

## Capital Structure as a Mediating Factor in the Profitability and Firm Value Connection

Akhmadi<sup>(⊠)</sup> <sup>(D)</sup>, Enok Nurhayati <sup>(D)</sup>, and Muhamad Miftahul Rahman

Universitas Sultan Ageng Tirtayasa, Serang, Indonesia akhmadi@untirta.ac.id

**Abstract.** As an intervening variable of coloration profitability, this study aims to ascertain the impact of capital structure on firm value. The research sample is. 15 corporations from 20 state-owned businesses listed on the Indonesia Stock Exchange (IDX) between 2010 and 2018 made up the research sample. The number of research samples is determined using the purposive sampling technique. The analytic data techniques used were descriptive statistics, the classic assumption test, the partial hypothesis test, and the intervening test. The study's findings demonstrate that the price-to-book value increases as the return on equity increases. The debt-to-equity ratio decreases as the return on equity increases. The debt-to-equity ratio negatively and negligibly impacts price-to-book value. The debt-equity ratio does not mediate the relationship between return on equity and price-to-book value.

Keywords: PBV · ROE · DER

## 1 Introduction

The corporation's mission today is changing from profit maximization (profit maximization), which was the original objective, to creating value for the company (value creation). According to [1] value creation is a goal that is influenced by the company's social benefits as well as its economic performance. State-Owned Enterprises (BUMN) are business entities whose shares are primarily owned by the government, and are one of the numerous business models currently emerging in Indonesia. State-Owned Enterprises, or BUMN, are business entities whose entire or major portion of capital is owned by the state through direct statements deriving from segregated state assets, in accordance with Law of the Republic of Indonesia No. 19 of 2003. In order to realize the welfare of the community, the national economy must be implemented through state-owned companies. Plantations, agriculture, fishing, transportation, trade, telecommunications, energy, construction, finance, and other sectors are some of the industries serviced by SOEs.



**Fig. 1.** Price to Book Value (PBV) chart for state-owned businesses listed on the Indonesia Stock Exchange for the years 2010–2018 (Processed by the authors).

From 2015 to 2018, SOE contributions to the APBN increased steadily. The SOEs' contribution to the APBN in 2015 was Rp. 202.6 trillion, a rise to Rp in 2016, 204.1 trillion, and then it grew to Rp in 2017, 223.9 trillion, and it climbed to Rp 257.1 trillion in 2018 as a result of Rp 45.1 trillion in dividend payments and Rp 212 trillion in SOE taxes (www.ekonomi.bisnis.com). However, BUMN shares tended to increase more slowly throughout 2015, which was consistent with the slowdown in the execution of government projects. This is demonstrated by the fact that five state-owned businesses that have lost the most money are PT. Gas Negara Perusahaan (Persero) Tbk. PT (PGAS). Mandiri Bank (Persero) Tbk PT (BMRI). (Persero) Semen Gresik Tbk PT (SMGR). BNI (Persero) Tbk, or Bank Negara Indonesia PT, BBNI, and. BTK Bukit Asam (Persero). (PTBA) (www.finance.yahoo.com) (www.finance.yahoo.com). According to Bloomberg data, the value of PTBA shares plummeted the most in 2015, by 63.12%, followed by PGAS's 54.74% decline, SMGR's 31.17% decline, BBNI's 18.03% decline, and BMRI's 15.55% decline (www.investasi.kontan.co.id). State-owned corporations' value will undoubtedly decrease as a result of the drop in the value of their stock.

According to price to book value (PBV), the value of BUMN enterprises changed as follows between 2010 and 2018 (Fig. 1).

When looking at the graph, the average PBV of SOEs has been fluctuating, with 2010 serving as the basis year for comparison in the year after. Every year between 2010 and 2014 had ups and downs for the average PBV value, but from 2010 to 2014, there was an increase of 7.31%. In 2014, the average PBV value increased significantly, from 34.41% to 3.69 points. 43.36%, which started at 3.69 points in 2014 and fell to 2.09 points in 2015, represented a considerable decline. The average PBV, however, rose by 25.35% to 2.62 points in 2016. In addition, there was a decline in the years that followed, 18.32% in 2017 and 7.94% in 2018. The average PBV of SOEs listed on the IDX had a PBV ratio above 1 during the observation period. PBV ratios above one are typically found in successful companies and show that the stock's market value outweighs its book value (overvalued).

Numerous factors, including the company's external and internal issues, might affect the change in the price to book value. According to [2], rising profitability will result in more shares becoming outstanding, raising the value of the business. According to [3] an increase in a company's profitability will be followed by an increase in its value because investors will respond favorably to the company's strong ability to make profits by investing their capital. According to various research findings, [4] claims that a company's profitability has no bearing on its market value. This is because the company's profits are unstable from year to year and have a tendency to fluctuate, so investors are unsure of the outcomes the company will achieve in the future.

As previously said, the difference between profitability and firm value is estimated since other variables influence how the two variables relate to one another. The capital structure is a factor that is assumed to affect the two variables, according to several publications. According to studies by [5–8], capital structure can act as a mediator between profitability and firm value.

Profitability and firm worth cannot be directly associated, according to the search for some of the pertinent references. Capital structure has the ability to act as a mediator in the link between the two factors. By considering these diverse causes and using capital structure as an intermediary variable, the research aims to examine the relationship between profitability and business value. The discrepancy between profitability and firm value is a topic of this study. Therefore, the purpose of this study is to clarify the direct and indirect relationships between profitability and business value.

