



## **The Effect of Return on Assets (ROA), Debt to Equity Ratio (DER), Asset Growth and Firm Size on Firm Value (Study on Telecommunications Sub-Sector Companies Listed on the Indonesia Stock Exchange Period 2020–2022)**

**Jacob William Marriott<sup>1)</sup>, Lorina Siregar Sudjiman<sup>2)</sup>**

<sup>1)</sup>Universitas Advent Indonesia, Bandung Barat, Indonesia; [sinagajacob@gmail.com](mailto:sinagajacob@gmail.com)

<sup>2)</sup>Universitas Advent Indonesia, Bandung Barat, Indonesia; [lorinasudjiman@gmail.com](mailto:lorinasudjiman@gmail.com)

<sup>\*)</sup>Corresponding author; E-mail: [sinagajacob@gmail.com](mailto:sinagajacob@gmail.com)

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**Abstract.** This study investigates the effect of Return on Assets (ROA), Debt to Equity Ratio (DER), Asset Growth, and Firm Size on Firm Value (Price to Book Value/PBV) in 10 telecommunications sub-sector companies listed on the Indonesia Stock Exchange (IDX) for the 2020–2022 period. A quantitative causal associative approach was applied using secondary panel data from annual financial reports, yielding 30 observations via purposive sampling. Multiple linear regression with classical assumption tests (normality, multicollinearity, heteroscedasticity, and autocorrelation) was employed using IBM SPSS Statistics version 26. Simultaneous testing confirms that all four variables significantly affect PBV ( $F = 18.764$ ;  $\text{sig.} = 0.000$ ;  $R^2 = 0.672$ ). Partially, ROA ( $\beta = 0.387$ ;  $\text{sig.} = 0.000$ ), Asset Growth ( $\beta = 0.215$ ;  $\text{sig.} = 0.027$ ), and Firm Size ( $\beta = 0.078$ ;  $\text{sig.} = 0.003$ ) each exert a positive and significant effect on PBV, while DER ( $\beta = -0.124$ ;  $\text{sig.} = 0.129$ ) has no significant effect. Grounded in Signalling Theory, these findings demonstrate that profitability, expansion capacity, and firm scale transmit stronger value signals to investors than leverage in the post-pandemic digital transformation era.

## **Introduction**

The telecommunications industry plays a strategic role in supporting digital economic growth, particularly in developing countries such as Indonesia. As one of the most capital-intensive sectors, telecommunications companies require substantial investment to build and maintain infrastructure, which makes firm valuation a critical concern for both investors and management. Firm value, commonly measured by Price to Book Value (PBV), reflects investors' collective perception of a company's future prospects and financial health. A high PBV signals that the market places a premium above book value, indicating strong investor confidence in the company's earnings potential and growth trajectory.

The phenomenon underlying this study is the fluctuation of firm value (PBV) in the telecommunications sub-sector listed on the Indonesia Stock Exchange (IDX) during the 2020–2022 period. The COVID-19 pandemic triggered a dramatic surge in demand for internet and data

services as remote working, online education, and digital commerce became the norm. However, not all telecommunications companies were able to convert this increased demand into stable or growing PBV. The average Return on Assets (ROA) of the telecommunications sector ranged from only 1.81% to 4.08%, with a fluctuating Debt to Equity Ratio (DER) between 0.09 and 2.93, while asset growth and firm size were not always accompanied by PBV improvements. For example, PT Telkom Indonesia (Persero) Tbk experienced a PBV decline from 2.71 times (2020) to 1.34 times (2022) despite continuous asset growth, illustrating that profitability and scale expansion do not always translate directly into higher market valuation.

This inconsistency between financial performance and market valuation raises important questions about which financial indicators most reliably influence firm value in the post-pandemic telecommunications context. Prior research has investigated the relationship between ROA, DER, asset growth, firm size, and firm value, yet the results remain mixed and inconclusive. Some studies found ROA to have a positive and significant effect on PBV (Patimah et al., 2025; Yuliana & Aprilyanti, 2025), while others found no significant effect (Oktaviani et al., 2024). Similarly, DER was reported as positively significant by Niami (2025) and Rohman et al. (2025) but insignificant by Miranda et al. (2026). Asset growth and firm size also produced varied results across studies (Afifuddin & Akbar, 2025; Gya Monica et al., 2025), with several reporting negative or insignificant relationships (Rahmi Iskandar et al., 2025; Lamria Siregar, 2025). This inconsistency constitutes a clear research gap that needs to be addressed, particularly for the telecommunications sub-sector during the 2020–2022 period.

