

# The Effect of Operating Efficiency, Leverage, and ESG on Stock Prices with Profitability as an Intervening Variable

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**Abstract**–This study aims to examine the effect of operational efficiency, leverage, and sustainability performance on stock prices with profitability as an intervening variable. Operational efficiency is proxied by *Total Asset Turnover* (TATO), leverage by *Debt to Equity Ratio* (DER), sustainability performance by ESG Score, profitability by *Return on Assets* (ROA), and stock price as the dependent variable. The research object consists of companies listed in the IDX ESG Leaders index during the 2021–2024 period. This study employs a quantitative approach using *Structural Equation Modeling–Partial Least Squares* (SEM-PLS). The results indicate that TATO and ESG Score have a positive and significant effect on stock prices, while DER has a negative and significant effect on stock prices. Furthermore, TATO has a positive and significant effect on ROA, whereas DER has a negative and significant effect on ROA. However, ESG Score does not have a significant effect on ROA. Profitability, as measured by ROA, is proven to have a positive and significant effect on stock prices. The indirect effect analysis shows that ROA mediates the relationship between TATO and stock prices as well as between DER and stock prices, indicating a partial mediation effect, as both TATO and DER retain significant direct effects on stock prices alongside their indirect effects through ROA, but does not mediate the effect of ESG Score on stock prices. These findings suggest that the capital market responds to operational efficiency and capital structure through improved profitability, consistent with signaling theory and agency theory. Meanwhile, corporate sustainability performance is perceived as a non financial signal that directly affects stock prices but has not yet contributed to short-term financial performance.

**Keywords:** Total Asset Turnover; Debt to Equity Ratio; ESG Score; Return on Assets; Stock Prices

## 1. INTRODUCTION

The capital market is one of the key indicators used to measure a country's economic progress, as it functions as a mechanism for allocating funds between surplus and deficit economic units. Through the capital market, companies obtain external financing to support operational activities and business expansion, while investors allocate their capital with the expectation of earning returns in the form of dividends and capital gains. Consequently, stock prices serve as a primary indicator reflecting investors' assessments of a firm's performance and future prospects. Stock price movements are influenced not only by external factors such as macroeconomic conditions and government policies, but also by internal corporate factors that reflect financial performance, asset management efficiency, capital structure, and the quality of corporate governance and sustainability practices.

From a theoretical perspective, this study is grounded in Signaling Theory, which explains how companies convey information to the market to reduce information asymmetry between managers and investors. According to Signaling Theory, firms with superior performance or quality tend to disclose credible signals to distinguish themselves from lower-quality firms, thereby influencing investor perceptions and stock price movements. Financial indicators such as profitability and operational efficiency, as well as non-financial disclosures such as ESG performance, function as signals that help investors assess firm value and future prospects under conditions of imperfect information.

In practice, however, investors' assessments of corporate performance and prospects do not always result in consistent stock price movements. This phenomenon is particularly evident among companies that have formally met sustainability and good governance criteria. In the post-COVID-19 pandemic period and amid global economic uncertainty, many firms have faced increasing pressure to improve operational efficiency and restructure their capital structures. This condition is also observed among companies included in the IDX ESG Leaders index. Although these companies are perceived as having high *Environmental, Social, and Governance* (ESG) quality, their stock price movements during the 2021–2024 period exhibited significant fluctuations and were not always aligned with their ESG designation (Trisnowati et al., 2022). This indicates that stock prices are determined not only by sustainability reputation, but also by fundamental financial performance such as operational efficiency and capital structure.

This phenomenon highlights inconsistencies in the relationship between operational efficiency, proxied by *Total Asset Turnover* (TATO), capital structure measured by the *Debt to Equity Ratio* (DER), and ESG scores with stock prices, even among companies classified as sustainable firms. This condition suggests that *Return on Assets* (ROA) may serve as a transmission mechanism explaining how these variables influence stock prices, both directly and indirectly. In this context, profitability potentially acts as an intervening variable linking operational efficiency, leverage, and ESG performance to stock prices.