## 2 Literature Review

#### 2.1 Agency Theory

The interests of shareholders in corporations, as expressed in the valuation of the equity in companies, are typically the main focus of the application of agency theory in corporate governance. Let's say that stock price movements can benefit managers. Then, when both positive and negative news is announced to the market, managers are motivated to characterize the company's performance or to take advantage of the situation. This has the potential to deceive outside parties (investors) about the company's value on numerous occasions in a way that benefits managers, [9].

#### 2.2 Signalling Theory

A signal, as defined by [10], is a step taken by a firm to inform investors of how management perceives the company's prospects. Information asymmetry between business management and those interested in the information is demonstrated by signal theory. This signal takes the form of details regarding the steps taken by the administration to carry out the owner's requests. Hartono (2017) asserts that data released as an announcement will serve as a signal for investors to make investment decisions.

#### 2.3 Firm Value

Reference [11], who claim that firm value is an investor's estimation of a firm's level of performance, which is frequently connected to stock prices. Reference [12], stated the same thing, stating that firm value is an investor's evaluation of the company's performance and success, which is represented in the stock price in the market. The valuation of the company as determined by the market's stock price indication will reveal the presence of promising investment prospects. From the many definitions of firm value presented above, it can be inferred that firm value reflects corporate governance as a metric of business success that can draw investors and seeks to optimize both company wealth and shareholder wealth.

## 2.4 Profitability

According to [2], a number of policies and choices contribute to profitability. The definitive response to how successfully the company has been managed is given by profitability ratios. Furthermore, [13], uses profitability as a ratio to illustrate how profitable a business is. The profitability ratio used by [14], on the other hand, is a ratio that evaluates management effectiveness overall and takes into account both investment and sales profit levels. The more accurately the profitability ratio captures a company's capacity for large profits, the better. Based on the opinions of the experts mentioned above, it can be deduced that profitability is the ability of the business to make money from both sales and investments, which describes the final determination of how successfully the business has been managed and whose benefits will be felt by the business' internal parties or external parties.

## 2.5 Capital Structure

The capital structure described by [15], can be seen as a balance between the usage of loan capital made up of short-term debt, long-term debt, and own capital. The company's capital structure, according to [16], is permanent financing made up of preferred stock, long-term debt, and shareholder capital. According to [17], a company's capital structure depicts the many financial sources that it uses to fund all of its operations and business expansion. The company's capital structure will be optimal thanks to the combination of strong sources of funding. According to [18], the capital structure is the distribution of funds used to establish a business or business within a corporation. These funds may come from long-term or short-term loans, foreign capital or own capital, and other reserves.

## 2.6 The Effect of Profitability on Firm Value

Theoretically, signaling theory constructs the link between profitability and business value. Reference [19], asserts that the signaling theory holds that businesses with high levels of profitability will send out a good signal to investors, piqueing their interest in purchasing shares. The stock price will be impacted by the increased share demand, which will also raise the company's value. According to [20, 21], profitability is thought to be able to provide assurance of a company's future prospects. The public places a high value on the company since it can provide reliable expectations of future value. According to [22], businesses that can steadily improve their earnings will be viewed by investors as a sign of strength, which will raise the value of the company. On the basis of the justification for earlier research, research hypothesis 1 might be stated as follows:

H1: The firm value increases with profitability.

## 2.7 The Effect of Profitability on Capital Structure

According to [24], businesses with high levels of profitability will use debt more frequently since lenders like banks and creditors have more faith in these businesses. Reference [23], empirical research linking the debt-to-equity ratio and return on equity. The findings demonstrate that the debt-to-equity ratio is positively and significantly impacted by return on equity. Additionally, studies by [24–30], were conducted that are pertinent to the findings of the research. Overall, the findings demonstrate that the debt-to-equity ratio is considerably impacted by the return on equity, which is positive. On the basis of the justification for earlier research, research hypothesis 2 might be stated as follows:

H2: The capital structure is better the higher the profitability.

#### 2.8 The Effect of Capital Structure on Firm Value

Debt use can save taxes and agency costs, improving corporate value and increasing efficiency [31]. Debt to equity ratio and price-to-book value have a positive and significant link, according to empirical research by [32]. Another empirical study by [33], supports the idea that any extra debt will raise the price to book value if the debt-to-equity ratio is below the ideal level. In accordance with the findings of the aforementioned research, additional studies by [34–41], have also been conducted. These studies show that capital structure influences business value in a way that increases it. On the basis of the justification for earlier research, research hypothesis 3 can be constructed, and is as follows:

H3: The greater the capital structure, the greater the rise in firm value.

# 2.9 Profitability and Firm Value Relationship: The Impact of Capital Structure Mediation

Reference [23], the findings demonstrate that the debt-to-equity ratio is positively and significantly impacted by return on equity. Other investigations by [27–30], that are pertinent to the findings of the research above have also been conducted. The findings typically demonstrate that the debt-to-equity ratio is considerably impacted by the return on equity, which is positive. Debt to equity ratio and price-to-book value have a positive and significant link, according to [38–41], conducted further research that are pertinent to the survey's findings and demonstrate the capital structure's sizable positive impact. In terms of the company's value. On the basis of the justification for earlier research, research hypothesis 4 may be created, and it is as follows:

H4: The relationship between profitability and firm value is mediated by capital structure.

## 3 Data and Metodologi

## 3.1 Population and Sample

All state-owned businesses that were concurrently listed on the Indonesia Stock Exchange from December 31, 2010, to December 31, 2018, a total of 20 businesses, comprise the population in this study. 15 state-owned businesses that were listed on the Indonesia Stock Exchange between 2010 and 2018 made up the sample for this study. Purposive sampling was used to determine the number of samples.

