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Research Article

Profitability of Logistics Companies: Empirical Evidence of Accounts Receivable Turnover and Operating Cash Flow Ratio

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Abstract. The commercial resilience of the domestic distribution network depends heavily on its logistical infrastructure, yet global disruptions spanning from 2020 to 2024 exposed this framework to severe systemic shocks. This investigation interrogates the empirical dependencies of asset utilization yield against fluctuations in capital reclamation cycles and operational liquidity cushions within public freight enterprises listed on the Indonesia Stock Exchange (IDX). Methodologically motivated by structural disparities and divergent empirical findings in existing literature, this inquiry deploys a quantitative design using descriptive diagnostics and empirical verification. From a foundational universe of 19 logistics corporations, purposive sampling isolated a subset of 10 entities, yielding 50 panel observation units extracted from audited financial disclosures. The structural estimation relies on a pooled ordinary least squares architecture, validated through restricted residual sum of squares testing and score-based multiplier diagnostics executed via EViews 12. To safeguard statistical inference, the underlying error structure underwent exhaustive validation, including normality, multi-variable collinearity, cross-sectional heteroscedasticity, and first-order serial dependency metrics. The resulting parametric estimates reveal that the velocity of outstanding credit collection exerts a highly robust positive pressure on asset-based returns, whereas the metric evaluating core cash generation against immediate obligations fails to manifest a statistically meaningful linkage. Simultaneously, both financial dimensions interact to exert a joint structural impact on corporate returns, capturing an adjusted variance portion of 38.15%. Ultimately, these dynamics clarify that rigorous credit lifecycle optimization serves as the primary engine for capital returns within this industry.

Keywords: Accounts Receivable Turnover; Indonesia Stock Exchange; Logistics Sub-Sector; Operating Cash Flow Ratio; Return on Assets.

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1. Introduction

The structural optimization of transit and distribution networks constitutes a primary catalyst for macroeconomic expansion and cross-border commerce, serving as a foundational pillar for both domestic markets and global trade networks. Within this broader infrastructure, the supply chain management subsector serves as a vital economic multiplier that fundamentally sustains the operational continuity of community-level commerce. Entities operating within this domain engage in capital-intensive activities ranging from intermodal cargo distribution and freight forwarding to strategic warehousing and sophisticated inventory management, all of which secure the physical mobility of commodities across the Indonesian archipelago. By virtue of their public listing status, corporate issuers within this transport ecosystem are legally mandated to regularly disseminate

audited balance sheets and income statements, thereby providing a transparent data repository for institutional investors and scholarly exploration (Anisa Rahmawati et al., 2025).

According to empirical aggregates compiled by the national statistical bureau, the macroeconomic output derived from transport and logistics operations exhibited severe volatility across the 2020 to 2024 temporal horizon. The sector experienced a sharp contraction of -15.04% during the initial global health crisis of 2020, followed by a modest baseline recovery of 3.24% in 2021, before experiencing a substantial expansionary surge of 19.87% in 2022. This upward trajectory subsequently moderated to growth rates of 13.96% and 9.80% in 2023 and 2024 respectively, illustrating the prolonged structural headwinds that characterize the post-crisis economic rehabilitation landscape (BPS, 2026).

The systemic disruptions induced by the global pandemic extended far beyond immediate top-line revenue contractions, forcing radical reconfigurations in corporate operating models, such as escalating safety compliance expenditures and the forced adoption of digital service architectures. These operational frictions eventually manifested as highly visible shifts within key corporate efficiency metrics, most notably asset utilization efficiency, credit-to-cash velocity, and short-term operational liquidity multiples across listed logistics enterprises. The net return generated per unit of total accounting assets serves as a diagnostic benchmark for assessing how effectively corporate management deploys its entire asset base to extract net earnings (Suvikri et al., 2025)

The speed at which outstanding customer invoices are liquidated clarifies an enterprise's structural capability to reclaim capital tied up in credit sales, providing a direct window into the efficiency of short-term treasury cycles (Indah sasabillah, 2025). Accelerated collection velocities indicate robust credit monitoring mechanisms, which minimize the financial drag of non-performing accounts while simultaneously optimizing available working capital (Gini et al., 2022). In contrast, the operational cash flow ratio offers an analytical view of the degree to which liquid capital derived purely from core revenue operations can fully insulate the company's immediate current liabilities. Elevated performance in this metric demonstrates an enterprise's capacity to absorb short-term obligations internally, mitigating the necessity of entering debt markets or diluting equity to fund basic operations (Nur Rahmah & Handayani, 2022)

A compelling empirical paradox emerges when examining the financial micro-data within this specific cohort. PT Guna Timur Raya Tbk (TRUK) experienced persistent negative net returns on its asset base throughout the entire 2020–2024 period, even as its credit collection velocity expanded significantly from 4.06 cycles to 7.64 cycles annually. On the other end of the spectrum, PT Pelayaran Nelly Dwi Putri Tbk (NELY) achieved an operational liquidity multiple of 5.53 times in 2023, moving in tandem with its highest recorded asset profitability rate of 27.61% during that exact fiscal year. These contrasting operational realities demonstrate that the linkages connecting working capital velocity, cash generation, and net profitability do not follow a uniform path across different corporate entities or temporal frames.