Stock prices reflect firm value in the eyes of investors and are influenced by various factors, including profitability, capital structure, operational efficiency, and non-financial aspects such as ESG. Investors rely on stock prices as indicators of firm value, where a high stock price signals a high-value company, while a low stock price indicates lower firm value (Anisah, 2021). Research by Dwi Priliana & Lisiantara (2023) demonstrates that profitability (*Return on Assets* and *Return on Equity*), leverage (*Debt to Assets Ratio* and *Debt to Equity Ratio*), and market value (earnings per share)

simultaneously have a significant effect on stock prices. However, on a partial basis, *Return on Assets* was found to have no significant effect, indicating inconsistencies in empirical findings regarding the role of profitability.

From an operational efficiency perspective, a high *Return on Assets* theoretically has a positive impact on stock prices. Angkasaputra et al. (2022) identify *Return on Assets* and *Debt to Equity Ratio* as two of the most frequently used financial ratios in stock price studies, alongside *Return on Equity*. This suggests that profitability, debt management, and asset utilization efficiency are indirectly related to how the market values a firm's stock. Beyond financial variables, research on *Environmental, Social, and Governance* (ESG) has demonstrated an increasingly strong relationship with stock prices or stock returns. Nugraha et al. (2025), who compared the LQ45, FTSE KLCI, and FTSE STI indices, found that higher ESG scores are associated with higher stock returns and lower volatility. Studies conducted in Indonesia also show that ESG disclosure positively affects stock returns, particularly in the energy sector (Apriadi & Suhendri, 2025). These findings indicate that investors are increasingly incorporating sustainability considerations into their stock valuation decisions.

Operational efficiency is one of the internal factors that can influence stock prices. It reflects how effectively a firm manages its resources to generate optimal revenue. High operational efficiency indicates management's ability to control costs and maximize revenue, thereby positively affecting profitability and firm value (Febriani, 2020). *Total Asset Turnover* measures how effectively a firm utilizes its assets to generate sales and is widely regarded as an indicator of operational efficiency. Firms with high *Total Asset Turnover* demonstrate more efficient asset utilization, which theoretically leads to improved financial performance and higher stock prices. Within the framework of Signaling Theory, a high *Total Asset Turnover* also acts as a financial signal indicating efficient asset utilization and managerial competence, which can positively influence investor confidence and market valuation beyond its direct impact on profitability.

Several studies have shown that *Total Asset Turnover* affects *Return on Assets*, although results are not always consistent across industries. Research in the property, real estate, and service sectors highlights the importance of considering industry characteristics and firm size when examining the effect of *Total Asset Turnover* on profitability. Therefore, incorporating *Return on Assets* as an intervening variable in the relationship between *Total Asset Turnover* and stock prices is relevant, as *Total Asset Turnover* may indirectly influence stock prices through enhanced profitability (Restiana et al., 2025). International studies also indicate that asset turnover correlates with market value when combined with profit margins and capital structure in multivariate analyses, consistent with the DuPont framework (Patin et al., 2020).

Focusing on companies included in the IDX ESG Leaders index allows for the control of industry heterogeneity while examining whether asset efficiency remains relevant in firms that attract investor attention due to their sustainability practices (Arismutia, 2024). In addition to operational efficiency, capital structure or leverage is another crucial factor affecting stock prices. Leverage reflects the extent to which a firm relies on debt to finance its operations. The *Debt to Equity Ratio* indicates the proportion of debt relative to shareholders' equity and reflects a firm's financial risk level (Eka Nur Faujia & Nafisah Nurulrahmatia, 2024).

According to capital structure theory, optimal debt usage can generate leverage benefits, but excessive debt increases financial risk and interest costs, which may ultimately reduce firm value. Several studies in Indonesia report that *Debt to Equity Ratio* has a negative effect on stock prices. Ulil Abror & Dewantoro Marsono (2025) found that DER negatively and significantly affects stock prices among companies listed in the Jakarta Islamic Index. Similarly, (Rahmawati & Hadian, 2022) reported a negative effect of *Debt to Equity Ratio* on stock returns in consumer goods companies. In ESG-indexed firms such as those included in IDX ESG Leaders, capital structure becomes a particularly important variable. ESG-oriented firms tend to adopt more conservative financial policies and risk-oriented governance practices. If ESG firms maintain *Debt to Equity Ratio* at healthy levels, the negative impact of leverage on stock prices may be mitigated. Conversely, high *Debt to Equity Ratio* in ESG firms may trigger stronger negative investor reactions, as it is perceived to contradict sustainability principles.

