

# Effect of Sales Growth, Leverage, and Size on ROE During COVID-19 Pandemic: Empirical Study on IDX-Listed Property Companies 2019-2021

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**Abstract.** This research investigates how sales growth, leverage, and company size can impact a company's performance as reflected by profitability ratios, particularly Return on Equity (ROE). This study used a quantitative descriptive method through approaches to empirical research to collect, analyse, and present data in numerical form along with explanations. The sampling technique used in this research is purposive sampling from 29 property and real estate companies listed on the Indonesia Stocks Exchange (IDX) from 2019 to 2021. Secondary data sources were used for this study. The multiple linear regression analysis method was employed for data analysis using E-view version 13. This research indicates that sales growth has a positive effect on ROE, and leverage has a negative and significant effect on ROE.

## 1 Introduction

The COVID-19 pandemic has become one of the triggering factors that accelerated the global economic crisis [1]. ROE is a profitability ratio used to measure the effectiveness of a company in utilizing its owner's capital to generate profits [2], [3]. The COVID-19 pandemic has led to a decline in revenue and profits for many companies, making the ROE ratio particularly important as it provides an indication of how well a company can sustain profitability and growth during challenging economic conditions. Property and real estate companies have been severely affected during the pandemic due to reduced property demand and prices, as well as a decrease in investor confidence [4]. This research is important because it addresses the impact of the COVID-19 pandemic on the financial performance of property companies and investigates the relationship between sales growth, leverage, size, and return on equity (ROE) during this challenging period. The research also provides valuable guidance for stakeholders and policymakers to evaluate the financial performance of property companies during crises and make informed decisions regarding resource allocation, strategic planning, and risk management.

The profitability of property and real estate companies is influenced by various factors such as sales growth, leverage, and company size [5]. Previous scientific studies have indicated a significant positive relationship between sales growth and ROE [5]. Leverage was found to have no relationship or negative impact on ROE, and statistically, it was also not significant [5]. Company size

is said to not have a positive influence on ROE. The size of the company does not guarantee the ability of the company to generate good profits [5]. A more significant factor is the optimal utilization of company assets for operational activities aimed at generating profits. Company Size can be measured by the total assets of the company. A company with large total assets reflects the maturity of the company [6]. The analysis reveals that Sales Growth has a positive and significant impact on ROE, indicating that an increase in sales growth leads to an increase in ROE. On the other hand, Leverage has a negative and significant impact on ROE, implying that an increase in Leverage results in a decrease in ROE. Meanwhile, Company Size does not significantly affect ROE, suggesting that different-sized companies exhibit similar ROE levels. Overall, the simultaneous significance testing confirms that Sales Growth, Leverage, and Company Size collectively influence ROE.

One limitation of this study is its focus on IDX-listed property companies in the Indonesian market. The generalizability of the findings to other markets or sectors may be limited. Future research could explore similar topics in different contexts to validate and expand upon the current findings.

## 2 Literature Review

The research conducted in this study utilizes a descriptive quantitative approach through empirical analysis. The independent variables considered are sales growth, leverage, and company size, while the dependent variable

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is ROE. Secondary data in the form of financial reports from retail sub-sector companies listed on IDX were used for this research. The data used in this study is secondary data. The data source consists of annual financial reports of Property and Real Estate companies listed on the IDX for the period of 2019-2021. These data sources were accessed from the official website of the IDX, [www.idx.co.id](http://www.idx.co.id). The population of this study comprises 29 Property and Real Estate companies listed on the IDX during the period of 2019-2021, which covers the initial phase of the COVID-19 pandemic. The data analysis technique employed is multiple linear regression analysis.

## 2.1 Return on Equity Ratio

ROE is a profitability ratio used to evaluate a company's capacity to generate profits from the investment made by its shareholders. It is expressed as a percentage and provides insight into the company's efficiency in utilizing shareholder equity to generate returns [7]. ROE is calculated by dividing the company's income by the capital invested by its owners (common stockholders and preferred stockholders). ROE demonstrates the company's ability to effectively manage its capital (net worth), thereby measuring the level of profit generated from the investment made by its capital owners or shareholders [8].

