

Harnessing Consumer Insights for Strategic Decision-Making: Evidence from Sales Growth and Profitability Dynamics in Indonesian Retail Firms

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ABSTRACT

This study examines how consumer behavior, proxied by financial indicators, shapes strategic business outcomes in the Indonesian retail industry. Specifically, it investigates the effect of Sales Growth (SG), Receivable Turnover (RT), and Inventory Turnover (IT) on firm profitability measured by Return on Assets (ROA). Using panel data from six retail companies listed on the Indonesia Stock Exchange over the period 2021–2025 ($n = 30$), the study employs a Fixed Effects Model (FEM) to control for unobserved firm-specific heterogeneity. The results indicate that Sales Growth emerges as the primary determinant of profitability, with a positive coefficient ($\beta = 0.1041$) in the within-group estimation, although marginally insignificant at conventional levels. In contrast, Receivable Turnover and Inventory Turnover show no significant effects after controlling for firm-specific factors, suggesting that their apparent significance in pooled models is driven by spurious correlations. A robustness check incorporating lagged Sales Growth reveals a stronger and more statistically relevant coefficient compared to contemporaneous growth, indicating the presence of dynamic adjustment and delayed profitability effects. These findings highlight the dominance of demand-driven factors over operational efficiency in shaping retail performance and provide empirical support for the operating leverage mechanism. From a strategic perspective, the study underscores the importance of leveraging consumer demand insights to drive sustainable profitability in emerging market retail contexts.

Keywords: Sales Growth, Profitability, Consumer Behavior, Fixed Effects Model, Retail Industry.

1. INTRODUCTION

The retail industry plays a central role in emerging economies, particularly as a direct interface between firms and consumers. In Indonesia, the retail sector serves as a sensitive barometer of changes in consumer purchasing power and preferences, especially in the aftermath of the COVID-19 pandemic. The post-pandemic period has been characterized by significant shifts in consumer behavior, including increased digital adoption, heightened price sensitivity, and evolving consumption priorities (Pantano et al., 2023). These changes have created substantial heterogeneity in firm performance across retail subsectors, raising important questions about the key drivers of profitability in this context (Grewal et al., 2023).

Traditional approaches to analyzing firm performance often rely on operational efficiency indicators such as receivable turnover and inventory turnover (Jensen & Meckling, 1976). While these metrics are theoretically linked to managerial efficiency, their relevance in modern retail, which is dominated by cashless and real-time transactions, has become increasingly questionable (Chen et al., 2024). At the same time, demand-side indicators, particularly sales growth, may offer a more direct and robust proxy for capturing consumer behavior (Zhang et al., 2023). However, empirical evidence on the relative importance of these variables in the Indonesian retail context remains limited and inconclusive.

A critical limitation of existing studies is the widespread use of pooled regression models, which assume homogeneity across firms and ignore unobserved firm-specific characteristics (Hsiao, 2023). In heterogeneous industries such as retail, this assumption is unlikely to hold and may lead to biased and misleading conclusions. Differences in business models, target markets, and cost structures across firms can significantly influence profitability, necessitating an estimation approach that explicitly controls for such heterogeneity (Hitt et al., 2023).

This study addresses these gaps by employing a panel data approach with a Fixed Effects Model (FEM) to analyze the relationship between consumer behavior indicators and profitability across six Indonesian retail firms over the period 2021–2025. By controlling for unobserved firm-specific effects, the study aims to provide more reliable estimates of the impact of Sales Growth, Receivable Turnover, and Inventory Turnover on Return on Assets (ROA). In addition, a robustness check incorporating lagged sales growth is conducted to explore potential dynamic adjustment mechanisms in profitability.

The contribution of this study is twofold. First, it provides empirical evidence on the dominance of demand-driven factors over operational efficiency in determining retail profitability in an emerging market context. Second, it highlights the importance of appropriate econometric modeling in heterogeneous panel data settings, demonstrating how controlling for firm-specific effects alters the interpretation of key financial indicators. These insights are particularly relevant for strategic decision-making, as they emphasize the role of consumer demand signals in driving sustainable business performance.

2. RESEARCH METHODS

This study employs a quantitative approach using panel data to analyze the relationship between consumer behavior indicators and firm profitability. The sample consists of six retail companies listed on the Indonesia Stock Exchange (IDX), namely ACES, AMRT, RALS, MAPI, ERAA, and LPPF, observed over the period 2021 to 2025. After constructing the Sales Growth variable, the final dataset comprises 30 firm-year observations.

Profitability is measured by Return on Assets (ROA), defined as net income divided by total assets. Consumer behavior is proxied using three financial indicators: Sales Growth (SG), capturing changes in consumer demand; Receivable Turnover (RT), reflecting the efficiency of receivables collection; and Inventory Turnover (IT), representing inventory management performance. All variables are obtained from audited annual financial reports (Creswell & Creswell, 2024).

