

Analysis of the Robustness of Corporate Value Determinants Using Price-to-Book Value and Tobin's Q

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Keywords:	Abstract
firm value; profitability; capital structure; dividend policy; Covid-19 effect	This research aims to examine the effect of profitability, capital structure, dividend policy, and the Covid-19 effect on firm value, with firm size as a control variable, in property and real estate companies listed on the Indonesia Stock Exchange. This research employed a quantitative approach using panel data regression on eight companies selected through purposive sampling over the 2019–2024 period, resulting in 48 firm-year observations. Price to Book Value (PBV) is used as the primary proxy for firm value, with Tobin's Q employed as a robustness check. The results indicate that capital structure has a positive and significant effect on firm value when measured using PBV, at the 10% significance level. Firm size, as the control variable, is also negative and significant at the 10% level in both models. However, profitability, dividend policy, and the Covid-19 effect do not have a significant effect on firm value under either proxy. Capital structure also loses its significance when firm value is measured using Tobin's Q, indicating that this result is not fully consistent across proxies. This finding suggests that, within the property and real estate sector, firm value is more strongly associated with structural characteristics such as firm size rather than short-term financial ratios. This study concludes that improving firm value in the property and real estate sector cannot rely solely on financial ratio management, but must also consider structural firm characteristics and the sensitivity of results to the valuation proxy used.

INTRODUCTION

Investors place funds in companies that are able to create value in a sustainable manner. The placement of the funds is the result of an investment decision based on an evaluation of the company's fundamental performance and growth prospects (Kato, 2024; Li et al., 2023; Olayinka, 2022; Weston & Nnadi, 2023; Ye & Dela, 2023). In recent years, increasing economic uncertainty has prompted market participants to be more cautious in assessing the stability of profits, funding structures, and corporate dividend distribution policies. The evaluation forms the perception of the company's value. The company's value reflects the level of confidence investors have in management's ability to effectively manage investment decisions, funding, and dividend policies

(Ardini & Adhitya, 2022; Arhinful et al., 2024; Ningrum & Zulfanti, 2024; Purbasari, 2025; Selfiani et al., 2023; Untari, 2025).

Brigham and Houston (2022) state that a company's value is reflected in market prices that reflect the company's financial decisions. To measure these values, the financial literature usually uses market-based indicators, especially Price to Book Value (PBV) and Tobin's Q as proxy for company value. According to Brigham & Houston (2022), PBV measures the ratio between a stock's market price and the book's value of a company's equity, so that the ratio reflects investors' level of confidence in the company's value. Meanwhile, Tobin's Q measures the comparison between a company's market value and the replacement value of its assets, so that the ratio reflects market expectations to the company's growth opportunities (Tobin, 1969; Ross et al., 2023). The difference in the characteristics of the two ratios suggests that each has a different sensitivity to financial conditions.

During the period 2019 to 2024, many companies experienced fluctuations in profitability performance and made adjustments to funding structures to maintain liquidity and operational stability. Some companies are increasing debt levels to maintain the sustainability of projects, while others are adjusting dividend policies to strengthen their financial positions. These changes have the potential to affect investors' perception of the company's value. Theoretically, profitability, capital structure, and dividend policy do affect the value of the company. The signaling theory explains that a high level of profit gives a positive signal to investors regarding the company's prospects (Spence, 1973). The trade-off theory explains that the use of debt in the capital structure can increase the value of a company to an optimal level (Kraus & Litzenberger, 1973). The bird-in-the-hand theory states that a stable dividend distribution can increase investor confidence (Gordon, 1963). Although theories support the relationship, the results of previous studies show inconsistent findings.

Sugiyanto et al., (2023) found that profitability and capital structure have no effect on company value. Kulsoem and Muslihat (2024) found that profitability has a significant positive effect on the company's value, but capital structure has a significant negative effect and dividend policy has no significant effect. Juliani Putri (2023) found that profitability has a significant positive effect on company value, while dividend policy has a significant negative effect. Simanjuntak et al. (2024) found that capital structure has a significant positive effect on company value. These differences in direction and significance show that the relationship between fundamental variables and company values has not shown empirical consistency. In addition to the inconsistency of the results, most previous studies still used one proxy for a separate company value, namely PBV or Tobin's Q. The difference in the measurement characteristics of the two proxies has the potential to produce different conclusions. The use of both proxies simultaneously as a form of robustness analysis is still relatively limited. This condition shows that there is a research gap that requires more comprehensive testing.

In line with these conditions, the property and real estate sectors have asset-intensive characteristics and relatively high levels of leverage. These characteristics cause a company's financial decisions to be a sensitive factor to investor judgment. Dependence on external financing

makes capital structure and dividend policy an important factor in shaping investors' perception of the company's value. In addition, external conditions such as the Covid-19 pandemic can also affect the company's performance and investors' perception of this sector. These characteristics make this sector relevant for testing the determinants of company value. To control for differences in characteristics between companies, this study included firm size as a control variable. Companies with larger total assets generally have stronger funding capacity, higher levels of business diversification, and relatively better operational stability than smaller companies. These differences in characteristics can create variations in the company's value that do not entirely stem from profitability, capital structure, dividend policy, or external conditions. Therefore, controlling the size of the firm allows the estimation of the influence of independent variables on the value of the firm to be carried out in a more isolated manner and minimizes the potential for omitted variable bias.