Scholarly literature on these financial dynamics remains highly fragmented and contradictory. For instance, Nur Rahmah & Handayani (2022) documented a statistically meaningful positive transmission mechanism running from credit collection velocity to corporate returns, whereas Gini et al. (2022) failed to identify any discernible statistical relationship. Similarly, Rompis et al. (2025) concluded that liquid operational cash flows significantly alter corporate profit margins, a finding directly contested by Gusnadi & Nurwita (2025), who found no valid statistical connection between operating cash inflows and asset returns. This explicit lack of scholarly consensus confirms a clear empirical gap that warrants systematic investigation, particularly within the logistics framework during the volatile 2020–2024 macroeconomic cycle.

A major limitation of previous scholarship is that researchers have predominantly evaluated these working capital components in isolation or across structurally unrelated industries, leaving the joint interactive effects of cash ratios and credit velocity on logistics sector profitability largely unmapped. To address this analytical shortfall, this investigation models the simultaneous and independent impacts exerted by credit collection cycles and operational liquidity thresholds on the comprehensive asset performance metrics of logistics providers listed on the Jakarta stock market over the 2020–2024 fiscal timeframe.

2. Literature Review

Financial management

Financial management operates as a cornerstone of macro-organizational strategy, governing the systematic extraction and strategic deployment of economic resources to maximize operational efficiency and maintain long-range corporate planning (Janudin, 2024). In a broader structural sense, this discipline organizes a continuous matrix of institutional actions focused on budgeting, allocating, and auditing corporate capital and asset portfolios, moving systematically from initial projection phases to terminal oversight to fulfill core corporate mandates (Jaya et al., 2023). The fundamental goals of this fiduciary framework focus on maximizing long-term shareholder equity, securing sufficient liquid reserves to protect daily operations, and anchoring the structural viability of corporate growth over extended horizons.

Working Capital Management Theory

Working capital management theory explains the mechanisms through which firms align short-term asset structures with immediate liability obligations to protect operational continuity and enhance bottom-line profitability. Ebire et al. (2024) assert that the primary operational objective of monitoring short-term capital is to maintain unhindered operational momentum and ensure the punctual settlement of current obligations by fine-tuning the collection cycles of trade receivables, the payment windows of trade payables, and inventory liquidation speeds. The strategic oversight of these short-term capital allocations represents a critical lever for corporate performance, illustrating management's competence in transforming physical and financial resources into net accounting returns.

Laghari et al. (2023) further argue that contemporary short-term asset theory positions cash lifecycle optimization as a core mechanism for strengthening an enterprise's competitive posture and market liquidity. Within this theoretical framework, three primary operational levers dictate a firm's net liquidity access: the temporal delay required to convert trade receivables into liquid cash, the capital tied up in unsold physical inventory, and the firm's structural leverage in extending payment windows with external vendors. These three pillars directly modulate both operating cash generation and credit collection velocity, serving as the core operational metrics within short-term capital theory. Consequently, this framework functions as an intermediate analytical bridge, linking macro-level financial theory with the specific empirical evaluation of credit turnaround times and operational liquidity ratios as determinants of corporate return rates.

Accounts Receivable Turnover

Accounts receivable comprise liquid short-term claims generated through non-cash sales arrangements, representing legal entitlements to future cash inflows from external buyers. According to Novika & Siswanti (2022) the velocity of credit collection functions as an efficiency multiplier that tracks the exact temporal span required to clear outstanding customer debt, or the frequency with which capital deployed in trade credit cycles is fully recovered and reinvested within a specific fiscal year. This metric offers an unvarnished view of an organization's internal capability to convert accounting revenue into tangible liquid assets. Higher collection speeds demonstrate an accelerated transition from credit invoices to liquid balances, thereby insulating the firm's immediate liquidity position (Afriyani & Indraswari, 2025).