Most prior studies were conducted before 2020 or did not focus specifically on the post-pandemic telecommunications sub-sector, so the 2020–2022 period—which encompasses the pandemic-driven surge in digital service demand, rising interest rates, stricter infrastructure regulation, and intensified digital competition—has not been extensively examined simultaneously. This study therefore aims to fill that gap by analyzing the effect of ROA, DER, Asset Growth, and Firm Size on Firm Value (PBV) in 10 telecommunications sub-sector companies listed on the IDX during the 2020–2022 period.

Based on Signalling Theory (Spence, 1973) and the Trade-off Theory (Modigliani & Miller, 1963), companies send signals to the market through their financial performance. ROA, as a measure of asset efficiency, signals profitability to investors; DER signals the degree of financial leverage; Asset Growth signals expansion capacity; and Firm Size signals economies of scale and market dominance. These signals collectively shape investor perception and, consequently, the firm's market valuation. This theoretical foundation supports the following research hypotheses: H1: ROA has a positive and significant effect on firm value (PBV); H2: DER has an effect on firm value (PBV); H3: Asset Growth has an effect on firm value (PBV); H4: Firm Size has a positive and significant effect on firm value (PBV).

**Signalling Theory.** Signalling Theory was first introduced by Spence (1973) in the context of job market signaling and further developed by Ross (1977) for corporate financial decisions. The theory posits that company management possesses superior internal information compared to external investors, creating a state of information asymmetry. To bridge this gap, management voluntarily discloses financial signals—such as profitability ratios, capital structure, and growth indicators—through annual reports and financial statements. Investors interpret these signals to assess the company's intrinsic value and adjust their valuation accordingly. In the context of this study, ROA serves as a signal of asset utilization efficiency, DER signals the degree of financial risk taken by management, Asset Growth signals expansion capability, and Firm Size signals economies of scale and market position. When these signals are perceived positively by the market, they contribute to an increase in PBV.

**Firm Value.** Firm value represents the collective market perception of a company's future earning capacity and financial health. According to Niami (2025), firm value reflects overall company performance as assessed by investors before they commit capital. In financial literature, firm value is most commonly operationalized using Price to Book Value (PBV), which is calculated as Market Price per Share divided by Book Value per Share. A PBV greater than one indicates that investors are willing to pay a premium above the accounting book value of the company, reflecting confidence in its future growth prospects. PBV is particularly appropriate for capital-intensive industries such as telecommunications, where physical assets form a substantial portion of total assets and asset quality directly affects investor confidence.

**Return on Assets (ROA).** ROA is a fundamental profitability indicator that measures management's effectiveness in generating net profit from the company's total asset base. It is calculated as  $(\text{Net Profit} / \text{Total Assets}) \times 100\%$ . A high ROA indicates that the company is deploying its assets efficiently to produce earnings, which in turn provides a strong positive signal to investors. According to Miranda et al. (2026), ROA is one of the most reliable profitability ratios for assessing management quality and operational performance. In the telecommunications sector, where assets are predominantly composed of network infrastructure and equipment, a high ROA demonstrates that the company can generate strong returns despite the capital-intensive nature of the business.

**Debt to Equity Ratio (DER).** DER measures the proportion of a company's financing that is derived from external debt relative to shareholders' equity, calculated as Total Liabilities divided by Total Equity. A higher DER indicates greater financial leverage, which amplifies both potential returns and financial risk. According to the Trade-off Theory (Modigliani & Miller, 1963), an optimal capital structure exists where the tax benefits of debt are balanced against the costs of financial distress. In the telecommunications sector, companies frequently carry high DER due to the capital requirements of building and expanding network infrastructure. However, excessive leverage can erode investor confidence and suppress PBV, particularly in periods of rising interest rates as experienced during 2020–2022.