The novelty of this research lies in the simultaneous use of both PBV and Tobin's Q as robustness analysis to test the consistency of empirical results, which remains relatively limited in previous studies. Harmono (2023) demonstrated that inconsistency in research results regarding the influence of various factors on firm value is more caused by different measurement models, emphasizing the need for careful interpretation based on measurement characteristics and underlying concepts. This study addresses the research gap by employing both proxies simultaneously and comparing their results, providing more comprehensive evidence on the determinants of corporate value. Based on this conceptual framework, this study aims to analyze the influence of profitability proxied by Return on Equity (ROE), capital structure proxied by Debt to Equity Ratio (DER), dividend policy proxied by Dividend Payout Ratio (DPR), and Covid-19 effect on company value proxied by PBV and Tobin's Q.

Based on this conceptual framework, this study aims to analyze the influence of Profitability proxied by Return on Equity (ROE), Capital Structure proxied by Debt to Equity Ratio (DER), Dividend Policy proxied by Dividend Payout Ratio (DPR), and Covid Effect on Company Value proxied by PBV and Tobin's Q. as a form of robustness analysis to test the consistency of empirical results. This approach is expected to provide more comprehensive evidence on the determinants of corporate value in the property and real estate sectors during the 2019–2024 period.

Based on the above background, the formulation of the problem to be identified is as follows: 1) Does Profitability Affect the Company Value of Property and Real Estate Companies listed on the Indonesia Stock Exchange for the 2019–2024 period? 2) Does Capital Structure affect the Company Value of Property and Real Estate Companies listed on the Indonesia Stock Exchange for the 2019–2024 period? 3) Does the Dividend Policy affect the Company Value of Property and Real Estate Companies listed on the Indonesia Stock Exchange for the 2019–2024 period? 4) Does the Covid Effect affect the Company Value of Property and Real Estate Companies listed on the Indonesia Stock Exchange for the 2019–2024 period?

Based on the formulation of the problem that has been described earlier, the objectives of this study are as follows: 1) To analyze the effect of Profitability on Company Value in Property and Real Estate Companies listed on the Indonesia Stock Exchange during the period 2019–2024.

2) To analyze the influence of Capital Structure on Company Value in Property and Real Estate Companies listed on the Indonesia Stock Exchange during the period 2019–2024. 3) To analyze the influence of Dividend Policy on Company Value in Property and Real Estate Companies listed on the Indonesia Stock Exchange during the period 2019–2024. 4) To analyze the effect of Covid Effects on Company Value in Property and Real Estate Companies listed on the Indonesia Stock Exchange during the period 2019–2024.

METHOD

Design and Research Approach

This study used a quantitative approach with a type of causality research. This approach is to empirically analyze the cause-and-effect relationship between independent variables (profitability, capital structure, dividend policy, and Covid effects) and dependent variables (company value). This study also included the size of the company that was proxied with the natural logarithm of total assets as a control variable. The purpose of this study is to test the influence of independent variables on dependent variables in property and real estate sector companies listed on the Indonesia Stock Exchange. The reason for choosing the property and real estate sector is because the sector has the characteristics of an asset-dense industry and a relatively high level of debt use. In addition, the property sector in Indonesia is also experiencing development dynamics influenced by economic conditions and government policies, especially in the housing sector, including Value Added Tax (VAT) incentives for home purchases after the pandemic period. These conditions affect the company's performance and investor perception of the prospects of the property sector, which is ultimately reflected in the company's stock price and value.

Research Location and Time

This research was conducted on property and real estate sector companies listed on the Indonesia Stock Exchange (IDX) located at Jalan Jendral Sudirman Kav 52-53, South Jakarta. This research is not carried out directly at the company's physical location, but through the collection and processing of secondary data obtained from the company's financial statements published through the official website of the IDX and supporting sources such as Bloomberg located at 731 Lexington Ave, New York, NY 10022, United States. The research time covers the data observation period from 2019 to 2024.

Unit of Analysis

The unit of analysis in this study is a property and real estate sector company listed on the Indonesia Stock Exchange. Each unit of analysis represents one company observed based on annual financial data during the 2019-2024 research period. The company was chosen as the unit of analysis because all research variables, namely profitability, capital structure, dividend policy, Covid effect, company size, and company value, were measured at the company level based on the financial performance of each company. Thus, the use of the company as an analysis unit is in accordance with the level of measurement of variables in this study.

Population and Research Sample

Research Population

The population in this study is all companies in the property and real estate sectors listed on the Indonesia Stock Exchange (IDX) during the 2019-2024 period as many as 93 companies. The company is an issuer engaged in property and real estate development which is listed in the property and real estate sector classification on the IDX. Population data was obtained from the official website of the Indonesia Stock Exchange. The selection of this sector is based on its capital-intensive characteristics and has a high level of leverage, making it relevant to examine the influence of profitability, capital structure, dividend policy, and the effect of Covid on the value of the company.