In addition to financial factors, investor attention has increasingly shifted toward corporate sustainability aspects reflected in ESG performance. Strong ESG performance can enhance investor trust and corporate reputation by serving as a signal of effective management quality, long-term strategic orientation, and commitment to sustainable value creation, thereby reducing information asymmetry between firms and investors. In line with Signaling Theory, ESG disclosure allows the market to differentiate firms with superior governance and risk management practices, which explains why investors may react positively to ESG-related information through stock price adjustments. ESG encompasses three main pillars environmental, social, and governance which function not only as regulatory compliance mechanisms but also as signals of management quality and long-term potential (Muhammad Fachrizal Wahyu Darma Putra & Nurul Asfiah, 2024). (Aydoğmuş et al., 2022) found that composite ESG scores positively and significantly affect firm value, although individual components may yield different results.

Several studies also indicate that ESG influences stock prices through various mechanisms, including reduced information asymmetry and increased market liquidity (Yin et al., 2023). In Indonesia, empirical findings on ESG remain mixed. Prasetyo et al. (2025) found that ESG disclosure positively affects firm value, while Connelly Pasaribu et al. (2025) reported varying effects across ESG components. These mixed results highlight the need for further research focusing on IDX ESG Leaders companies. Return on Assets in this study functions as an intervening variable linking operational efficiency, leverage, and ESG performance to stock prices. *Return on Assets* reflects a firm's ability to generate profits from its total assets and serves as a fundamental indicator of profitability. Operational efficiency and

leverage significantly influence *Return on Assets*, while *Return on Assets* plays a key role in enhancing investor confidence in a firm's stock. However, empirical evidence on the effect of *Return on Assets* on stock prices remains inconsistent, with some studies reporting positive effects, others insignificant results, and some even negative partial effects depending on industry characteristics, firm size, and research period (Risanti & Murwanti, 2022).

For companies included in IDX ESG Leaders, *Return on Assets* as an intervening variable becomes particularly relevant. ESG-aware firms tend to implement better risk management and governance practices, which may enhance profitability and reduce long-term risk, ultimately influencing market valuation (Liu et al., 2022). Nevertheless, a research gap remains, as relatively few studies explicitly incorporate *Return on Assets* as an intervening variable between operational efficiency, leverage, ESG, and stock prices in the Indonesian context (Kurniasih & Akhmadi, 2024). The urgency of this study is further driven by evolving capital market regulations in Indonesia, increasing investor awareness of ESG issues, and the growing prominence of indices such as IDX ESG Leaders. Therefore, this study is important to examine how operational efficiency, leverage, and ESG performance influence stock prices both directly and indirectly through profitability. The findings are expected to contribute to the development of sustainable finance literature and provide practical insights for corporate management and investors in making strategic investment and resource allocation decisions.

## 2. RESEARCH METHODS

### 2.1 Research Design

This study adopts a quantitative approach with a descriptive verificative design and a causal associative approach. The descriptive approach is employed to present an overview of the characteristics of the research variables, while the verificative approach aims to test the proposed hypotheses based on established theories and prior empirical studies. The causal associative approach is applied to examine cause–effect relationships between the independent variables *Total Asset Turnover* (TATO), *Debt to Equity Ratio* (DER), and *ESG Score* and the dependent variable, stock price, with *Return on Assets* (ROA) serving as an intervening variable. A quantitative approach is chosen because it enables objective hypothesis testing through statistical analysis of numerical data, allowing the results to be interpreted in a measurable and systematic manner (Sugiyono, 2023).

### 2.2 Data and Sample

The data used in this study are secondary data obtained from annual financial statements, sustainability reports, and stock price data of companies listed in the IDX ESG Leaders index during the 2021–2024 period. Financial statement data are utilized to calculate financial ratios, while ESG Scores are collected from officially published and credible sources. Stock price is measured using the year end closing price, as it reflects investors' overall assessment of corporate performance within a reporting period.

