

Profitabilitas, Kerangka Kerja DuPont, dan Nilai Perusahaan: Bukti dari Sektor Properti dan Real Estat Indonesia

Profitability, DuPont Framework, and Firm Value: Evidence from Indonesia's Property and Real Estate Sector

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Abstract

This study examines whether profitability and its underlying drivers explain firm value in Indonesia's property and real estate sector. Profitability is measured using Return on Assets, while Return on Equity is decomposed through the DuPont framework into Net Profit Margin, Total Asset Turnover, and the Equity Multiplier. Firm size, sales growth, and the current ratio are included as control variables. The study uses quantitative panel data from 35 property and real estate companies listed on the Indonesia Stock Exchange during 2018–2024, resulting in 245 firm-year observations. Data obtained from LSEG Refinitiv were analyzed using panel-data regression in EViews. The Chow and Hausman tests supported the use of the Random Effects Model. The findings show that the explanatory variables do not simultaneously have a significant effect on firm value, as measured by Tobin's Q, and the model has limited explanatory power. Individually, ROA, net profit margin, firm size, and the current ratio are not significantly associated with firm value. Total Asset Turnover has a negative effect at the 10% significance level, while the Equity Multiplier has a negative effect at the 5% level. Sales growth has a positive effect at the 10% level. These results indicate that the DuPont components convey different valuation signals and that investors in this asset-intensive sector may respond more strongly to financing risk and growth prospects than to aggregate profitability measures. The study contributes to the firm-value literature by applying the DuPont framework to distinguish the operational and financing mechanisms underlying profitability. It also suggests that managers should align asset utilization and financing decisions with sustainable cash-flow and growth outcomes.

Keywords: Profitability, DuPont framework, firm value, Property and Real Estate.

Abstrak

Penelitian ini mengkaji apakah profitabilitas dan faktor-faktor penentunya dapat menjelaskan nilai perusahaan di sektor properti dan real estat Indonesia. Profitabilitas diukur menggunakan *Return on Assets* (ROA), sedangkan *Return on Equity* (ROE) diuraikan melalui kerangka kerja DuPont menjadi *Net Profit Margin*, *Total Asset Turnover*, dan *Equity Multiplier*. Ukuran perusahaan, pertumbuhan penjualan, dan rasio lancar (*current ratio*) disertakan sebagai variabel kontrol. Penelitian ini menggunakan data panel kuantitatif dari 35 perusahaan properti dan real estat yang terdaftar di Bursa Efek Indonesia selama periode 2018–2024, yang menghasilkan 245 observasi perusahaan-tahun. Data yang diperoleh dari LSEG Refinitiv dianalisis menggunakan regresi data panel pada perangkat lunak EViews. Uji Chow dan Hausman mendukung penggunaan *Random Effects Model*. Temuan menunjukkan bahwa variabel-variabel penjelas tidak berpengaruh signifikan secara simultan terhadap nilai perusahaan (yang diukur dengan Tobin's Q), dan model tersebut memiliki daya penjelas yang terbatas. Secara parsial, ROA, *net profit margin*, ukuran perusahaan, dan rasio lancar tidak memiliki hubungan yang signifikan dengan nilai perusahaan. *Total Asset Turnover* berpengaruh negatif pada tingkat signifikansi 10%, sedangkan *Equity Multiplier* berpengaruh negatif pada tingkat 5%. Pertumbuhan penjualan berpengaruh positif pada tingkat 10%. Hasil ini mengindikasikan bahwa komponen-komponen DuPont memberikan sinyal penilaian yang berbeda dan bahwa investor di sektor yang padat aset ini mungkin merespons lebih kuat terhadap risiko pendanaan dan prospek pertumbuhan dibandingkan terhadap ukuran profitabilitas agregat. Penelitian ini berkontribusi pada literatur mengenai nilai perusahaan dengan menerapkan kerangka kerja DuPont untuk membedakan mekanisme operasional dan pendanaan yang mendasari profitabilitas. Penelitian ini juga menyarankan agar manajer menyelaraskan keputusan pemanfaatan aset dan pendanaan dengan hasil arus kas dan pertumbuhan yang berkelanjutan.

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Kata kunci: Profitabilitas, kerangka kerja DuPont, nilai perusahaan, Properti dan Real Estat.

1. Introduction

Capital markets contribute to economic growth by facilitating the intermediation of funds between parties with surplus capital and those requiring financing. In investment contexts, investors are expected to make rational decisions based on relevant information to optimize returns while minimizing investment risk (Hasibuan et al., 2025; Shanmugasundaram & Balakrishnan, 2010). Investment decisions in financial markets are fundamentally shaped by market signals, risk perceptions, and investors' expectations regarding future returns (Jena et al., 2026).

