong performers to financially distressed entities. Manufacturing firms in particular demonstrate acute volatility: ROE fell from 0.250 in 2018 and 0.262 in 2019 to -0.556 in 2020, narrowed to -0.0659 in 2021, deteriorated again to -0.158 in 2022, recovered to 0.192 in 2023 and 0.337 in 2024, before declining once more to 0.149 in 2025. Manufacturing firms listed at the NSE also record a comparatively lower average return (5.12%) than the broader market average of 12%-18%, pointing to persistent sectoral inefficiencies. This performance instability has coincided with sustained cash flow challenges. About 68% of listed manufacturing firms reported negative operating cash flows at least once over the preceding three years, with BOC Kenya and East African Cables recording operating cash flow declines of over 25% year-on-year in 2023, while the average free cash flow margin for manufacturing firms fell from 6.5% in 2020 to about 3.2% in 2022, alongside heavier reliance on external financing. At the same time,

empirical evidence on the relative predictive power of cash flows and earnings remains divided: Mostafa (2016) and Khokan, Mollik, and Rahman (2013) found earnings more value-relevant than cash flows, whereas Christian and Jones (2014) and Cheng, Zishang, and Johnstone (2013) found cash flow measures to carry significant, incremental predictive power. Much of this evidence is drawn from developed economies and non-manufacturing sectors, leaving Kenyan manufacturing firms with limited sector-specific evidence on how the volatility, rather than merely the level, of cash flows affects financial performance. This conceptual and contextual gap motivated the present study.

General Objective

To determine the effect of cash flow volatility on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange.

Specific Objectives

- i. To assess the influence of operating cash flow volatility on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange.
- ii. To analyze the influence of investing cash flow volatility on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange.
- iii. To assess the influence of financing cash flow volatility on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange.
- iv. To analyze the influence of free cash flow volatility on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange.

Research Hypotheses

H01: Operating cash flow volatility has no significant influence on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange.

H02: Investing cash flow volatility has no significant influence on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange.

H03: Financing cash flow volatility has no significant influence on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange.

H04: Free cash flow volatility has no significant influence on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange.

II. Literature Review

Theoretical Foundation

The Liquidity Preference Theory, proposed by Keynes (1936), holds that firms prioritize holding liquid assets to manage uncertainty and meet short-term obligations, acting as a buffer against operational and financial shocks (Kuria, Memba, & Oluoch, 2024; Maina, 2024). The theory assumes that firms face uncertainty in future cash flows and that management can forecast cash needs and access short-term financing when shortfalls arise (Renaldo, Veronica, & Hutahuruk, 2023). For manufacturing firms listed at the NSE, high operating cash flow volatility constrains liquidity, limiting the ability to finance day-to-day operations and invest in growth (Kipngetich, Kimwolo, & Tenai, 2021; Odhwa & Mutswenje, 2023). The theory, however, emphasizes liquidity as the principal risk-management mechanism, potentially underestimating complementary strategies such as hedging or revenue diversification, and its usefulness in this study is therefore in explaining the operating cash flow volatility-performance relationship.

The Real Options Theory, proposed by Myers (1977), treats investment opportunities as options that firms can defer, stage, or abandon in response to uncertainty, and is particularly relevant to investing cash flow volatility arising from fluctuating capital expenditure (Maina, 2024). It assumes firms operate under uncertainty, that managers can identify and value embedded real options, and that the timing and scale of investment can be adjusted without prohibitive cost (Kipngetich et al., 2021; Renaldo et al., 2023). Manufacturing firms at the NSE can apply this flexibility to avoid overcommitting resources during uncertain periods, though the theory assumes reliable information and financial infrastructure that may be limited in emerging markets, underscoring the need to complement it with capital budgeting frameworks (Odhwa & Mutswenje, 2023).

