Al-Kharaj: Journal of Islamic Economic and Business
Volume 6 (2), 2024: xxx - xxx
P-ISSN: 2686-262X; E-ISSN: 2685-9300

The Effect of Operating Cash Flow on Earnings Quality: The Moderating Role of Leverage in Indonesian Industrial Sector Firms

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Keywords:
Operating cash flow, Leverage, Earnings quality, Modified Jones Model, Robust HC3

Abstract

This study examines the direct effect of operating cash flow on earnings quality and evaluates the moderating role of leverage in industrial sector companies listed on the Indonesia Stock Exchange during the post-pandemic recovery period of 2022–2025. Employing a quantitative explanatory design, secondary data were gathered from 41 firms selected through purposive sampling, yielding 164 firm-year observations. Earnings quality was measured as an inverse proxy via the absolute value of discretionary accruals (ABSDA) using the Modified Jones Model. To address significant heteroscedasticity violations, the model was estimated using Robust Standard Errors with the HC3 estimator. The empirical results demonstrate that operating cash flow does not significantly affect earnings quality ($\beta = 0.001$; $p = 0.983$), and leverage fails to moderate the relationship ($\beta = 0.052$; $p = 0.792$); thus, both H1 and H2 are rejected. However, leverage exhibits a significant positive direct effect on ABSDA ($\beta = 0.087$; $p = 0.016$), indicating that higher debt levels independently degrade earnings quality due to contractual duress. Conversely, firm size shows a significant negative effect on ABSDA ($\beta = -0.006$; $p = 0.045$), confirming that a larger corporate scale restricts opportunistic reporting. Additionally, sales growth significantly increases ABSDA ($\beta = 0.060$; $p = 0.002$). These findings imply that capital market participants should prioritize corporate scale and operational growth drivers rather than isolated cash metrics when assessing financial reporting integrity.

INTRODUCTION

Earnings quality is a fundamental aspect of financial reporting because it reflects the extent to which reported earnings provide reliable and useful information for investors, creditors, and other stakeholders in making economic decisions. According to (Dechow et al., 2010), earnings quality is not solely determined by the magnitude of reported earnings but also by the ability of earnings to faithfully represent a firm's underlying economic performance and predict future cash flows. In this regard, operating cash flow is considered a crucial component of financial information because it reflects actual cash generated from a firm's core business activities and is generally less susceptible to managerial discretion than accrual-based earnings. (Ball & Nikolaev, 2022) argue that operating cash flow contains value-relevant information that enhances the assessment of firm performance. However, (Casey & Ruch, 2024) suggest that the relationship between earnings and operating cash flows may vary depending on measurement approaches and firm-specific characteristics. Therefore, the association between operating cash flow and earnings quality remains an important issue in accounting research.

Prior studies have documented that the characteristics of operating cash flows are closely associated with the quality of reported earnings. Firms with strong and sustainable operating cash flows tend to exhibit more persistent earnings and higher-quality financial reporting because cash flows provide direct evidence of a firm's operational performance (Dechow et al., 2010).

Conversely, greater volatility in operating cash flows may reduce the ability of accruals to accurately reflect a firm's economic condition, thereby lowering earnings quality (Christensen et al., 2023). Furthermore, (Cheng et al., 2020) find that lower transparency in operating cash flow reporting increases information uncertainty and market risk. These findings indicate that operating cash flow serves not only as a measure of liquidity but also as a fundamental indicator that can be used to evaluate the quality and credibility of reported earnings.

In emerging markets such as Indonesia, earnings quality has become an increasingly important issue due to higher levels of information asymmetry, financing constraints, and economic uncertainty. In addition to operating cash flow, a firm's capital structure may also influence the quality of reported earnings. From the perspectives of Agency Theory and Positive Accounting Theory, firms with higher leverage face greater contractual pressures, which may encourage managers to engage in earnings management practices to satisfy debt-related obligations (Jensen, 1986; Watts & Zimmerman, 1986). On the other hand, debt financing may strengthen external monitoring by creditors and reduce managerial opportunism. Empirical evidence from Indonesia suggests that leverage is associated with earnings quality, although the direction and magnitude of the relationship remain inconclusive (Anggraeni & Widati, 2022; Putri et al., 2017). Therefore, leverage represents a relevant contextual factor that may influence the relationship between operating cash flow and earnings quality in Indonesian industrial sector firms.

Although the relationship between operating cash flow and earnings quality has been extensively examined, prior studies have reported mixed findings. Some studies argue that stronger operating cash flows are associated with higher earnings quality because reported earnings are supported by realized cash inflows and therefore reflect more sustainable business performance (Ball & Nikolaev, 2022; Casey & Ruch, 2024). However, other studies suggest that this relationship may vary across firms and contexts because earnings quality is also influenced by accrual properties, disclosure quality, and firm-specific operating conditions (Christensen et al., 2023; Dechow et al., 2010). In addition, most previous studies have focused primarily on the direct effect of operating cash flow on earnings quality, while empirical evidence on the moderating role of leverage remains limited, particularly in the context of Indonesian industrial sector firms during the post-pandemic period. This gap indicates the need for further investigation into whether leverage strengthens or weakens the association between operating cash flow and earnings quality in an emerging market setting (Anggraeni & Widati, 2022; Kurniawan & Aisah, 2020; Putri et al., 2017).