## 3.2 Variable Measurement

Price to Book Value (PBV), which is the ratio between the market price per share and book value per share, serves as a stand-in for firm value, the dependent variable, in this study [42]. Return on Equity (ROE), the percentage of total equity to net income, is used as a stand-in for profitability [43]. While the debt-to-equity ratio, which compares total debt and own capital, serves as a proxy for the capital structure as an intervening variable [43].

## 3.3 Data Analysis

## 3.3.1 Classic Assumption Test

The purpose of the traditional assumption test is to evaluate the viability of the regression model utilized in this investigation. According to [44], the traditional assumption tests utilized are the normality test, multicollinearity test, heteroscedasticity test, autocorrelation test, and linearity test.

## Equation for Regression

The mathematical equation for the relationship between profitability and the impact of excellent corporate governance on business value is as follows:

$$PBV = \beta 0 + \beta 1 ROE + e^1$$
(1)

$$ROE = \beta 0 + \beta 2 DER + e^2$$
<sup>(2)</sup>

$$PBV = \beta 0 + \beta 1 ROE + \beta 2 DER + e^3$$
(3)

where  $\beta 0$  is a constant,  $\beta 1$  and  $\beta 2$  are the ROE and DER coefficients, respectively. e2 is a phrase of error at the same time. The term of error can be calculated using this formula:  $e = e = \sqrt{(1 - R^2)}$ . If Eqs. 1 and 2 have a considerable impact, the model is considered to be mediate.

## 3.3.2 Partial Test

The t-test (partial test) evaluates the contribution of each independent or explanatory variable to the variance of the dependent variable [46]. The significance level for the test is set at 0.05. Using df = n - k and the t-table value for the 5% alpha level (0.05), the t-count results are then compared.

## 4 Result and Discussion

## 4.1 Classic Assumption Test

## 4.1.1 Normality Test

The initial observation data for this study totaled 135 (N = 135); after the data transformation, the observation data was decreased because there were negative values, to 128

| One-Sample Kolmog         | orov-Smirnov Test | Model 1     | Model 2            | Model 3              |                    |
|---------------------------|-------------------|-------------|--------------------|----------------------|--------------------|
| N                         | 126               | 126         | 126                |                      |                    |
| Normal                    | Mean              |             | 0.000              | 0.000                | 0.000              |
| Parameters <sup>a,b</sup> | Std. Deviation    | 0.190       | 0.193              | 0.472                |                    |
| Most Extreme              | Absolute          | 0.076       | 0.046              | 0.119                |                    |
| Differences               | Positive          | 0.076       | 0.046              | 0.111                |                    |
|                           | Negative          | -0.052      | -0.041             | -0.119               |                    |
| Test Statistic            |                   |             | 0.076              | 0.046                | 0.119              |
| Asymp. Sig. (2-tailed     | l)                |             | 0.072 <sup>c</sup> | 0.200 <sup>c,e</sup> | 0.000 <sup>c</sup> |
| Monte Carlo Sig.          |                   |             | 0.440 <sup>d</sup> | 0.934 <sup>d</sup>   | 0.056 <sup>d</sup> |
| (2_tailed)                | 99% Confidence    | Lower Bound | 0.427              | 0.928                | 0.050              |
|                           | Interval          | Upper Bound | 0.452              | 0.941                | 0.061              |

Table 1. Normality Test Results

Note(s): a. Test distribution is Normal; b. Calculated from data; c. Lilliefors Significance Correction; d. This is a lower bound of the true significance; e. Based on 10000 sampled tables with starting seed 2000000.

| Model | R                  | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|--------------------|----------|-------------------|----------------------------|
| 1     | 0.106 <sup>a</sup> | 0.011    | 0.003             | 0.191                      |
| 2     | 0.552 <sup>b</sup> | 0.305    | 0.299             | 0.193                      |
| 3     | 0.151 <sup>c</sup> | 0.023    | 0.015             | 0.474                      |

Note(s): a. Predictors: (Constant), Lg\_ROE; b. Predictors: (Constant), Lg\_ROE; c. Predictors: (Constant), Lg\_DER, Lg\_ROE

(N = 128). The authors then used the Lg10 form to standardize the data. Researchers must also complete the outlier steps in order to limit the observation data to 126 (N = 126). The data were transformed into Lg10 form and the outlier phases, and the following are the results of the normalcy test (Table 1).

The Monte Carlo significance value for regression model 1 is 0.440, for regression model 2, 0.934, and for regression model 5, 0.056, according to the Kolmogorov-Smirnov (Monte Carlo) normality test table data. Since the significant value for each of these regression models is greater than 0.05 (> 0.05), it can be said that the data in the five regression models are regularly distributed.