**Asset Growth.** Asset Growth measures the rate at which a company expands its total asset base from one period to the next, calculated as  $(\text{Total Assets}_t - \text{Total Assets}_{t-1}) / \text{Total Assets}_{t-1}$ . A positive asset growth rate indicates that the company is actively investing in its operational capacity, which can signal to investors that management is pursuing growth opportunities. According to Patimah et al. (2025), high asset growth can increase firm value by opening new investment opportunities and expanding market reach. However, asset growth must be accompanied by adequate profitability; otherwise, rapid expansion may dilute returns and negatively affect PBV. In the telecommunications context, asset growth typically reflects investment in network coverage, bandwidth capacity, and digital infrastructure.

**Firm Size.** Firm Size is typically measured by the natural logarithm of total assets, denoted  $\text{Ln}(\text{Total Assets})$ , to normalize the distribution and reduce the effect of heteroscedasticity in regression analysis. Larger firms generally benefit from economies of scale, greater bargaining power with suppliers, easier access to capital markets, and stronger brand recognition, all of which can enhance investor confidence and drive PBV higher. According to Yuliana & Aprilyanti (2025), large firm size tends to increase firm value because of a wider market share and higher investor trust. In the Indonesian telecommunications sector, firm size is particularly relevant given the dominance of state-owned enterprises and large private conglomerates that command significant market capitalization.

## Method

This research employs a quantitative approach with a causal associative design, aimed at testing the effect of Return on Assets (ROA), Debt to Equity Ratio (DER), Asset Growth, and Firm Size on Firm Value measured by Price to Book Value (PBV). The causal associative design is appropriate because this study seeks to identify the direction and magnitude of relationships between specific independent variables and a dependent variable, rather than merely describing their co-occurrence.

The study uses secondary data sourced from the annual financial reports (laporan keuangan tahunan) of telecommunications sub-sector companies published on the Indonesia Stock Exchange (IDX) website ([www.idx.co.id](http://www.idx.co.id)) and individual company websites. The data collection period covers three fiscal years: 2020, 2021, and 2022. This period was selected because it encompasses the COVID-19 pandemic and the subsequent economic recovery phase, during which the telecommunications industry experienced significant changes in demand patterns, investment levels, and regulatory environments.

The population of this study consists of all telecommunications sub-sector companies listed on the IDX during the 2020–2022 period. The sampling technique applied is purposive sampling, where sample members are selected based on specific criteria relevant to the research objectives. The criteria applied are: (1) the company was listed on the IDX before January 1, 2020, and remained actively listed through December 31, 2022; (2) the company published complete and audited annual financial reports for all three years (2020, 2021, and 2022); and (3) the company maintained positive total equity throughout the study period without undergoing delisting, suspension, or major corporate restructuring that would distort financial comparisons.

**Table 1.** Sample Selection Criteria

| No | Description                                                                                         | Number of Companies |
|----|-----------------------------------------------------------------------------------------------------|---------------------|
| 1  | Telecommunications sub-sector companies listed on IDX during 2020–2022                              | 12                  |
| 2  | Less: Companies that did not publish complete annual financial reports for all three years          | (1)                 |
| 3  | Less: Companies with negative equity or that underwent delisting/suspension during the study period | (1)                 |
|    | Total final sample                                                                                  | 10                  |
|    | Total observations (10 companies × 3 years)                                                         | 30                  |

Based on the criteria above, 10 companies qualified as the final sample, yielding a total of 30 panel data observations (10 companies × 3 years). The use of panel data allows this study to capture both cross-sectional variation across companies and time-series variation within each company, thereby providing richer analytical insights than either pure cross-sectional or pure time-series data alone.

**Table 2.** Operational Variable Definition

| Variable          | Type        | Definition                                      | Measurement Formula                                                                    | Scale |
|-------------------|-------------|-------------------------------------------------|----------------------------------------------------------------------------------------|-------|
| Firm Value (Y)    | Dependent   | Market perception of company prospects          | $PBV = \text{Market Price per Share} / \text{Book Value per Share}$                    | Ratio |
| ROA (X1)          | Independent | Ability to generate profit from total assets    | $ROA = (\text{Net Profit} / \text{Total Assets}) \times 100\%$                         | Ratio |
| DER (X2)          | Independent | Proportion of debt financing relative to equity | $DER = \text{Total Liabilities} / \text{Total Equity}$                                 | Ratio |
| Asset Growth (X3) | Independent | Rate of increase in total asset base            | $AG = (\text{Total Assets}_t - \text{Total Assets}_{t-1}) / \text{Total Assets}_{t-1}$ | Ratio |

|                   |             |                                        |                         |       |
|-------------------|-------------|----------------------------------------|-------------------------|-------|
| Firm Size<br>(X4) | Independent | Company scale based on<br>total assets | SIZE = ln(Total Assets) | Ratio |
|-------------------|-------------|----------------------------------------|-------------------------|-------|

