

Operating Cash Flow and Future ROE in Indonesia: The Moderating Role of Sales Growth

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Abstract

Purpose: This study tests whether current sales growth moderates the link between prior operating cash-flow intensity and subsequent Return on Equity (ROE) in Indonesian non-financial companies, treating sales growth as a boundary condition for the profitability effect of internal cash generation.

Research Methodology: We built a balanced panel of 163 consistently profitable companies (652 firm-year observations, 2020-2025), sequencing operating cash-flow intensity at t-1, sales growth at t, and ROE at t+1. We tested the hypotheses using two-way fixed-effects regression with firm-clustered standard errors, mean-centered interactions, simple-slope analysis, and cluster bootstrapping.

Results: At average sales growth, prior operating cash-flow intensity correlated negatively with future ROE, while sales growth itself correlated positively with it. Their interaction was positive: higher growth weakened the negative relationship until it became statistically indistinguishable from zero. This moderation effect held within ordinary operating ranges but was sensitive to extreme-value treatment.

Limitations: Several factors constrain causal interpretation and generalizability: a short pandemic-to-recovery window, a sample restricted to consistently profitable firms, reliance on accounting disclosures, residual cross-sectional dependence, and sensitivity to winsorization.

Contribution: We introduce a temporally ordered moderation framework that identifies sales growth as an operating boundary condition, extending the Agency Theory-Free Cash Flow Hypothesis and Contingency Theory with cross-sector evidence from an emerging market. Operating cash generation benefits shareholders only when firms channel that liquidity into sales expansion.

Conclusion: Operating cash flow intensity alone does not guarantee higher shareholder profitability. Internal cash generation creates value when firms can utilize liquidity through productive sales expansion.

Keywords: *Agency theory, Indonesia, Operating cash flow, Return on equity, Sales growth*

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1. Introduction

Firms must convert operating activities into sustainable profitability while confronting recurrent disruptions to demand, supply chains, financing conditions, and input costs. The World [Bank \(2026\)](#) projects that global economic growth will slow to 2.5% in 2026, alongside higher energy prices, inflationary pressure, and rising borrowing costs. Under these conditions, cash generated from core operations provides firms with an important source of internal financing for working capital, capacity maintenance, and strategic investment ([Arora & Gaur, 2025](#)). However, strong operating cash flow does not automatically translate into higher profitability ([Laghari, Ahmed, & López, 2023](#); [Sabău-Popa, Rus, Gherai, Mare, & Tara, 2021](#)). Managers can retain cash, allow operational inefficiencies to absorb it, or commit it to projects that fail to generate adequate returns. A manufacturer that generates strong operating cash flow, for instance, may still see that cash absorbed by rising inventory and receivables during a sales expansion, leaving little residual for shareholders once the firm restocks raw materials and extends credit terms to new customers ([Kroes & Manikas, 2014](#)). Rapid sales expansion can improve asset utilization and economies of scale, but it can also intensify working-capital requirements and strain short-term liquidity ([Nicolas, 2022](#)). Therefore, the profitability implications of operating cash flows depend on more than the amount of cash a firm generates; they depend on whether the firm has productive opportunities through which to deploy that cash.

Indonesia illustrates this tension: the country's economy continues to expand, even as external uncertainty persists. [Badan \(2026a\)](#) reported that the Indonesian economy grew by 5.11% in 2025, up from 5.03% in 2024, and [Badan \(2026b\)](#) recorded a year-on-year growth of 5.61% in the first quarter of 2026. These figures indicate continuing opportunities for corporate sales expansion across the manufacturing, retail, and consumer goods sectors. [Bank \(2026\)](#) nonetheless held the BI-Rate at 5.75% in July 2026 to support Rupiah stability amid heightened global uncertainty, which means that firms still face financing-cost and exchange-rate risks even as domestic demand strengthens. Manufacturing and consumer goods firms, which rely heavily on imported inputs and equipment, feel these financing costs and exchange rate pressures most directly ([Egan, 2017](#)). Market growth opportunities and financial constraints together make internally generated cash strategically important, and they raise a direct question: can firms convert that cash into profitable growth? Data covering 2020-2025 speak to this question directly, as they capture the transition from pandemic disruption to economic recovery, a period in which Indonesian non-financial companies faced different demand and liquidity conditions from one year to the next. Therefore, this period can reveal whether sales recovery changes the relationship between prior operating cash generation and subsequent return on equity.

Prior research establishes operating cash flow and sales growth as important determinants of corporate performance, but does not consistently explain how the two work together. [Li and Terdpaopong \(2025\)](#) found that operating cash flow and sales growth were positively associated with both return on assets and return on equity among Chinese listed healthcare companies, treating the two variables as parallel determinants of profitability rather than testing whether one condition the other. [Huong, Do, and Thu \(2022\)](#) documented a positive relationship between operating cash flow and operational efficiency among Vietnamese listed non-financial companies, emphasizing the role of state ownership, while including firm growth only as a control variable rather than a variable of central interest. [Dahmash, Al-Hazaima, Alshurafat, and Alzoubi \(2023\)](#), by contrast, showed that the predictive relevance of operating cash flow for one-year-ahead return on assets differed between Jordanian banks and insurance companies, such as the relationship failed to reach significance for banks but reached significance for insurers. These mixed results span healthcare, banking, and insurance firms across China, Vietnam, and Jordan, leaving the operating cash flow-profitability link theoretically unsettled. These mixed findings are not simply noise. They provide important information. Most studies use additive models that force operating cash flow to have a fixed effect on profitability, whether a firm's demand is flat or growing fast. If cash flow only raises profitability when a firm has good ways to use it, an additive model simply averages different effects across firms: negative where growth opportunities are scarce, neutral or positive where they are plentiful. This average shifts depending on

which firms make up a given sample, which is exactly the instability seen across studies. Therefore, fixing this inconsistency requires a model that allows the cash flow-profitability effect to change with a firm's growth conditions, instead of forcing one fixed number onto every firm.