## 4.1.2 Linearity Test

It is possible to determine if the regression model in this study is linear or not based on the above linearity test (Lagrange multiplier), and the results are presented in Table 2.

| Model | $C^2$ -count (n × $R^2$ )  | (>/<) | $C^2$ -table (n - k)      |
|-------|----------------------------|-------|---------------------------|
| 1     | $126 \times 0.011 = 1.386$ | <     | (126 - 2) = 124 = 150.989 |
| 2     | $126 \times 0.305 = 38.43$ | <     | (126 - 2) = 124 = 150.989 |
| 3     | $126 \times 0.023 = 2.898$ | <     | (126 - 2) = 124 = 150.989 |

 Table 3.
 Summary of Linearity Test Analysis

| Model |            | Unstandardized<br>Coefficients |               | Standardized<br>Coefficients | t      | Sig.  | Collinearity<br>Statistics |       |
|-------|------------|--------------------------------|---------------|------------------------------|--------|-------|----------------------------|-------|
|       |            | В                              | Std.<br>Error | В                            |        |       | Tolerance                  | VIF   |
| 1     | (Constant) | -0.350                         | 0.110         |                              | -3.198 | 0.002 |                            |       |
|       | Lg_ROE     | 0.621                          | 0.088         | 0.514                        | 7.081  | 0.000 | 0.977                      | 1.023 |
|       | Lg_DER     | -0.121                         | 0.035         | -0.250                       | -3.439 | 0.001 | 0.977                      | 1.023 |

Note(s): Dependent Variable: Lg\_PBV

The result of c2-count < c2-table indicates that the tree regression models in this investigation are linear, which is inferred from Table 3.

The three regression models used in this study are linear, as shown by Table 3, where the value of c2-count < c2-table.

#### 4.1.3 Multicollinearity Test

Steps of the multicollinearity test; the following are the outcomes of the multicollinearity test run with the SPSS v.25 software (Table 4).

The profitability variable (Lg ROE) does not exhibit multicollinearity symptoms, as can be observed from the test results above, as it has a tolerance value of 0.977 > 0.10 and a VIF value of  $1.023 \ 10$ . The capital structure variable (Lg DER), which has tolerance values of 0.977 > 0.1 and VIF  $1.023 \ 10$ , is another variable that does not exhibit multicollinearity symptoms.

#### 4.1.4 Heteroscedasticity Test

A suitable regression model is homoscedasticity or no heteroscedasticity, which is represented in Table 5. Based on the heteroscedasticity test (white test) above, it can be determined whether the regression model is in the form of homoscedasticity or heteroscedasticity.

The five regression models in this study are either homoscedastic or there is no heteroscedasticity, as shown by the value of c2-count < c2-table in Table 6.

| Model | R                  | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|--------------------|----------|-------------------|----------------------------|
| 1     | 0.133 <sup>a</sup> | 0.018    | 0.010             | 0.048                      |
| 2     | 0.177 <sup>b</sup> | 0.031    | 0.024             | 0.054                      |
| 3     | 0.153 <sup>c</sup> | 0.024    | 0.016             | 0.174                      |

Table 5. Heteroscedasticity Test Result

Note(s): a. Predictors: (Constant), Lg\_ROE; b. Predictors: (Constant), Lg\_ROE; c. Predictors: (Constant), Lg\_DER, Lg\_ROE

| Model | $C^2$ -count (n × $R^2$ )  | (>/<) | $C^2$ -table (n - k)      |
|-------|----------------------------|-------|---------------------------|
| 1     | $126 \times 0.018 = 2.268$ | <     | (126 - 2) = 124 = 150.989 |
| 2     | $126 \times 0.031 = 3.906$ | <     | (126 - 2) = 124 = 150.989 |
| 3     | $126 \times 0.024 = 3.024$ | <     | (126 - 2) = 124 = 150.989 |

 Table 6.
 Summary of HeteroscedasticityTest Analysis

| Table 7. Autocorrelation Test Resul | Table 7. | Autocorrelation | Test Result |
|-------------------------------------|----------|-----------------|-------------|
|-------------------------------------|----------|-----------------|-------------|

| Model | R                  | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|-------|--------------------|----------|-------------------|----------------------------|---------------|
| 1     | 0.201 <sup>a</sup> | 0.041    | 0.033             | 0.140                      | 2.039         |
| 2     | 0.253 <sup>b</sup> | 0.064    | 0.056             | 0.196                      | 1.856         |
| 3     | 0.216 <sup>c</sup> | 0.047    | 0.039             | 0.181                      | 2.002         |

Note(s): a. Predictors: (Constant), Lg\_ROE; b. Predictors: (Constant), Lg\_ROE; c. Predictors: (Constant), Lg\_DER, Lg\_ROE

#### 4.1.5 Autocorrelation Test

The authors use the Cochrane-Orcutt method to perform the autocorrelation treatment stages because there is an autocorrelation regression model in this study and all regression models have a Durbin-Watson value dL value. Using this method, the observation data that originally contained 126 (N = 126) decreased to (N = 124). The Cochrane-Orcutt test results, as they were determined by the SPSS v.25 program (Table 7).

The following conclusions can be drawn from autocorrelation treatment data using the Cochrane-Orcutt test:

1. With 124 observational data points (N = 124) and 1 independent variable (k = 1), Regression Model 1 produced a Durbin-Watson value of 2.039 when compared to the value of the Durbin-Watson table, which is accessible in the appendix. The values of dL and dU were then 1.6909 and 1.7231 respectively. Since table 4.11 shows that there is neither positive or negative autocorrelation if dU (1.7231) d (2.039) 4 - dU

| Model |            | Unstandardized<br>Coefficients |            | Standardized Coefficients | t     | Sig.  |
|-------|------------|--------------------------------|------------|---------------------------|-------|-------|
|       |            | В                              | Std. Error | В                         |       |       |
| 1     | (Constant) | 0.201                          | 0.021      |                           | 9.626 | 0.000 |
|       | CO_Lg_ROE  | 0.317                          | 0.126      | 0.224                     | 2.511 | 0.013 |

 Table 8.
 First Hypothesis Test Results

Note(s): Dependent Variable: CO\_Lg\_PBV

(2.2769), which denotes accepting the H0 option, the regression model 1 cannot contain autocorrelation.