## 2.2 Sales Growth

Sales Growth reflects the success or failure of investments in the previous period and serves as a guide for predicting growth in subsequent periods [9]. Companies with consistently stable sales levels are more likely to obtain loan funding securely and are expected to withstand high fixed costs compared to companies with volatile sales levels [10]. The measurement of sales growth can be observed through the ratio of the current year's sales minus the previous year's sales divided by the previous year's sales. Sales serve as a reflection of the success or failure of investment activities in the previous period, providing guidance for calculating growth in the subsequent period. Sales growth is considered an indicator of both market demand and the competitiveness of companies. It signifies the ability of a company to attract customers and increase its market share. By analysing sales growth, companies can evaluate their performance, identify market trends, and make informed decisions to enhance their competitive position in the market [11].

## 2.3 Leverage

Leverage is a metric used to measure the level of assets in a company that are financed through debt funding. It refers to the extent of the debt burden that a company bears in relation to its assets. Leverage reflects the proportion of debt used to finance a company's operations and investments compared to its equity or ownership capital. It indicates the company's reliance on borrowed funds to support its activities and the potential risks

associated with such debt obligations. Evaluating leverage provides insights into the financial structure and risk profile of a company, helping stakeholders assess its ability to meet debt obligations, manage financial stability, and make informed investment decisions [12]. The leverage ratio is also used to provide an overview of a company's capital structure. The higher the proportion of debt financing in a company, the greater the company's dependence on creditors. This indicates that a higher level of debt financing signifies a higher level of reliance on external creditors for funding. It reflects the extent to which a company relies on borrowed funds to support its operations and investments, rather than relying solely on equity or internally generated funds. Evaluating the leverage ratio helps assess the financial risk and stability of a company, as a higher dependence on creditors increases the company's obligations and potential vulnerability to changes in interest rates or repayment terms. Understanding the level of dependence on external financing sources is important for investors, lenders, and other stakeholders in assessing the financial health and risk profile of a company [13], [14].

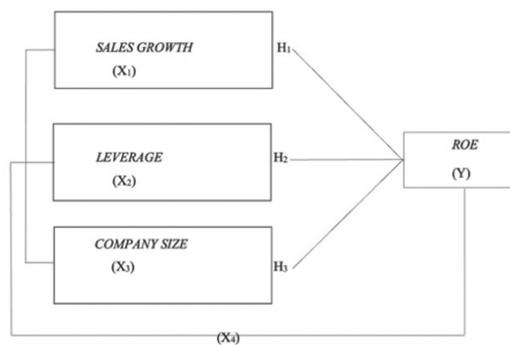
## 2.4 Company Size

Company size is one of the factors considered by investors [15]. Company size refers to the magnitude of a company. Based on its company size, companies are categorized as either large or small. The size of a company can be measured using the natural logarithm of total assets [16], [17]. Total assets are used as an indicator of company size because they have a long-term nature compared to sales.

In this study, hypothesis testing is used to examine the influence of Sales Growth, Leverage, and Company Size on ROE. Therefore, this research falls under the category of quantitative research and utilizes secondary data obtained through the analysis of financial reports in the IDX. The population of the study consists of Property and Real Estate companies listed on the IDX during the period 2019-2021. The sampling technique employed is nonprobability sampling. Data analysis is conducted using multiple linear regression to analyse the effects of each independent and dependent variable. All tests are performed using E-Views version 13.

The framework used in this study is as follows:

- H<sub>1</sub>: Sales growth has a positive impact on Return on Equity (ROE).
- H<sub>2</sub>: Leverage has a positive impact on Return on Equity (ROE).
- H<sub>3</sub>: Company Size has a positive impact on Return on Equity (ROE).
- H<sub>4</sub>: Sales growth, leverage, and company size collectively have an impact on the value of Return on Equity (ROE).



**Fig. 1.** Research Framework

### 3 Methodology

Based on the research problem formulation that has been previously outlined, this study is hypothesis testing, which is testing the hypothesis of the influence of Sales Growth, Leverage, and Company Size on ROE. Therefore, this research is a quantitative type and the data source used is secondary data obtained through the analysis of financial statements listed on the IDX.