The velocity of this credit reclamation process depends on a complex interplay of internal and external forces. Internal determinants include organizational credit underwriting policies and the structural assertiveness of collection teams, whereas external determinants are shaped by deeply ingrained customer repayment behaviors and broader macroeconomic trends (Sukmawati & Hamdani, 2024). Mathematically, this credit collection velocity is derived by dividing total non-cash sales revenue by the historical average of outstanding trade receivables across the designated period:

Accounts Receivable Turnover = Total Credit Sales / Average Accounts Receivable

Average Accounts Receivable = (Beginning Accounts Receivable + Ending Accounts Receivable) / 2

Operating Cash Flow Ratio

Liquid operating cash flow represents the net cash surpluses generated directly by an enterprise's primary commercial activities, serving as an unvarnished metric of an organization's capacity to sustain its commercial footprint without exhausting its asset base (Hernawati, 2025). According to Nabil S et al. (2024), the operational liquidity multiple operates as a fundamental safety metric that evaluates a corporation's structural capacity to liquidate immediate short-term obligations utilizing solely the unencumbered cash derived from core business functions within a given timeframe. High scores in this domain show that the enterprise can maintain short-term solvency independently, mitigating the need for costly external debt issuance or equity dilution. The underlying diagnostic equation is structured as follows:

$$\text{Operating Cash Flow Ratio} = \text{Operating Cash Flow} / \text{Current Liabilities}$$

This operational liquidity index fulfills several critical diagnostic roles, serving as a direct measure of immediate solvency, an analytical benchmark for operational durability, and a primary criterion for institutional capital allocation decisions. Organizations that maintain a coefficient equal to or exceeding unity (≥ 1) demonstrate the capacity to completely extinguish their current liabilities via core operating cash flows alone. Conversely, a coefficient settling below unity (<1) signals that the enterprise cannot sustain its short-term debt obligations using internal operational cash generation, thereby forcing a reliance on secondary external financing channels (Daulay & Syafina (2022).

Return on Assets (ROA) Hypothesis Development

The net return yielded by corporate assets serves as a primary profitability benchmark designed to calibrate the net earnings capacity derived from the firm's total capital architecture. This metric quantifies the precise financial return extracted per unit of leverage and equity capital committed across the corporate balance sheet within a given fiscal cycle (Triati Putri et al., 2025). Furthermore, this return rate acts as an empirical proxy for the quality of managerial stewardship over the economic resources entrusted to the enterprise (Jaya et al., 2023). The fundamental accounting formulation is traditionally expressed through the following ratio:

$$\text{ROA} = (\text{Net Profit} / \text{Total Assets}) \times 100\%$$

The variance in this asset utilization metric is driven by a network of interconnected operational and structural parameters, including immediate liquidity cushions, capital leverage distributions such as debt-to-equity and total debt ratios, and overall asset management efficiency. Additionally, top-line sales expansion trends and structural cost-containment capabilities exert immediate pressure on asset returns, as they dictate the conversion efficiency of core operational activities into net earnings (Keegan & Dewi, 2023).

Hypothesis Development

Grounded in short-term asset management theory as outlined by Ebire et al. (2024) and Laghari et al. (2023) the velocity of trade credit recovery illustrates the operational efficiency with which an enterprise manages its outstanding customer obligations. Organizations that successfully compress their credit collection cycles consistently demonstrate superior operational liquidity reserves, shielding themselves from high-cost external bridge financing. This enhanced capital deployment efficiency translates into optimized asset returns, as captured by net profitability metrics. This theoretical pathway finds strong empirical validation in the historical analyses of Nur Rahmah & Handayani (2022) and Gusnadi & Nurwita (2025)

H1: The velocity of accounts receivable collection exerts a positive and statistically meaningful impact on the Return on Assets of logistics sub-sector enterprises listed on the Indonesia Stock Exchange during the 2020–2024 period.

The operational cash flow multiple evaluates an enterprise's structural capability to absorb its current debt obligations using capital generated directly from core business segments. Corporations that sustain an operational cash multiple above unity demonstrate superior asset optimization, which directly influences their capacity to maximize the productivity of their physical and financial capital. When an organization eliminates its

reliance on external debt instruments to fund short-term commitments, it can allocate its internal resource pool far more effectively toward high-yielding, profit-generating initiatives (Daulay & Syafina, 2022). This structural link is supported by Rompis et al. (2025), who proved that robust operational cash generation significantly elevates overall corporate asset returns.

H2: The operational cash flow ratio exerts a statistically meaningful impact on the Return on Assets of logistics sub-sector enterprises listed on the Indonesia Stock Exchange during the 2020–2024 period.