The Pecking Order Theory, advanced by Myers and Majluf (1984), proposes that firms finance investment first from internal funds, then debt, and equity only as a last resort, owing to information asymmetry between managers and investors (Odhwa & Mutswenje, 2023). It underpins the study's examination of financing cash flow volatility: firms with unstable access to internal and external financing may incur higher financing costs and suboptimal capital structures (Kuria, Memba, & Oluoch, 2024). While the theory explains firms' preference for internal financing and debt over equity, it assumes rational, orderly financing decisions that may not always hold

where financing costs and liquidity are themselves volatile, as is common in emerging markets (Renaldo et al., 2023).

The Free Cash Flow Hypothesis, proposed by Jensen (1986), argues that firms with excess free cash flow after funding all positive net-present-value projects face heightened agency problems, as managers may direct surplus funds toward personal benefit or unprofitable expansion rather than shareholder value (Kipngetich et al., 2021; Maina, 2024). Applied to free cash flow volatility, the theory suggests that unpredictable 'boom-and-bust' cash cycles can prompt overinvestment during cash-rich periods or costly external financing during shortfalls, undermining profitability (Kuria et al., 2024; Odhwa & Mutswenje, 2023). The theory assumes that capital markets can discipline firms through external monitoring, a mechanism that may be imperfect in emerging markets such as Kenya, suggesting the need to integrate it with financial flexibility and working-capital management perspectives (Njuguna, Mwangi, Nyamute, & Kiiru, 2022).

Conceptual Framework

Conceptual frame work is a diagrammatic description of how variables are related (Tola, 2018). Independent variables for this study were cash flow volatility from operating activities (OCF), investing activities (ICF), financing activities (FCF) and free cash flow (FrCF). Financial performance was the dependent variable.