- 2. With 124 observational data points (N = 124) and one independent variable (k = 1), Regression Models 2 and 5 produced a Durbin-Watson value of 1.856 when compared to the Durbin-Watson table value at a significance level of 0.05 available in the appendix. We arrive at the values of dL = 1.6909 and dU = 1.7231. Therefore, it can be inferred that regression models 2 and 5 do not exhibit autocorrelation since, according to table 4.11, if the H0 option is accepted, then dU (1.7231) d (1.856) 4 dU (2.2769), there is neither a positive autocorrelation nor a negative autocorrelation.
- 3. With 124 observational data points (N = 124) and 1 independent variable (k = 1), Regression Model 3 produced a Durbin-Watson value of 2.002 when compared to the value of the Durbin-Watson table, which is accessible in the appendix. The values of dL and dU were then 1.6909 and 1.7231 respectively. Since table 4.11 shows that there is neither positive or negative autocorrelation if dU (1.7231) d (2.002) 4 - dU (2.2769), which denotes accepting the H0 option, the regression model 3 cannot contain autocorrelation.

## 4.2 Partial Hypothesis Test

## 4.2.1 The Effect of Profitability on Firm Value

The hypothesis testing supports the first hypothesis, which states that "the higher the return on equity, the higher the price to book value," as shown by the coefficient value of 0.317 with a significance value of 0.013, which is less than = 0.05, and the t-count value (2.511) > t-table (1.65744) at the 5% significance level (= 0.05), with degrees of freedom (df) = 124 - 2 = 122. Considering the 2010–2018 timeframe, this condition demonstrates that return on equity has a favorable and significant impact on the price-to-book value of BUMN companies listed on the Indonesia Stock Exchange. Then either Ho is rejected accepted or the first hypothesis is accepted. These findings are consistent with studies conducted by [45, 46], which found that the price to book value increased as the return on equity increased (Table 8).

These findings suggest that profitability growth—in this instance, a return on equity can demonstrate better company prospects because there is a possibility for increasing profits to be realized by the company, which will boost investor confidence to invest in the business and make it simpler for management to raise money in the form of company stock. According to the signaling theory, businesses that are profitable will subtly notify

| Model |            | Unstandardized<br>Coefficients |            | Standardized<br>Coefficients | t      | Sig.  |  |
|-------|------------|--------------------------------|------------|------------------------------|--------|-------|--|
|       |            | В                              | Std. Error | В                            |        |       |  |
| 1     | (Constant) | 0.043                          | 0.019      |                              | 2.282  | 0.024 |  |
|       | CO_Lg_ROE  | -0.280                         | 0.115      | -0.216                       | -2.440 | 0.016 |  |

Table 9. Second Hypothesis Test Results

Note(s): Dependent Variable: CO\_Lg\_DER

the market, allowing it to differentiate between businesses of high and low quality. To earn a profit, investors put money into the business. Investors demand a bigger return when a company can generate more profits, which elevates the company's worth and, in this situation, results in a higher price to book value.

#### 4.2.2 The Effect of Profitability on Capital Structure

According to the second hypothesis test, the coefficient value of (-0.280) with a significance value of 0.016, which is less than = 0.05, and the t-count value of (-2.440) t-table of (1.65734), at the real level 5% (= 0.05), with degrees of freedom (df) = 124 - 1 = 123, are both less than 0.05. According to this circumstance, the debt-to-equity ratio of BUMN companies listed on the Indonesia Stock Exchange timeframe was negatively and significantly impacted by return on equity. Ho is then disproved, or the second hypothesis is accepted. These findings are consistent with those of [15, 47, 48], who found that the debt-to-equity ratio decreased with an increase in return on equity (Table 9).

These findings show that the management of the company believes that the amount of profit generated by the business determines the ratio of its capital structure in a significant way. This is because the management of the business specified its capital structure based on the amount of return and cost of capital resulting from the use of debt to support the business' operational activities. Profitable businesses tend to focus internal financing and only borrow a little amount from the outside world. Due to a lack of available internal capital and the fact that debt is the preferred external source, less profitable companies typically have higher outstanding debt. This assertion is consistent with the pecking order theory proposed by Myers (1984), which explains that businesses prioritize different funding sources in different order.

#### 4.2.3 The Effect of Capital Structure on Firm Value

According to the third hypothesis test, the coefficient value of (-0.145) with a significance value of 0.140 larger than = 0.05 and the t-count value of (-1.485) t-table (1.65744) at the real level 5% (= 0.05) with degrees of freedom (df) = 124 - 2 = 122 can be seen. The debt-to-equity ratio has a negative and negligible impact on the price-to-book value of state-owned businesses that are listed on the Indonesia Stock Exchange, according to this criterion. The third hypothesis is either rejected or Ho is accepted at

| Model |            | Unstandard<br>Coefficients | ized       | Standardized<br>Coefficients | t      | Sig.  |
|-------|------------|----------------------------|------------|------------------------------|--------|-------|
|       |            | В                          | Std. Error | Beta                         |        |       |
| 1     | (Constant) | 0.201                      | 0.021      |                              | 9.626  | 0.000 |
|       | CO_Lg_ROE  | 0.317                      | 0.126      | 0.224                        | 2.511  | 0.013 |
|       | CO_Lg_DER  | -0.145                     | 0.097      | -0.133                       | -1.485 | 0.140 |

 Table 10.
 Third Hypothesis Test Results

Note(s): Dependent Variable: CO\_Lg\_PBV

that point. These findings are consistent with studies by [49], which show that the debtto-equity ratio has a negative, non-significant relationship with the price-to-book value (Table 10).