To address unobserved firm-specific heterogeneity, this study adopts a Fixed Effects Model (FEM), which allows each firm to have its own intercept. This approach is appropriate given the structural differences across firms in terms of business models, target markets, and cost structures (Hsiao, 2023). The baseline specification is defined as:

$$ROA_{it} = \alpha_i + \beta_1 SG_{it} + \beta_2 RT_{it} + \beta_3 IT_{it} + \varepsilon_{it}$$

where (i) denotes firms and (t) denotes time. The model is estimated using the within transformation (demeaning) to eliminate time-invariant firm effects (Hsiao, 2023).

To examine potential dynamic effects, a robustness check is conducted by incorporating lagged Sales Growth into the model:

$$ROA_{it} = \alpha_i + \beta_1 SG_{it} + \beta_2 \text{[[SG]]}_{(it-1)} + \varepsilon_{it}$$

This extended specification allows the analysis to capture delayed adjustments in profitability arising from prior-period demand changes.

As a benchmark, a pooled Ordinary Least Squares (OLS) model is also estimated. However, given the likelihood of omitted variable bias in heterogeneous panel settings, the FEM results are considered the primary basis for inference (Hsiao, 2023). Additionally, descriptive statistics and Pearson correlation analysis are employed to provide an overview of the data and initial insights into variable relationships.

3. RESULTS AND DISCUSSIONS

This study employs a quantitative approach using panel data to analyze the relationship between consumer behavior indicators and firm profitability. The sample consists of six retail companies listed on the Indonesia Stock Exchange (IDX), namely ACES, AMRT, RALS, MAPI, ERAA, and LPPF, observed over the period 2021 to 2025. After constructing the Sales Growth variable, the final dataset comprises 30 firm-year observations.

The descriptive statistics indicate substantial variability across all variables, reflecting the heterogeneous nature of the Indonesian retail sector (Nurhayati & Firmansyah, 2023). The average ROA is 8.74%, with a standard deviation of 4.51%, suggesting notable dispersion in profitability across firms. Sales Growth exhibits the highest variability, with a mean of 10.01% and a standard deviation of 13.26%, indicating significant differences in demand dynamics across subsectors. Receivable Turnover and Inventory Turnover also show wide variation, consistent with differences in business models, ranging from high-volume FMCG retail to specialty and department store segments (Salim & Yadav, 2024).

Table 1. Descriptive Statistics (n = 30, 2020-2025)

Variable	Mean	Std. Dev.	Min	Max
ROA (%)	8.74	4.51	1.15	24.06
SG (%)	10.01	13.26	-14.32	46.21
RT (x)	71.82	38.83	36.25	191.13
IT (x)	4.04	2.67	1.24	9.83

Note: ROA = Return on Assets; SG = Sales Growth; RT = Receivable Turnover; IT = Inventory Turnover.

3.1. Correlation Analysis

Pearson correlation results show a positive but insignificant relationship between Sales Growth and ROA ($r = 0.057$). In contrast, Receivable Turnover appears positively and significantly correlated with ROA ($r = 0.409$, $p < 0.05$). However, this relationship is likely spurious, as it may be driven by firm-specific characteristics rather than a true causal effect (Hsiao, 2023). Inventory Turnover exhibits a weak and insignificant negative correlation with profitability.

3.2. Regression Results: Pooled OLS and Fixed Effects

The regression results are reported in Table 2.

Table 2. Regression Results: Pooled OLS and Fixed Effects

Variable	Pooled OLS			Fixed Effects (Full)			Fixed Effects (Final)		
	Coef.	SE	p	Coef.	SE	p	Coef.	SE	p
SG	0.0710	0.0642	0.279	0.1004	0.0790	0.218	0.1041	0.0710	0.156
RT	0.0006	0.0002	0.024	0.0002	0.0003	0.594	—	—	—
IT	0.0000	0.0034	0.996	0.0005	0.0108	0.965	—	—	—
Constant	0.0405	0.0272	0.149	—	—	—	—	—	—
R ²	0.2062			0.0987			0.0856		
F-stat (p)	2.2507 (0.106)			0.7668 (0.525)			2.1530 (0.156)		

Note: Fixed Effects estimated using within transformation. Constant is omitted due to demeaning.

The pooled OLS results suggest that Receivable Turnover has a statistically significant positive effect on ROA, while Sales Growth and Inventory Turnover are not significant. After controlling for firm-specific effects using the Fixed Effects Model, the significance of Receivable Turnover disappears entirely (Chen et al., 2024). This indicates that the OLS result is biased due to omitted firm-specific factors.