Research Sample

The sample in this study was determined using the purposive sampling technique, which is a sampling technique based on certain criteria that is adjusted to the research objectives. The sample criteria used in this study are as follows:

Table 1 The Process of Determining Research Samples

Yes	Description	Number of Companies
1	Property and real estate sector companies listed on the Indonesia Stock Exchange.	93
2	Companies that are not listed consistently during the 2019-2024 research period.	(11)
3	Companies that do not have complete data to calculate research variables (ROE, DER, DPR, Firm Size, PBV, and Tobin's Q).	(74)
Number of samples from companies		8
Total observe, so		8*6=48

Source: Secondary data processed, 2026

Based on the above criteria, as many as 8 companies in the property and real estate sector were obtained that met all the research criteria. Here is a list of company names:

Table 2 List of Property and Real Estate Sector Companies That Meet the Sample Criteria

Yes	Stock Code	Company Name
1	CTRA	Ciputra Development Tbk
2	DMAS	Puradelta Lestari Tbk
3	DUTY	Duta Pertiwi Tbk
4	JRPT	Jaya Real Property Tbk
5	MTLA	Metropolitan Land Tbk
6	PIONS	Copyright © 2019 Copyright © 2019 Copyright © 2
7	RDTX	Roda Vivatex Tbk
8	SMRA	Summarecon Agung Tbk

Source: Secondary data processed, 2026

Data Types and Sources

The type of data used in this study is secondary data, which is data obtained indirectly through available sources. Secondary data was chosen because this study uses financial information, namely companies that have been published and standardized. The data source in this study comes from the IDX, which provides comprehensive and consistent company financial data. The data used includes the annual financial statements of property and real estate sector companies listed on the Indonesia Stock Exchange for the period 2019–2024.

Data Collection Techniques

The data collection technique in this study is carried out through a documentation study, namely by collecting secondary data sourced from the company's financial statements. The data is obtained from Bloomberg, which provides standardized and consistent company financial data. The data collected includes annual financial information on property and real estate sector companies listed on the Indonesia Stock Exchange for the period 2019–2024. The use of a documentation study was chosen because this study did not involve respondents directly, but rather analyzed historical financial data to test the relationship between variables quantitatively.

Data Analysis Techniques

The data analysis technique in this study uses panel data regression, which is an analysis method that combines time series data and cross section. Panel data regression analysis was used to test the influence of profitability, capital structure, and dividend policy on company value by including company size as a control variable. Data processing is carried out with the help of statistical software STATA 17.

Descriptive Statistical Analysis

Descriptive statistical analysis was used to provide an overview of the characteristics of the data used in this study, both for dependent variables, independent variables, and control variables. Descriptive statistics present information in the form of mean values, maximum values, minimum values, and standard deviations of each variable studied. Average values describe the tendency of a data center, the maximum and minimum values indicate the range of data distributions, while standard deviation is used to measure the extent to which data is spread or variation against its average value. The smaller the standard deviation value produced, the more homogeneous the data studied, and conversely, the larger the standard deviation value, the more heterogeneous or varied the data will be.

Model Regresi Data Panel

The panel data regression model used in this study is formulated as follows:

Main models

$$Y1_{it} = \alpha + \beta_1 ROE_{it} + \beta_2 DER_{it} + \beta_3 DPR_{it} + \beta_4 COVID_{it} + \beta_5 SIZE_{it} + \varepsilon_{it}$$

And the second model is used as a robustness test

$$Y2_{it} = \alpha + \beta_1 ROE_{it} + \beta_2 DER_{it} + \beta_3 DPR_{it} + \beta_4 COVID_{it} + \beta_5 SIZE_{it} + \varepsilon_{it}$$

Description:

Y_1	: Price to Book Value
Y_2	: Tobin's Q
ROE	: Profitability
THE ER	: Structure Modal
DPR	: Dividend Policy
COVID	: Covid Effect (Dummy Variable)
SIZE	: Firm Size (Variable Control)
i	: Company
t	: Time Period

RESULTS AND DISCUSSION

Panel Data Regression Analysis Results – Main Model (PBV)

Estimation Model Selection

Before estimating panel data regression, the first step is to determine the most suitable model among the three available approaches, namely Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). The selection of models is carried out through the Chow Test and the Hausman Test.

Chow Test

The test results showed that the F value was calculated as 4.34 with $H_p - \text{value} = 0,0015 < \alpha = 0,05$ rejected. This means that **the Fixed Effect Model** is more appropriate to use than the Common Effect Model. These results show that each company in the property and real estate sector has different characteristics, such as operational conditions, management policies, and other company characteristics that can affect the company's value. Therefore, the Fixed Effect Model is more suitable for use because it is able to accommodate the different characteristics of each company compared to the Common Effect Model.

Hausman Test

The test results produced a chi-square value of 14.09 with $p - \text{value} = 0,0070 < \alpha = 0,05$ H_0 rejected, meaning that the most suitable estimation model used in this study is **the Fixed Effect Model**. These results show that there is an influence of the specific characteristics of each company that correlates with independent variables, so that the assumption of the Random Effect Model is not fulfilled. Therefore, the Fixed Effect Model is considered to be more able to produce consistent estimates in explaining the influence of profitability, capital structure, dividend policy, company size, and the effect of Covid on the value of the company proxied using Price to Book Value (PBV).

Referring to the stages of panel data regression model selection described by Herusetya (2025), model selection is carried out in stages through the Chow Test, Hausman Test, and Lagrange Multiplier (LM) Test. In this study, the results of the Chow Test showed that the Fixed Effect Model (FEM) was more appropriate than the Common Effect Model (CEM), then the results of the Hausman Test again showed that the Fixed Effect Model (FEM) was more appropriate than

the Random Effect Model (REM). Thus, the model selection process has resulted in a Fixed Effect Model (FEM) as the estimation model used, so the Lagrange Multiplier (LM) Test is not necessary because the test is aimed at comparing the Common Effect Model (CEM) with the Random Effect Model (REM).