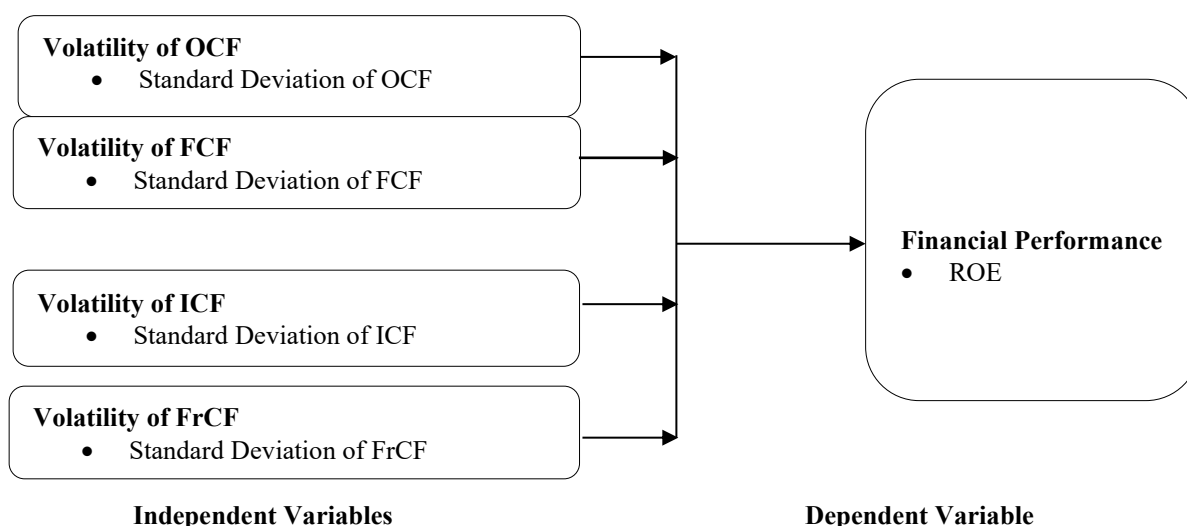


Figure 1: Conceptual Framework

Empirical Review

Operating Cash Flow Volatility and Financial Performance

Mohsin, Hamidian, and Hashemi (2025) examined the effect of industry-level operating cash flow volatility on stock price crash risk among 136 firms listed on the Tehran Stock Exchange (2012-2022) using panel regression, finding a positive and significant relationship that was strengthened by economic policy uncertainty; the study, however, focused on market risk rather than accounting-based financial performance. Liman and Mohammed (2018), using panel data from listed conglomerate firms in Nigeria (2005-2014), found a positive but insignificant relationship between operating cash flow and return on assets, alongside a positive and significant relationship with return on equity, though the study examined cash flow levels rather than volatility. Ahmad, Salih, and Sangawi (2024) found that operating cash flow had a positive and statistically significant effect on corporate profitability among firms listed on the Amman Stock Exchange, but did not examine volatility or a manufacturing-sector context. Tawalujan and Sahetapy (2025) and Cahyaningrum and Trisnawati (2025), studying Indonesian manufacturing firms, both found operating cash flow volatility to have no significant effect on cumulative abnormal returns and profit persistence respectively, suggesting that findings on this relationship remain mixed across contexts.

Investing Cash Flow Volatility and Financial Performance

Chepkoech and Miroga (2025) examined investing cash flow volatility and financial performance among non-financial firms listed at the NSE (2012-2022) using panel regression, finding a negative and statistically significant relationship with return on assets. Maina (2024), using a census of NSE-listed firms (2011-2022) and fixed-effects panel regression, similarly found a negative and significant relationship between investing cash flow volatility and financial performance, though proxied by market capitalization rather than profitability ratios. Ossai and Ezeugwu (2025) found a positive and significant relationship between investing cash flow (levels, not

volatility) and profitability among Nigerian manufacturing firms. In contrast, Muraya (2018) and Wanjiku (2019), studying Kenyan investment and manufacturing firms respectively, found statistically insignificant relationships between investing cash flows and profitability, while Soet (2020) found a significant positive effect of investing cash flow management on financial performance among Indonesian listed firms, illustrating inconsistent findings across markets and measurement approaches.

Financing Cash Flow Volatility and Financial Performance

Chepkoech and Miroga (2025) found that financing cash flow volatility had a negative and statistically significant relationship with return on assets among non-financial NSE-listed firms, a finding corroborated by Maina (2024), who reported a negative and significant relationship between financing cash flow volatility and market-based performance. Odhwa and Mutswenje (2023), studying listed firms in Zimbabwe, similarly found that financing cash flow volatility negatively and significantly affected return on assets. In contrast, Ossai and Ezeugwu (2025) and Soet (2020) found that financing cash flow (levels) positively influenced profitability among manufacturing and listed firms respectively, while Ngaruiya (2022) and Muraya (2018) reported mixed and, in some cases, statistically insignificant relationships between financing cash flows and firm performance among Kenyan firms, pointing to the importance of distinguishing cash flow volatility from cash flow levels.

Free Cash Flow Volatility and Financial Performance

Lai, Taylor, and Zhu (2020), using U.S. panel data (2000-2016), found that free cash flow had a positive and significant effect on firm performance, concluding that firms with higher free cash flow are better positioned to exploit profitable investment opportunities. Similar positive relationships between free cash flow and profitability were reported by Abughniem, Al Aishat, and Hamdan (2020) among Jordanian industrial firms, Bashir, Javed, and Javed (2023) and Rasheed and Shahzad (2020) among Pakistani firms, and Cohee, Piccolo, and Kiyamaz (2020), who found that firms with higher free cash flow performed significantly better during market contractions. Sapuan, Sanusi, and Abd Rahman (2021) and Purnawarman and Handayati (2021) further found that agency cost partially mediates or weakens the free cash flow-performance relationship. However, none of these studies examined the volatility of free cash flow specifically, focusing instead on free cash flow levels, which constitutes a key point of departure for the present study.