This study addresses three specific research gaps. First, on the concept side, prior studies treat sales growth as a parallel predictor or control variable ([Dahmash et al., 2023](#); [Huong et al., 2022](#); [Li and Terdpaopong, 2025](#)). None of them treat it as a boundary condition, meaning a factor that determines when and how strongly past cash generation turns into shareholder profit. Second, on the method side, most studies measure cash flow, growth, and profitability in the same period, which leaves the timing question untested: cash must exist before growth can use it, and the profit effect must follow the two. Third, in the context of the study, few studies have examined Indonesian non-financial companies, even though the 2020-2025 pandemic-to-recovery period offers an unusually wide variation in growth conditions for observing this mechanism. This study fills these gaps with a temporal moderation framework that orders operating cash flow intensity at $t-1$, sales growth at t , and return on equity at $t+1$, controlling for the debt ratio, operating expense ratio, capital intensity, firm size, and firm and year fixed effects to isolate the key interaction. To the best of our knowledge, this is the first study to test sales growth as a moderating boundary condition on the lagged link between operating cash flow intensity and future return on equity among Indonesian non-financial companies, rather than treating it as just another additive predictor of profitability. Therefore, this framework shifts the research question: instead of asking whether operating cash flow improves future profitability, a question that additive models have answered inconsistently, it asks under what conditions operating cash flow does so.

We ground this boundary condition argument in Agency Theory and the Free Cash Flow Hypothesis. [Jensen and Meckling \(1976\)](#) explain that the separation of ownership and control creates incentives for managers to allocate corporate resources in ways that may not maximize owners' interests, while [Jensen \(1996\)](#) argues that discretionary internal funds can intensify overinvestment and organizational inefficiency when productive uses are limited. Operating cash flow is not equivalent to free cash flow, but it captures a firm's ability to generate internal funds from its core activities. Contingency Theory adds that organizational outcomes depend on the fit between resources and contextual conditions rather than on a universally optimal arrangement by [Drazin and De \(1985\)](#); sales growth, in this framework, creates productive uses for internal cash through additional working capital, production, distribution, and marketing requirements. Consistent with this reasoning, the main estimates reveal a positive and statistically significant interaction: higher sales growth attenuates the negative association between prior operating cash flows and subsequent return on equity. Section 2 develops the theoretical arguments and hypotheses of the study. Section 3 explains the sample and panel data methodologies. Section 4 presents the empirical results and robustness analysis. Section 5 discusses the theoretical and managerial implications of the study. Section 6 concludes with the study's limitations and directions for future research.

2. Literature Review and Hypotheses Development

2.1 Grand Theory Framework

Agency Theory [Jensen and Meckling \(1976\)](#) provides the primary lens: the separation of ownership and control gives managers discretion over corporate resources, and managerial objectives do not always align with shareholder interests. The Free Cash Flow Hypothesis [Jensen \(1996\)](#) sharpens this mechanism by focusing on funds that remain under managerial control after operations generate cash. [Nwonye and Ugwuegbe \(2020\)](#) elaborate that this hypothesis presumes that managers of firms with rising free cash flow tend to invest in projects with negative Net Present Value (NPV) to enrich themselves at the shareholders' expense (p. 155). When productive opportunities are short, managers can retain cash, expand into unprofitable projects, or build organizational slack instead of returning value to shareholders. Therefore, a high level of operating cash generation does not automatically raise return on equity. Contingency Theory [Drazin and De \(1985\)](#) supplies the qualifying logic: outcomes depend on the fit between available resources and the conditions in which firms deploy them to achieve their goals. Sales growth constitutes that condition here, so managerial discretion

turns value-eroding under weak demand and value-creating when expansion generates concrete financing needs ([Stulz, 1990](#); [Gupta, Mortal, & Yang, 2018](#)). The two theories play different but connected roles in this moderation mechanism; they do not simply describe firm behavior in parallel. The Agency Theory-Free Cash Flow Hypothesis provides the baseline prediction that discretionary internal funds carry an agency cost; therefore, prior operating cash flow intensity should lower future return on equity when firms have no expansion outlet to discipline their use (H_1). Contingency Theory does not add a new predictor. Instead, it turns a condition already built into the Free Cash Flow hypothesis that discretionary funds destroy value only when productive uses are limited into a testable interaction. Sales growth captures the fit between internal funds and firm deployment. As a market-validated outlet, realized growth should directly raise future profitability (H_2), and more importantly, for this study, it should weaken the agency penalty on prior cash generation as growth rises (H_3). Therefore, each theory maps onto a specific, testable part of the model, and the moderation framework combines both rather than restating either one.

This study operationalizes this mechanism using a temporally ordered design. Cash Flow from Operating Activities divided by Total Assets at $t - 1$ captures internal cash-generating intensity before the contemporaneous growth condition appears; it excludes long-term capital expenditure and financing costs, so it functions as an antecedent of the funds over which managers hold discretion rather than a direct free cash flow measure. [Huong, Do, and Thu \(2022\)](#) support this proxy by linking operating cash flow to ROA and ROE in Vietnamese firms, and [Li, Wei, and Zhang \(2026\)](#) confirm the market relevance of cash generation in Indonesia through the cash flow-to-price in the IDX4 framework. Sales growth at t indicates realized market expansion; here, it moderates rather than transmits the operating cash flow effect. Return on equity at $t + 1$ captures whether earlier cash capacity, conditional on current growth, benefits shareholders. The debt ratio, operating expense ratio, capital intensity, and firm size isolate this interaction from leverage, cost structure, asset configuration, and scale.