Accordingly, this study aims to examine the effect of operating cash flow on earnings quality and to analyze the moderating role of leverage in Indonesian industrial sector firms listed on the Indonesia Stock Exchange during the 2022-2025 period. The industrial sector is selected because it is typically characterized by relatively high capital intensity and sensitivity to business cycle fluctuations, making it a relevant setting for investigating the interaction between cash flow performance, accrual-based earnings quality, and capital structure. This study employs firm-year data analyzed using Moderated Regression Analysis (MRA) to test both the direct effect of operating cash flow and the interaction effect between operating cash flow and leverage. In doing so, the study is expected to contribute empirical evidence to the accounting literature by clarifying whether leverage strengthens or weakens the relationship between operating cash flow and earnings quality in an emerging market context.

Based on the theoretical arguments and empirical evidence discussed above, operating cash flow is expected to be associated with higher earnings quality because cash flows provide direct evidence of a firm's operational performance and reduce reliance on managerial estimates

embedded in accrual accounting. However, the effectiveness of operating cash flow in explaining earnings quality may depend on a firm's financing structure. Higher leverage may increase contractual pressures and managerial incentives to engage in opportunistic reporting practices, potentially weakening the positive role of operating cash flow in enhancing earnings quality. Therefore, this study develops two hypotheses. First, operating cash flow is expected to have a significant effect on earnings quality. Second, leverage is expected to moderate the relationship between operating cash flow and earnings quality among industrial sector firms listed on the Indonesia Stock Exchange during the 2022-2025 period.

LITERATURE REVIEW

Agency Theory dan Positive Accounting Theory

Agency theory explains that information asymmetry between principals and agents creates opportunities for managerial opportunism (Eisenhardt, 1989). According to (Jensen, 1986), managers may pursue actions that maximize their own interests when monitoring mechanisms are ineffective. This perspective suggests that reported earnings do not always fully reflect a firm's underlying economic condition because managers may respond to compensation and contractual incentives. Extending this argument, (Watts & Zimmerman, 1986) propose in Positive Accounting Theory that accounting choices are influenced by contractual, political, and compensation-related motivations. (Bushman & Smith, 2001) further argue that financial reporting plays an important role in corporate governance mechanisms, while (Healy & Palepu, 2001) emphasize that information asymmetry affects disclosure quality and reporting behavior. Consequently, leverage may influence earnings quality because debt obligations can simultaneously increase creditor monitoring and managerial incentives to engage in opportunistic reporting.

Concept of Quality of Earnings

Quality of earnings refers to the extent to which accounting earnings faithfully reflect a firm's underlying economic performance and provide useful information for predicting future cash flows. (Dechow et al., 2010) explain that earnings quality is not a single-dimensional construct because it may be observed through several attributes, such as accrual quality, earnings persistence, smoothness, and timeliness. In practice, the concept is important because reported earnings may contain managerial estimates and accounting judgments that do not fully capture actual business performance. For this reason, earnings quality is often treated as an indicator of the reliability and credibility of financial reporting.

Prior literature shows that different proxies may capture different aspects of earnings quality, depending on the research objective and measurement approach. (Francis et al., 2005) emphasize that earnings quality is closely related to the informativeness of accounting numbers, while (Dechow et al., 2010) note that the choice of proxy should be aligned with the specific purpose of analysis. In this study, quality of earnings is proxied by the absolute value of discretionary accruals (ABSDA) estimated using the Modified Jones Model. This proxy is widely used because it captures the extent of discretionary accounting choices in reported earnings and reflects the degree to which earnings deviate from normal accrual activity. Accordingly, a higher ABSDA indicates lower earnings quality, whereas a lower ABSDA indicates higher earnings quality.

Operating Cash Flow and Quality of Earnings

Operating cash flow is considered a more direct indicator of a firm's economic performance because it is generated from core business activities and is generally less affected by accounting estimates than accrual-based earnings. (Bowen et al., 1986) argue that cash flow information provides additional insights into a firm's financial condition, while (Ball & Nikolaev, 2022) demonstrate that operating cash flow contains value-relevant information for assessing firm performance. Therefore, operating cash flow is frequently used as an important indicator in evaluating earnings quality.

However, the relationship between operating cash flow and earnings quality remains inconclusive. (Casey & Ruch, 2024) find that the association may vary depending on the measurement approach employed, whereas (Christensen et al., 2023) show that accrual characteristics and firm-specific operating conditions can influence earnings quality. Nevertheless, firms with stronger operating cash flows are generally expected to report higher-quality earnings because reported earnings are supported by actual cash generation and are less dependent on discretionary accounting choices.

Leverage and Its Moderating Role

Leverage reflects the extent to which a firm's assets are financed through debt and is often associated with contractual pressures arising from obligations to creditors. According to (Jensen, 1986), debt can serve as a monitoring mechanism that reduces managerial opportunism by increasing external oversight. Similarly, (Watts & Zimmerman, 1986) argue that contractual arrangements may influence managerial reporting choices, particularly when managers face incentives related to debt covenants and financial performance targets. Consequently, leverage may affect the quality of reported earnings through its influence on managerial behavior and financial reporting decisions.