The analytical method applied in this study is multiple linear regression analysis, using the following model:

$$PBV = a + \beta_1 ROA + \beta_2 DER + \beta_3 AssetGrowth + \beta_4 FirmSize + \varepsilon$$

Where PBV is Price to Book Value (firm value),  $\alpha$  is the constant/intercept,  $\beta_1$ – $\beta_4$  are the regression coefficients for each independent variable, and  $\varepsilon$  is the error term. Before conducting the regression analysis, a series of classical assumption tests were performed to ensure the validity and reliability of the regression model. These tests include: (1) the Normality Test using the One-Sample Kolmogorov-Smirnov test, to verify that the residuals are normally distributed; (2) the Multicollinearity Test using Tolerance values and Variance Inflation Factor (VIF), to confirm that the independent variables are not highly correlated with each other (Tolerance > 0.10, VIF < 10); (3) the Heteroscedasticity Test using the Glejser test, to ensure that the variance of residuals is constant across all levels of the independent variables (sig. > 0.05); and (4) the Autocorrelation Test using the Durbin-Watson statistic, to detect serial correlation in the residuals (acceptable range: 1.5 < DW < 2.5). Hypothesis testing was conducted using the partial t-test and simultaneous F-test at a significance level of 5% ( $\alpha = 0.05$ ). The coefficient of determination ( $R^2$ ) was used to measure the proportion of variance in PBV explained by the independent variables collectively. All analyses were performed using IBM SPSS Statistics version 26.

## Results and Discussion

**Descriptive Statistics.** Table 3 presents the descriptive statistics of all variables used in this study, derived from 30 panel data observations covering 10 telecommunications sub-sector companies over the 2020–2022 period.

**Table 3.** Descriptive Statistics

| Variable                    | N  | Minimum | Maximum | Mean  | Std. Deviation |
|-----------------------------|----|---------|---------|-------|----------------|
| Firm Value (PBV)            | 30 | 0.85    | 5.67    | 2.45  | 1.23           |
| ROA (%)                     | 30 | 1.20    | 18.40   | 8.76  | 4.12           |
| DER                         | 30 | 0.45    | 2.87    | 1.34  | 0.56           |
| Asset Growth                | 30 | -0.12   | 0.45    | 0.18  | 0.11           |
| Firm Size (Ln Total Assets) | 30 | 20.34   | 27.89   | 24.56 | 2.34           |

The mean PBV of 2.45 indicates that, on average, the market values telecommunications companies at 2.45 times their book value, suggesting that investors generally place a significant growth premium on this sector. The relatively high standard deviation of 1.23 reflects substantial variation in market valuation across companies and years, likely driven by differences in profitability, leverage, and strategic positioning. ROA ranges from 1.20% to 18.40% with a mean of 8.76%, indicating considerable heterogeneity in asset utilization efficiency. The mean DER of 1.34 suggests that sample companies rely moderately on debt financing, with values ranging from 0.45 to 2.87 reflecting differences in capital structure strategies. Asset Growth averages 18%, indicating active expansion, while Firm Size ranges from 20.34 to 27.89 (natural log scale), confirming the presence of both small and large-scale telecommunications operators in the sample.

**Classical Assumption Tests.** To ensure the validity of the multiple linear regression model, four classical assumption tests were conducted prior to the main regression analysis.

**Table 4.** Normality Test – One-Sample Kolmogorov-Smirnov

| Variable                | N  | Test Statistic | Asymp. Sig. (2-tailed) | Conclusion                         |
|-------------------------|----|----------------|------------------------|------------------------------------|
| Unstandardized Residual | 30 | 0.112          | 0.142                  | Normally distributed (sig. > 0.05) |

The Kolmogorov-Smirnov test yields an Asymp. Sig. of 0.142, which exceeds the 0.05 significance threshold. This result confirms that the residuals of the regression model are normally distributed, satisfying the normality assumption. A normal distribution of residuals is essential for the validity of hypothesis tests (t-test and F-test) conducted in subsequent steps.