The velocity of credit collection and the operational cash flow multiple together form a continuous, interdependent financial cycle that governs overall corporate health. Within the conceptual boundaries of short-term capital theory, Ebire et al. (2024) demonstrated that an integrated approach to managing working capital components collectively determines a firm's long-term financial performance, as reflected in its asset returns. When these two financial dimensions operate in alignment, firms can accelerate the conversion of outstanding debt into liquid cash while simultaneously maximizing the strategic utility of that cash within daily operations, ultimately driving up overall asset utilization yields (Gusnadi & Nurwita, 2025).

H3: The velocity of accounts receivable collection and the operational cash flow ratio interact simultaneously to exert a statistically meaningful joint impact on the Return on Assets of logistics sub-sector enterprises listed on the Indonesia Stock Exchange during the 2020–2024 period.

3. Proposed Method

This empirical inquiry uses a quantitative framework that combines descriptive diagnostics with statistical verification techniques. This quantitative architecture is grounded in positivist empirical philosophy, aiming to validate structured hypotheses through rigorous mathematical analysis applied to corporate datasets (Sugiyono, 2023). The descriptive segment establishes the baseline operational characteristics of each financial variable, whereas the verification segment tests the validity of the hypothesized statistical pathways.

The sampling frame for this investigation encompasses the entire population of 19 logistics corporations maintaining an active listing on the Indonesia Stock Exchange across the 2020–2024 temporal horizon. Selection was refined via purposive sampling parameters requiring that: (1) corporations maintain uninterrupted listing and provide fully disclosed financial reports throughout the 2020–2024 period; (2) corporations publish completely audited annual disclosures; (3) corporations maintain data continuity for all specified operational variables; and (4) corporations fall entirely outside established delisting or regulatory exclusion categories. This filtering process isolated a refined sample of 10 enterprises, producing 50 distinct panel observation units across the 5-year study matrix.

The analytical dataset consists of secondary historical data gathered from audited annual corporate disclosures obtained directly from the capital market's central repository and individual corporate investor relations portals. The physical collection method relies on structured documentation techniques, systematically archiving and categorizing relevant line items from corporate balance sheets and income statements.

The internal metrics are operationalized through specific financial ratios: (1) Accounts Receivable Turnover (X1) is calculated as total credit-driven revenue divided by the average value of outstanding trade accounts; (2) Operating Cash Flow Ratio (X2) is defined as net operational cash inflows divided by immediate current liabilities; and (3) Return on Assets (Y) is constructed as net accounting profit divided by total corporate asset volume, expressed as a percentage.

No	Variable	Indicator / Formula	Scale	Data Source
1	Accounts Receivable Turnover (X1)	Total Credit Sales / Average Accounts Receivable	Ratio (times)	Annual Financial Statement
2	Operating Cash Flow Ratio (X2)	Operating Cash Flow / Current Liabilities	Ratio (times)	Annual Financial Statement
3	Return on Assets / ROA (Y)	(Net Profit / Total Assets) x 100%	Ratio (%)	Annual Financial Statement

Figure 1. Data processing.
Source: data processed by researchers.

Data processing combines descriptive statistical mapping with longitudinal panel data regression modeling, executed within the EViews 12 computational environment. The

selection of the optimal panel structure involves a three-tiered evaluation process: the restricted residual sums test, the specification variance test, and the score-based multiplier test. The underlying error structure was subjected to thorough classical assumption testing, including normal distribution checks via the Jarque-Bera statistic, multicollinearity assessment using a correlation matrix, variance stability evaluation via cross-sectional heteroscedasticity likelihood ratios, and residual dependency diagnostics via the Durbin-Watson framework. Hypothesis validation is performed via independent and joint parametric significance testing at an alpha threshold of 5%.

The structural panel regression equation for this study is configured as follows:

$$ROA_{it} = a + \beta_1 PP_{it} + \beta_2 AKO_{it} + \varepsilon_{it}$$

Where ROA_{it} represents the net asset return performance of enterprise i at time t; a defines the constant intercept; β_1 and β_2 denote the respective partial regression coefficients; PP_{it} measures the credit collection velocity of firm I during period t; AKO_{it} operationalizes the cash flow safety multiple of firm i in period t; and ε_{it} accounts for the stochastic error term.