Prior studies provide mixed evidence regarding the role of leverage in earnings quality. (DeFond & Jiambalvo, 1994) find that firms facing debt covenant pressures are more likely to engage in income-increasing accounting practices, suggesting that high leverage may reduce earnings quality. In contrast, creditor monitoring associated with debt financing may discourage opportunistic reporting and improve reporting discipline. Therefore, leverage may alter the relationship between operating cash flow and earnings quality by either strengthening or weakening the extent to which operating cash flow reflects a firm's underlying economic performance. This possibility supports the inclusion of leverage as a moderating variable in the present study.

Literature Synthesis and Research Gap

The existing literature suggests that earnings quality is influenced by both financial reporting practices and firm-specific characteristics. Prior studies generally recognize operating cash flow as an important indicator of earnings quality because it reflects actual business performance and is less affected by accounting discretion (Ball & Nikolaev, 2022; Dechow et al., 2010). However, empirical findings regarding the relationship between operating cash flow and earnings quality remain mixed, indicating that the association may vary across firms and contexts (Casey & Ruch, 2024; Christensen et al., 2023). In addition, although leverage has been widely examined as a determinant of financial reporting behavior, limited evidence has explored its moderating role in the relationship between operating cash flow and earnings quality, particularly in Indonesian industrial sector firms. Therefore, further investigation is needed to examine

whether leverage influences the extent to which operating cash flow is associated with earnings quality in the post-pandemic period of 2022-2025.

HYPOTHESIS DEVELOPMENT

The Effect of Operating Cash Flow on Earnings Quality

Operating cash flow reflects cash generated from a firm's core business activities and therefore provides more direct evidence of economic performance than accrual-based earnings. According to (Dechow et al., 2010), earnings quality refers to the extent to which reported earnings faithfully represent a firm's underlying economic condition and provide useful information for decision-making. Because operating cash flow is less affected by managerial estimates and accounting discretion, it is often viewed as a more reliable indicator of operational performance. Similarly, (Bowen et al., 1986) argue that cash flow information complements earnings information by providing additional insights into a firm's financial performance and sustainability. Consequently, firms with stronger operating cash flows are expected to rely less on discretionary accounting adjustments in reporting earnings.

From an earnings quality perspective, higher operating cash flow indicates that reported earnings are supported by actual cash generation rather than by accrual-based adjustments. As a result, the likelihood of managerial discretion embedded in accruals is expected to decline. In this study, earnings quality is proxied by the absolute value of discretionary accruals (ABSDA) estimated using the Modified Jones Model, where a lower ABSDA indicates higher earnings quality. Therefore, firms with higher operating cash flow are expected to exhibit lower ABSDA and, consequently, higher earnings quality.

H1: Operating cash flow has a negative effect on absolute discretionary accruals (ABSDA) as a proxy for earnings quality among industrial sector firms listed on the Indonesia Stock Exchange during the period 2022-2025.

The Moderating Role of Leverage in the Relationship between Operating Cash Flow and Earnings Quality

Agency Theory suggests that conflicts of interest between principals and agents may encourage managers to pursue actions that do not always align with shareholders' interests (Jensen, 1986). In addition, Positive Accounting Theory proposes that managerial accounting choices are often influenced by contractual incentives, including those arising from debt agreements (Watts & Zimmerman, 1986). Firms with higher leverage generally face greater pressure to comply with debt covenants and maintain favorable financial performance indicators. Under such conditions, managers may have stronger incentives to engage in discretionary accounting practices in order to meet creditors' expectations or avoid potential covenant violations.

Empirical evidence provided by (DeFond & Jiambalvo, 1994) indicates that firms experiencing debt covenant pressure are more likely to adopt income-increasing accounting practices. This finding suggests that high leverage may reduce the extent to which operating cash flow reflects the true quality of reported earnings. Although debt can also enhance external monitoring by creditors, the contractual pressure associated with high leverage may create incentives for earnings management that weaken the beneficial role of operating cash flow in improving earnings quality. Therefore, leverage is expected to moderate the relationship between operating cash flow and earnings quality by weakening the negative association between operating cash flow and ABSDA.

H2: Leverage weakens the negative effect of operating cash flow on absolute discretionary accruals (ABSDA) as a proxy for earnings quality among industrial sector firms listed on the Indonesia Stock Exchange during the period 2022-2025.

METHODS

This study employs a quantitative explanatory design to examine the effect of operating cash flow on earnings quality and the moderating role of leverage in industrial sector firms listed on the Indonesia Stock Exchange during the 2022-2025 period. The population consists of all industrial sector firms listed on the IDX during this period. Purposive sampling was applied based on specific criteria to select representative samples, resulting in 41 final sample firms and 164 firm-year observations as detailed in Table 1.

Table 1.