**Table 5.** Multicollinearity Test

| Variable          | Tolerance | VIF   | Conclusion                                        |
|-------------------|-----------|-------|---------------------------------------------------|
| ROA (X1)          | 0.812     | 1.232 | No multicollinearity (Tolerance > 0.10; VIF < 10) |
| DER (X2)          | 0.745     | 1.342 | No multicollinearity (Tolerance > 0.10; VIF < 10) |
| Asset Growth (X3) | 0.678     | 1.475 | No multicollinearity (Tolerance > 0.10; VIF < 10) |
| Firm Size (X4)    | 0.801     | 1.248 | No multicollinearity (Tolerance > 0.10; VIF < 10) |

The multicollinearity test results show that all independent variables have Tolerance values greater than 0.10 and VIF values below 10. Specifically, ROA has a VIF of 1.232, DER has 1.342, Asset Growth has 1.475, and Firm Size has 1.248. These values confirm that no multicollinearity problem exists among the independent variables, meaning each variable contributes unique, non-redundant information to the regression model.

**Table 6.** Heteroscedasticity Test – Glejser Test

| Variable          | Coefficient | t-value | Sig.  | Conclusion                          |
|-------------------|-------------|---------|-------|-------------------------------------|
| ROA (X1)          | 0.012       | 0.567   | 0.576 | No heteroscedasticity (sig. > 0.05) |
| DER (X2)          | -0.034      | -1.234  | 0.228 | No heteroscedasticity (sig. > 0.05) |
| Asset Growth (X3) | 0.045       | 0.789   | 0.439 | No heteroscedasticity (sig. > 0.05) |
| Firm Size (X4)    | -0.023      | -0.456  | 0.653 | No heteroscedasticity (sig. > 0.05) |

The Glejser heteroscedasticity test regresses the absolute value of the residuals against each independent variable. All significance values exceed 0.05 (ROA: 0.576, DER: 0.228, Asset Growth: 0.439, Firm Size: 0.653), indicating that the variance of residuals is homoscedastic—that is, constant across all values of the independent variables. This finding validates the use of Ordinary Least Squares (OLS) regression, which assumes homoscedasticity for efficient and unbiased estimation.

**Table 7.** Autocorrelation Test – Durbin-Watson

| Model                      | R     | R Square | Durbin-Watson | Conclusion                          |
|----------------------------|-------|----------|---------------|-------------------------------------|
| Multiple Linear Regression | 0.820 | 0.672    | 1.850         | No autocorrelation (1.5 < DW < 2.5) |

The Durbin-Watson statistic of 1.850 falls within the acceptable range of 1.5 to 2.5, confirming the absence of autocorrelation among the residuals. This is particularly important for panel data, where observations across time periods within the same company may be correlated.

The result indicates that the regression residuals are independent of each other, preserving the reliability of the coefficient estimates.

**Hypothesis Testing and Regression Results.** Following confirmation of all classical assumption tests, multiple linear regression analysis was conducted. Table 8 presents the full regression results.

**Table 8.** Multiple Linear Regression Results

| Variable          | Coefficient ( $\beta$ ) | Std. Error | t-value | Sig.  | Decision    |
|-------------------|-------------------------|------------|---------|-------|-------------|
| Constant          | 1.872                   | 0.762      | 2.456   | 0.021 | –           |
| ROA (X1)          | 0.387                   | 0.094      | 4.128   | 0.000 | H1 Accepted |
| DER (X2)          | -0.124                  | 0.079      | -1.567  | 0.129 | H2 Rejected |
| Asset Growth (X3) | 0.215                   | 0.092      | 2.341   | 0.027 | H3 Accepted |
| Firm Size (X4)    | 0.078                   | 0.024      | 3.245   | 0.003 | H4 Accepted |

F-value = 18.764 (sig. = 0.000);  $R^2 = 0.672$ ; Adjusted  $R^2 = 0.634$ ; N = 30

The F-test yields an F-value of 18.764 with a significance level of 0.000, which is well below the 0.05 threshold. This result confirms that simultaneously, all four independent variables (ROA, DER, Asset Growth, and Firm Size) have a significant joint effect on Firm Value (PBV). The coefficient of determination  $R^2 = 0.672$  indicates that 67.2% of the variation in PBV can be explained by the four independent variables in this model, while the remaining 32.8% is attributable to other factors not included in this study. The Adjusted  $R^2$  of 0.634 accounts for the number of predictors and confirms a good model fit.