Classic Assumption Test

After the most suitable panel data regression model is determined through the estimation model selection stage, the next step is to perform a classical assumption test. The classical assumption test aims to ensure that the regression model used meets the basic assumptions so that the estimated results obtained are valid, unbiased, and can be used as a basis for hypothesis testing.

Normality Test

Based on the test results, a statistical value of W was obtained of 0.97692 with $H_p - \text{value} = 0,45773 > \alpha = 0,05_0$ accepted. This means that the data is distributed normally.

The results of the normality test using the Shapiro-Wilk Test showed a statistical value of W of 0.97692 with a probability value greater than the significance level of 5% ($0.1842 > 0.05$), so H_0 was accepted. Thus, it can be concluded that the residual regression model **is normally distributed**. These results show that the regression model has met the assumption of normality.

Multicollinearity Test

The results of the multicollinearity test showed that all independent variables had a Variance Inflation Factor (VIF) value of < 10 and a tolerance value of > 0.10 . This shows that there is no high relationship between independent variables in the regression model. Thus, the regression model **does not experience symptoms of multicollinearity**, so that the estimation of the regression coefficient can be done well and the influence of each independent variable on the dependent variable can be interpreted more accurately. Therefore, the assumption of multicollinearity in the regression model has been met.

Heteroscedasticity Test

The test results resulted in a chi-square value of 358.10 with $p - \text{value} = 0,0000 < \alpha = 0,05$ H_0 rejected. This means that the regression model **experiences symptoms of heteroscedasticity**, which suggests that residual variance is not constant in each observation.

Autocorrelation Test

The test results resulted in an F value of 53.473 with , then $H_p - \text{value} = 0,0002 < \alpha = 0,05_0$ was rejected. This means that the regression model **experiences autocorrelation symptoms**, which indicates a residual correlation between observation periods.

Model Estimation and Hypothesis Test Results

Based on the results of the estimation model selection, the Fixed Effect Model (FEM) was chosen as the best model in this study. Furthermore, the results of the classical assumption test showed symptoms of heteroscedasticity and autocorrelation, so the final estimate was carried out using cluster-robust standard errors with grouping by company. This approach aims to produce a consistent standard of error so that the results of statistical tests, such as the t -test and the F -test, can be interpreted more reliably. The results of the panel data regression model estimation were then used to analyze the influence of profitability, capital structure, dividend policy, and the effect

of Covid on the value of companies proxied with PBV, by controlling the size of the company as a control variable. The results of the regression model estimation are presented in Table 4.9 below.

Table 3 Estimated Results Fixed Effect Model (Cluster-Robust Standard Errors) Model PBV

Variabel	Coefficin	Robust Std. Error	T-Statistics	p-value
Konstanta	17,5283	7,1434	2,45	0,044
Profitability (X1)	0,0013	0,0144	0,09	0,929
Capital Structure (X2)	0,0065	0,0032	2,02	0,083
Dividend Policy (X3)	0,0038	0,0039	0,98	0,360
Effects of Covid-19 (X4)	-0,1232	0,0769	-1,60	0,153
Firm Size (K)	-1,7631	0,7530	-2,34	0,052

Source: Secondary Data, processed with Stata (2026).

Based on the results of the estimation in the table above, the regression equation of panel data in this study can be written as follows:

$$PBV = 17,5283 + 0,0013X_1 + 0,0065X_2 + 0,0038X_3 - 0,1232X_4 - 1,7631K + \varepsilon$$

Description:

X₁ = Profitability (ROE)

X₂ = Structure Modal (DER)

X₃ = Dividend Policy (DPR)

X₄ = Covid Effect

K = Firm Size

Based on the regression equation above, each regression coefficient shows the direction of the relationship between the independent variable and the control variable to the company's value proxied by Price to Book Value (PBV). The interpretation of the regression coefficient is carried out assuming that the other variables are under constant conditions. The interpretation of each regression coefficient is explained as follows.

Konstanta

The constant value of 17.5283 is the baseline value of PBV predicted by the regression model before taking into account the influence of the study variables. Mathematically, the constant is the intercept point of the regression equation. However, because Firm Size is proxied with Total Assets which are empirically not worth zero, the constant in this study functions more as a model-forming parameter than describing the real condition of the company.

Profitability (X1)

The regression coefficient of the profitability variable proxied with Return on Equity (ROE) is 0.0013 with a positive direction. The positive coefficient shows that profitability has a direct relationship with the value of the company proxied using PBV. This means that the higher the company's profitability level, the company's value tends to increase. As an illustration, if the ROE increases by 1%, then PBV is predicted to increase by 0.0013 units, assuming the variables of capital structure, dividend policy, Covid-19 effect, and fixed company size.

Capital Structure (X2)

The regression coefficient of the variable capital structure proxied with the Debt to Equity Ratio (DER) is 0.0065 with a positive direction. This shows that the capital structure has a direct relationship with the value of the company that is proxied using PBV, so that the higher the company's capital structure, the more the company's value tends to increase. If the value of DER increases by 1%, then PBV is predicted to increase by 0.0065 units, assuming profitability variables, dividend policies, Covid-19 effects, and fixed company size.