The research population consists of all companies included in the IDX ESG Leaders index during the observation period, totaling 30 firms. The sampling technique employed is purposive sampling, with criteria requiring companies to be consistently listed in the IDX ESG Leaders index from 2021 to 2024 and to have complete data for all research variables. Based on these criteria, 25 companies are selected as the research sample. With a four-year observation period, the study yields a total of 100 firm-year observations.

### 2.3 Variables Measurement

The dependent variable in this study is stock price (Y), measured by the year end closing price. The independent variables include *Total Asset Turnover* (TATO) (X1) as a proxy for operational efficiency, *Debt to Equity Ratio* (DER) (X2) as a proxy for capital structure or leverage, and *ESG Score* (X3) as an indicator of corporate sustainability performance. *Return on Assets* (ROA) (Z) is employed as an intervening variable representing firm profitability. All variables are measured using financial ratios and official ESG scores derived from companies' financial and sustainability reports.

### 2.4 Data Collection Technique

Data collection is conducted using the documentation method by accessing the official website of the Indonesia Stock Exchange ([www.idx.co.id](http://www.idx.co.id)), companies' annual reports, sustainability reports, and other relevant supporting sources.

### 2.5 Data Analysis Technique

The collected data are analyzed using *Structural Equation Modeling–Partial Least Squares* (SEM-PLS). SEM-PLS is selected because it is suitable for testing complex structural relationships, including mediation models, and does not require strict assumptions regarding data normality. The data analysis procedures consist of descriptive statistical analysis to describe the characteristics of the data, evaluation of the outer model to assess construct validity and reliability, and evaluation of the inner model through the examination of the *coefficient of determination* ( $R^2$ ), *effect size* ( $f^2$ ), and *predictive relevance* ( $Q^2$ ). Subsequently, the significance of the structural paths is tested using the bootstrapping technique (Hair et al., 2021). Mediation analysis is performed by examining the indirect effects to evaluate the role of *Return on Assets* in mediating the relationships between *Total Asset Turnover*, *Debt to Equity Ratio*, and *ESG Score* and stock price.

### 3. RESULT AND DISCUSSION

#### 3.1 Result

##### 3.1.1 Validity and Reliability

**Table 1.** Analysis of Validity & Reliability

Instrument	Validity			Reliability	
	Outer Loading	AVE	Cross Loading	Composite Reliability	Cronbach's Alpha
TATO (X1)	1.000	1.000	1.000	1.000	1.000
DER (X2)	1.000	1.000	1.000	1.000	1.000
ESG Score (X3)	1.000	1.000	1.000	1.000	1.000
Stock Price (Y)	1.000	1.000	1.000	1.000	1.000
ROA (Z)	1.000	1.000	1.000	1.000	1.000

Source: Processing Output with SmartPLS

The results of the measurement model evaluation indicate that all research constructs meet the criteria for convergent validity, as evidenced by outer loading and *Average Variance Extracted* (AVE) values for each variable exceeding the minimum threshold of 0.70. Furthermore, discriminant validity is also established based on cross-loading values, the *Fornell-Larcker* criterion, and the *Heterotrait-Monotrait* (HTMT) ratio, all of which fall within the recommended thresholds (Hair et al., 2021). In addition, the internal reliability assessment shows that all variables exhibit *Cronbach's Alpha* and *Composite Reliability* values of 1.000, indicating an excellent level of internal consistency. Therefore, all measurement instruments in this study are deemed valid and reliable for use in testing the structural model (Hair et al., 2021).

##### 3.1.2 Coefficient of Determination Test (R Square/R<sup>2</sup>)

**Table 2.** R Square Values

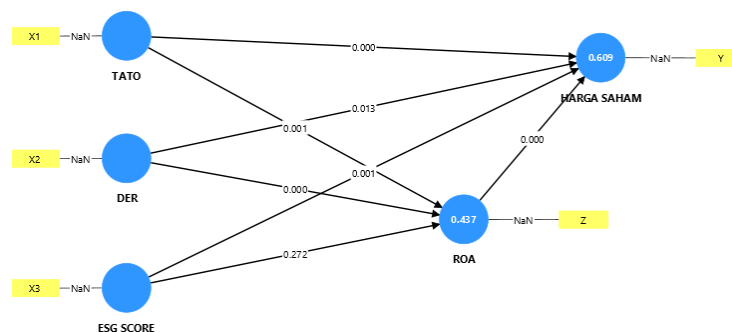
Variabel	R square
HARGA SAHAM (Y)	0.609
ROA (Z)	0.437