Integrated in this way, the two theories yield conditional predictions rather than a universal sign, such as when sales growth is low, weak demand offers few productive uses for prior cash; therefore, the agency mechanism dominates, and greater cash-generating capacity can widen managerial discretion without improving future return on equity ([Aktas, Andreou, Karasamani, & Philip, 2019](#); [Muñoz, Yelpe, Ramos, & Fuentealba, 2021](#)). When sales growth is high, additional sales create working capital, production, distribution, and marketing requirements that absorb prior cash productively and narrow the scope for empire building ([Laghari, Ahmed, & López, 2023](#)). Therefore, contingency Theory does not require a universal sign for the operating cash flow–ROE association; it predicts that sales growth moderates this association, producing a positive interaction coefficient ([Otley, 2016](#)). The post-pandemic Indonesian setting sharpens this prediction: cash flow growth became less relevant to stock performance during the COVID-19 disruption by [Meliana, Kesuma, Enjelina, Rijanto, and Savitri \(2022\)](#), while the recovery phase restored the importance of liquidity and financial stability.

2.2 Hypothesis Development: Operating Cash Flow and Future Return on Equity

The Agency Theory-Free Cash Flow Hypothesis explains why strong operating cash generation does not guarantee superior future returns. Operating Cash Flow to Total Assets (OCF/TA) at $t - 1$ measures cash-generating intensity, not free cash flow after investment; however, a high ratio still expands the funds managers control. When monitoring is imperfect and productive uses run short, managers can retain liquidity, overinvest, or tolerate inefficient working capital deployment, raising the equity base without proportionate future earnings. Contingency Theory situates this baseline at the mean level of sales growth: under an average expansion outlet, the agency cost of discretionary cash can dominate its financing benefit, producing a negative relationship with future ROE. The evidence is mixed. Some studies find negative effects of operating cash flow on profitability, for example, among Indian microfinance institutions by [Sharma and Biswas \(2025\)](#) and firms with inefficient cash deployment ([Annisa & Amalia, 2025](#)). Other studies have found mostly positive effects by [Huong, Do, and Thu \(2022\)](#) and [Rahman and Bahadur \(2020\)](#), and still others find no effect or effects that depend on the sector ([Dahmash, Al-Hazaima, Alshurafat, & Alzoubi, 2023](#); [Pordea, David, & Mates, 2020](#)). This spread of results is exactly what we would expect if the true effect depends on conditions rather than

remaining constant, which is why we test the sign of the OCF/TA slope at a specific level of the moderator.

The temporal separation between OCF/TA at $t - 1$ and ROE at $t + 1$ reduces conceptual simultaneity and asks whether prior cash capacity precedes lower future return. Holding sales growth at its mean isolates the baseline slope: operating cash is not intrinsically harmful, but at an ordinary growth outlet, discretion can outpace productive investment and erode earnings per equity unit. A negative baseline coefficient can coexist with a positive interaction coefficient because stronger growth may absorb cash more productively. Accordingly:

H₁: Cash Flow from Operating Activities divided by Total Assets at $t - 1$ is negatively associated with return on equity at $t + 1$ when sales growth at t is at its mean level

2.3 Hypothesis Development: Sales Growth and Future Return on Equity

The Agency Theory-Free Cash Flow Hypothesis also explains why sales growth functions as an observable productive outlet rather than merely an expansion outcome ([Ataunal, & Aybars, 2017](#); [Sharma, & Biswas, 2025](#)). Sales growth at t signals that a firm converts demand into revenue; when disciplined, a broader sales base improves capacity utilization, spreads fixed costs, and strengthens earnings relative to shareholders' equity, raising ROE at $t + 1$. [Liviani and Rachman \(2021\)](#) similarly argue that sales growth signals favorable prospects to investors, reinforcing confidence in the firm's future earnings capacity. Realized expansion also constrains managerial discretion by directing cash to verifiable, revenue-linked uses. Contingency Theory qualifies this mechanism: the profitability consequence of growth depends on the financial capacity that supports it ([Deb & David, 2017](#)). Evaluating sales growth when prior OCF/TA is at its mean identifies the baseline association under ordinary internal cash support. This explanation is supported by the evidence. Sales growth raises ROA and ROE in Chinese healthcare and Bangladeshi manufacturing industries by [Hossain \(2020\)](#), and it is accompanied by higher operational efficiency in Vietnamese firms ([Huong, Do, & Thu, 2022](#)). However, related evidence warns that growth can also bring earnings manipulation, lower payouts, or weaker firm value when it outpaces a firm's financial capacity ([Bravo, & Widuri, 2023](#); [Kamal, & Ahmad, 2019](#); [Whetyningtyas, Arumsari, Ashari, & Mulyani, 2025](#)). We claim that market-driven revenue growth raises future returns when a firm has ordinary internal cash support available, and *H₂* tests this condition by holding OCF/TA at its mean value.

Separating sales growth at t from ROE at $t + 1$ tests whether current expansion precedes improved shareholder profitability, rather than treating growth and profitability as simultaneous. Holding OCF/TA at its mean establishes the expected effect for a firm with an ordinary prior cash capacity. Growth can still reduce future ROE when it reflects empire building or disproportionate working-capital demands, a boundary condition that the moderation hypothesis addresses separately. Accordingly:

H₂: Sales growth at t is positively associated with return on equity at $t + 1$ when operating cash flow intensity at $t - 1$ is at its mean level

2.4 Hypothesis Development: The Moderating Role of Sales Growth

The Agency Theory-Free Cash Flow Hypothesis explains why the profitability of operating cash should depend on sales growth. A stronger OCF/TA at $t - 1$ enlarges the funds under managerial allocation; without sufficiently productive opportunities, this discretion can encourage liquidity retention or scale-maximizing expansion that raises equity commitments without proportionate future earnings, producing a negative baseline association with ROE at $t + 1$ ([Aktas et al., 2019](#); [Guariglia & Yang, 2016](#)). Sales growth at t changes this mechanism by providing a market-validated use for cash: a growing sales base requires financing for production, inventory, and distribution while improving capacity utilization ([Laghari et al., 2023](#); [Rompotis, 2024](#)). Contingency Theory formalizes this logic by treating sales growth as a boundary condition, such as sales growth rises, the agency cost channel should shrink, and the negative OCF/TA-ROE relationship should weaken. However, no study has directly tested this interaction. The studies reviewed in Sections 2.2 and 2.3 treat operating cash flow

and growth as separate, additive predictors, and none test whether sales growth changes the lagged OCF/TA-future ROE relationship. Their conflicting baseline results are exactly what we would expect from the conditional effect. H_3 tests the boundary condition itself rather than adding another average effect.