Sample Selection Criteria

Criteria	Total
Industrial sector firms listed on the Indonesia Stock Exchange during 2022-2025	66
Firms that did not publish complete audited annual financial statements during the research period	(18)
Firms that presented financial statements in currencies other than Indonesian Rupiah (IDR)	(3)
Firms with negative equity during the research period	(4)
Final sample firms	41
Total firm-year observations	**164**

Source: Processed data (2026)

The dependent variable is earnings quality, proxied by the absolute value of discretionary accruals ($ABSDA$) based on the Modified Jones Model (Dechow et al., 1995). ($ABSDA$) serves as an inverse measure where higher values indicate lower earnings quality. Total Accruals ($TAC_{\{it\}}$) are calculated as net income ($NI_{\{it\}}$) minus operating cash flow ($CFO_{\{it\}}$). The parameters are estimated using the following Ordinary Least Squares (OLS) regression:

$$\frac{TAC_{it}}{A_{it-1}} = \frac{\beta_1(1)}{A_{it-1}} + \frac{\beta_2\left((\Delta REV_{it} - \Delta REC_{it})\right)}{A_{it-1}} + \frac{\beta_3(PPE_{it})}{A_{it-1}} + \epsilon_{it}$$

Non-Discretionary Accruals ($NDA_{\{it\}}$) are calculated using the estimated coefficients, and Discretionary Accruals ($DA_{\{it\}}$) are derived by subtracting ($NDA_{\{it\}}$) from total accruals. The absolute value of ($DA_{\{it\}}$) represents the final proxy: $ABSDA_{\{it\}} = \left| DA_{\{it\}} \right|$. The main independent variable is operating cash flow (CFO_C), and the moderating variable is leverage (LEV_C). To avoid multicollinearity in the interaction term (INT_CFO_LEV_C), both variables

are mean-centered. This study also includes firm size, profitability, sales growth, and liquidity as control variables. The operational definitions are presented in Table 2.

Table 2.

Operational Definition of Variables

Variable	Measurement	Scale
Earnings Quality (Y)	Absolute value of discretionary accruals based on the Modified Jones Model	Ratio
Operating Cash Flow (X)	Operating cash flow / Beginning total assets	Ratio
Leverage (M)	Total debt / Total assets	Ratio
Firm Size	Ln(Total assets)	Ratio
Profitability	ROA = Net income / Total assets	Ratio
Sales Growth	(Sales_t - Sales_t-1) / Sales_t-1	Ratio
Liquidity	Current ratio = Current assets / Current liabilities	Ratio

Source: Processed data (2026)

Data analysis was conducted using Moderated Regression Analysis (MRA) via IBM SPSS Statistics. Before hypothesis testing, the model was examined through classical assumption tests, including normality (Kolmogorov-Smirnov), multicollinearity (VIF), heteroscedasticity (Glejser and scatterplot), and autocorrelation (Durbin-Watson). Heteroscedasticity Correction: Diagnostic tests confirmed a significant heteroscedasticity violation. To ensure valid statistical inference without discarding data, the model was estimated using Robust Standard Errors with the HC3 (Heteroscedasticity-Consistent) estimator within the Generalized Linear Model framework, which is highly reliable for samples under 250 observations. The final regression equation is formulated as follows:

$$ABSDA = \beta_0 + \beta_1 CFO\_C + \beta_2 LEV\_C + \beta_3 INT\_CFO\_LEV\_C + \beta_4 ROA + \beta_5 SIZE + \beta_6 GROWTH + \beta_7 LIQ + e$$

Where ($ABSDA$) is absolute discretionary accruals; (CFO_C) is mean-centered operating cash flow; (LEV_C) is mean-centered leverage; ($INT\_CFO\_LEV\_C$) is the interaction term; (ROA) is profitability; ($SIZE$) is firm size; ($GROWTH$) is sales growth; (LIQ) is liquidity; and ($epsilon$) is the error term. Coefficients were tested using the robust t-test, and overall model fit was assessed using the Wald F-test at the 5% significance level.

RESULTS

Descriptive Statistics

Descriptive statistics are presented in Table 3. The dataset consists of 164 firm-year observations from industrial sector firms listed on the Indonesia Stock Exchange during 2022-2025. Earnings quality, measured by the absolute value of discretionary accruals (ABSDA), has a mean value of 0.0678 and a standard deviation of 0.0643, indicating relatively low discretionary

accruals on average. The mean-centered values of operating cash flow (CFO_C) and leverage (LEV_C) are close to zero, confirming that the variables were transformed prior to the moderation analysis. Among the control variables, liquidity exhibits the highest mean value, while sales growth shows considerable variation across firms.

Table 3.

Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Quality of Earnings (ABSDA)	164	0.00	0.37	0.0678	0.06431
LEV_C	164	-0.36	0.48	0.0000	0.18735
CFO_C	164	-0.44	0.37	0.0000	0.12170
Return on Assets	164	-0.14	0.30	0.0384	0.06557
Firm Size	164	3.42	12.09	7.1922	1.69058
Sales Growth	164	-0.55	1.15	0.0933	0.26085
Liquidity	164	1.28	28.25	5.1471	4.02847

Source: Processed data (2026).

Classical Assumption Tests

The normality test was evaluated using the histogram, Normal P-P Plot, Kolmogorov-Smirnov test, and Shapiro-Wilk test. Visually, the histogram shows a distribution that approximates a bell-shaped curve, while the Normal P-P Plot indicates that most observations are distributed around the diagonal line. However, the Kolmogorov-Smirnov and Shapiro-Wilk tests produced significance values below 0.05, suggesting deviations from perfect normality. Given the sample size of 164 observations and the visual distribution of residuals, the regression model was considered sufficiently robust for subsequent analysis.

Figure 1.