Dividend Policy (X3)

The regression coefficient of the dividend policy variable proxied with the Dividend Payout Ratio (DPR) is 0.0038 with a positive direction. This shows that the dividend policy has a direct relationship with the value of the company proxied using PBV, so the higher the company's dividend policy, the more the company's value tends to increase. If the DPR increases by 1%, the PBV is predicted to increase by 0.0038 units, assuming the variables of profitability, capital structure, the effect of Covid-19, and the size of the firm is fixed.

Covid Effects (X4)

The regression coefficient of the dummy variable of the Covid-19 effect was -0.1232 with a negative direction. This shows that the period categorized as the Covid-19 period (dummy = 1) is predicted to have a lower PBV of 0.1232 units compared to the period outside the category (dummy = 0), assuming the variables of profitability, capital structure, dividend policy, and firm size are fixed.

Firm Size (K)

The regression coefficient of the Firm Size control variable is -1.7631 with a negative direction. This coefficient value shows that after the influence of profitability, capital structure, dividend policy, and the effects of Covid-19 are controlled in the model, any increase in Firm Size of 1 unit is estimated to be followed by a decrease in PBV of 1.7631 units, assuming the other variables remain. In this study, Firm Size was used as a control variable to control differences in the characteristics of firm size, so that the estimation of the influence of independent variables on company value could be obtained more accurately.

Uji Goodness of Fit

The Goodness of Fit test was conducted to evaluate the feasibility of the regression model in explaining the relationship between independent variables to the company's value. This test aims to find out whether the model used is in accordance (fit) with the research data so that it is suitable for hypothesis testing. In this study, the evaluation of Goodness of Fit was carried out through simultaneous tests (F Test) and determination coefficients (Within R^2). A statistical summary of the Fixed Effect Model (FEM) estimation results with cluster-robust standard errors is presented in Table 4.

Table 4 Statistical Summary of FEM Regression Models for PBV

Statistics Model	Value
Number of observations	48
Number of groups	8

F-Statistic	30,08
Prob > F	0,0001
Within R2	0,3700

Source: Secondary Data, processed with Stata (2026).

Simultaneous Test (F Test)

Based on Table 4.10, an F-statistic value of 30.08 was obtained with a p-value = 0.0001 smaller than the significance level of 5%, so that **H₀ was rejected**. This shows that all variables in the model, namely profitability, capital structure, dividend policy, Covid-19 effect, and company size as control variables, simultaneously affect the value of the company proxied using Price to Book Value. Thus, the regression model used was declared to be good fit to explain the relationship between variables in this study.

Coefficient of Determination (R2)

Based on Table 4.10, the Within R² value of 0.3700 or 37% was obtained. This shows that the variation in the value of the company proxied using PBV can be explained by the variables of profitability, capital structure, dividend policy, Covid-19 effect, and company size as control variables of 37%. Meanwhile, the remaining 63% were influenced by factors other than the research model that were not included in the regression equation.

Hypothesis Test (t-Test)

Hypothesis testing was carried out to determine the influence of each independent variable on the company's value partially using the t-test based on probability values. In this study, the main significance level used was **5%**. In addition, this study also considered the significance level of **10%** as an additional level of significance. The use of 5% and 10% significance levels is a common practice in econometric analysis as described by Gujarati (2023).

The Effect of Profitability on Company Value (PBV)

The Profitability variable proxied with Return on Equity (ROE) has a p-value of 0.929, which is greater than the significance level of 5% or 10%. Thus, H₀ is accepted, so profitability does not have a significant effect on the value of the company proxied using PBV.

The Influence of Capital Structure on Company Value (PBV)

The Capital Structure variable proxied by the Debt to Equity Ratio (DER) has a p-value of 0.083. This value is greater than the 5% significance level, but smaller than the 10% significance level. Thus, H₀ is accepted at a significance level of 5%, and rejected at a significance level of 10%, so that the **capital structure does not** have a significant effect at the level of 5%, but has a marginally significant effect at the level of 10% on the value of the company proxied using PBV.

The Effect of Dividend Policy on Company Value (PBV)

The Dividend Policy variable proxied by the Dividend Payout Ratio (DPR) has a p-value of 0.360, which is greater than the significance level of 5% or 10%. Thus, H₀ is accepted. This means that the dividend policy does not have a significant effect on the value of the company that is proxied using PBV.

The Effect of Covid on Company Value (PBV)

The Covid-19 Effect variable proxied using the dummy variable had a p-value of 0.153, greater than the significance level of 5% or 10%. Thus, **H0 is accepted**. This means that the Covid-19 effect does not have a significant effect on the value of companies proxied using PBV.

Robustness Test – Alternative Model (Tobin's Q)

To test the robustness of the research results, all stages of analysis in Subchapter 4.3 were repeated by changing the dependent variable from PBV to Tobin's Q, while the independent variable and the control variable remained identical.

Estimation Model Selection

Before estimating the regression of the panel data using Tobin's Q as a proxy for the company's value, the most suitable estimation model was first selected. The selection of the model aims to determine an estimation approach that is able to produce consistent and efficient coefficient estimation according to the characteristics of the research data.

Chow Test

Based on the test results, an F value of 2.55 was obtained, with $p - \text{value} = 0,0315 < \alpha = 0,05$ H0 rejected. This means that **the Fixed Effect Model** is more appropriate to use than the Common Effect Model.