Temporal ordering makes the mechanism explicit, such as OCF/TA at $t - 1$ represents prior cash capacity, sales growth at t captures the operating conditions in which managers can deploy that capacity, and ROE at $t + 1$ records the later profitability outcome. The prediction is more precise than the claim that growth simply strengthens a positive OCF effect because the expected baseline slope is negative; positive moderation means that the marginal OCF/TA-ROE association moves upward as sales growth rises. The hypothesis does not require the effect to turn positive at high growth, only that it becomes less negative. Accordingly:

H₃: Sales growth at t positively moderates the relationship between Cash Flow from Operating Activities divided by Total Assets at $t - 1$ and return on equity at $t + 1$, such that the negative relationship becomes weaker as sales growth increases

3. Research Methodology

3.1 Research Design and Sample Selection

We employed a quantitative longitudinal panel design to test whether current sales growth moderates the association between prior operating cash flow intensity and future shareholder profitability among Indonesian Stock Exchange (IDX) non-financial firms. The unit of analysis is firm-year. We drew annual observations from IDX disclosures spanning 2020-2025, the six-year window required to construct the three-period sequence underlying our hypotheses: operating cash flow at $t-1$, sales growth at t , and return on equity at $t+1$. After temporal alignment, the estimable index years span 2021-2024, so we source operating cash flow intensity and controls from 2020-2023, sales growth from 2021-2024, and ROE from 2022-2025. We applied purposive screening in sequence: we excluded financial-sector issuers because their balance-sheet structures and cash-flow classifications differ fundamentally from non-financial firms; we required continuous annual report and audited statement coverage across 2020-2025; we required complete data for every line item needed to compute the focal ratios; we required positive net income in each year; and we dropped observations with missing identifiers, duplicate firm-year keys, or undefined denominators. These criteria yielded 163 firms observed across all six years, and temporal matching produced our final regression sample of 652 observations (163 firms $\times$ 4 index years) with no missing values across the nine model fields.

The requirement for a positive net income needs explicit justification because it is our strictest screen. We included it for three reasons. First, ROE only works as a profitability rate when earnings and equity behave as expected. Recurring losses shrink the equity denominator and can produce extreme or sign-reversed ROE values that reflect financial distress rather than how firms use their internal funds. Second, our hypothesis concerns how managers of healthy cash-generating firms allocate discretionary internal funds. In loss-making firms, future profitability depends mainly on turnaround efforts, restructuring, and financing pressure, which would confound the moderation test. Third, requiring continuous observation across 2020-2025 keeps the three-period sequences aligned within one balanced panel. However, these benefits come at a cost. The criteria create survivorship and profitability selection; therefore, our sample over-represents resilient firms that remained profitable through the pandemic-to-recovery period. Therefore, readers should treat our estimates as conditional on consistent profitability. They likely understate the agency cost of discretionary cash among weaker firms, where monitoring is less and distress incentives are sharper. Our findings generalize to consistently profitable, continuously listed non-financial firms, not to the full IDX population, a boundary that we restate in Section 5.2.

3.2 Operational Definition and Measurement of Variables

We measured Operating Cash Flow Intensity (OCF_INT) as cash flow from operating activities divided by total assets at $t-1$, following the asset-scaled cash flow proxies in [Dahmash et al. \(2023\)](#) and [Huong et al. \(2022\)](#), scaling by assets improves comparability across firms of different sizes. We

measured Sales Growth (SG) as $(\text{Sales}_t - \text{Sales}_{t-1}) / \text{Sales}_{t-1}$, following [Hossain \(2020\)](#). Because financial performance denotes the extent to which a firm's actions and decisions translate into success across multiple indicators by [Suhadi \(2024\)](#), we measured our dependent variable, Return On Equity (ROE), as net income after tax divided by total shareholders' equity at $t+1$, consistent with [Huong et al. \(2022\)](#) and [Pordea et al. \(2020\)](#). The one-year lead captures a subsequent accounting outcome, rather than a market return. We included four controls to isolate financing structure, cost burden, asset requirements, and scale: debt ratio (total liabilities/total assets, following Hossain, 2020), operating expense ratio, capital intensity (total assets/total revenue, following Hossain, 2020), and firm size (the natural logarithm of total assets, following [Huong et al., 2022](#); [Rahman, & Bahadur, 2020](#)). We winsorized all continuous ratios by index year at the first and ninety-ninth percentiles, mean-centered OCF_INT, and SG, and multiplied the centered terms to form our interaction variable. Table 1 summarizes the operational definitions, variable types, measurements, and sources for each variable used in this study.

Table 1. Measurement of variables

Variables	Type	Measurement	Source(s)
Operating Cash-Flow Intensity (OCF_INT)	Independent	Cash flow from operating activities ÷ Total assets, at $t-1$	(Dahmash et al., 2023 ; Huong et al., 2022)
Sales Growth (SG)	Moderating	$(\text{Sales}_t - \text{Sales}_{t-1}) / \text{Sales}_{t-1}$	(Hossain, 2020)
Return on Equity (ROE)	Dependent	Net income after tax ÷ Total shareholders' equity, at $t+1$	(Huong et al., 2022 ; Pordea et al., 2020)
Debt Ratio (DR)	Control	Total liabilities ÷ Total assets	(Hossain, 2020)
Operating Expense Ratio (OER)	Control	Operating expenses ÷ Net sales	(Javaid, 2017)
Capital Intensity (CI)	Control	Total assets ÷ Total revenue	(Hossain, 2020)
Firm Size (SIZE)	Control	Natural logarithm of total assets	(Hossain, 2020 ; Huong et al., 2022 ; Rahman, 2020)