Histogram of Regression Standardized Residuals

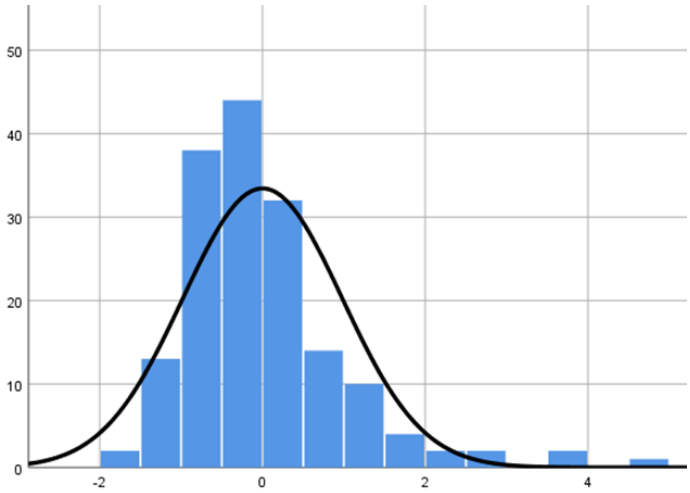
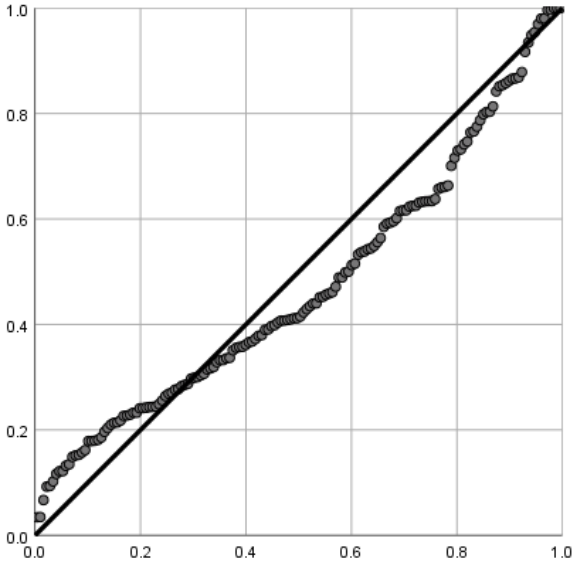


Figure 2.

Normal P-P Plot of Regression Standardized Residuals



The heteroscedasticity test was conducted using both the scatterplot and Glejser test. The scatterplot indicates a potential systematic pattern that warrants closer inspection. This visual indication is formally confirmed by the Glejser test results in Table 4, which reveal that leverage (p=0.001), the interaction term (p=0.021), and sales growth (p=0.000) significantly affect the absolute residuals. To address this heteroscedasticity violation without removing data observations, the final hypothesis testing was estimated using Robust Standard Errors with the HC3 (Heteroscedasticity-Consistent) estimator.

Figure 3.

Scatterplot for Heteroscedasticity Diagnostic

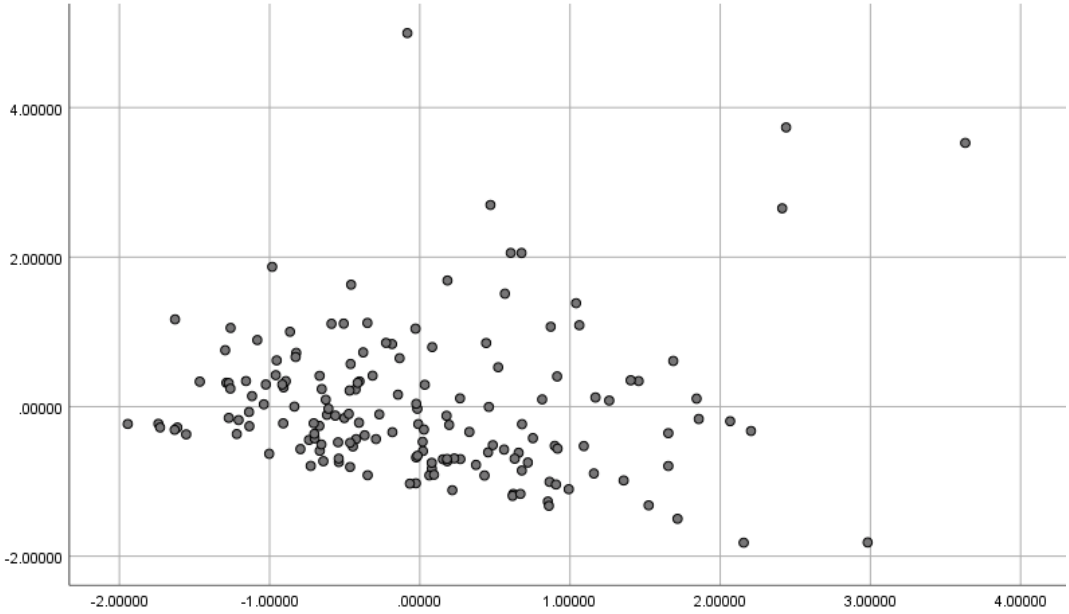


Table 4.

Glejser Test Results

Variable	t-value	Sig.
CFO_C	0.575	0.566
LEV_C	3.330	0.001
CFO_C × LEV_C	-2.332	0.021
Return on Assets	-0.170	0.865
Firm Size	-1.687	0.094
Liquidity	1.701	0.091
Sales Growth	4.006	0.000

Source: Processed data (2026).