Hausman Test

After the results of the Chow Test showed that the Fixed Effect Model (FEM) was more suitable than the Common Effect Model (CEM), the test continued with the Hausman Test to determine the most appropriate estimation model between the Fixed Effect Model (FEM) and the Random Effect Model (REM) in the robustness analysis using Tobin's Q.

The results of statistical testing obtained a chi-square value of 10.89 with $p - \text{value} = 0,0278 < \alpha = 0,05$ H0 rejected, meaning that **the Fixed Effect Model (FEM)** was chosen as the most suitable estimation model compared to the Random Effect Model (REM). These results show that differences in characteristics between firms still need to be accommodated through individual effects (fixed effects) even though the firm's value is proxied using Tobin's Q.

Based on the results of the Chow Test and the Hausman Test, **the Fixed Effect Model (FEM)** was again selected as the most suitable estimation model in robustness analysis using Tobin's Q. Therefore, the test was not continued to the Lagrange Multiplier (LM) Test, because the test was only carried out if the results of the Chow Test chose the Common Effect Model (CEM) or when the selection between Common Effects was required Random Effect Model (CEM) and Random Effect Model (REM).

Classic Assumption Test

Once the estimation model is established, the classical assumption test is again performed on the model that uses Tobin's Q as a proxy for the company's values to ensure that the estimated results on the robustness test meet the assumptions. The results of the test are presented in the following discussion.

Normality Test

Based on the test results, a statistical value of W was obtained of 0.95852 with $H_p - \text{value} = 0,08795 > \alpha = 0,05_0$ accepted. This means that the data is distributed normally.

Multicollinearity Test

The results of the VIF value for all variables, namely Profitability (X1), Capital Structure (X2), Dividend Policy (X3), Covid Effect (X4), and Firm Size (K) are < 10 and the tolerance value is > 0.10 . It can therefore be concluded that the model is declared free from the problem of multicollinearity.

Heteroscedasticity Test

The test results resulted in a chi-square value of 5,381.24 with $p - \text{value} = 0,0000 < \alpha = 0,05_0$ H_0 rejected. This means that there is a very strong indication of heteroscedasticity in the model.

Autocorrelation Test

The test results resulted in an F value of 90.042 with , then $H_p - \text{value} = 0,0000 < \alpha = 0,05_0$ was rejected. This means that there is a very strong indication of autocorrelation in the model. Therefore, cluster-robust standard error is again used in the final estimate of this model.

Model Estimation and Hypothesis Test Results

The regression equation of panel data in robustness analysis using Tobin's Q as a proxy for the company's value can be written as follows:

$$PBV = 9,8085 + 0,0075X_1 + 0,0008X_2 + 0,0030X_3 - 0,0660X_4 - 0,9453K + \varepsilon$$

Description:

X_1 = Profitability (ROE)

X_2 = Structure Modal (DER)

X_3 = Dividend Policy (DPR)

X_4 = Covid Effect

K = Company Size

Based on the regression equation above, each regression coefficient shows the direction of the relationship between the independent variable and the control variable to the value of the company proxied with Tobin's Q. Interpretation of the regression coefficient is carried out assuming that the other variable is under a constant condition. The interpretation of each regression coefficient is explained as follows.

Constant

The constant value of 9.8085 is the base value of Tobin's Q predicted by the regression model before taking into account the influence of the study variables. Mathematically, the constant is the cut-off point of the regression equation. However, because Firm Size is proxied with Total Assets which are empirically not worth zero, the constant in this study functions more as a model-forming parameter than describing the real condition of the company.

Profitability (X1)

The regression coefficient of the profitability variable is 0.0075 with a positive direction. This suggests that any 1% increase in ROE is expected to increase Tobin's Q by 0.0075, assuming other variables remain. The direction of this coefficient indicates that an increase in profitability

is likely to be followed by an increase in the value of the company. However, the effect was **not** statistically significant, as would be explained in hypothesis testing.

Capital Structure (X2)

The regression coefficient of the modal structure variable is 0.0008 with a positive direction. This suggests that any increase in DER of 1% is estimated to increase Tobin's Q by 0.0008, assuming other variables are fixed. The direction of this positive relationship indicates that an increase in the capital structure is likely to be followed by an increase in the value of the company. However, the effect is **not statistically significant**.

Dividend Policy (X3)

The regression coefficient of the dividend policy variable is 0.0030 with a positive direction. This suggests that any 1% increase in the House of Representatives is expected to increase Tobin's Q by 0.0030, assuming other variables remain. The direction of the positive relationship indicates that an increase in dividend policy is likely to be followed by an increase in the company's value. However, this effect is **not statistically significant**.

Covid Effects (X4)

The regression coefficient of the Covid-19 effect variable is -0.0660 . This negative coefficient shows that companies in the Covid-19 pandemic period tend to have a lower Tobin's Q of 0.0660 compared to the non-pandemic period, assuming other variables remain the same. However, the effect is **not statistically significant**.

Firm Size

The regression coefficient of the firm size control variable was -0.9453 with a negative direction. This coefficient value shows that after the influence of profitability, capital structure, dividend policy, and the effects of Covid-19 are controlled in the model, any increase in Firm Size of 1 unit is estimated to be followed by a decrease in Tobin's Q of 0.9453 units, assuming the rest of the variables remain. In this study, Firm Size was used as a control variable to control differences in the characteristics of firm size, so that the estimation of the influence of independent variables on company value could be obtained more accurately.