Research Gap

The reviewed literature reveals several gaps. Most studies examine individual cash flow components in isolation rather than their joint effect on performance (Chepkoech & Miroga, 2025; Maina, 2024), and many rely on single performance indicators such as return on assets or market capitalization rather than comprehensive measures. A large share of the evidence is drawn from foreign markets such as Iran, Indonesia, Jordan, Nigeria, and Pakistan, limiting applicability to the Kenyan manufacturing context, while studies conducted within Kenya often focus on non-manufacturing or investment firms (Muraya, 2018; Wanjiku, 2019). Critically, most studies analyze cash flow levels rather than volatility, leaving the specific effect of unstable cash flows on financial performance underexplored, particularly for manufacturing firms listed at the Nairobi Securities Exchange. This study addressed these gaps by jointly examining the effect of operating, investing, financing, and free cash flow volatility on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange over the period 2018 to 2024.

III. Research Methodology

Study Design

This study adopted a quantitative causal-descriptive research design, relying on numeric data from corporate financial statements to examine the relationship between operating, investing, financing, and free cash flow volatility and the financial performance of manufacturing firms listed at the Nairobi Securities Exchange.

Study Population and Census

The target population comprised all eight manufacturing firms listed on the Nairobi Securities Exchange as of December 2024, observed over the seven-year period 2018-2024, yielding a panel of 56-64 firm-year observations. Given the small population size, the study adopted a census rather than a sampling approach, including all eight listed manufacturing firms to maximize data utilization and representativeness.

Data Collection

The study relied on secondary data obtained from audited annual financial statements and reports of listed manufacturing firms, and from official records of the Nairobi Securities Exchange and the Capital Markets Authority, using a structured secondary data collection schedule. Data collected covered net operating, investing, financing, and free cash flows, and Return on Equity (ROE) as the measure of financial performance. Cash flow

volatility for each category was computed as the three-point moving standard deviation of the respective annual cash flow figures (t-1, t, t+1).

Model Specification

Data were analysed using descriptive statistics (mean, standard deviation, coefficient of variation), Pearson correlation, and panel regression using STATA 15. The following fixed-effects panel regression model was estimated:

$$Y_{it} = \beta_0 + \beta_1 X1_{it} + \beta_2 X2_{it} + \beta_3 X3_{it} + \beta_4 X4_{it} + \varepsilon$$

Where Y is financial performance (ROE); β_0 is the constant; β_1 - β_4 are the coefficients of operating (X1), investing (X2), financing (X3), and free (X4) cash flow volatility respectively; i denotes the firm, t denotes the year, and ε is the error term.

Diagnostic Tests

Prior to regression estimation, the study conducted diagnostic tests to validate the assumptions of panel regression: the Jarque-Bera test for normality; scatter plots for linearity; the Variance Inflation Factor (VIF) for multicollinearity; the Modified Wald test for group-wise heteroskedasticity; the Wooldridge test for first-order serial correlation; the Fisher-type Augmented Dickey-Fuller (ADF) test for stationarity; and the Hausman test to select between fixed- and random-effects specifications.

IV. Results and Discussion

Descriptive Statistics

Table 1 presents the descriptive statistics for the study variables based on the panel observations covering the study period. Operating cash flow volatility recorded a mean of 994,734.6 and a standard deviation of 2,097,682 (CV = 2.11), reflecting substantial fluctuations in operational cash generation. Investing cash flow volatility had a mean of 545,704 and a standard deviation of 1,094,501 (CV = 2.01). Financing cash flow volatility, the most dispersed of the four variables, had a mean of 912,167.7 and a standard deviation of 2,062,613 (CV = 2.26). Free cash flow volatility recorded a mean of 812,015.5 and a standard deviation of 1,531,429 (CV = 1.89). Financial performance (ROE) averaged 5.12%, with a standard deviation of 0.2982 and values ranging from -0.5567 to 0.3375, indicating substantial variation in profitability across firms.