3.3 Data Collection Method

We collected archival secondary data from audited annual financial statements published on the official IDX disclosure website, covering the fiscal years 2020-2025. For every firm-year, we extracted the ticker, company name, sector classification, fiscal year, reporting currency, cash flow from operating activities, total assets, total liabilities, total equity, sales revenue, operating expenses, and net income after taxes. When an annual report and a separately filed audited statement reported the same figure, we treated the audited financial statement as the primary numerical source and used restated comparative figures whenever a later audited report explicitly replaced an earlier amount. We prepared the data in four stages: first, we saved each disclosure under a firm-year identifier with its source URL and filing date; second, we standardized monetary units within each firm-year before computing any ratio; third, we reshaped the wide 2020-2025 extraction sheet into a long panel with one row per firm-year; fourth, we assembled the temporal panel by matching OCF intensity and controls from $t-1$, sales growth from t , and ROE from $t+1$, then checked the result for duplicate keys, missing fields, invalid denominators, and coverage gaps, and reconciled reported totals against the audited statements before applying winsorization.

3.4 Data Analysis Method

All analyses were conducted using STATA 16.1. We declared the dataset as panel data, confirmed 652 observations with a unique firm-index-year key, and inspected the descriptive statistics and pairwise correlations before estimation. We compared pooled OLS, firm fixed effects, and random effects using the joint F-test, Breusch-Pagan Lagrange multiplier test, and Hausman test, and we prespecified

two-way fixed effects because our design requires controlling for time-invariant firm heterogeneity and common annual shocks, consistent with [DesJardine and Durand \(2020\)](#), and [Huong et al. \(2022\)](#). We clustered standard errors at the firm level to address heteroskedasticity and within-firm serial correlation and tested cross-sectional dependence using Pesaran's CD test. We estimated the moderation model 1 as follows:

$$ROE_{i,t+1} = \beta_0 + \beta_1 OCF_{INT_{Ci,t-1}} + \beta_2 SG_{Ci,t} + \beta_3 (OCF_{INT_{Ci,t-1}} \times SG_{Ci,t}) + \beta_4 DR_{i,t-1} + \beta_5 OER_{i,t-1} + \beta_6 CI_{i,t-1} + \beta_7 SIZE_{i,t-1} + \alpha_i + \lambda_t + \varepsilon_{i,t} \quad (1)$$

Where α_i and λ_t absorb firm and year fixed effects, respectively. H_1 requires $\beta_1 < 0$; H_2 requires $\beta_2 > 0$; and H_3 requires $\beta_3 > 0$. We evaluated the coefficients using two-sided t-tests at the 5% threshold, bootstrapped the interaction coefficient with 5,000 firm-clustered replications, and re-estimated the model without winsorization, firm size, and Operating Expense Ratio (OER to assess robustness.

4. Results and Discussions

4.1 Statistical Results

The final balanced panel comprises 652 firm-year observations from 163 Indonesian non-financial companies across the index years 2021-2024. Before winsorization, the average operating cash flow intensity is 0.1234 (SD = 0.1572), sales growth is 0.2169 (SD = 0.9768), and subsequent ROE is 0.2586 (SD = 2.0704). The gap between these means and their medians (0.1003, 0.0943, and 0.1090, respectively), alongside the maximum of 14.5335 for sales growth and 43.2726 for ROE, signals influential upper-tail observations. This distribution motivates the year-specific winsorization at the first and ninety-ninth percentiles used in the primary model, while the unadjusted data remain available for robustness tests. Table 2 reports the descriptive statistics.

Table 2. Descriptive statistics before winsorization (n = 652; 163 firms; index years 2021-2024)

Variable	N	Mean	SD	Min	Median	Max
OCF_INT (t-1)	652	0.1234	0.1572	-0.2285	0.1003	1.9289
SG (t)	652	0.2169	0.9768	-0.8313	0.0943	14.5335
ROE (t+1)	652	0.2586	2.0704	0.0002	0.1090	43.2726
DR (t-1)	652	0.3747	0.1869	0.0023	0.3556	1.0000
OER (t-1)	652	0.1589	0.1288	0.0026	0.1201	0.7344
CI (t-1)	652	0.3486	0.2429	0.0007	0.3328	0.9695
SIZE (t-1)	652	29.2624	1.6493	25.0790	29.1733	33.7306

Model-selection tests support two-way fixed effects over pooled Ordinary Least Squares (OLS) and random effects. The joint firm-effects F -test rejects pooled OLS, $F(162, 479) = 5.53$, $p < .001$; the Breusch-Pagan LM test confirms panel-level variance, $\chi^2(1) = 129.71$, $p < .001$; and the Hausman test favors fixed effects, $\chi^2(7) = 112.20$, $p < .001$, a result corroborated by a significant Mundlak joint test, $\chi^2(7) = 46.49$, $p < .001$. The Wooldridge-Drukker test finds no first-order autocorrelation, $F(1, 162) = 0.011$, $p = .918$, but Pesaran's CD test rejects cross-sectional independence, $CD = 16.600$, $p < .001$. Therefore, the primary model clusters standard errors by firm alongside year fixed effects.

The principal two-way fixed-effects model is jointly significant, $F(10, 162) = 2.89$, $p = .0024$, and explains 10.13% of the within-firm variation in future ROE, with firm-specific effects absorbing 88.16% of the residual variance. Prior operating cash flow intensity carries a negative and significant coefficient when sales growth sits at its sample mean ($\beta = -0.1030$, $SE = 0.0467$, $t = -2.21$, $p = .029$, 95% CI [-0.1952, -0.0109]), supporting H_1 . Sales growth carries a positive and significant coefficient when prior OCF intensity sits at its mean ($\beta = 0.0385$, $SE = 0.0115$, $t = 3.34$, $p = .001$, 95% CI [0.0158, 0.0612]), supporting H_2 . The interaction term is positive and significant ($\beta = 0.1769$, $SE = 0.0780$, $t = 2.27$, $p = .025$, 95% CI [0.0229, 0.3309]); adding it raises within R^2 from .0958 to .1013, and it supports H_3 by confirming that sales growth buffers the negative OCF-ROE relationship. Among the controls, only firm size reached significance ($\beta = -0.1495$, $p = .004$). Table 3 presents full estimates.