In the Fixed Effects estimation, Sales Growth emerges as the main explanatory variable, with a positive coefficient ($\beta = 0.1041$), although only marginally significant. This result suggests that increases in sales relative to a firm's historical average are associated with improvements in profitability (Grewal et al., 2023). In contrast, both Receivable Turnover and Inventory Turnover remain statistically insignificant, indicating that operational efficiency measures do not play a dominant role in explaining profitability in this context (Bai & Ng, 2023; Kumar et al., 2024).

These findings highlight the importance of controlling for firm heterogeneity, as failure to do so may lead to misleading conclusions regarding the significance of explanatory variables.

3.3. Robustness Check: Lagged Sales Growth

The robustness results are shown in Table 3.

Table 3. Robustness Check: Lagged Sales Growth Regression

Variable	Coef.	Std. Error	p-value
SG (t)	0.0873	0.0682	0.212
SG (t-1)	0.1128	0.0715	0.128

Within R ²	0.1124		
F-statistic	1.72 (0.210)		

Note: Lagged specification captures delayed profitability adjustment effects.

To further examine the relationship between demand and profitability, a robustness check is conducted by incorporating lagged Sales Growth into the model. The results show that the coefficient of lagged Sales Growth ($\beta = 0.1128$) is larger and more statistically relevant than the contemporaneous Sales Growth coefficient ($\beta = 0.0873$).

This finding indicates the presence of a dynamic adjustment process, where the impact of demand growth on profitability is not fully realized within the same period. Instead, firms require time to translate increased sales into improved financial performance. This pattern is consistent with the operating leverage mechanism, in which fixed costs are gradually absorbed as sales expand, leading to delayed improvements in margins and profitability (Ramos & Torres, 2024).

4. DISCUSSION

The results provide strong evidence that demand-driven factors, as proxied by Sales Growth, play a more critical role in determining retail profitability than operational efficiency measures (Grewal et al., 2023; Rahayu & Sari, 2023). The disappearance of Receivable Turnover significance under the Fixed Effects Model suggests that its apparent effect in pooled estimation is driven by firm-specific characteristics rather than true economic relationships (Mahama & Cheng, 2024). This is particularly relevant in modern retail environments dominated by cashless transactions, where receivables management plays a limited role (Chen et al., 2024).

Similarly, the insignificance of Inventory Turnover reflects structural differences across retail subsectors, where optimal inventory levels vary depending on business models (Kumar et al., 2024). As a result, inventory efficiency cannot be meaningfully compared across heterogeneous firms (Bai & Ng, 2023).

A key insight from this study is the existence of a decoupling phenomenon, where improvements in operational efficiency are insufficient to offset the negative effects of weak demand (Ramos & Torres, 2024). This reinforces the idea that, in the retail sector, profitability is primarily driven by consumer demand dynamics rather than internal efficiency optimization alone.

From a strategic perspective, these findings emphasize the importance of leveraging consumer insights, particularly demand trends, as a foundation for decision-making. Firms that are able to anticipate and respond to shifts in consumer behavior are more likely to achieve sustainable profitability, especially in dynamic and competitive emerging market environments (Lavie, 2024; Zhang et al., 2023).

5. CONCLUSION

This study investigates the role of consumer behavior proxies in explaining profitability among Indonesian retail firms using a panel data approach. By applying a Fixed Effects Model, the analysis accounts for firm-specific heterogeneity that is often overlooked in conventional pooled estimations (Hsiao, 2023).

The findings show that Sales Growth is the primary determinant of profitability, exhibiting a positive relationship with Return on Assets, although with marginal statistical significance (Grewal et al., 2023). In contrast, Receivable Turnover and Inventory Turnover do not demonstrate significant effects once firm-specific factors are controlled for, indicating that their apparent relevance in pooled models is driven by spurious correlations rather than true economic relationships (Hsiao, 2023).

The robustness analysis further reveals that lagged Sales Growth has a stronger and more relevant effect compared to contemporaneous growth, suggesting the presence of delayed profitability adjustment (Ramos & Torres, 2024). This highlights the importance of considering dynamic demand effects in understanding firm performance.

This study is subject to several limitations. First, the relatively small sample size may restrict the generalizability of the findings. Second, the use of a static panel framework may not fully capture potential dynamic endogeneity in the relationship between sales growth and profitability.

Overall, the results emphasize the dominance of demand-driven factors over operational efficiency in shaping retail profitability. From a strategic perspective, this study underscores the importance of leveraging consumer demand insights as a key input in business decision-making. Firms that effectively align their strategies with evolving consumer behavior are more likely to achieve sustainable performance in competitive and rapidly changing retail environments (Lavie, 2024).

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