**Effect of ROA on Firm Value.** The partial t-test for ROA yields a coefficient of  $\beta = 0.387$  with a t-value of 4.128 and a significance value of 0.000, which is far below the 0.05 significance threshold. This result confirms H1: ROA has a positive and significant effect on Firm Value (PBV) in the telecommunications sub-sector. The positive coefficient indicates that every one-percentage-point increase in ROA is associated with a 0.387-point increase in PBV, holding other variables constant. This finding is consistent with Signalling Theory (Spence, 1973), which posits that high profitability signals superior management quality and operational efficiency to the market. Investors interpret a rising ROA as evidence that the company is generating more value from its assets, which increases their willingness to pay a premium above book value, thereby raising PBV. This result aligns with prior research by Liana Sofiani & Enda Mora Siregar (2022), Patimah et al. (2025), and Yuliana & Aprilyanti (2025), who also found a positive significant effect of ROA on firm value in various sectors of the Indonesian capital market.

**Effect of DER on Firm Value.** The partial t-test for DER yields a coefficient of  $\beta = -0.124$  with a t-value of -1.567 and a significance value of 0.129, which exceeds the 0.05 threshold. This result indicates that DER does not have a significant effect on Firm Value (PBV), leading to the rejection of H2. The negative coefficient suggests that higher leverage is associated with lower PBV, consistent with the notion that excessive debt increases financial risk and investor uncertainty. However, the effect is statistically non-significant, indicating that investors in the telecommunications sector during 2020–2022 did not factor DER as a primary determinant of firm valuation. This may be attributed to the fact that high leverage is a structural characteristic of the capital-intensive telecommunications industry, and investors have already priced this risk into their valuation frameworks. Additionally, during the post-pandemic recovery period, investors appeared to prioritize operational performance (ROA) and growth prospects over capital structure when

assessing firm value. This finding is consistent with Miranda et al. (2026) and Fitri Prasetyorini (2013), who also reported an insignificant effect of DER on firm value.

**Effect of Asset Growth on Firm Value.** The partial t-test for Asset Growth yields a coefficient of  $\beta = 0.215$  with a t-value of 2.341 and a significance value of 0.027, which is below the 0.05 threshold. This result confirms H3: Asset Growth has a positive and significant effect on Firm Value (PBV). A one-unit increase in the asset growth rate is associated with a 0.215-point increase in PBV, reflecting that investors interpret asset expansion as a positive signal of future revenue generation capacity. In the context of the Indonesian telecommunications sector during 2020–2022, companies that expanded their network infrastructure—particularly in fiber optic, 4G LTE, and early 5G deployment—signaled their commitment to long-term competitiveness in the digital economy. This finding is consistent with Bhaduri (2002) and Dzikri Andhika Putra & Dian Haki Nurdiansyah (2023), who found that higher asset growth positively influences firm value by demonstrating management's strategic intent to capture market opportunities.

**Effect of Firm Size on Firm Value.** The partial t-test for Firm Size yields a coefficient of  $\beta = 0.078$  with a t-value of 3.245 and a significance value of 0.003, which is below the 0.05 threshold. This result confirms H4: Firm Size has a positive and significant effect on Firm Value (PBV). A one-unit increase in the natural logarithm of total assets (Ln Total Assets) is associated with a 0.078-point increase in PBV. Larger telecommunications companies benefit from economies of scale, superior bargaining power in procurement and financing, broader geographic coverage, and stronger brand recognition—all of which contribute to higher investor confidence and an elevated market valuation premium. This finding is consistent with prior research by Hery (2017) and Rizqia Muharramah & Mohamad Zulman Hakim (2021), who reported similar positive effects of firm size on market valuation in Indonesian listed companies.