4. Results and Discussion

Descriptive Statistical Analysis

To elucidate the distributional behavior of the investigated corporate metrics, an initial empirical profiling was executed across the observation window. The subsequent evaluation maps the distributional parameters for the velocity of trade credit liquidation, core liquidity backing, and overall asset productivity across the 10 selected logistical enterprises, generating 50 separate corporate-year observations To elucidate the distributional behavior of the investigated corporate metrics, an initial empirical profiling was executed across the observation window. The subsequent evaluation maps the distributional parameters for the velocity of trade credit liquidation, core liquidity backing, and overall asset productivity across the 10 selected logistical enterprises, generating 50 separate corporate-year observations To elucidate the distributional behavior of the investigated corporate metrics, an initial empirical profiling was executed across the observation window. The subsequent evaluation maps the distributional parameters for the velocity of trade credit liquidation, core liquidity backing, and overall asset productivity across the 10 selected logistical enterprises, generating 50 separate corporate-year observations.

Table 1. Descriptive Statistical Analysis.

Description	X1 (Accounts Receivable Turnover)	X2 (Operating Cash Flow Ratio)	Y (Return on Assets / ROA)
Mean	6,8846	1,3696	6,2706
Median	5,44	0,63	4,41
Maximum	23,48	11,22	32,10
Minimum	1,07	-0,64	-23,96
Std Dev.	4,9219	2,3157	11,1640
Swekness	1,3945	2,6874	0,1571
Kurtosis	4,5101	10,4319	3,0430
Jarque-Bera	20,9567	175,2516	0,2095
Probability	0,0000	0,0000	0,9006
Observations	50	50	50

Source: EViews output, processed by researchers

For the metric tracking the velocity of trade credit liquidation, the arithmetic mean settled at 6.8846 cycles, establishing that the observed firms typically cleared outstanding client obligations roughly 6.88 times annually. The median value of 5.44 cycles positioned itself below this mean, proving that a vast majority of the institutional cohort operates beneath the aggregate average, thereby creating an asymmetric rightward skewness in the data distribution. The operational disparity within the sector is highlighted by a maximum ceiling of 23.48 cycles juxtaposed against a baseline floor of 1.07 cycles, uncovering an expansive divergence in corporate collection capabilities. Furthermore, a diagnostic value of 20.9567

from residual distribution testing, accompanied by a significance framework of 0.0000, confirms that this specific dataset departs from normal Gaussian distribution assumptions.

The metric evaluating core liquidity backing reached an aggregate mean of 1.3696 times, revealing that the average institutional performance exceeded the baseline survival threshold, indicating viable operational solvent conditions. Nevertheless, the median calculation shifted down to 0.63 times, uncovering that over half of the sampled firms actually generated internal operational cash volumes that fell short of their immediate current liabilities. A calculated dispersion metric of 2.3157 validates a pronounced volatility across this variable, primarily driven by atypical extreme values localized within specific corporate treasuries

Regarding the comprehensive asset productivity index, the corporate group maintained an average yield of 6.2706%, indicating that the transport and storage entities extracted a net accounting return of approximately 6.27% per unit of total balance sheet capacity throughout the 2020 to 2024 timeframe. The financial spectrum ranges from an upper limit of 32.10% down to a deficit floor of -23.96%, illustrating highly fragmented profitability outcomes among the market participants. Finally, a distribution test metric of 0.2095 paired with a probability threshold of 0.9006 validates that the net asset return data adheres closely to normal distribution expectations.

Panel Data Regression Model Selection

The determination of the optimal structural model proceeded through a rigorous three-tiered diagnostic hierarchy. In the initial stage, a restricted residual sum of squares test was deployed, yielding a cross-sectional error probability of 0.1096, which exceeded the standard alpha threshold of 0.05, thereby retaining the null hypothesis and proving that an unweighted pooled estimator is statistically superior to a fixed-effects formulation. In the second stage, an evaluation of specification variance produced a cross-sectional probability of 0.8334, maintaining the null framework and indicating that a error-component random specification outperforms a fixed parameter design. In the final stage, a score-based multiplier diagnostic was applied to check for omitted corporate effects, revealing a Breusch-Pagan cross-sectional significance of 0.2731, which confirmed the validity of the unweighted pooled model over the random-effects alternative.

Testing	Compared Models	Probability Values	Decision	Selected Model
Chow Test	CEM vs FEM	0,1096	H0 is accepted	CEM
Hausman Test	FEM vs REM	0,8334	H0 is accepted	REM
Langrange Multiplier Test	CEM vs REM	0,2731	H0 is accepted	CEM

Figure 2. Panel Data Regression Model Selection.
Source: EViews output, processed by researchers.

Because all three diagnostic tests converged on the absence of distinct institutional parameters, whether fixed or random, individual-specific variations were deemed statistically negligible. Consequently, the standard pooled ordinary least squares framework, or Common Effect Model, was selected as the most efficient econometric design for this panel architecture.