Firm value is commonly regarded as a reflection of a company's success and overall performance. Investors generally interpret a high firm value as evidence of stronger market confidence in the company's prospects, which may ultimately encourage favorable investment decisions (Anwar & Mandasari, 2025; Sinta et al., 2024). Profitability is among the principal signals used by investors to assess a company's ability to create value and generate sustainable earnings. A high level of profitability is perceived as a positive signal of future prospects and may therefore strengthen investor confidence in the company's growth potential and expected investment returns (Bouchaud et al., 2019; Filatov, 2022; Novy-Marx, 2013; Ranjithkumar & Aneesh, 2021). Improved profitability also reflects the company's ability to generate earnings effectively, thereby attracting investors and enhancing market confidence (Chen & Chen, 2011; Evianti et al., 2025; Fatima et al., 2023; Oktaviani et al., 2019).

In financial analysis, profitability is commonly measured using ratios such as Return on Assets (ROA) and Return on Equity (ROE). Both are widely used indicators of a company's ability to generate earnings, although each provides a different perspective on corporate efficiency and performance. ROA evaluates the effectiveness with which a company utilizes its total assets to generate profit (Cai et al., 2019). A higher ROA indicates more efficient resource utilization and a stronger capacity to generate earnings. By contrast, ROE measures the effectiveness with which management employs shareholders' capital (Dreżewski et al., 2018). It is frequently used in investment decision-making and is considered relevant to the formation of firm value (Badruzaman et al., 2022).

The property and real estate sector provide a compelling research context because of its strategic role in the economy and its close linkages with construction, banking, building-material industries, and employment creation. Statistics Indonesia reported that the construction sector contributed 10.43% of Indonesia's gross domestic product in the fourth quarter of 2024, placing it among the country's major economic sectors (Badan Pusat Statistik, 2025). Nevertheless, property and real estate companies differ from firms in many other sectors because they require substantial investments in assets and capital, operate through relatively long project-development cycles, and face uncertainty in both sales and project completion (Coiacetto & Bryant, 2014). These characteristics make corporate performance highly dependent on management's ability to manage assets, capital, financing, and market absorption of property products.

Prior studies have generally argued that highly profitable firms are better positioned to generate earnings, strengthen investor confidence, and increase firm value in the property and real estate sector (Bintari et al., 2024; Effendy et al., 2026;

Manik & Triaryati, 2026; Putri & Triyono, 2022; Siregar et al., 2025). However, Khalifaturofi'ah and Setiawan (2025), Ulya and Sunarto (2023), and Philana and Hidayat (2023) reported contrasting evidence. This study therefore focuses on an internal corporate factor, namely the quality and underlying sources of profitability. The central premise of the study is that firm value is determined not only by the amount of profit generated but also by the mechanisms through which that profit is produced, including operating performance, asset utilization, and the firm's financing structure.

Oriskóová and Pakšiová (2018) noted that profitability ratios provide a rapid overview of a company's financial condition but are insufficient to explain financial performance comprehensively. Decomposing ROE through the DuPont framework offers a more detailed assessment of the underlying drivers of profitability. Specifically, the framework separates ROE into profit margin, total asset turnover, and the equity multiplier, allowing researchers to identify which component most strongly contributes to the company's ability to generate returns for shareholders (Bothra, 2022; Rakićević et al., 2016).

This study extends the literature by examining profitability not only through ROA and aggregate ROE but also by decomposing ROE into three core components under the DuPont framework: Net Profit Margin, Total Asset Turnover, and the Equity Multiplier. This approach is expected to provide a more comprehensive explanation of the mechanisms through which firm value is formed than is available in previous studies of Indonesia's property and real estate sector.

2. Literature Review

Signaling Theory

Signaling Theory explains how better-informed parties (insiders) communicate information to less-informed parties (outsiders) to reduce information asymmetry. In a corporate setting, management possesses more complete information about the company's financial condition and future prospects than external investors. Companies must therefore disclose credible information through financial reports so that investors can evaluate corporate quality and prospects more accurately (Spence, 1973). From the perspective of Signaling Theory, a high level of profitability indicates a stronger ability to generate future earnings and therefore constitutes a favorable signal of operating performance and growth prospects (Chen & Chen, 2011). Investors may interpret this signal as evidence of lower investment risk and superior growth opportunities, leading to a higher market valuation. Accordingly, profitability indicators such as ROA, ROE, and the DuPont components namely Net Profit Margin, Total Asset Turnover, and the Equity Multiplier serve as relevant signals in investors' assessments of a company's capacity to create value.