The findings of this study suggest that the value of the company will not be significantly diminished by an increase in the debt ratio. This is the case since the company's debt ratio is within acceptable bounds, preventing a large decline in the company's value. As a result, investors will still be interested in investing in the company despite the interest expense and debt installment payments that the company must make to creditors because it is believed that the company's current debt ratio position is within an acceptable range and has not significantly increased business risk. In this way, investors won't alter their fundamental investment strategies in response to fluctuations in the debt ratio.

## 4.3 Mediation Test

The coefficient's value reveals the size of the relationship between capital structure as measured by DER and profitability as assessed by ROE. It displays unfavorable and noteworthy outcomes (a = (-0.280) with sig = 0.016). The extent of the impact of capital structure, as assessed by DER on firm value, as measured by PBV, is shown by the coefficient value b, which shows negative and insignificant results (b = (-0.145) with sig. 0.140). The capital structure variable was examined in this study since the coefficient b, an insignificant finding, did not satisfy the mediation requirements. The relationship between profitability and firm value cannot be mediated by debt to equity ratio. Ho is therefore confirmed, or the fourth hypothesis put out is disproved (Table 11).

This finding suggests that great profitability does not necessarily translate into a low capital structure. Despite rising company profitability, state-owned businesses still rely on debt rather than capital financing (external funds). The company's debt ratio, whose growth does not correspond to the pattern of company profitability, does not significantly influence the investment choices of investors. Consequently, the impact on raising the company's worth is similarly minimal.

| Antecedent |                | M (DER)       |       |       |        |                | Y (PBV)                                                                       |       |       |        |
|------------|----------------|---------------|-------|-------|--------|----------------|-------------------------------------------------------------------------------|-------|-------|--------|
|            |                | Coeff.        | SE    | Sig.  | t      |                | Coeff.                                                                        | SE    | Sig.  | Т      |
| X (ROE)    | a              | -0.280        | 0.115 | 0.016 | -2.440 | c <sup>′</sup> | 0.317                                                                         | 0.126 | 0.013 | 2.511  |
|            | -              | -             | _     | _     | _      | с              | 0.358                                                                         | 0.124 | 0.005 | 2.885  |
| M (DER)    | -              | -             | _     | _     | _      | b              | -0.145                                                                        | 0.097 | 0.140 | -1.485 |
| constant   | i <sub>M</sub> | 0.043         | 0.019 | 0.024 | 1.957  | $i_{Y'}$       | 0.201                                                                         | 0.021 | 0.000 | 9.626  |
|            |                | -             | _     | _     | -      | i <sub>Y</sub> | 0.195                                                                         | 0.021 | 0.000 | 9.476  |
|            |                | $R^2 = 0.047$ |       |       |        |                | $R^{2'} = 0.081$                                                              |       |       |        |
|            |                |               |       |       |        |                | $\begin{array}{l} F(.0699) = 35.858,  \rho < .005 \\ R^2 = 0.064 \end{array}$ |       |       |        |

Table 11. Intervening Test Results

## 5 Conclusion and Limitation

Investor confidence in the company's ability to increase profits will dramatically boost investment levels. Profitable businesses tend to favor internal financing over external investment; thus they only need modest amounts of external capital. Because the company's debt level has not risen above the ideal level, an increase in the debt ratio won't considerably lower its worth.

Because the research object only employs state-owned enterprises as samples, the study's findings cannot be generalized; as a result, the study's findings do not adequately represent all the companies listed on the Indonesia Stock Exchange. Additionally, because the observed factors are restricted to profitability, sound corporate governance, and structure, they do not fully account for all aspects of what influences firm value increases and drops. Future research should broaden the study's subject, include observable factors, and employ many proxies for each experimental variable.

**Author Contribution.** Contribution of Author: A.A. help with conceptualization, formal analysis, and the creation of original works revision, editing, and drafts. E.N. support formal analysis and methods. M.R. participated in the analysis of the data, writing an initial draft, then revising and editing it. All authors read and concur published edition of the writing.

## References

- 1. B. Sugeng, Fundamental Financial Management, Yogyakarta: Deepublish, 2017.
- J. Fred. Weston & Eugene F. Brigham, *Financial Management, Translator*: Drs. Robinson Tarigan, M.R.PI. Edisi Ketujuh. Jakarta: Erlangga, 1983.
- 3. R. Monoarfa, The Role of the Company's Value in the Mediate Influence the Structure of Capital, Return on Assets and Return on Equity Against the Share Price, 2018. https://doi.org/10.31227/osf.io/bmvg2.
- 4. E. F. Astriani, The Effect of managerial ownership, leverage, profitability, firm size, and investment opportunity set on firm value. *Accounting Journal*, 2014, 2(1).