Table 3. Two-way fixed-effects moderation estimates of future ROE ($t+1$)

Variable	β	Clustered SE	t	p	95% CI
OCF_INT_C ($t-1$)	-0.1030	0.0467	-2.21	.029	[-0.1952, -0.0109]
SG_C (t)	0.0385	0.0115	3.34	.001	[0.0158, 0.0612]
OCF_INT_C $\times$ SG_C	0.1769	0.0780	2.27	.025	[0.0229, 0.3309]
DR ($t-1$)	0.1260	0.0896	1.41	.162	[-0.0510, 0.3030]
OER ($t-1$)	-0.0109	0.0733	-0.15	.881	[-0.1557, 0.1338]
CI ($t-1$)	0.0442	0.0933	0.47	.636	[-0.1401, 0.2286]
SIZE ($t-1$)	-0.1495	0.0508	-2.94	.004	[-0.2498, -0.0491]
Year 2022	-0.0029	0.0107	-0.27	.785	[-0.0240, 0.0182]
Year 2023	0.0189	0.0153	1.24	.217	[-0.0112, 0.0491]
Year 2024	0.0050	0.0143	0.35	.728	[-0.0232, 0.0332]
Firm and year fixed effects	Included				
Model F(10, 162); p	2.89; .0024				
Within R^2 (with / without interaction)	.1013 / .0958				
ρ (share of variance from firm effects)	.8816				
Observations (firms)	652 (163)				

Note: The dependent variable is ROE at $t+1$. OCF_INT_C and SG_C were mean-centered. Standard errors are clustered by firm, and the reference year is 2021. Continuous ratio variables are winsorized within the year at the 1st and 99th percentiles; firm size is logarithmically transformed but not winsorized. The single-parameter test of the interaction yielded $F(1, 162) = 5.15$, $p = .0246$. $p < .05$; $p < .01$.

Simple slope analysis clarified this buffering pattern. The OCF-ROE slope is negative and significant one standard deviation below mean sales growth (effect = -0.1702 , $p = .004$) and remains negative at the mean (effect = -0.1030 , $p = .027$), but it weakens to a magnitude statistically indistinguishable from zero one standard deviation above the mean (effect = -0.0359 , $p = .475$). In practical terms, a one-unit increase in prior cash flow intensity costs firms with weak sales growth approximately 0.17 points of future ROE, while firms with strong sales growth absorb the same increase at a statistically null 0.04-point effect. A 5,000-replication firm-cluster bootstrap corroborates all three focal coefficients; the bias-corrected 95% CI for the interaction, [0.0249, 0.3546], excludes zero and confirms that the pattern is not an artifact of distributional assumptions.

Robustness checks confirm these findings. The positive interaction survives when excluding 2020 OCF observations, excluding firm size, and excluding the operating expense ratio, but it turns negative and non-significant in the original non-winsorized data ($\beta = -0.0522$, $p = .806$), and the OCF main effect flips sign and turns positive once we remove 2020 observations ($\beta = 0.1675$, $p = .010$). Therefore, we treat the winsorized two-way fixed-effects estimates as our primary evidence while flagging their sensitivity to extreme-value treatment and sample period; H_1 - H_3 hold at the 5% level in the primary specification, but their substantive generalizability warrants caution.

4.2 Critical Discussion

Our three findings jointly describe a single mechanism: operating cash generation does not mechanically translate into shareholder profitability, and its downstream effect hinges on whether the firm possesses a productive channel to deploy that cash. The primary model finds that prior OCF

intensity carries a negative coefficient on future ROE when sales growth is at its mean ($\beta = -0.1030$, $p = .029$), sales growth carries a positive coefficient at mean OCF intensity ($\beta = 0.0385$, $p = .001$), and the interaction between the two is positive and significant ($\beta = 0.1769$, $p = .025$). The simple slopes sharpen this pattern: the OCF-ROE slope is strongly negative when sales growth is one standard deviation below its mean (effect = -0.1702 , $p = .004$), remains negative at average growth (effect = -0.1030 , $p = .027$), and flattens to a magnitude statistically indistinguishable from zero one standard deviation above the mean (effect = -0.0359 , $p = .475$). The Agency Theory-Free Cash Flow Hypothesis explains the baseline penalty: when firms lack credible growth opportunities, managers gain discretion over internally generated funds and can direct that discretion toward overinvestment, organizational slack, or empire building rather than shareholder returns. Sales growth constrains that discretion by supplying observable, commercially verified demand for working capital, production capacity, and distribution, exactly the mechanism Contingency Theory [Drazin and De \(1985\)](#) predicts: neither high cash flow nor high growth is universally beneficial because performance depends on the fit between available internal funds and the opportunity environment surrounding them. Within Indonesia's 2020-2025 transition from pandemic disruption to recovery, this fit carries weight. Firms generating strong operating cash flows amid uncertain demand, fragile supply chains, and costly external finance have a rational precautionary reason to hold liquidity; the penalty detected by our model arises only when that liquidity persists without a matching growth outlet to absorb it.