Profitability

Return on Assets and Return on Equity are among the most frequently used profitability ratios because they capture a company's ability to generate earnings from the resources under its control. ROA reflects management's efficiency in deploying the company's total assets to generate profit; consequently, a higher ROA indicates more effective asset utilization (Cai et al., 2019; Mishra et al., 2009). Investors, analysts, creditors, and managers commonly use ROA as an indicator of operating efficiency and asset-investment effectiveness and as a basis for comparing firms within the same

industry (Eldomiaty et al., 2023; Jena et al., 2024). ROE, in contrast, reflects management's effectiveness in utilizing shareholders' funds to generate earnings and represents the return earned on shareholders' investment (Remlein et al., 2026). It is also a central indicator in investment decision-making because it captures the company's ability to create shareholder value and is widely used in performance evaluation, capital allocation, and financial analysis (Birchler, 2017; Kira, 2014).

Although ROA and ROE are widely used as aggregate measures of profitability, they do not fully reveal the operational and financing mechanisms that generate those returns. The DuPont framework addresses this limitation by decomposing ROE into several financial components, thereby enabling a more comprehensive evaluation of the underlying drivers of profitability.

ROE under the DuPont Framework

DuPont analysis decomposes ROE into three principal components: profit margin, total asset turnover, and the equity multiplier. This decomposition enables researchers and practitioners to determine whether shareholder returns are driven primarily by profitability, asset-use efficiency, or the firm's financing structure (Bothra, 2022; Jape & Malhotra, 2023; Oriskóová & Pakšiová, 2018; Rakićević et al., 2016). The framework can help management identify operational areas requiring improvement while providing investors with more granular information for evaluating the quality and sustainability of corporate performance (Hothur & Reddy, 2022; Saus-Sala et al., 2021).

Beyond its function as an internal evaluation tool, DuPont analysis has been widely applied in empirical research across industries and countries to explain differences in corporate performance. Turner et al. (2015), for example, demonstrated that ROE decomposition provides a clearer understanding of the sources of hospital profitability in the United States by distinguishing the contributions of profit margin, asset efficiency, and leverage. Weidman et al. (2019) found that the determinants of ROE among manufacturing firms in the United States, Germany, and Japan varied according to operating characteristics and capital structures, confirming the usefulness of DuPont analysis for interfirm and cross-country comparisons. More recent studies have also extended the framework by incorporating intangible assets, liquidity, and other strategic indicators to improve its explanatory power (Bothra, 2022; Jape & Malhotra, 2023). Thus, DuPont analysis remains relevant in contemporary financial research because it provides a multidimensional explanation of the factors underlying ROE.

Previous Studies on Profitability and Firm Value

Most prior studies suggest that firms with higher profitability, as measured by ROA and ROE, tend to exhibit higher firm value because earnings are interpreted as an indicator of the company's capacity to generate future cash flows. Studies by Bintari et al. (2024), Effendy et al. (2026), Manik and Triaryati (2026), Putri and Triyono (2022), and Siregar et al. (2025) reported a positive and significant relationship between profitability and firm value among Indonesian property and real estate companies. By contrast, Khalifaturofi'ah and Setiawan (2025), Ulya and Sunarto (2023), and Philana and Hidayat (2023) found that profitability did not significantly affect firm value. Studies applying DuPont analysis further indicate that the individual components of profitability may exert different effects on firm value. Harahap et al.

(2020) found that Net Profit Margin and Total Asset Turnover positively affected firm value. Altahtamouni (2024) showed that Net Profit Margin, Asset Turnover, and the Equity Multiplier had positive and significant effects on share-price performance as a proxy for firm value. Conversely, Kumar et al. (2022) reported that the asset turnover ratio negatively affected market value added among Indian firms.

These mixed findings suggest that the valuation implications of profitability depend on industry characteristics, capital structure, and the accounting policies adopted by firms. Profitability ratios should therefore be interpreted cautiously when used for comparisons across companies or industries (Kuster et al., 2023; Remlein et al., 2026).