Source: Processing Output with SmartPLS

The results of the coefficient of determination (R<sup>2</sup>) analysis indicate that the R Square value for Stock Price (Y) is 0.609, with an Adjusted R Square of 0.592. This finding suggests that 60.9% of the variation in stock prices can be explained by operational efficiency (*Total Asset Turnover*), leverage (*Debt to Equity Ratio*), ESG Score, and profitability (*Return On Assets*), while the remaining 39.1% is explained by other variables outside the research model. Meanwhile, the R Square value for *Return on Assets* (ROA) is 0.437, with an Adjusted R Square of 0.420, indicating that 43.7% of the variation in profitability is explained by operational efficiency (*Total Asset Turnover*), leverage (*Debt to Equity Ratio*), and ESG Score, whereas the remaining 56.3% is influenced by factors not included in the model. Overall, these R Square values demonstrate that the structural model exhibits moderate to substantial explanatory power, indicating that it is appropriate for explaining the relationships among variables examined in this study.

##### 3.1.3 Hypothesis Test Result (Path Coefficient Estimation)

Path significance testing is a non parametric procedure used to assess the stability and reliability of the estimated path coefficients in a structural model. Path coefficients indicate the direction and strength of the relationships among latent variables (Hair et al., 2021). A structural path is considered significant when the t-statistic > 1.96, indicating a statistically significant effect, and when the p-value < 0.05, indicating statistical significance of the relationship between variables (i.e., the independent variable significantly influences the mediating or dependent variable). Through the bootstrapping procedure, researchers are able to test direct effects, indirect (mediating) effects, and total effects, thereby facilitating a more valid identification of causal relationships among variables.



**Figure 2.** Bootstrapping Test Result, Source: Processing Output with SmartPLS

**Table 3.** Direct Influence Hypothesis Testing Result

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values
DER (X2) -> HARGA SAHAM (Y)	-0,189	-0,185	0,076	2,495	0,013
DER (X2) -> ROA (Z)	-0,527	-0,519	0,073	7,239	0,000
ESG SCORE (X3) -> HARGA SAHAM (Y)	0,262	0,255	0,082	3,187	0,002
ESG SCORE (X3) -> ROA (Z)	0,098	0,095	0,084	1,163	0,245
ROA (Z) -> HARGA SAHAM (Y)	0,476	0,476	0,098	4,840	0,000
TATO (X1) -> HARGA SAHAM (Y)	0,235	0,232	0,059	3,995	0,000
TATO (X1) -> ROA (Z)	0,305	0,315	0,088	3,457	0,001

Source: Processing Output with SmartPLS

Here are the results of hypothesis testing on structural models:

- The results of testing the effect of operational efficiency on stock price indicate that *Total Asset Turnover* has a positive and significant effect on stock price. The path coefficient is 0.235, with a t-statistic of 3.995 (> 1.96) and a p-value of 0.000 (< 0.05). This finding suggests that higher operational efficiency enhances investor confidence and leads to an increase in stock prices. Therefore, the hypothesis “H1: Operational efficiency has a positive effect on stock prices of companies listed in the IDX ESG Leaders during the 2021–2024 period” is accepted.
- The results of testing the effect of leverage on stock price show that the *Debt to Equity Ratio* has a negative and significant effect on stock price. The path coefficient is -0.189, with a t-statistic of 2.495 (> 1.96) and a p-value of 0.013 (< 0.05). This result indicates that higher leverage reduces investors’ perceptions of firm value, which in turn negatively affects stock prices. Accordingly, the hypothesis “H2: Leverage has a negative effect on stock prices of companies listed in the IDX ESG Leaders during the 2021–2024 period” is accepted.
- The results demonstrate that *ESG Score* has a positive and significant effect on stock price. The path coefficient is 0.262, with a t-statistic of 3.187 (> 1.96) and a p-value of 0.002 (< 0.05). This finding implies that a higher ESG Score serves as a positive signal to investors and contributes to an increase in stock prices. Thus, the hypothesis “H3: ESG Score has a positive effect on stock prices of companies listed in the IDX ESG Leaders during the 2021–2024” period is accepted.
- The results of testing the effect of operational efficiency on profitability indicate that *Total Asset Turnover* has a positive and significant effect on *Return on Assets*. The path coefficient is 0.305, with a t-statistic of 3.457 (> 1.96) and a p-value of 0.001 (< 0.05). This result suggests that higher operational efficiency improves a firm’s ability to generate profits, thereby positively affecting profitability. Consequently, the hypothesis “H4: Operational efficiency has a positive effect on profitability of companies listed in the IDX ESG Leaders during the 2021–2024 period” is accepted.
- The results reveal that the *Debt to Equity Ratio* has a negative and significant effect on *Return on Assets*. The path coefficient is -0.527, with a t-statistic of 7.239 (> 1.96) and a p-value of 0.000 (< 0.05). This finding indicates that higher leverage increases financial risk and leads to a decline in profitability, as reflected in Return on Assets. Therefore, the hypothesis “H5: Leverage has a negative effect on profitability of companies listed in the IDX ESG Leaders during the 2021–2024 period” is accepted.
- The results show that *ESG Score* does not have a significant effect on *Return on Assets*. The path coefficient is 0.098, with a t-statistic of 1.163 (< 1.96) and a p-value of 0.245 (> 0.05). This result implies that ESG performance has not yet generated a short-term financial impact on profitability. Accordingly, the hypothesis “H6: ESG Score has a positive effect on profitability of companies listed in the IDX ESG Leaders during the 2021–2024 period” is rejected.
- The results indicate that *Return on Assets* has a positive and significant effect on stock price. The path coefficient is 0.476, with a t-statistic of 4.840 (> 1.96) and a p-value of 0.000 (< 0.05). This finding suggests that higher profitability serves as a positive signal to investors and increases firm stock prices. Therefore, the hypothesis “H7: Profitability has a positive effect on stock prices of companies listed in the IDX ESG Leaders during the 2021–2024 period” is accepted.

The following section presents the results of hypothesis testing on the indirect effect of X on Y through Z:

**Table 4.** Direct Influence Hypothesis Testing Result

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values
TATO (X1) -> ROA (Z) -> HARGA SAHAM (Y)	0.145	0.151	0.055	2.631	0.009

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values
DER (X2) -> ROA (Z) -> HARGA SAHAM (Y)	-0.251	-0.247	0.065	3.886	0.000
ESG SCORE (X3) -> ROA (Z) -> HARGA SAHAM (Y)	0.047	0.046	0.043	1.089	0.277

Source: Processing Output with SmartPLS

Here are the results of hypothesis testing on structural models:

- The results of testing profitability as a mediating variable in the relationship between operational efficiency and stock price indicate a significant indirect effect of *Total Asset Turnover* on stock price through *Return on Assets*. The path coefficient is 0.145, with a t-statistic of 2.631 ( $> 1.96$ ) and a p-value of 0.009 ( $< 0.05$ ). Statistically, *Return on Assets* is proven to mediate the relationship between *Total Asset Turnover* and stock price. Therefore, the hypothesis “H8: Profitability mediates the effect of operational efficiency on stock prices of companies listed in the IDX ESG Leaders during the 2021–2024 period” is accepted.
- The results of the mediation analysis show a significant indirect effect of *Debt to Equity Ratio* on stock price through *Return on Assets*. The path coefficient is  $-0.251$ , with a t-statistic of 3.886 ( $> 1.96$ ) and a p-value of 0.000 ( $< 0.05$ ). These findings indicate that *Return on Assets* statistically mediates the relationship between *Debt to Equity Ratio* and stock price. Accordingly, the hypothesis “H9: Profitability mediates the effect of leverage on stock prices of companies listed in the IDX ESG Leaders during the 2021–2024 period” is accepted.
- The results indicate that the indirect effect of *ESG Score* on stock price through *Return on Assets* is not significant. The path coefficient is 0.047, with a t-statistic of 1.089 ( $< 1.96$ ) and a p-value of 0.277 ( $> 0.05$ ). Statistically, *Return on Assets* does not mediate the relationship between *ESG Score* and stock price. Therefore, the hypothesis “H10: Profitability mediates the effect of ESG Score on stock prices of companies listed in the IDX ESG Leaders during the 2021–2024 period” is rejected.