Goodness of Fit Test

After obtaining the results of the regression model estimation using Tobin's Q as a proxy for the company's value, the Goodness of Fit test was then carried out. This test aims to evaluate the suitability of the model in explaining the relationship between independent variables and company values. As in the main analysis, the Goodness of Fit in this study was evaluated through Simultaneous Test (F Test) and Coefficient of Determination (R^2). The test results are presented in Table 5.

Table 5 Statistical Summary of FEM Regression Models for Tobin's Q

Statistics Model	Value
Number of observations	48
Number of groups	8
F-Statistic	23,24
Prob > F	0,0003

Source: Secondary Data, processed with Stata (2026).

Simultaneous Test (F Test)

Based on the table above, an F-statistic value of 23.24 with a p-value of 0.0003 was obtained. The probability value is less than the significance level of 5%, so **H₀ is subtracted**. These results show that the variables of profitability, capital structure, dividend policy, Covid-19 effect, and firm size control variables simultaneously affect the value of the company proxied using Tobin's Q. Thus, the regression model used is feasible to explain the relationship between variables in this study.

Coefficient of Determination (R2)

Based on Table 5, the R-squared (Within) value of 0.2359 was obtained. This value shows that 23.59% of the variation in company value proxied using Tobin's Q can be explained by the variables of profitability, capital structure, dividend policy, Covid-19 effect, and firm size control variables in the research model. Meanwhile, 76.41% of the variation in the company's value was explained by factors other than the research model that were not analyzed in this study.

Hypothesis Test (t-Test)

The hypothesis test was re-performed for the Tobin's Q model. In addition, this study also considers the significance level of **10%** as an additional level of significance as described by Gujarati (2023).

The Effect of Profitability on Company Value (Tobin's Q)

Based on the results of the regression estimate, the profitability variable has a coefficient value of 0.0075 with a positive direction and a p-value of 0.164. This value is greater than the significance level of 5% or 10%, so **H₀ is accepted**. Thus, profitability **has no significant effect** on the value of the company proxied using Tobin's Q.

The Influence of Capital Structure on Company Value (Tobin's Q)

The modal structure variable has a coefficient of 0.0008 with a positive direction and a p-value of 0.759. This value is greater than the significance level of 5% or 10%, so **H₀ is accepted**. Thus, the capital structure **does not have a significant effect** on the value of the company proxied using Tobin's Q.

The Effect of Dividend Policy on Company Value (Tobin's Q)

The dividend policy variable has a coefficient of 0.0030 with a positive direction and a p-value of 0.334. This value is greater than the significance level of 5% or 10%, so **H₀ is accepted**. Thus, the dividend policy **has no significant effect** on the value of the company proxied using Tobin's Q.

The Effect of Covid on Company Value (Tobin's Q)

The Covid-19 Effect variable has a coefficient of -0.0660 with a negative direction and a p-value of 0.295. This value is greater than the significance level of 5% or 10%, so **H₀ is accepted**. Thus, the Covid-19 effect **does not have a significant effect** on the value of the company proxied using Tobin's Q.

Comparison of the Results of the Two Models

To see the extent to which the results of this study are consistent regardless of the proxy value of the company used, a summary of the direction, significance, and consistency of the

estimation results of the two models is presented in the following Table 4.18 (the full output of the comparison of coefficients is available in Appendix 3).

Table 6 Summary of the Direction, Significance, and Consistency of PBV vs Tobin's Q Test Results

Variabel	Directions	PBV (p)	Tobin's Q (p)	Significance	Directional Consistency
Profitability (X1)	(+)	0,929	0,164	Insignificant	Yes
Capital Structure (X2)	(+)	0,083	0,759	Signifikan (PBV)	Yes
Dividend Policy (X3)	(+)	0,360	0,334	Insignificant	Yes
Effects of Covid-19 (X4)	(-)	0,153	0,295	Insignificant	Yes
Firm Size (K)	(-)	0,052	0,093	Signifikan	Ya

Source: Secondary Data, processed with Stata (2026).

Discussion of Test Results

This section discusses the results of hypothesis testing on each independent variable in more depth, associated with relevant theories and business logic, with reference to the cluster-robust standard error results as the final model.

The Effect of Profitability on Company Value

Profitability has not been shown to have a significant effect on the company's value in both proxies, so the first hypothesis is not supported. These findings are less in line with Signaling Theory, which states that high profitability should give a positive signal to the market and increase valuations. One possible explanation is the characteristics of the property sector, where the value of the company tends to be more influenced by the value of assets and the prospects of ongoing projects than the profits recorded in one accounting period. These insignificant findings are consistent with Daryanto's (2022) research on the property and real estate sectors which also found that profitability (ROA) does not have a significant effect on company value, and is in line with Christian Matthew (2025) and Sugiyanto et al. (2023) who each show that profitability (ROE) does not have a significant effect on PBV. The similarity of the results with the study using property sector objects strengthens the suspicion that the weak influence of profitability on company value in this study is sector-specific, not just a coincidence that emerges from the data of this study alone.