Control Variables

To improve model specification, this study incorporates several control variables that have been empirically associated with firm value. Prior evidence regarding firm size, sales growth, and liquidity remains inconclusive. Firm size has been found to have either a positive (Yoswandri & Lestari, 2024) or negative (Uliansyah et al., 2025) significant effect on firm value. Sales growth has also been reported to exert a positive effect (Wulandari & Sihono, 2026), while liquidity has been positively associated with firm value (Uliansyah et al., 2025). However, other studies have found no significant effect of firm size (Christianto & Rasyid, 2024; Marcella & Susanti, 2023; Rendy & Sudirgo, 2023), sales growth (Sanjaya, 2022; Solihati, 2023; Yoswandri & Lestari, 2024), or liquidity (Christianto & Rasyid, 2024; Sanjaya, 2022; Yoswandri & Lestari, 2024). These inconsistent findings support the inclusion of the three variables as controls in the empirical model.

Based on the theoretical arguments and empirical evidence discussed above, the following hypotheses are formulated:

H_a: ROA, Profit Margin, Total Asset Turnover, the Equity Multiplier, Firm Size, Growth, and the Current Ratio simultaneously affect firm value.

H₀: ROA, Profit Margin, Total Asset Turnover, the Equity Multiplier, Firm Size, Growth, and the Current Ratio do not simultaneously affect firm value.

3. Method

Research Design, Population, Sample, and Variable Operationalization

This study employs a quantitative panel-data design combining cross-sectional data from property and real estate companies listed on the Indonesia Stock Exchange (IDX) with annual time-series data from 2018 to 2024. Secondary financial data were obtained from the LSEG Refinitiv database and analyzed using EViews. The population comprised all IDX-listed property and real estate companies during the study period. The sample was selected using purposive sampling based on the following criteria: firms were required to (1) remain listed in the property and real estate sector throughout the observation period; (2) publish complete annual financial statements for each observation year; (3) not experience delisting or permanent suspension; and (4) have complete and consistent financial data available in LSEG Refinitiv. Following the screening process, 35 companies met the selection criteria, resulting in a balanced panel of 245 firm-year observations. The operational definitions and measurements of the study variables are presented in Table 1.

Table 1. Operationalization of Research Variables

Variable	Role	Measurement / Formula	Reference
Tobin's Q (TOBINS)	Dependent	$Q = (MVE + DEBT) / TA$ MVE = Market value of equity DEBT = Total debt TA = Total assets	Chung & Pruitt (1994)
Return on Assets (ROA)	Independent	ROA = Net income / Total assets	Kasmir (2019, p. 201)
Profit Margin (PM)	Independent	PM = Net income / Sales	Kasmir (2019, p. 199)
Asset Turnover (AT)	Independent	AT = Sales / Total assets	Kasmir (2019, p. 185)
Equity Multiplier (EM)	Independent	EM = Total assets / Total equity	Brigham & Houston (2019, p. 116)
Firm Size (SIZE)	Control	SIZE = Ln (Total assets)	Brigham & Houston (2019, p. 4)
Growth (GR)	Control	$GR = (Total\ sales_t - Total\ sales_{t-1}) /$ Total sales _{t-1}	Kasmir (2019, p. 107)
Current Ratio (CR)	Control	CR = Current assets / Current liabilities	Kasmir (2019, p. 135)

4. Results and Discussion

Panel-Data Model Selection

The Chow test yielded a cross-section chi-square probability of 0.0000 ($p < 0.05$), leading to the rejection of the Common Effects Model (CEM) in favor of the Fixed Effects Model (FEM). The Hausman test subsequently produced a probability value of 0.1382 ($p > 0.05$), indicating that the Random Effects Model (REM) was preferable to the FEM. Accordingly, the REM was used for hypothesis testing. Under the standard assumptions of the random-effects estimator, generalized least squares produces efficient and unbiased estimates; nevertheless, model adequacy should continue to be assessed through appropriate specification and diagnostic procedures (Gujarati, 2021).

Model Fit and Regression Results

As reported in Table 2, the R-squared value of 0.037828 indicates that ROA, Profit Margin, Asset Turnover, the Equity Multiplier, Firm Size, Growth, and the Current Ratio explain approximately 3.78% of the variation in firm value, as proxied by Tobin's Q. The remaining 96.22% is attributable to factors outside the model. The adjusted R-squared value of 0.009410 further confirms the model's limited explanatory power. The joint significance test produced an F-statistic of 1.331132 and a probability of 0.236207, indicating that the explanatory and control variables do not jointly exert a statistically significant effect on firm value. This result suggests that the market valuation of property and real estate firms may be influenced more strongly by variables not included in the model, including interest rates, macroeconomic conditions, household purchasing power, and government policy, all of which are particularly relevant to the property industry (Berawi et al., 2019; Inthalasari et al., 2025; Perdamaian & Zhai, 2024).