- 5. T. Nur, The effect of growth opportunity, profitability, and capital structure on firm value with dividends as an intervening variable in manufacturing companies listed on the IDX in the 2014-2017 period. Indonesian Journal of Management and Business, 2018, *5*(3), 393-411.
- E. Purnomo, & T. Erawati, The Effect of Profitability on Firm Value With Capital Structure as an Intervening Variable (Case Study on Manufacturing Companies Listed on the Indonesia Stock Exchange 2012-2016), Dewantara's Tax Accounting Journal, 2019, *I*(1), 1-12. https:// doi.org/10.24964/japd.v1i1.882.
- 7. I. Thaib, & A. Dewantoro, The effect of profitability and liquidity on firm value with capital structure as an intervening variable, Journal of Banking, Management, and Accounting Research, 2017 *1*(1), 25-44
- T. V, & D. Sulistiyanto, The Effect of Capital Structure, Profitability, Liquidity, and Tax Avoidance on Firm Value (A Case Study on Manufacturing Companies in the Food and Beverage Sub-Sector Listed on the Indonesia Stock Exchange 2013-2017 Period), 2019, 1(1), 15–26
- 9. G. Shailer, (2018). Agency Theory. Research School of Accounting, The Australian National University, Canberra, Australia.
- 10. Eugene F. Brigham, Joel F. Houston, Fundamentals of Financial Management. Edition 11. Jakarta: Salemba Empat, 2011.
- D. Puspitasari, & B. N. Suryawati, (2019). The Effect of Profitability on Firm Value With Good Corporate Governance as Moderating Variable in Food and Beverage Companies Listed on the Indonesia Stock Exchange for the 2014-2017 Period. Journal of Socio-Economic and Humanities, 2019, (JSEH) p-ISSN, 2461, 0666.
- R. Kusumawati, & I. Rosady, The Effect of Capital Structure and Profitability on Firm Value with Managerial Ownership as Moderating Variable. Journal of Business Management, 2018, 9(2), 147-160.
- 13. Hery, Financial Statement Analysis (Integrated and Comprehensive Edition). Jakarta: PT Grasindo Qadorah, 2016.
- 14. Fahmi, Financial Statement Analysis. Bandung: Alfabeta, 2017
- A. P. Tijow, H. Sabijono, & V. Z. Tirayoh, The Influence of Asset Structure and Profitability on Capital Structure in Consumer Goods Industrial Sector Companies Listed on the Indonesia Stock Exchange. Going Concern: Journal of Accounting Research, 2018, *13*(03). https://doi. org/10.32400/gc.13.03.20375.2018.
- A. N. Chasanah, & D. K. Adhi, The Effect of Return on Assets, Capital Structure, and Liquidity on the Value of Manufacturing Companies listed on the IDX for 2012-2015. EMBA Journal, 2017, 5(June 3), 2034-2046.
- A. I. W. Setyawan, & N. F. Nuzula, The Influence of Firm Size, Growth Opportunity, Profitability, Business Risk, Effective Tax Rate, Asset Tangibility, Firm Age, and Liquidity on the Company's Capital Structure (Study on Property and Real Estate Sector Companies Listed on the Stock Exchange in 2009-2014). Journal of Business Administration (JAB), 2016, Vol, 31(1).
- 18. R. I. Sari, & L. Ardini, The effect of asset structure, business risk, sales growth, and profitability on capital structure. Journal of Accounting Science and Research (JIRA), 2017, 6(7).
- 19. T. Herawati, The effect of dividend policy, debt policy and profitability on firm value. Management Journal, 2013, 2(2), 1-18.
- G. P. Dewa, F. Fachrurrozie, & N. S. Utaminingsih, The Influence of Profitability on Firm Value With Wide CSR Disclosure as Moderating Variable. *Accounting Analysis Journal*, 2014, 3(1). https://doi.org/10.15294/aaj.v3i1.3911
- 21. P. Hardiningsih, & C. Srimindarti, Good Corporate Governance Contingencies in Determining Company Value, 2018.