Table 1: Descriptive Statistics

Statistic	Operating CFV	Investing CFV	Financing CFV	Free CFV	ROE
N	56	56	56	56	56
Minimum	610.1255	31.75426	31.75426	1,402.555	-0.5567
Maximum	11,000,000	4,420,838	9,671,124	8,320,737	0.3375
Mean	994,734.6	545,704	912,167.7	812,015.5	0.0512
Std. Dev.	2,097,682	1,094,501	2,062,613	1,531,429	0.2982
CV	2.1088	2.0057	2.2612	1.8860	5.8242

Diagnostic Test Results

All five study variables passed the Jarque-Bera normality test at the 5% level ($p > 0.05$), and scatter-plot inspection confirmed the linearity assumption. The Wooldridge test found no first-order serial correlation ($F(1,7) = 0.274$, $p = 0.6171$). Variance Inflation Factors ranged from 1.26 to 1.54 (mean VIF = 1.39), well below the threshold of 10, indicating no serious multicollinearity. The Modified Wald test found no significant group-wise heteroskedasticity ($\chi^2(8) = 8.3678$, $p = 0.5969$). The Fisher-type ADF test confirmed that all variables were stationary at level ($p < 0.05$ for all variables). The Hausman test rejected the null hypothesis of no systematic difference between fixed- and random-effects estimates ($\chi^2(4) = 9.13$, $p = 0.0379$), supporting the use of the fixed-effects model for subsequent analysis.

Correlation Analysis

Table 2 presents the Pearson correlation results. All four cash flow volatility measures were negatively and significantly correlated with financial performance: operating cash flow volatility ($r = -0.6398$, $p = 0.000$), investing cash flow volatility ($r = -0.3369$, $p = 0.0065$), financing cash flow volatility ($r = -0.4847$, $p = 0.000$), and free cash flow volatility ($r = -0.5654$, $p = 0.000$). Inter-correlations among the predictor variables were generally low to moderate, consistent with the multicollinearity diagnostics reported above.

Table 2: Pearson Correlation Analysis

Variable	Financial Performance	Operating CFV	Investing CFV	Financing CFV
Operating CFV (r; sig.)	-0.6398; 0.000	1		
Investing CFV (r; sig.)	-0.3369; 0.0065	-0.7455; 0.000	1	
Financing CFV (r; sig.)	-0.4847; 0.000	-0.1189; 0.3495	-0.2171; 0.0848	1
Free CFV (r; sig.)	-0.5654; 0.000	0.1147; 0.3667	-0.1577; 0.2133	-0.3374; 0.0064

Panel Regression Analysis (Hypothesis Testing)

A multiple fixed-effects panel regression was estimated to establish the combined effect of the four cash flow volatility measures on financial performance. The model was statistically significant overall ($F(4,52) = 12.41$, $p = 0.000$), with a within R-squared of 0.4883, a between R-squared of 0.8752, and an overall R-squared of 0.7269, indicating that the four predictors jointly explained 72.69% of the variation in financial performance. Table 3 presents the coefficient estimates.

Table 3: Fixed-Effects Regression of Cash Flow Volatility on Financial Performance

Variable	Coef.	Std. Err.	t	P> t
Operating cash flow volatility	-0.698742	0.228847	-3.05	0.004
Investing cash flow volatility	-0.441450	0.102087	-4.32	0.000
Financing cash flow volatility	-0.328755	0.149235	-2.20	0.032
Free cash flow volatility	-0.330386	0.114168	-2.89	0.006
Constant	-1.982580	1.165902	-1.70	0.095

The estimated model is expressed as: $Y = -1.982 - 0.699X_1 - 0.441X_2 - 0.329X_3 - 0.330X_4$, where Y is financial performance (ROE), and X1 to X4 are operating, investing, financing, and free cash flow volatility respectively. All four null hypotheses (H01-H04) were therefore rejected: operating ($\beta = -0.698742$, $p = 0.004$), investing ($\beta = -0.44145$, $p = 0.000$), financing ($\beta = -0.328755$, $p = 0.032$), and free cash flow volatility ($\beta = -0.330386$, $p = 0.006$) each had a negative and statistically significant effect on financial performance.