The Influence of Capital Structure on Company Value

The capital structure showed a different result between the two proxies: a significant positive effect on PBV at the level of 10% (p-value = 0.083), but not significantly on Tobin's Q (p-value = 0.759). Because these results are inconsistent between proxies, the second hypothesis is only weakly and conditionally supported on one proxy only. This inconsistency shows that the support for the Trade-off Theory in this study is still fragile and sensitive to the size of the company's value used. This pattern of inconsistency is in line with Nikonov and Setyawan (2025), who also used PBV and Tobin's Q proxies simultaneously and found that capital structure (DER) had a significant effect on the PBV model but not significantly on Tobin's Q model. The similarity of patterns in the study that also compared two proxies of company value shows that the sensitivity of the results of the capital structure to the selection of proxies is not just a coincidence that only occurs in this study, but a pattern that is also found in other studies.

The Effect of Dividend Policy on Company Value

The dividend policy was not shown to have a significant effect on the company's value in both proxies (p-value = 0.360 for PBV and p-value = 0.334 for Tobin's Q), so the third hypothesis is not supported. These results show that support for the Bird-in-the-Hand Theory is not yet strong enough to conclude definitively. Nevertheless, the consistency of the positive coefficient direction in both proxies gives an early indication that a tendency for a positive relationship between dividend policy and corporate value may exist, although it is not yet statistically strong enough to be proven. This insignificant finding is in line with Bima Erlangga et al. (2025), who also used Tobin's Q and PBV proxies and conducted a robustness test with a Driscoll-Kraay correction and found that the dividend payout ratio had no significant effect, similar to Bon and Hartoko (2022) who found that the dividend policy had no significant effect on the company's value. On the other hand, the consistent direction of the positive coefficient in this study is in line with the positive significant findings in Andani (2023) and Kusumawati et al. (2021), which indicate that the trend towards the positive relationship between dividend policy and company value is quite common in the literature, although its significance varies depending on the method and context of the study.

The Effect of Covid-19 on Company Value

The effect of Covid-19 was not shown to have a significant effect on the company value in both proxies (p-value = 0.153 for PBV and p-value = 0.295 for Tobin's Q), so the fourth hypothesis was rejected, even though the coefficient direction was consistently negative in both models. This negative direction is in line with the general expectation that the pandemic will put pressure on the valuation of property sector companies, in line with Daryanto (2022) in the same sector. This insignificant finding is also consistent with Revinka (2021), who found that out of eleven sectors on the Indonesia Stock Exchange, the property and real estate sector is actually one of the three sectors whose company value has not been proven to be negatively affected by the Covid-19 pandemic. A similar pattern was also found in an international study by Allan et al. (2021) in the Asia-Pacific region, which showed that although commercial property rental rates had dropped significantly at the beginning of the pandemic, the capital value of these properties in general was not significantly affected by the Covid-19 pandemic.

Summary of the Discussion

In addition to these four independent variables, the estimation results also showed that Firm Size as a control variable had a negative and consistently significant coefficient at the level of 10% in both models (p-value = 0.052 for PBV and p-value = 0.093 for Tobin's Q). This significance shows that company size is indeed related to the value of the company in the property and real estate sectors, so its placement as a control variable in this model is appropriate to prevent differences in the size of assets between companies from obscuring the influence of the four main independent variables. This negative direction is consistent with Ng and Yanti (2023), who also placed firm size as a control variable and found a significant negative influence, and Afiyah Alimah Salsabila and Imronudin (2025), who found firm size to have a significant negative effect on Tobin's Q in both the consumer cyclical and non-cyclical sectors, and Nikonov and Setyawan

(2025), who used PBV and Tobin's Q proxies simultaneously and found similar results in Tobin's Q model.

Overall, although the PBV and Tobin's Q models were both proven to be feasible simultaneously, the four main hypotheses of this study (H1 to H4) have not been consistently and convincingly supported at a significance level of 5% in both proxies of enterprise value. The Firm Size control variable was the only significant consistent variable (at the level of 10%) in both models. In terms of the clear power of the model, the R² (Within) value also shows the difference between the two proxies, which is 37.00% in the PBV model and 23.59% in the Tobin's Q model, which indicates that this study model is overall better able to explain the PBV variation than the Tobin's Q variation in this study sample. Thus, although both proxies are equally valid to use and produce consistent directions of influence, PBV is relatively more appropriate to capture variations in company values in the property and real estate sectors in this study.

CONCLUSION

Based on the results of the study, it can be concluded that the panel data regression model with the Fixed Effect Model approach is the most appropriate model in explaining the factors that affect the value of property and real estate sector companies listed on the Indonesia Stock Exchange for the 2019–2024 period, both with the Price to Book Value (PBV) proxy and Tobin's Q. The test results showed that profitability (ROE), dividend policy (DPR), and the effect of Covid-19 did not have a significant effect on the company's value, while the capital structure (DER) only showed a marginal positive influence on the PBV model with a significance level of 10% and was inconsistent with Tobin's Q proxies. So that the results of the research can be said to be quite robust in terms of model feasibility and the direction of variable relationships. These findings indicate that the increase in corporate value in the property and real estate sectors is not only determined by short-term financial indicators, but also influenced by the company's structural factors, such as company size, quality of governance, transparency of information, and long-term project prospects. Therefore, companies need to develop a more comprehensive value-enhancing strategy, investors need to consider various aspects other than financial ratios, and further research is suggested to expand the number of samples, observation periods, and add other variables that are better able to explain the variation in the company's value.

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