### 3.2 Discussion

The objective of this study is to analyze the direct and indirect effects of Operational Efficiency, as reflected by Total Asset Turnover (TATO), Leverage, as measured by the *Debt to Equity Ratio* (DER), and *ESG Score* on firms listed in the IDX ESG Leaders, with Profitability, proxied by *Return on Assets* (ROA), serving as an intervening variable. The analysis was conducted using *Partial Least Squares Structural Equation Modeling* (SEM-PLS) through SmartPLS 3.0 software. The bootstrapping results indicate that two hypotheses are not statistically significant, either directly or indirectly.

It is important to note that all constructs in this study were treated as observed variables measured using single indicators. Consequently, the values of Cronbach’s Alpha and Average Variance Extracted (AVE) reported in Table 1 are equal to 1.000 by definition. In the context of SEM-PLS, when a construct is measured by a single item, internal consistency reliability and convergent validity are automatically satisfied, as no measurement error is estimated among multiple indicators. Therefore, the perfect reliability values do not indicate overly ideal or manipulated data, but rather reflect the modeling approach employed in this study, which is commonly applied in studies using financial ratios and market-based variables as observed constructs.

The results show that *Total Asset Turnover* has a positive and significant effect on stock prices, with a path coefficient of 0.235 and a T-statistic value of 3.995. This finding indicates that firms capable of utilizing their assets efficiently tend to have higher stock prices, as such efficiency reflects strong operational performance and convincing growth prospects for investors. This result is consistent with the study by Darwanto & Warastuti (2025), which states that activity ratios such as *Total Asset Turnover* can serve as strong indicators in shaping investor perceptions of firm value and positively influencing stock returns.

Furthermore, the *Debt to Equity Ratio* (DER) is proven to have a negative and significant effect on stock prices, with a path coefficient of  $-0.189$  and a T-statistic value of 2.495. This implies that higher corporate leverage increases the level of financial risk perceived by investors. High levels of debt are generally viewed as a burden, as they intensify cost pressures and cash flow uncertainty, which in turn reduces the attractiveness of a firm’s stock. This finding aligns with (Ganta, 2025), who concluded that excessive leverage negatively affects firm value and stock prices by increasing financial risk and cash flow uncertainty.

This study also finds that the *ESG Score* has a positive and significant effect on stock prices, with a T-statistic value of 3.187. This result is in line with several recent studies that document a positive relationship between ESG performance and stock returns, where ESG is regarded as a signal of long-term quality that is relevant to investors and contributes to higher perceived firm value. Research by Dwi Nurnaningsih & Lilik Handajani (2025) shows that *ESG Score* has a significant and positive effect on stock returns, which can be strengthened by financial performance indicators such as *Return on Assets* under certain market conditions in Indonesia.

The empirical results further indicate that operational efficiency (*Total Asset Turnover*) positively affects profitability (*Return on Assets*), with a path coefficient of 0.305 and a T-statistic value of 3.457, while leverage (*Debt to Equity Ratio*) negatively affects *Return on Assets*, with a path coefficient of  $-0.527$  and a T-statistic value of 7.239. These findings suggest that efficient asset management enhances a firm’s ability to generate profits from its assets, whereas high

levels of debt tend to erode profitability due to interest burdens and increased financial risk. This result is consistent with the findings of Arismutia (2024).

The finding that the ESG Score does not have a significant effect on *Return on Assets*, with a path coefficient of 0.098 and a T-statistic value of 1.163, indicates that ESG practices have not yet been directly translated into short-term accounting profitability. This result is similar to prior studies which suggest that although ESG performance may influence market valuation, its impact on accounting profitability is often insignificant because ESG focuses more on long-term value creation, corporate reputation, and risk mitigation rather than immediate profit enhancement in the short to medium term (Habibulloh & Buchory, 2025).