Discussion of Findings

Operating cash flow volatility had a strong negative and significant effect on financial performance, implying that instability in operational cash generation weakened liquidity management and reduced Return on Equity among manufacturing firms listed at the NSE. This finding is consistent with Mohsin, Hamidian, and Hashemi (2025), who found that unstable operating cash flows heighten adverse market reactions and financial uncertainty, and with Ahmad, Salih, and Sangawi (2024) and Liman and Mohammed (2018), who linked stable operating cash flows to improved profitability and shareholder returns. The findings, however, contradict Tawalujan and Sahetapy (2025) and Cahyaningrum and Trisnawati (2025), who found no significant effect of operating cash flow volatility on firm outcomes, suggesting that the strength of this relationship may be context-specific.

Investing cash flow volatility had a moderate negative and significant effect, suggesting that inconsistent investment activity and fluctuating capital expenditure weakened operational efficiency and long-term profitability. This supports Chepkoech and Miroga (2025) and Maina (2024), who found that investing cash flow volatility negatively affects firm performance among NSE-listed firms. The results contradict Ossai and Ezeugwu (2025) and Soet (2020), who found investing cash flows to positively influence performance, and Muraya (2018) and Wanjiku (2019), who reported insignificant relationships, a divergence attributable to differences in how investing cash flow was measured (levels versus volatility) and to sectoral differences.

Financing cash flow volatility also had a negative and significant effect, indicating that unstable borrowing, debt repayment, and equity financing activity raised financial risk and financing costs, reducing shareholder returns. This is consistent with Chepkoech and Miroga (2025) and Odhwa and Mutswenje (2023), but contradicts Ossai and Ezeugwu (2025) and Soet (2020), who found financing cash flows to positively influence performance, and Ngaruiya (2022) and Muraya (2018), who found no significant relationship, again underscoring the distinction between financing cash flow levels and their volatility.

Free cash flow volatility had a strong negative and significant effect on financial performance, implying that unpredictable residual cash flows constrained firms' financial flexibility and internal financing capacity. This contrasts with the broadly positive relationships reported for free cash flow levels by Lai, Taylor, and Zhu (2020), Abughniem, Al Aishat, and Hamdan (2020), Cohee, Piccolo, and Kiymaz (2020), Bashir, Javed, and Javed (2023), and Rasheed and Shahzad (2020), reinforcing the study's central premise that it is the instability, rather than the mere availability, of free cash flow that undermines financial performance among manufacturing firms listed at the Nairobi Securities Exchange.

V. Conclusions

The study concluded that operating, investing, financing, and free cash flow volatility each had a negative and statistically significant effect on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange, jointly explaining 72.69% of the variation in Return on Equity. Increased fluctuations in operating cash flows weakened liquidity and working capital management; unstable investing cash flows disrupted capital expenditure planning and resource allocation; volatile financing cash flows raised financing costs and financial risk; and unpredictable free cash flows constrained financial flexibility and internal financing capacity. Collectively, these findings indicate that cash flow stability, and not merely cash flow adequacy, is a key determinant of profitability, financial flexibility, and shareholder returns among manufacturing firms listed at the Nairobi Securities Exchange, and that all four null hypotheses of the study were rejected.

VI. Recommendations

From a policy and managerial perspective, manufacturing firms listed at the Nairobi Securities Exchange should strengthen operating cash flow and working capital management by improving cash flow forecasting, receivables and inventory control, and maintaining adequate liquidity reserves to reduce operational disruptions. Firms should adopt prudent investment planning and capital budgeting practices, carefully evaluating projects before implementation and aligning investment timing with available cash resources to minimize investing cash flow volatility.

Firms should also diversify their financing sources, reduce excessive dependence on debt, and maintain a prudent balance between debt and equity financing to lower financing cash flow volatility and associated financial risk. In addition, firms should strengthen free cash flow management through disciplined cash allocation policies, prioritizing productive investments and improving cash flow monitoring systems to stabilize residual cash flows and reduce dependence on external financing. Regulators and investment promotion bodies should encourage stronger financial disclosure and monitoring standards to help investors better assess cash flow stability across listed manufacturing firms.