Classical Assumption Test

An evaluation of the model residuals via Gaussian distribution diagnostics generated a statistical parameter of 2.3997 with a probability value of 0.3012, confirming that the error terms satisfy normality assumptions. Multi-variable collinearity diagnostics revealed an internal correlation coefficient between trade credit collection velocity and core liquidity backing of merely 0.1944, a value well within the conservative safety ceiling of 0.90, thereby confirming the absence of linear dependence among the predictors. Conversely, variance stability testing via cross-sectional likelihood ratio structures produced a significance metric of 0.0002, revealing clear signs of heteroscedasticity. To resolve this variance distortion, the parameters were re-estimated utilizing a period-specific seemingly unrelated regression framework, or panel-corrected standard errors, which ensures robust statistical inference. Autocorrelation diagnostics using first-order serial metrics yielded a value of 1.0852, positioning itself beneath the critical lower bound of 1.4625, indicating the presence of positive first-order serial dependence. This structural limitation is acknowledged as an artifact

frequently encountered in longitudinal datasets characterized by abbreviated temporal horizons spanning only 5 years.

Panel Data Regression Analysis

Utilizing the established unweighted pooled ordinary least squares estimator, the structural parameters were empirically mapped to construct the core explanatory equation.

Table 2. Panel Data Regression Analysis.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C (Constant)	-3,901327	2,187786	-1,78323	0,081
X1 (Accounts Receivable Turnover)	1,274430	0,259784	4,905739	0,0000
X2 (Operating Cash Flow Ratio)	1,020755	0,552156	1,848671	0,0708

Source: EViews output, processed by researchers

The statistical modeling yielded the following empirical specification:

$$ROA_{it} = -3.901327 + 1.274430\ (PP)_{it} + 1.020755\ (AKO)_{it} + \varepsilon_{it}$$

The constant value of -3.901327 means that if the receivables turnover ratio (X1) and the operating cash flow ratio (X2) are equal to zero, then Return on Assets (Y) is -3.901327%, indicating that without the contribution of these two independent variables, the company tends to experience negative profitability. The regression coefficient for receivables turnover (X1) is positive at 1.274430, meaning that every one-fold increase in receivables turnover will increase ROA by 1.2744%, assuming the other independent variables remain constant. The regression coefficient value of the operating cash flow ratio (X2) is positive at 1.020755, meaning that every 1x increase in the operating cash flow ratio will increase ROA by 1.0208%, assuming other independent variables remain constant.

Coefficient of Determination

Table 3. Coefficient of Determination.

Description	Value
R-squared	0,406776
Adjusted R-squared	0,381532

Source: EViews output, processed by researchers.

The adjusted coefficient of determination settled at 0.381532, indicating that the combined movements of trade credit velocity and the operational cash multiple explain roughly 38.15% of the total variance in net asset returns. The remaining 61.85% of variance is driven by latent operational dimensions omitted from this structural model, such as capital leverage configurations, institutional scale, systemic liquidity buffers, and macroeconomic shocks.

Hypothesis Testing

Partial Test (t-Test): The t-table value with df = (n-k-1) = (50-2-1) = 47 at $\alpha = 0.05$ (two-tailed) is 2.011741.

Table 4. Partial Test.

Variable	Coefficient	t-Count	t-Table	Prob.	Decision
X1 (Accounts Receivable Turnover)	1,27443	4,905739	2,011741	0,0000	H1 Accepted
X2 (Operating Cash Flow Ratio)	1,020755	1,848671	2,011741	0,0708	H2 Rejected

Source: EViews output, processed by researchers.

Table 5. Result.

Description	Value
F-statistic	16,11401
Prob(F-statistic)	0,000005

Source: EViews output, processed by researchers.

Based on the results of the simultaneous test, the F-statistic value of 16.11401 with a probability of 0.000005 is smaller than the significance level of 0.05, so H3 is accepted. This indicates that the receivables turnover variable (X1) and the operating cash flow ratio (X2) together have a significant effect on Return on Assets (ROA).

Discussion

The Effect of Accounts Receivable Turnover on Return on Assets (ROA)

Partial parametric evaluation via independent t-testing revealed an empirical value of 4.905739 for the velocity of credit liquidation, vastly outstripping the critical tabulated threshold of 2.011741, with an empirical significance approaching 0.0000. These metrics confirm that trade credit reclamation speeds exert a powerful positive pressure on comprehensive asset returns, providing strong empirical validation for the first hypothesis. Consequently, accelerating the velocity of invoice liquidation directly scales up the net revenue yield extracted from the firm's total capital commitments.