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- A. Nirmala, M. Moeljadi, & A. Andarwati, Effect of Firm Size, Profitability, Sales Growth and Managerial Ownership on Capital Structure and Value of Manufacturing Companies in Indonesia (Pecking Order Theory Perspective). Management Application Journal, 2016, 14(3), 557-566. https://doi.org/10.18202/jam23026332.14.3.16.
- R. Khoirianto, The Effect of Profitability and Dividend Policy on Firm Value with Capital Structure as an Intervening Variable (Study on Manufacturing Companies Listed on the Indonesia Stock Exchange 2009-2012 Period). Accountability: Scientific Journal of Economics, 2016, 9(1), 5-5.
- 24. O. Akpinar, Factors Affecting Capital Structure: A Panel Data Analysis on Borsa Istanbul. 13th International Scientific Conference on Economic and Social Development, 2016, 527-534.
- 25. D. Anita, & G. A. Sembiring, Analysis of the Effect of Profitability, Asset Growth, Business Risk, Liquidity Level, and Company Size on the Capital Structure of Service Companies (Hotel, Restaurant, and Tourism Sector) Listed on the Indonesia Stock Exchange 2010-2014 Period. Procuration: Scientific Journal of Management, 2016, 4(4), 415-433.
- B. Chaklader, & C. Deepak, A Study of Determinants of Capital Structure through Panel Data Analysis of Firms Listed in NSE CNX 500. SAGE Publications, 2016, 20(4): 267-277.
- J. H. F. Mota, & A. C. Moreira, Determinants of The Capital Structure of Portuguese Firms with Investments in Angola. South African Journal of Economic and Management Sciences, 2017, 20(1), 1–11. https://doi.org/10.4102/sajems.v20i1.885
- M. Maptuha, I. A. Hanifah, & I. Ismawati, The Effect of Capital Structure, Liquidity, and Firm Size on Firm Value With Profitability as an Intervening Variable (Empirical Study on the Lq 45 Index Listed on the Indonesia Stock Exchange (IDX) 2014-2018). Tirtayasa Journal of Accounting Research, 2021, 6(2), 153-170.
- 29. S. Susilawati, Sales Growth, Net Profit Margin, Return On Equity, and Cost Of Fund on Capital Structure (Case Study on Automotive and Component Companies Listed on the Indonesia Stock Exchange 2015-2018). Journal of Finance and Banking, 2019, 15(1), 1-13.
- I. A. G. D. M., Sari & I. B. P. Sedana, Profitability and liquidity on firm value and capital structure as intervening variables. International research journal of management, IT and Social Sciences, 2020, 7(1), 116-127.
- M. Oktaviani, A. Rosmaniar, & S. Hadi, The effect of firm size (size) and capital structure on firm value. BALANCE: Economic, Business, Management, and Accounting Journal, 2019, 16(1).
- R. Pratiwi, & A. Yulianto, The influence of ownership structure and independent commissioners on the agency costs of companies listed in Indonesia's most trusted companies. Management Analysis Journal, 2016, 5(3). https://doi.org/10.15294/maj.v5i3.11119.
- P. Widyastuti, The Effect of Profitability and Capital Structure on Firm Value (Study on the Indonesian Stock Manufacturing Company Exchange in 2011-2015). Journal of Strategy and Business, 2018, 6(1), 1-9
- 34. H. Manoppo, & F. V. Arie, Effect of capital structure, firm size and profitability on the value of automotive companies listed on the Indonesia Stock Exchange for 2011-2014. EMBA Journal: Journal of Economic Research, Management, Business and Accounting, 2016, 4(2).
- 35. M. Riaz, & Q. Muhammad, Islamic Microfinance Institution: The Capital Structure, Growth, Performance and Value of The Firm in Pakistan. Jurnal of ISOSS, 2016, 2 (1): 97–101.
- 36. N. A. Utomo, Factors that affect firm value on LQ45 index companies on the Indonesia Stock Exchange. Dynamics of Financial Accounting and Banking, 2016, 5(1).
- A. N. Chasanah, & D. K. Adhi, Profitability, capital structure, and liquidity influenced the value of companies in real estate companies listed on the IDX from 2012-2015. Economic Focus: Scientific Journal of Economics, 2018, 12(2), 109-128.
- E. S. Simangunsong, H. Karamoy, & R. J. Pusung, The effect of capital structure and institutional ownership on firm value in construction companies listed on the Indonesian stock exchange. Going Concern: Journal of Accounting Research, 2018, 13(02).

- N. K. A. Sudiani, & I. G. Wiksuana, Capital structure, investment opportunity set, dividend policy and profitability as a firm value determinants. *Russian Journal of Agricultural and Socio-Economic Sciences*, 2018, 81(9), 259-267.
- 40. S. R. Y. Diannisa, A. Lukytawati, & P. Koes, Impact of capital structure and firm financial performance on firm value: Evidence of agribusiness firms in Indonesia stock exchange. *Russian Journal of Agricultural and Socio-Economic Sciences*, 2019, 85(1), 445-451.
- 41. R. M. Sari, & D. Patrisia, (September). The Effect of Institutional Ownership, Capital Structure, Dividend Policy, and Company's Growth on Firm Value (Study of Property Real Estate and Building Construction Companies). In *Third Padang International Conference On Economics Education, Economics, Business and Management, Accounting and Entrepreneurship* (PICEEBA 2019), 2019, pp. 192-200. Atlantis Press.
- A. Akhmadi, & A. Ariadini, Profitability and its mediation impact on firm value (Empirical study of mining sector companies listed on the Indonesia Stock Exchange for 2011-2015). Science: Journal of Management and Business, 2018, 11(1). DOI: https://doi.org/10.35448/ jmb.v11i1.4328.
- 43. R. Ramadhani, A. Akhmadi, & M. Kuswantoro, The Effect of Leverage and Profitability on Firm Value With Dividend Policy as an Intervening Variable (Case study on manufacturing companies listed on the Indonesia Stock Exchange for 2012-2016). Journal of Business Research and Management Tirtayasa, 2018, 2(1), 21-42. https://doi.org/10.48181/jrbmt.v2i1. 3831.
- 44. I. Ghozali, Application of Multivariate Analysis with SPSS 25 Program. Semarang: Diponegoro University Publishing Agency, 2018.
- L. Martha, N. U. Sogiroh, M. Magdalena, F. Susanti, & Y. Syafitri, Profitability and dividend policy on firm value. *Jurnal Benefita*, 2018, 3(2), 227-238. https://doi.org/10.22216/jbe.v3i2. 3493
- N. L. A. P. Ningsih, & P. D. P. Paramitha, Do Capital Structure and Liquidity Increasing Value of The Firm? A Mediating Role of Profitability. *Jurnal Ekonomi & Bisnis Jagaditha*, 2019, 6(2), 78-84.
- I. Y. Rahmawati, The effect of profitability, size and growth on the capital structure of the consumer goods industry is based on the pecking order theory and trade-off theory. Economic Media, 2016, *16*(2), 229-237. https://doi.org/10.30595/medek.v16i2.1753.
- 48. N. Nita, & A. Hairul, Analysis of Factors Affecting Capital Structure of Mining Sector Companies. JSHP: Journal of Social Humanities and Education, 2017, 1(1), 53-65.
- M. Fuad, & A. Wandari, The Effect of Capital Structure and External Factors on Firm Value (Study at PT. Bank Central Asia, Tbk). Journal of Management and Finance, 2018, 7(1), 32-46. DOI: https://doi.org/10.33059/jmk.v7i1.755.

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