The multicollinearity test indicates that all tolerance values exceed 0.10 and all VIF values remain below 10, suggesting the absence of serious multicollinearity. In addition, the Durbin-Watson statistic of 1.698 indicates that the model does not suffer from substantial autocorrelation.

Table 5.

Multicollinearity and Autocorrelation Results

Variable	Tolerance	VIF
CFO_C	0.468	2.135
LEV_C	0.505	1.981
CFO_C × LEV_C	0.670	1.493
Return on Assets	0.472	2.118
Firm Size	0.900	1.111
Liquidity	0.568	1.760
Sales Growth	0.901	1.109

Durbin-Watson = 1.698

Source: Processed data (2026).

Hypothesis Testing

The regression results are presented in Tables 4 and 5. The model yields an adjusted R^2 of 0.111, indicating that 11.1% of the variation in earnings quality is explained by the independent, moderating, and control variables. The F-statistic of 3.904 with a significance value of 0.001 confirms that the model is statistically significant.

Table 6.

Model Summary

R	R^2	Adjusted R^2	Std. Error	Durbin-Watson
0.386	0.149	0.111	0.06064	1.698

Source: Processed data (2026).

Table 7.

ANOVA Results

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	0.100	7	0.014	3.904	0.001
Residual	0.574	156	0.004		
Total	0.674	163			

Source: Processed data (2026).

Table 8.

Regression Results

Variable	Coefficient (B)	Robust Std. Error	t-value	Sig.
Constant	0.100	0.025	4.321	0.000
CFO_C	0.001	0.114	0.022	0.983
LEV_C	0.087	0.063	2.427	0.016
CFO_C × LEV_C	0.052	0.695	0.264	0.792
Return on Assets	0.001	0.158	0.012	0.990
Firm Size	-0.006	0.003	-2.022	0.045
Liquidity	0.001	0.002	0.672	0.502
Sales Growth	0.060	0.035	3.114	0.002

Source: Processed data (2026).

The results in Table 8 indicate that operating cash flow does not significantly affect earnings quality $(\beta = 0.001);\ p = 0.983)$, meaning H1 is not supported. The interaction term is also statistically insignificant $(\beta = 0.052);\ p = 0.792)$, indicating that leverage does not moderate the relationship; thus, H2 is not supported. In contrast, leverage exhibits a significant positive direct effect on ABSDA $(\beta = 0.087);\ (p = 0.016)$, indicating that a higher debt level reduces earnings quality by increasing discretionary accruals. Furthermore, among the control variables, firm size shows a significant negative effect on ABSDA $(\beta = -0.006;\ p = 0.045)$, confirming that a larger corporate scale is associated with superior earnings quality.

DISCUSSION

The Effect of Operating Cash Flow on Earnings Quality

The first scholarly debate concerns whether operating cash flow should function as a reliable signal of earnings quality. (Dechow et al., 2010) emphasize that earnings quality is a contingent construct rather than a fixed attribute, while subsequent work continues to treat operating cash flow as an informative indicator of underlying performance under stable conditions. In this study, however, operating cash flow does not significantly affect discretionary accruals (beta $(\beta = 0.001;\ p = 0.983)$, which means that operating cash flow did not operate as a meaningful signal of earnings quality in Indonesian industrial firms during the 2022-2025 period. This null result is theoretically important because it suggests that the signaling value of operating cash flow weakened during the post-pandemic recovery phase, when cash generation was more plausibly absorbed by liquidity defense, working-capital repair, and operational stabilization than by discretionary reporting behavior.

The descriptive statistics reinforce that interpretation. The sample shows a relatively low average Return on Assets (ROA) of 3.8 percent, highly volatile sales growth, and a low average discretionary accrual level of 0.0678. Such a profile is consistent with a survival-oriented environment rather than a normal-growth environment. Under these conditions, operating cash flow becomes less capable of distinguishing firms with better reporting quality because most firms are using available cash to maintain continuity, secure supplies, and preserve liquidity. In other words, the cash flow signal is crowded out by recovery pressure. This reading is also consistent with (As'ad et al., 2021), who report that operating cash flow does not have a significant direct effect on earnings quality in an Indonesian sample, even though it relates to earnings persistence.

The Moderating Role of Leverage in the Relationship between Operating Cash Flow and Earnings Quality

The second scholarly debate concerns whether leverage strengthens the relationship between operating cash flow and earnings quality through debt-covenant pressure. Positive Accounting Theory and the debt covenant hypothesis would predict that higher leverage increases contractual pressure and therefore raises incentives for opportunistic earnings management (DeFond & Jiambalvo, 1994; Watts & Zimmerman, 1986). Yet the present results do not support that expectation: the interaction term between operating cash flow and leverage is statistically insignificant ($\beta = 0.052; p = 0.792$). This indicates that leverage did not function as a meaningful moderator in shaping the cash flow-earnings quality relationship.

Aside from the insignificant interaction effect, the empirical model reveals that leverage exerts a significant positive direct effect on absolute discretionary accruals ($\beta = 0.087; p = 0.016$). This direct effect indicates that higher debt structures independently degrade earnings quality by inflating discretionary accounting choices. This phenomenon strongly validates Positive Accounting Theory, particularly the debt-covenant hypothesis (Watts & Zimmerman, 1986). In the post-pandemic recovery climate, highly leveraged industrial firms faced intense pressure to comply with strict banking covenants and maintain financial health metrics. To mitigate the risk of technical default, managers were driven to aggressively engage in income-increasing discretionary accruals, which ultimately compromised the credibility of their financial statements.