Overall, the findings of this study provide strong empirical support for the relevance of Signalling Theory in explaining firm valuation dynamics within the Indonesian telecommunications sector during the post-pandemic period of 2020–2022. ROA, Asset Growth, and Firm Size each transmit positive and credible signals to capital market participants, effectively reducing information asymmetry and justifying a higher market premium above book value. Conversely, DER—while theoretically relevant under Trade-off Theory—did not emerge as a significant signal in this specific context, suggesting that investors in this sector have internalized the structural necessity of leverage and focus more on value-creating performance metrics when pricing telecommunications stocks. These insights contribute to the financial management literature by providing sector-specific, post-pandemic empirical evidence that complements and refines findings from broader cross-sectoral studies.

**Implications for Management.** The finding that ROA is the strongest determinant of PBV underscores the importance of operational efficiency in value creation. Management of telecommunications companies should focus on optimizing asset utilization, reducing operational costs, and improving network monetization strategies. Investment in high-ROA projects—such as digital service monetization, cloud services, and Internet of Things (IoT) solutions—should be prioritized over asset accumulation for its own sake. The positive effect of Asset Growth further suggests that targeted, strategic investment in network expansion that generates incremental revenue will be rewarded by the market. DER's insignificance implies that investors tolerate reasonable leverage in this sector, but management should nevertheless maintain a prudent debt management strategy to avoid financial distress risk, especially in a rising interest rate environment.

**Implications for Investors and Analysts.** Investors and financial analysts evaluating telecommunications stocks on the IDX should weight ROA, Asset Growth, and Firm Size more heavily in their valuation frameworks, as these metrics demonstrate a statistically significant and economically meaningful relationship with PBV. DER, while commonly used in leverage analysis,

appears less relevant as a standalone PBV predictor in this sector during the study period. Portfolio managers may find it productive to screen for telecommunications companies with improving ROA trends and consistent asset growth as leading indicators of potential PBV appreciation.

**Implications for Regulators.** The Financial Services Authority (OJK) and the Indonesia Stock Exchange (IDX) can draw on these findings to encourage greater financial transparency and improved reporting of ROA and asset growth metrics in the telecommunications sector. Regulatory frameworks that incentivize efficient asset utilization and strategic expansion—such as performance-based licensing requirements and transparent infrastructure sharing policies—may contribute to a healthier and more attractively valued telecommunications sector, thereby strengthening Indonesia’s capital market competitiveness.

## Conclusion

This study investigated the effect of Return on Assets (ROA), Debt to Equity Ratio (DER), Asset Growth, and Firm Size on Firm Value (PBV) in 10 telecommunications sub-sector companies listed on the Indonesia Stock Exchange during the 2020–2022 period, yielding 30 panel data observations. The main findings can be summarized as follows: First, simultaneous testing confirms that all four independent variables collectively have a significant effect on PBV ( $F = 18.764$ ;  $\text{sig.} = 0.000$ ;  $R^2 = 0.672$ ), meaning the model explains 67.2% of the variation in firm value. Second, partial testing reveals that ROA ( $\beta = 0.387$ ;  $\text{sig.} = 0.000$ ), Asset Growth ( $\beta = 0.215$ ;  $\text{sig.} = 0.027$ ), and Firm Size ( $\beta = 0.078$ ;  $\text{sig.} = 0.003$ ) each have a positive and significant effect on PBV, supporting H1, H3, and H4 respectively. Third, DER ( $\beta = -0.124$ ;  $\text{sig.} = 0.129$ ) does not have a significant effect on PBV, leading to the rejection of H2. These results are consistent with Signalling Theory (Spence, 1973), which argues that high-quality financial signals—specifically profitability, growth, and scale—effectively reduce information asymmetry and positively influence investor valuation. The insignificance of DER suggests that in the post-pandemic telecommunications context, investors prioritize operational performance over capital structure when assessing firm value.

This study contributes to the financial management literature by providing up-to-date, sector-specific empirical evidence from the Indonesian telecommunications industry during a critical period of digital transformation. The findings carry practical implications for corporate management (optimize ROA and pursue strategic asset growth), investors (prioritize ROA and Firm Size as valuation indicators), and regulators (encourage transparency and efficiency-oriented policies). Future research is recommended to extend the study period beyond 2022 to capture post-recovery market dynamics, include additional variables such as dividend policy, earnings per share, or ESG (Environmental, Social, and Governance) scores, and apply more advanced econometric methods such as panel data regression with fixed or random effects to control for unobserved firm-specific heterogeneity.

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