The sampling technique used in this study is nonprobability sampling, specifically through purposive sampling. Purposive sampling is a deliberate sampling technique based on certain considerations. Descriptive statistics provides a description or summary of data, making it clearer and easier to understand. Descriptive statistics can be viewed from measures such as the mean, median, mode, standard deviation, maximum value, and minimum value [19]. Descriptive statistics can provide important numerical measures for sample data analysed with analysis program E-Views version 13. The tests conducted in this study are as follows: Descriptive Statistical Test, Classical Assumption Test, Normality Test, Multicollinearity Test, Heteroscedasticity Test, Autocorrelation Test. To perform statistical testing, Chou test and Hausman test were conducted. The Chou test and the Hausman test are both statistical tests used in econometric to evaluate the validity of models and their parameters. Hypothesis testing was conducted using the Coefficient of Determination (R<sup>2</sup>) and conducting a Simultaneous Significance Test (F-Statistic Test) to determine the relationship between the independent variables and the dependent variable. The Coefficient of Determination (R<sup>2</sup>) is a measure that explains the proportion of the variation in the dependent variable that is explained by the independent variables in the model. A higher R<sup>2</sup> value indicates a stronger relationship between the independent and dependent variables. The Simultaneous Significance Test (F-Statistic Test) is used to test the overall significance of the independent variables in the model. It evaluates whether at least one independent variable has a significant impact on the dependent variable. This test is used to determine whether the model is statistically significant and whether the independent variables jointly contribute significantly to the dependent variable.

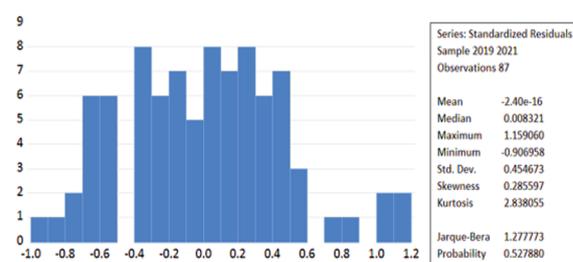
### 4 Discussion and Conclusion

The descriptive statistical analysis was conducted to provide a clear and informative picture of the data presented, using E-Views version 13. The analysis included measures such as mean, sum, standard deviation, variance, range, minimum, and maximum values.

|              | ROE       | C        | SG        | LEV      | CS        |
|--------------|-----------|----------|-----------|----------|-----------|
| Mean         | 0.639758  | 1.000000 | -0.017716 | 0.700077 | 1.184817  |
| Median       | 0.709270  | 1.000000 | 0.001464  | 0.622956 | 1.209169  |
| Maximum      | 1.954243  | 1.000000 | 0.531915  | 2.155122 | 1.321273  |
| Minimum      | -0.337242 | 1.000000 | -0.531630 | 0.001614 | 0.890274  |
| Std. Dev.    | 0.484089  | 0.000000 | 0.181105  | 0.353039 | 0.095498  |
| Skewness     | 0.325548  | NA       | 0.014950  | 2.140450 | -1.399064 |
| Kurtosis     | 2.895568  | NA       | 3.786679  | 9.209151 | 4.817137  |
| Jarque-Bera  | 1.576271  | NA       | 2.246620  | 206.1888 | 40.35173  |
| Probability  | 0.454692  | NA       | 0.325202  | 0.000000 | 0.000000  |
| Sum          | 55.65895  | 87.00000 | -1.541321 | 60.90667 | 103.0790  |
| Sum Sq. Dev. | 20.15344  | 0.000000 | 2.820731  | 10.71873 | 0.784306  |
| Observations | 87        | 87       | 87        | 87       | 87        |

**Fig. 2.** The Descriptive Statistics Test Results

Based on Figure 2, it was found that the mean of the statistical test was 0.63, indicating the overall distribution of the data. The median ROE was 0.709270, indicating that half of the ROE values were higher, and half were lower than this value. The maximum ROE was 1.954243 and the minimum was -0.337242, indicating a significant variation in the company's ROE level in the measured sample. The mean Sales Growth value of -0.017716 showed a decrease in sales over time. The median Sales Growth value of 0.001464 indicated that half of the observed sales growth data had values above this number and half had values below it. Overall, the descriptive statistical analysis provided a useful and informative summary of the data, which can help in understanding the overall trends and patterns of the variables under investigation.



**Fig. 3.** Result of Normality Test: Histogram Graph

Based on the histogram graph in Figure 3, the residuals show a normal curve where the distribution of data follows a normal curve. Although there are outlier data points, overall the distribution of data follows a normal curve, so it can be concluded that the data is normally distributed.