The significant positive correlation between *Return on Assets* and stock prices indicates that profitability serves as a strong signal for investors in assessing firm value. Firms with higher *Return on Assets* are perceived as more efficient in generating profits, which is positively appreciated by the market and contributes to higher stock prices. Moreover, profitability (*Return on Assets*) mediates the relationship between *Total Asset Turnover* and stock prices, as well as between *Debt to Equity Ratio* and stock prices. This suggests that the influence of asset efficiency and capital structure on stock prices does not occur solely through direct channels, but also through changes in firm profitability. In other words, the market responds to financial performance signals reflected in profitability, which are influenced by operational efficiency and leverage.

However, the results indicate that *Return on Assets* does not mediate the effect of ESG Score on stock prices. This implies that although ESG Score directly enhances market perceptions of a firm's stock, improvements in ESG performance do not necessarily lead to higher accounting profitability that subsequently affects stock prices. This finding reinforces the notion that ESG tends to influence investor perceptions directly rather than through short-term profitability channels, as ESG is often interpreted as a measure of corporate reputation, risk management, and long-term sustainability rather than a determinant of short-term profits.

The findings of this study can be explained through Agency Theory and Signaling Theory. From an agency theory perspective, operational efficiency and capital structure reflect management's (agent's) ability to manage corporate resources in order to maximize shareholder (principal) wealth. The positive effect of *Total Asset Turnover* on profitability and stock prices, along with the negative effect of *Debt to Equity Ratio* on profitability and stock prices, indicates that efficient asset utilization and controlled leverage reduce agency conflicts and enhance firm performance. Within the framework of signaling theory, profitability as reflected by *Return on Assets* (ROA) functions as a strong financial signal to investors. *Return on Assets* is proven to mediate the effects of operational efficiency and leverage on stock prices, indicating that the market responds to financial performance information before incorporating it into stock price valuation. Consequently, improvements in efficiency or changes in capital structure are first translated into profitability, which is then positively or negatively interpreted by investors.

Furthermore, the finding that ESG Score has a positive and significant effect on stock prices but does not affect *Return on Assets*, and that *Return on Assets* does not mediate the relationship between ESG Score and stock prices, confirms that ESG primarily serves as a non-financial signal. Investors tend to interpret ESG as an indicator of governance quality, reputation, and long-term sustainability, and therefore respond directly without relying on short-term accounting profitability mechanisms. Overall, the results of this study strengthen the role of agency theory in explaining the relationship between efficiency, leverage, and profitability, and support signaling theory in explaining how both financial and non-financial information, including ESG, are interpreted by the market and reflected in stock prices.

#### 4. CONCLUSION

This study aims to analyze the effects of operational efficiency, leverage, and ESG Score on stock prices, with profitability as an intervening variable, among companies listed in the IDX ESG Leaders index during the 2021–2024 period. Based on the results of the analysis using the SEM-PLS method, it can be concluded that operational efficiency (*Total Asset Turnover*) and ESG Score have a positive and significant effect on stock prices, while leverage (*Debt to Equity Ratio*) has a negative and significant effect on stock prices. These findings indicate that efficient operational performance and strong sustainability practices enhance investor confidence, whereas high debt levels reduce the perceived firm value in the capital market. The results further show that operational efficiency has a positive effect on profitability (*Return on Assets*), while leverage has a negative effect on *Return on Assets*, confirming that optimal asset management and a sound capital structure play an important role in improving corporate financial performance. Moreover, profitability is found to have a positive and significant effect on stock prices, suggesting that *Return on Assets* serves as an important indicator used by investors in evaluating firm prospects. From the perspective of indirect effects, profitability is able to mediate the relationship between operational efficiency and stock prices, as well as between leverage and stock prices, indicating that the market responds to changes in operational performance and capital structure through financial performance mechanisms. However, profitability does not mediate the relationship between ESG Score and stock prices, as ESG Score does not have a significant effect on *Return on Assets*. This finding suggests that ESG value is primarily perceived as a non-financial signal that directly influences market valuation, rather than through short-term profitability improvements. Overall, this study reinforces the role of agency theory in explaining the relationship between operational efficiency, leverage, and profitability, and supports signaling theory in explaining how both financial and non-financial information, including ESG, are interpreted by investors and reflected in stock prices. The implications of this study emphasize the

importance of effective operational performance management and capital structure optimization, as well as the implementation of ESG as a long-term strategy to enhance firm value in the capital market.

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