Table 2. Model Fit Statistics

Model Statistic	Value
R-squared	0.037828
Adjusted R-squared	0.009410
F-statistic	1.331132
Prob. (F-statistic)	0.236207

Table 3. Regression Results

Variable	Coefficient	Probability	Significance
ROA	0.340462	0.8276	
Profit Margin	-0.026534	0.4858	
Asset Turnover	-0.959682	0.0898	*
Equity Multiplier	-0.095704	0.0383	**
Size	-0.027579	0.8514	
Sales Growth	0.147372	0.0901	*
Current Ratio	-0.003415	0.8176	

Note: *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.10$.

The regression results indicate that ROA, Profit Margin, Firm Size, and the Current Ratio do not significantly affect firm value. ROA has a coefficient of 0.340462 ($p = 0.8276$), Profit Margin has a coefficient of -0.026534 ($p = 0.4858$), Size has a coefficient of -0.027579 ($p = 0.8514$), and Current Ratio has a coefficient of -0.003415 ($p = 0.8176$). The nonsignificant ROA result is consistent with Khalifaturofi'ah and Setiawan (2025), Ulya and Sunarto (2023), and Philana and Hidayat (2023), while the findings for Size and Current Ratio support those of Christiano and Rasyid (2024), Marcella and Susanti (2023), Rendy and Sudirgo (2023), Sanjaya (2022), and Yoswandri and Lestari (2024). These findings imply that aggregate profitability, firm scale, and short-term liquidity do not constitute sufficiently strong standalone signals to shape investors' valuation decisions. In the property and real estate sector, investors may place greater emphasis on project prospects, cash-flow quality, financing risk, and broader market conditions than on these financial ratios in isolation.

Asset Turnover, the Equity Multiplier, and Sales Growth, however, exhibit statistically significant relationships with firm value. Asset Turnover has a negative effect at the 10% significance level, with a coefficient of -0.959682 ($p = 0.0898$). This finding is consistent with Kumar et al. (2022) and suggests that a higher asset-turnover ratio does not necessarily increase firm value in an asset-intensive industry characterized by long development cycles. Equity Multiplier also has a negative effect at the 5% level, with a coefficient of -0.095704 ($p = 0.0383$), indicating that greater reliance on debt-based financing may be interpreted by the market as heightened

financial risk. This result underscores the role of Equity Multiplier as a financing-structure indicator within the DuPont framework (Bothra, 2022; Rakićević et al., 2016). By contrast, Growth has a positive effect at the 10% level, with a coefficient of 0.147372 ($p = 0.0901$), consistent with Wulandari and Sihono (2026). From a signaling perspective, sales growth communicates favorable information about future revenue prospects, whereas high Asset Turnover and Equity Multiplier values may be interpreted as risk-related signals in the specific context of the sampled property and real estate firms.

5. Conclusion and Recommendations

This study finds that ROA, Profit Margin, Asset Turnover, the Equity Multiplier, Firm Size, Growth, and the Current Ratio do not jointly exert a significant effect on the firm value of property and real estate companies. Accordingly, the alternative hypothesis is not supported, while the null hypothesis cannot be rejected. The model's low explanatory power indicates that firm value in this sector is influenced predominantly by factors beyond the variables examined in this study.

At the individual-variable level, ROA, Profit Margin, Firm Size, and the Current Ratio do not significantly affect firm value. Asset Turnover and the Equity Multiplier have negative effects, whereas Growth has a positive effect. These results demonstrate that the components of the DuPont framework convey different signals to investors. Market participants appear to be more sensitive to financing risk and growth prospects than to aggregate measures of profitability alone.

Corporate managers should exercise caution in designing financing structures so that increases in the Equity Multiplier do not generate excessive perceptions of financial risk. They should also ensure that improvements in asset turnover are accompanied by sustainable growth in earnings and operating cash flows.

Investors should avoid evaluating property and real estate firms solely on the basis of ROA, profit margin, firm size, or liquidity. Debt risk, operating cash flow, project quality, sales performance, interest-rate conditions, and the broader economic environment should also be incorporated into investment assessments.

Future studies should consider additional variables such as operating cash flow, capital structure, dividend policy, corporate risk, corporate governance, interest rates, and inflation. Subsequent research may also extend the observation period, employ alternative proxies for firm value, and introduce lagged explanatory variables. In addition, a Wald test may be used to examine specifically whether the DuPont components jointly affect firm value; such a test should complement rather than replace the overall F-test of the complete regression model.

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