The negative OCF coefficient is compatible with an agency explanation, but it does not prove managerial opportunism by itself, and three competing explanations deserve equal weight. First, OCF divided by total assets measures operating cash flow intensity, not free cash flow net of investment; a negative coefficient may partly capture mature, cash-generative firms whose marginal investment opportunities have already narrowed, rather than firms actively misallocating funds. Second, ROE embeds an equity-denominator effect: firms that retain cash rather than distribute or invest it can mechanically expand their equity base, depressing ROE even when the underlying operating performance remains stable. Third, accounting for timing differences between when firms generate cash and when its productive use registers in reported earnings can produce a lagged, artificially negative association that has nothing to do with discretion or discipline. These alternatives temper but do not eliminate agency readings. The pattern documented by our model is also asymmetric rather than symmetric, and this asymmetry carries analytical weight. High sales growth does not flip the OCF-ROE relationship to positive; it neutralizes the penalty, pulling the slope from significantly negative to statistically null. Therefore, cash-rich, high-growth firms appear to escape the penalty associated with discretionary liquidity; however, our evidence does not show that they earn a premium for holding that cash, a distinction that matters for how boards should frame liquidity policy. This asymmetry is consistent with a buffering mechanism in which growth absorbs and redirects internal funds toward productive use rather than an amplifying mechanism in which growth would need to make cash actively value-creating. The distinction matters for how readers should interpret the results: operating cash flow's contribution to future ROE looks conditionally neutral to negative, never conditionally positive, across the growth range our data cover.

Several studies have converged on distinct components of this conditional explanation. Most directly, [Sharma and Biswas \(2025\)](#) found that operating cash flow negatively affected the profitability of Indian microfinance institutions and interpreted the result through the Free Cash Flow Hypothesis, emphasizing the need for managerial discipline in allocating internally generated funds; this evidence supports H_1 by showing that liquidity abundance can coincide with weaker performance when deployment quality is not assured. In a similar vein, [Annisa and Amalia \(2025\)](#) found that inefficient deployment of operating cash flow depresses firm value because operating costs that exceed corresponding revenue undermine investor confidence. For H_2 , [Hossain \(2020\)](#) reported a significant positive effect of sales growth on ROA and ROE among manufacturing firms listed on the Dhaka Stock Exchange, and [Li and Terdpaopong \(2025\)](#) found that sales growth positively affected the profitability of listed Chinese healthcare companies. Both results support the proposition that expanding revenue improves asset utilization and operating leverage, thereby increasing shareholder returns. [Huong, Do, and Thu \(2022\)](#) likewise reported a positive role for firm growth and argued that

high-growth firms should retain more cash for investment, a claim substantively consistent with our finding that growth creates a more productive setting for internal liquidity, even though their growth construct and institutional mechanisms differ from the sales growth moderator we test here. Taken together, this evidence anchors H_1 and H_2 in an established empirical pattern: cash without deployment discipline can erode returns, and growth, when captured productively, tends to increase them. Our contribution lies less in discovering either relationship in isolation and more in showing that they interact, which the additive specifications used in most of the cited studies cannot detect. Because [Hossain \(2020\)](#), [Li and Terdpaopong \(2025\)](#), and [Huong et al. \(2022\)](#) estimated OCF and growth as parallel predictors rather than as interacting terms, their positive coefficients describe average tendencies that our conditional estimates can now be decomposed into a growth-dependent range.

Evidence for H_3 is better described as convergent at the level of conditional logic than as an exact replication because no study in the reviewed literature tests the identical temporally ordered interaction. [Lee and Lok \(2020\)](#) showed that the performance consequence of board busyness changes with a firm's life-cycle position, demonstrating that a governance attribute can help growth-stage firms while harming mature ones. [Puente \(2024\)](#) similarly documented that ESG risk alters the cash flow-value relationship. [Meliza and Saputri \(2024\)](#) found that capital adequacy changes the relationship between liquidity risk and profitability of Indonesian banks. These studies employ different moderators and outcomes; however, all three support the Contingency Theory premise underlying H_3 : a financial resource's effect depends on the organizational or environmental condition surrounding its use, not on the resource's magnitude alone. Our study extends this logic to a specific, testable case by identifying sales growth as the operating condition that attenuates the otherwise negative association between earlier operating cash flow intensity and later return on equity. This extension is theoretically significant because it moves the conversation beyond asking whether operating cash flow helps or hurts profitability, a question the additive literature has answered inconsistently, toward asking under what conditions it does either. In our design, sales growth functions as an observable marker of that condition, offering a more falsifiable test of Free Cash Flow logic than a bare negative or positive main effect can provide. Whereas [Lee and Lok \(2020\)](#) rely on life-cycle stage and [Puente \(2024\)](#) rely on an external ESG rating, our moderator is a directly observable, firm-reported operating outcome, which allows managers and analysts to apply the same conditional logic using ordinary financial statement data rather than a constructed governance or sustainability index.

Nevertheless, the result for H_1 diverges from a substantial part of the reviewed evidence. [Rahman and Bahadur \(2020\)](#) reported a positive association between OCF and ROA and ROE across Saudi insurance and manufacturing firms. [Li and Terdpaopong \(2025\)](#) found a positive OCF effect on Chinese healthcare companies. [Huong et al. \(2022\)](#) found that OCF scaled by assets positively affected ROA and ROE among Vietnamese listed firms. [Dahmash, Al-Hazaima, Alshurafat, and Alzoubi \(2023\)](#) further found that OCF positively predicts future ROA in Jordanian insurance companies, although the effect is insignificant for banks. [Pordea, David, and Mateş \(2020\)](#) reported no significant OCF-ROE relationship for construction firms. These contrasts are theoretically informative rather than merely inconvenient to the researcher. Most prior studies estimate an unconditional average effect, whereas our coefficients are conditional main effects evaluated at the moderator's mean within a model that separates OCF at $t-1$, sales growth at t , and ROE at $t+1$. Sectoral cash cycles also differ materially, since healthcare, insurance, banking, construction, microfinance, and a cross-sector non-financial sample face different regulatory capital constraints, collection periods, and operational liquidity definitions. Outcome selection matters too: [Meliana, Kesuma, Enjelina, Rijanto, and Savitri \(2022\)](#) found that cash-flow growth did not explain Indonesian stock returns during the COVID-19 outbreak, but cash-flow growth and market returns are not equivalent to asset-scaled OCF and future accounting ROE. Most importantly, our inference is sensitive to extreme-value treatment: the OCF coefficient and interaction become insignificant in the original non-winsorized specification, and excluding sequences that draw on 2020 OCF flips the OCF main effect from negative to positive. Therefore, we cannot attribute the contrast with prior studies solely to superior theoretical fit or

Indonesia's institutional environment; it may partly reflect our profitable firm sample selection, short temporal coverage, and the specific composition of the pandemic-to-recovery window.