From a theoretical standpoint, the velocity of trade credit recovery serves as an operational efficiency index that maps how rapidly corporate management converts outstanding buyer obligations into liquid cash reserves. Within the short-term asset optimization framework, Ebire et al. (2024) note that proficient management of outstanding invoices constitutes a core element of working capital strategy, directly reflecting management's capacity to exploit organizational assets for capital appreciation. Liquid resources reclaimed through rapid collections can be instantly channeled back into primary supply chain operations, lowering asset idle times and driving higher net returns.

This operational linkage becomes highly critical within the logistics ecosystem, where business-to-business arrangements rely heavily on deferred payment structures. The underlying micro-data confirms this dynamic, showing that the peak sector-wide credit collection speed achieved in 2022, which reached 8.8910 cycles, moved in tandem with the highest recorded asset return average of 10.6630% during that identical fiscal year. Laghari et al. (2023) similarly observed that compressing the invoice collection horizon yields substantial gains in capital performance, given that an enterprise's ability to turn operations into unencumbered cash serves as the ultimate test of asset allocation success.

These insights align with the empirical conclusions of Nur Rahmah & Handayani (2022), who demonstrated a robust positive transmission vector from credit recovery speeds to corporate profit yields. Mahfuddin et al. (2025)) also argued that tight monitoring of credit terms and timely collections function as direct mechanisms for margin expansion. Furthermore, the findings match the documentation by Gusnadi & Nurwita (2025) which established that credit collection efficiency governs asset return variations, confirming that institutional profitability responds directly to refined credit risk management.

The Effect of Operating Cash Flow Ratio on Return on Assets (ROA)

Independent parametric testing for the core liquidity multiple produced an empirical value of 1.848671, falling short of the required critical threshold of 2.011741, with a corresponding significance value settling at 0.0708. This outcome shows that the ratio of operational cash generation to immediate obligations lacks a statistically meaningful partial connection to asset yields, despite maintaining a positive directional path, which requires the rejection of the second hypothesis.

The statistically decoupled nature of the operational cash multiple from asset profitability can be interpreted through the lens of industry-specific structural factors within the logistics sector. First, within this capital-intensive industry, large volumes of liquid operating cash do not necessarily imply superior net profit margins, as considerable portions of this capital must be instantly diverted to fund heavy equipment upkeep, fleet expansions, or localized short-term debt obligations. This structural tension is visible in the financial data of PT Prima Globalindo Logistik Tbk (PPGL), which reported a sector-leading operational liquidity multiple of 11.22 times in 2024, yet converted this into an asset return yield of merely 4.98%.

Second, the wide distribution observed in this cash multiple, indicated by a standard deviation of 2.3157, demonstrates that cash management strategies are highly fragmented across the industry. Fundamental differences in core asset profiles between maritime operators like NELY and PPGL versus terrestrial transport providers like SDMU and TRUK yield divergent cash flow architectures, preventing a uniform statistical linkage with asset returns across the entire sample.

Third, during the pandemic disruptions and subsequent economic recovery phases spanning 2020 to 2022, several firms registered deficient or negative operational cash multiples but successfully insulated their asset returns via aggressive overhead reduction and structural re-engineering. Conversely, other entities that maintained robust operational cash inflows saw their asset returns slide, as those cash surpluses were deployed into long-term expansion projects that failed to generate near-term accounting returns. This pattern reveals

that within logistics enterprises, tactical capital deployment decisions are just as critical as raw cash generation capacity.

These results correspond with the empirical conclusions of Gusnadi & Nurwita (2025), who found that operational cash flows do not significantly alter asset return dynamics. Similarly, Nabil S et al. (2024) confirmed that operating cash generation remains decoupled from variations in net corporate margins. These parallel findings reinforce the principle that in industries marked by cyclical or capital-intensive cash dynamics, overall corporate returns depend far more on the efficiency of trade credit management than on raw operational cash accumulation.

The Effect of Accounts Receivable Turnover and Operating Cash Flow Ratio Simultaneously on Return on Assets (ROA)

Joint parametric evaluation via global variance testing produced an empirical F-statistic of 16.11401, exceeding the critical F-table boundary of 3.195056, with a global significance metric of 0.000005. This clear statistical evidence confirms that trade credit reclamation velocity and the operational cash multiple act together to exert a significant joint impact on comprehensive asset returns, leading to the formal acceptance of the third hypothesis.