For further research, future studies should extend the analysis to other sectors listed at the Nairobi Securities Exchange, incorporate moderating or mediating variables such as firm size, leverage, and corporate governance, and consider alternative performance measures such as Return on Assets, Earnings per Share, and Tobin's Q. Future researchers may also apply dynamic panel techniques such as the Generalized Method of Moments (GMM) and extend the study period to capture longer-term effects of cash flow volatility on financial performance.

References

- [1]. Abdullahi, S. R., Armayau, A., & Kurawa, J. M. (2023). The impact of free cash flow on the profitability of the listed industrial goods companies in Nigeria: The moderating effects of managerial ownership. *Research Journal of Finance and Accounting*, 14(10), 69-78.
- [2]. Abughniem, M. S., Al Aishat, M. A. H., & Hamdan, A. (2020). Free cash flow and firm performance: The moderating role of firm size. *International Journal of Financial Research*, 11(2), 328-337.
- [3]. Ahmad, K. K., Salih, K. H., & Sangawi, S. S. (2024). The impact of operating cash flow on corporate profitability: Amman Stock Exchange case study. *Journal of Economics and Administrative Sciences*, 30(140), 532-543.
- [4]. Bashir, A., Javed, M., & Javed, M. M. (2023). Impact of free cash flow on the profitability of non-financial firms: Evidence from Pakistan. *Pakistan Journal of Social Issues*, 12(3), 111-122.
- [5]. Cahyaningrum, I., & Trisnawati, R. (2025). The effect of sales volatility, company operating cash flow volatility, accrual reliability, book tax difference and market concentration on profit persistency (case study on manufacturing companies listed on the IDX for the period 2021-2023). *Majapahit Journal of Islamic Finance and Accounting*.
- [6]. Cheng, C. S., Zishang, Z., & Johnstone, D. J. (2013). Earnings quality and cash flow information in firm valuation: Evidence from China. *Pacific-Basin Finance Journal*, 24, 15-36.
- [7]. Chepkoech, D., & Miroga, J. (2025). Cash flow management practices and financial performance of non-financial firms listed in the Nairobi Securities Exchange. *International Journal of Finance*, 10(4), 1-22.
- [8]. Christian, M., & Jones, P. (2014). Predicting firm value using cash flow and earnings changes: Evidence from developed markets. *European Accounting Review*, 23(1), 1-27.
- [9]. Cohee, G. L., Piccolo, R. F., & Kiymaz, H. (2020). Impacts of free cash flow on firm performance during market contractions. *International Journal of Business*, 25(3), 230-248.
- [10]. Farshadfar, S., & Monem, R. (2013). The wealth effects of financing cash flows: International evidence. *Journal of International Financial Management & Accounting*, 24(2), 155-183.
- [11]. Hadi, N., Bashir, M., Abolfazl, S., & Maryam, T. (2013). Cash flow volatility and financial performance prediction. *World Applied Sciences Journal*, 22(1), 56-64.
- [12]. Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review*, 76(2), 323-329.
- [13]. Khokan, S., Mollik, A., & Rahman, M. (2013). The value relevance of cash flows and earnings during the global financial crisis. *Accounting and Finance Research*, 2(1), 1-16.
- [14]. Kipngetich, K. B., Kimwolo, A., & Tenai, J. (2021). Financing cash flows, discretionary accruals and stock returns of firms listed at the Nairobi Securities Exchange. *Journal of Finance and Accounting*, 5(2), 1-14.
- [15]. Kuria, S., Memba, F., & Oluoch, O. (2024). Cash flow management and financial performance of manufacturing firms in Kenya. *International Journal of Finance and Accounting*, 9(1), 22-38.
- [16]. 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. In *Eurasian Economic Perspectives: Proceedings of the 26th and 27th Eurasia Business and Economics Society Conferences* (pp. 3-16). Cham: Springer International Publishing.