The sensitivity to winsorization sets the limits of what we can claim about the moderation result; therefore, it deserves more attention than a robustness footnote. In the raw data, sales growth reaches 14.53 and subsequent ROE reaches 43.27, while their medians are near 0.09 and 0.11. Therefore, a small number of extreme firm-years carry outsized statistical weight, and in the non-winsorized model, these observations dominate the interaction estimate and flip its sign. Two explanations compete for this pattern of results. If the extreme values reflect distinct economic events, such as equity bases near zero, one-off divestments, or post-restructuring rebounds, then the winsorized estimates capture the relationship for typical firms, and the sign reversal in the raw data is an artifact of a few influential observations. If the extreme values carry real information, the buffering mechanism only holds for the central 98% of the distribution and cannot extend to firms undergoing exceptional expansion or contraction, exactly where contingency logic would predict the strongest effects. Our current design cannot determine which explanation is correct. Therefore, we treat H_3 as established within ordinary operating ranges, not across the full range of the data, and we point to the quantile, robust-regression, and influence-diagnostic methods proposed in Section 5.3 as the tools that can settle this question. This bounded reading also limits the practical implications that follow: they apply to firms operating within normal growth and profitability ranges and not to outlier cases.

These findings are significant because they reject a one-dimensional reading of corporate liquidity. Managers should not treat a high OCF-to-assets ratio as an endpoint. They should build traceable capital-allocation pathways that connect operating cash generation to working capital support, capacity utilization, market development, and margin-accretive sales. Internally financed investment proposals should likewise face explicit hurdle rates and post-investment reviews because agency risk grows precisely when internal funds escape the scrutiny that external financing would normally impose. Simultaneously, the positive coefficient on sales growth does not license revenue expansion at any cost: managers should separate cash-converting growth from growth built on discounting, relaxed credit terms, or receivable accumulation, and should track incremental contribution margins and cash-conversion cycles alongside topline figures. For investors, high OCF intensity warrants joint evaluation with sales momentum and deployment quality, since our simple-slope evidence concentrates the adverse OCF-ROE association in low- and average-growth firms and shows it largely disappearing at high growth rates. This conditional reading complements the Indonesian evidence in [Li, Wei, and Zhang \(2026\)](#), who identify cash-flow-to-price as an important market value factor, by showing that the accounting profitability implication of operating cash depends on subsequent operating expansion, rather than on cash generation alone. For the *Otoritas Jasa Keuangan* (OJK), Indonesia Stock Exchange (IDX), and related government agencies, our results support stronger disclosure comparability around the uses of operating cash, working-capital changes, segment-level revenue growth, and realized returns from internally financed investment. This need is sharpened by evidence that classification discretion can affect reported CFO ([Maciel, Salotti, & Imoniana, 2020](#)). Because our results show cross-sectional dependence and sensitivity to winsorization, regulators should favor transparent cash-deployment reporting and governance review over mechanical screening thresholds built on these coefficients alone, reserving numerical benchmarks for internal analytical use rather than public compliance rules.

5. Conclusions

5.1 Conclusion

Prior operating cash flow intensity predicts a lower future return on equity at mean sales growth, and sales growth predicts a higher future return on equity at mean cash flow intensity. Their interaction weakens the negative operating cash flow-profitability association as growth rises. Operating cash is not intrinsically productive: without a credible growth outlet, high cash flow intensity signals precautionary liquidity or managerial discretion rather than shareholder value, while sales growth supplies the outlet through which internal liquidity is converted into working capital and productive expansion.

5.2 Research Limitations

Four limitations bound these conclusions. The sample retains only Indonesian non-financial firms that remained observable, filed complete audited reports, and posted positive income across 2020-2025, so survivorship and profitability-selection effects limit generalization to weaker, newly listed, or financially distressed companies. The six-year window yields four temporal sequences dominated by the pandemic-to-recovery transition and cannot represent longer business cycles than six years. Audited secondary disclosures reveal neither managerial motive nor the qualitative composition of sales growth, and operating cash flow intensity measures cash generation rather than discretionary free cash flow, while return on equity captures an accounting rather than a market outcome. The moderation result also loses significance in the non-winsorized specification and reverses the sign for the operating cash flow main effect when we exclude the 2020 observations. Residual cross-sectional dependence also persists despite firm-clustered inference; therefore, readers should treat the findings as conditional associations rather than causal estimates.

5.3 Suggestions and Directions for Future Research

Researchers should widen the sampling frame to include loss-making, newly listed, and delisted firms, extend the observation window across the full pre-crisis, crisis, and recovery cycles, and compare Indonesia with Malaysia, Thailand, Vietnam, and the Philippines to test whether investor protection and financing depth alter the buffering effect. Scholars should also pre-register raw, winsorized, and robust regression specifications together, estimate threshold and quantile models to locate the sales-growth level at which the adverse OCF slope disappears, and apply Driscoll-Kraay or multiway-clustered estimators where cross-sectional dependence persists. Future designs should separate cash availability from deployment quality using free cash flow, cash conversion cycle, and cash-holding measures, extend outcomes to Tobin's Q and total shareholder return, and pair panel evidence with governance variables or CFO interviews to distinguish precautionary retention from managerial slack.

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Author Contributions

SS contributed to the conceptualization of the study, research design, data analysis, drafting of the manuscript, and participated in its revision and final approval. ND contributed to the conceptualization of the study, was responsible for data collection and analysis, and participated in the revision and final approval of the manuscript. DSF contributed to the conceptualization of the study and participated in the revision and final approval of the manuscript. All authors have read and approved the final version of this manuscript.

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