A more plausible explanation for the lack of moderation is that leverage in the post-pandemic industrial context was subject to stronger creditor monitoring than the classical opportunistic theory assumes. Debt financing in this transitional recovery era appeared to be strictly tied to productive recovery spending and tightly monitored financing needs, leaving little room for leverage to interact with cash flow as a channel of fluid accrual manipulation. This interpretation aligns with the contemporary Indonesian empirical evidence from (Sabila et al., 2021), whose findings confirm that leverage structures fail to systematically distort reporting quality or drive discretionary adjustments when capital market uncertainties force banks to implement strict restrictive oversight. Therefore, the hypothesis is rejected not because debt is irrelevant in accounting behavior, but because the institutional credit monitoring environment appears to have neutralized the opportunistic leverage channel that debt-covenant theory would normally predict.

Firm Size as the Primary Governance Mechanism

The third and most important scholarly debate concerns why firm size becomes the only statistically significant determinant in the model. The evidence from this study shows that firm size has a significant negative association with discretionary accruals $(\beta = -0.006; p = 0.045)$, meaning that larger firms exhibit lower discretionary accruals and therefore higher earnings quality. This finding is best understood through the political visibility hypothesis. Larger firms face greater public scrutiny, stronger analyst attention, more intense regulatory oversight, and higher reputational costs, all of which raise the expected cost of opportunistic reporting. Visibility itself acts as a governance discipline that constrains management.

The Indonesian empirical evidence in capital-intensive settings points strongly in the same direction. (Halim, 2024) asserts that financial reporting integrity under institutional exposure is heavily dictated by corporate visibility pressures that align with stakeholder demands. Furthermore, (Risandy et al., 2025) explicitly confirm that in the Indonesian basic industry and manufacturing sectors, larger corporate scales drastically limit opportunistic earnings management due to advanced internal control structures and high-tier external audit requirements. In this model, the negative coefficient confirms that larger industrial firms present earnings that reflect underlying economic performance, making firm size the most robust explanatory factor in the study.

Sales Growth as an Operational Driver of Accruals

The regression results demonstrate that sales growth has a highly significant positive effect on absolute discretionary accruals $(\beta = 0.060; p = 0.002)$. This finding demonstrates that rapid sales expansion during the recovery period is associated with lower earnings quality. From an accounting perspective, firms experiencing rapid growth often encounter higher operational complexity and internal control lags, which naturally increases standard estimation errors in accruals. Alternatively, under pressure to signal a robust post-crisis turnaround to capital markets, managers in high-growth firms may utilize discretionary adjustments to match accounting revenues with aggressive market expectations. This evidence highlights that sales growth acts as a critical operational driver that intensifies financial reporting risks in the industrial sector.

Theoretical and Practical Implications

Taken together, the results suggest that the 2022-2025 recovery period altered the relative explanatory power of classical accounting signals. Operating cash flow did not significantly predict earnings quality because it was absorbed by defensive liquidity management; leverage did not moderate the relationship because debt was constrained by monitoring and covenant discipline; and firm size emerged as the dominant governance mechanism shaping reporting quality. Theoretically, this means that signaling logic and debt-covenant arguments should be interpreted conditionally in transitional emerging-market settings. Practically, it implies that investors and regulators should place greater emphasis on corporate scale, operational drivers like sales growth, and monitoring intensity than on cash flow or leverage alone when assessing earnings quality in industrial firms.

CONCLUSION

Conclusion

This study examined the effect of operating cash flow on earnings quality and the moderating role of leverage in Indonesian industrial sector firms during the 2022-2025 post-pandemic recovery period. The empirical results demonstrate that operating cash flow does not significantly affect earnings quality ($\beta = 0.001; p = 0.983$), indicating that operational cash metrics were driven by liquidity survival rather than financial report modification. Furthermore, leverage fails to moderate the relationship ($\beta = 0.052; p = 0.792$). However, leverage exhibits a significant positive direct effect on absolute discretionary accruals ($\beta = 0.087; p = 0.016$), confirming that higher debt levels independently degrade earnings quality due to debt-covenant pressures. Conversely, firm size shows a significant negative effect on ABSDA ($\beta = -0.006; p = 0.045$), confirming that a larger corporate scale restricts opportunistic reporting through heightened visibility. Additionally, sales growth significantly increases discretionary accruals ($\beta = 0.060; p = 0.002$). Overall, the findings indicate that during recovery periods, earnings quality is dictated by organizational scale, operational growth drivers, and direct credit oversight rather than cash metrics or interactive moderation channels.

Implications

Theoretically, these findings suggest that the signaling role of operating cash flow and the debt-covenant logic of leverage are highly context-dependent. In a post-pandemic recovery environment, these classical explanations do not appear to operate as strongly as expected, while firm size and sales dynamics remain critical forces shaping financial reporting behavior. Practically, the results imply that investors should not rely only on operating cash flow and leverage when assessing the credibility of earnings in industrial firms. Greater attention should be given to firm size, corporate visibility, and aggressive sales growth fluctuations because these factors provide a stronger indication of real reporting quality. For regulators, the findings suggest that smaller firms and rapidly expanding companies may require closer oversight because they appear more vulnerable to discretionary accrual behavior.