- [17]. Liman, M., & Mohammed, A. (2018). Operating cash flow and corporate financial performance of listed conglomerate companies in Nigeria. *Journal of Humanities and Social Science*, 23(2), 1-11.
- [18]. Maina, S. K. (2024). Cash flow volatility and firm market value of companies listed at the Nairobi Securities Exchange (Doctoral dissertation, JKUAT-COHRED).
- [19]. Mmadubuobi, L. C., Okegbe, T. O., & Egbunike, F. C. (2022). Effect of cash flow management on share price volatility of oil and gas firms listed on the Nigerian Exchange Group. *Journal of Global Accounting*, 8(3), 110-127.
- [20]. Mohsin, S., Hamidian, N., & Hashemi, S. A. (2025). The effect of industry operating cash flow volatility on stock price crash risk: The moderating role of economic policy uncertainty and conditional conservatism. *Empirical Studies in Financial Accounting*, 21(85), 83-122.
- [21]. Mostafa, W. (2016). Value relevance of earnings and cash flows: Evidence from the UK. *Accounting Research Journal*, 29(3), 327-342.
- [22]. Muraya, A. M. (2018). Effect of cash flow on financial performance of investment firms listed in the Nairobi Securities Exchange for the period 2012-2016 (Doctoral dissertation, United States International University-Africa).
- [23]. Myers, S. C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics*, 5(2), 147-175.
- [24]. Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13(2), 187-221.
- [25]. Ngaruiya, P. M. (2022). Cash flow management and financial performance of firms listed under manufacturing sector at the Nairobi Securities Exchange, Kenya (Doctoral dissertation, Kenyatta University).
- [26]. Njuguna, P., Mwangi, L., Nyamute, W., & Kiiru, D. (2022). Free cash flow, corporate governance and financial performance of listed firms in Kenya. *African Journal of Business Management*, 16(4), 88-99.
- [27]. Odhwa, F. M., & Mutswenje, V. S. (2022). Cash flow management activities and financial performance of manufacturing firms listed at Nairobi Securities Exchange, Kenya. *International Academic Journal of Economics and Finance*, 3(8), 167-185.
- [28]. Odhwa, F. M., & Mutswenje, V. S. (2023). Cash flow volatility and financial performance of listed firms in Zimbabwe. *International Academic Journal of Economics and Finance*, 3(9), 200-215.
- [29]. Okumu, M. (2024). Trends in financial performance of firms listed at the Nairobi Securities Exchange. Nairobi: Capital Markets Authority.
- [30]. Ossai, C. C., & Ezeugwu, C. I. (2025). Effect of cash flow activities on financial performance of manufacturing firms in Nigeria. *SADI International Journal of Management and Accounting*, 12(3), 1-17.
- [31]. Purnawarman, A., & Handayati, P. (2021). The effect of free cash flow (FCF) on agency cost and financial performance in financial sector companies registered in Indonesia Stock Exchange (BEI) 2015-2016. *Jurnal Ekonomi, Bisnis dan Pendidikan*, 1(4).
- [32]. Rasheed, I., & Shahzad, K. (2020). The impact of free cash flow on a firm's performance: Evidence from textile sector of Pakistan. *Asian Finance Research Journal*, 2(1), 62-72.
- [33]. Renaldo, N., Veronica, K., & Hutahuruk, M. B. (2023). Sales volatility, cash flow volatility and firm value: Evidence from emerging markets. *Journal of Accounting and Finance Studies*, 6(2), 55-70.
- [34]. 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.
- [35]. Soet, M. A. (2020). Effect of management of cash flow on the financial performance of mutual funds in Kenya (Doctoral dissertation, JKUAT-COHRED).
- [36]. Tawalujan, G. T., & Sahetapy, K. A. (2025). The effect of cash flow volatility and earnings persistence on cumulative abnormal return (CAR) of firms within the food and beverages sub-sector listed on the Indonesian Stock Exchange. *COSTING: Journal of Economic, Business and Accounting*, 8(6), 3022-3027.
- [37]. Wanjiku, T. (2019). Effect of free cash flow on profitability of firms in the manufacturing and allied sector listed at the Nairobi Securities Exchange for the period 2013-2017 (Doctoral dissertation, United States International University-Africa).