From a theoretical perspective, this joint significance validates the working capital management principles advanced by Ebire et al. (2024) and Laghari et al. (2023), which state that integrated coordination of short-term financial cycles is what ultimately dictates overall corporate performance. Credit collection speeds and the operational cash multiple operate as two halves of a continuous capital transformation cycle. While accelerated invoice collection drives swift cash inflows, the operational cash ratio evaluates the structural quality of that cash generation relative to basic obligations. Together, they offer a complete diagnostic view of how well a firm transforms its operational cycles into net accounting returns.

Even though the operational cash multiple fails to establish a statistically significant independent relationship with asset returns, its joint integration alongside credit collection velocity significantly strengthens the overall explanatory power of the regression model. This interaction highlights a complementary synergy between the two predictors. The adjusted coefficient of determination reveals that this joint framework accounts for 38.15% of the variance in corporate asset returns, leaving the remaining 61.85% to be explained by unmeasured dynamics, including structural leverage choices, firm size, operational cost control, volatile freight pricing structures, sector-specific regulatory interventions, and shifting macroeconomic factors.

These insights align with the empirical findings of Gusnadi & Nurwita (2025), which proved that credit liquidation velocity and operational cash metrics act in tandem to govern asset returns. This cross-validation strengthens the core argument that while independent variables may display varying degrees of partial significance, their unified management within a structured short-term capital framework remains a primary driver of profitability for logistics providers.

5. Conclusions

Based on longitudinal panel data regression analysis executed via an unweighted pooled ordinary least squares estimator across 10 logistics sub-sector companies listed on the Indonesia Stock Exchange over the 2020 to 2024 fiscal horizon, the following conclusions are established:

From a descriptive perspective, the velocity of trade credit recovery displayed severe volatility throughout the observation window. The aggregate sector average hit its lowest point in 2020 at 5.5170 cycles due to systemic pandemic shocks, surged to an expansionary peak of 8.8910 cycles in 2022 alongside rebounding trade channels, and subsequently settled to 6.1810 cycles in 2024 as market conditions normalized. At the individual level, PT Pelayaran Nelly Dwi Putri Tbk (NELY) achieved the highest efficiency with 23.48 cycles in 2022, whereas PT Krida Jaringan Nusantara Tbk (KJEN) registered the lowest operational floor at 1.07 cycles during 2021.

From a descriptive view, the operational cash flow multiple similarly followed a highly fluctuating path. The lowest sector-wide average occurred in 2020 at 0.6190 times, illustrating intense liquidity pressures during the initial health crisis. However, a positive structural shift occurred during 2023 and 2024, with averages climbing to 2.0440 times and 2.1870 times respectively, indicating improved internal cash management. PT Prima Globalindo Logistik Tbk (PPGL) recorded the maximum peak at 11.22 times in 2024, while PT Krida Jaringan Nusantara Tbk (KJEN) marked the absolute deficit floor at -0.64 times in 2020.

From a descriptive standpoint, comprehensive asset returns exhibited highly dynamic shifts. The lowest average return rate contracted to -0.9700% in 2020 due to pandemic headwinds, before climbing to a dramatic peak of 10.6630% in 2022, a surge fueled by record high freight rates in the global maritime transport market, before normalizing through 2023 and 2024. PT Temas Tbk (TMAS) generated the highest independent return rate at 32.10% in 2022, while PT Sidomulyo Selaras Tbk (SDMU) experienced the sharpest deficit at -23.96% in 2020.

Based on independent parametric testing via t-tests, trade credit collection velocity exerts a statistically meaningful positive partial impact on the asset returns of logistics enterprises listed on the IDX across the 2020–2024 timeline. This relationship is verified by a significance metric of 0.0000 and a structural coefficient of 1.274430. Refined invoice tracking and rapid collections accelerate the corporate cash conversion cycle, allowing unencumbered capital to be instantly reinvested into primary operations to expand profit margins.

Based on independent parametric evaluation via t-tests, the ratio of operational cash generation to immediate current liabilities does not exert a statistically meaningful independent impact on asset returns. This lack of connection is verified by an empirical significance of 0.0708, which exceeds standard alpha thresholds. This decoupling stems from high internal variance across the sample companies (standard deviation of 2.3157) and the structural reality that cash surpluses within capital-intensive firms are often absorbed by asset maintenance and expansion costs rather than converting directly into short-term accounting profits.

Based on joint parametric testing via F-tests, trade credit collection velocity and the operational cash multiple exert a statistically meaningful joint impact on overall corporate asset returns. This interactive relationship is validated by an overall variance ratio of 16.11401 and a global significance value of 0.000005. The underlying model captures approximately 38.15% of the total variation in asset returns, meaning that the remaining 61.85% of variance is governed by operational and macroeconomic parameters external to this specific empirical design.

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