Limitations and Suggestions

This study has several limitations. First, the observation period is limited to 2022-2025, which captures a specific post-pandemic recovery phase and may reflect temporary economic conditions rather than stable long-term patterns. Second, earnings quality is proxies only by the absolute value of discretionary accruals using the Modified Jones Model, so the measure captures only one dimension of earnings quality. Third, the sample is restricted to industrial sector firms listed on the Indonesia Stock Exchange, which limits the generalizability of the findings to other sectors. Fourth, the model includes only one moderating variable and a limited set of controls, so other factors may also influence earnings quality.

Future research is recommended to extend the observation period beyond the recovery phase, use multiple proxies of earnings quality such as real earnings management and earnings persistence, and compare results across different sectors. Future studies may also examine other moderating variables, such as audit quality, institutional ownership, or corporate governance intensity, to provide a more comprehensive explanation of the determinants of earnings quality.

REFERENCE

Anggraeni, L. R., & Widati, L. W. (2022). Pengaruh leverage, likuiditas, profitabilitas, konservatisme, dan ukuran perusahaan terhadap kualitas laba. *Owner: Riset Dan Jurnal Akuntansi*, *6*(1).

As'ad, I. F., Ulupui, I. G. K. A., & Utaminingtyas, T. H. (2021). Pengaruh leverage dan arus kas operasi terhadap kualitas laba melalui persistensi laba. *Jurnal Akuntansi, Perpajakan Dan Auditing*, *2*(2), 295–317. https://doi.org/10.21009/japa.0202.07

Ball, R., & Nikolaev, V. V. (2022). On earnings and cash flows as predictors of future cash flows. *Journal of Accounting and Economics*, *73*(1). https://doi.org/10.1016/j.jacceco.2021.101430

Bowen, R. M., Burgstahler, D., & Daley, L. (1986). Evidence on the relationship between earnings and cash flows. *The Accounting Review*, *61*(4), 713–725.

Bushman, R. M., & Smith, A. J. (2001). Financial accounting information and corporate governance. *Journal of Accounting and Economics*, *32*(1–3), 237–333.

Casey, R. J., & Ruch, G. W. (2024). Are earnings better than cash flows at predicting future cash flows? *Review of Accounting Studies*, *29*(4). https://doi.org/10.1007/s11142-023-09805-5

Cheng, Q., Li, X., & Zhang, Y. (2020). Operating cash flow opacity and stock price crash risk. *Journal of Accounting and Public Policy*, *39*(4). https://doi.org/10.1016/j.jaccpubpol.2020.106717

Christensen, T. E., D'Adduzio, J., & Nelson, K. K. (2023). Explaining accruals quality over time. *Journal of Accounting and Economics*, *75*(1). https://doi.org/10.1016/j.jacceco.2022.101575

Dechow, P. M., Ge, W., & Schrand, C. (2010). Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting and Economics*, *50*(2–3), 344–401.

DeFond, M., & Jiambalvo, J. (1994). Debt covenant violation and manipulation of accruals. *Journal of Accounting and Economics*, *17*(1–2), 145–176.

Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *Academy of Management Review*, *14*(1), 57–74.

Francis, J., LaFond, R., Olsson, P., & Schipper, K. (2005). The market pricing of accruals quality. *Journal of Accounting and Economics*, *39*(2), 295–327.

Halim, K. I. (2024). Faktor-faktor yang mempengaruhi kualitas laba. *Jurnal Ekonomika45*, *12*(1), 76–93.

Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets. *Journal of Accounting and Economics*, *31*(1–3), 405–440.

Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review*, *76*(2), 323–329.

Kurniawan, R., & Aisah, S. (2020). Pengaruh set kesempatan investasi, konservatisme, dan pertumbuhan laba terhadap kualitas laba pada perusahaan manufaktur. *AKRUAL: Jurnal Akuntansi*, *2*(1), 1–15. https://doi.org/10.34005/akrual.v2i1.1044

Putri, S. A., Khairunnisa, & Kurnia, M. (2017). Aliran kas operasi, book-tax differences, dan tingkat hutang terhadap persistensi laba. *Jurnal Riset Akuntansi Kontemporer*, *9*(1), 1–12. https://doi.org/10.23969/jrak.v9i1.365

Risandy, R. D. D. A., Situmorang, M., & Widyowati, P. M. (2025). Pengaruh ukuran perusahaan, struktur modal dan pertumbuhan laba terhadap kualitas laba pada perusahaan manufaktur sektor industri dasar dan kimia yang terdaftar di Bursa Efek Indonesia periode 2018-2022. *JATAMA: Jurnal Akuntansi Pratama*, *2*(1), 6–25.

Sabila, R. F., Evana, E., & Septiyanti, R. (2021). Analysis of the effect of operating cash flow, leverage, and firm size on earnings persistence. *Journal Dimensie Management and Public Sector*, *2*(3), 42–50. https://doi.org/10.48173/JDMPS.V2I3.104

Watts, R. L., & Zimmerman, J. L. (1986). *Positive accounting theory*. Prentice-Hall.