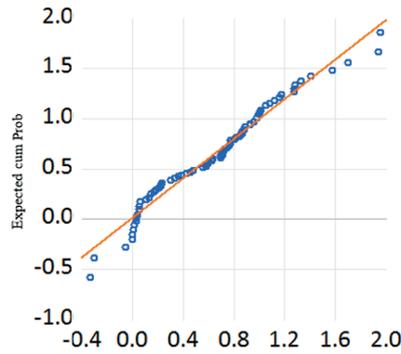


Fig. 4. Result of Normality Test on P-Plot Graph

The Normal Probability Plot graph above shows that the distribution of errors (represented by dots) still falls around the diagonal line. This indicates that the regression model meets the assumption of normality, or the residuals from the model can be assumed to be normally distributed.

Variance Inflation Factors  
 Date: 02/22/23 Time: 11:02  
 Sample: 1 87  
 Included observations: 87

| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
|----------|----------------------|----------------|--------------|
| C        | 0.391524             | 159.0226       | NA           |
| SG       | 0.076443             | 1.016402       | 1.006657     |
| LEV      | 0.021212             | 5.283913       | 1.061448     |
| CS       | 0.291742             | 167.4098       | 1.068231     |

Fig. 5. Result of Normality Test on P-Plot Graph

Based on the analysis, it can be concluded that multicollinearity test is an important method to evaluate the level of correlation or linear relationship between two or more independent variables in a regression model. Based on the test results on the image 4.4 above, the VIF value for Sales Growth is 1.006657, the VIF value for Leverage is 1.061448, and the VIF value for Company Size is 1.068231. As all of these values are less than 10, it can be concluded that there is no multicollinearity issue among the variables. According to the classical assumptions of linear regression with OLS, a good linear regression model is one that is free from multicollinearity. Therefore, the model above has been freed from multicollinearity.

Heteroskedasticity Test: Breusch-Pagan-Godfrey  
 Null hypothesis: Homoskedasticity

|                     |          |                     |        |
|---------------------|----------|---------------------|--------|
| F-statistic         | 1.063047 | Prob. F(3,83)       | 0.3694 |
| Obs*R-squared       | 3.219143 | Prob. Chi-Square(3) | 0.3591 |
| Scaled explained SS | 2.692690 | Prob. Chi-Square(3) | 0.4415 |

Test Equation:  
 Dependent Variable: RESID^2  
 Method: Least Squares  
 Date: 02/27/23 Time: 11:10  
 Sample: 1 87  
 Included observations: 87

| Variable | Coefficient | Std. Error | t-Statistic | Prob.  |
|----------|-------------|------------|-------------|--------|
| C        | 0.211758    | 0.376323   | 0.562705    | 0.5752 |
| CS       | 0.075865    | 0.324848   | 0.233541    | 0.8159 |
| LEV      | -0.135321   | 0.087593   | -1.544888   | 0.1262 |
| SG       | 0.144399    | 0.166284   | 0.868390    | 0.3877 |

Fig. 6. Heteroscedasticity Test Results

From Figure 6, it can be seen that the probability values of the heteroscedasticity test for all variables above are more than 0.05, indicating that the data used is free from heteroscedasticity. The regression model does not experience any heteroscedasticity issues, which means there is no imbalance in the distribution of error variables across the entire range of predictor values.

|                       |          |                    |           |
|-----------------------|----------|--------------------|-----------|
| Root MSE              | 0.452053 | R-squared          | 0.117838  |
| Mean dependent var    | 0.639758 | Adjusted R-squared | 0.085953  |
| S.D. dependent var    | 0.484089 | S.E. of regression | 0.462817  |
| Akaike info criterion | 1.341918 | Sum squared resid  | 17.77859  |
| Schwarz criterion     | 1.455293 | Log likelihood     | -54.37342 |
| Hannan-Quinn criter.  | 1.387570 | F-statistic        | 3.695693  |
| Durbin-Watson stat    | 1.698963 | Prob(F-statistic)  | 0.014978  |

Fig. 7. Heteroscedasticity Test Results

Based on the autocorrelation test results in Figure 7, the obtained Durbin Watson (DW) value is 1.698963. Referring to the Durbin Watson (DW) table for alpha of 5% with three independent variables (k3) and 87 data samples (n=87), the du value is 1.69851 and the 4-du value is 2.301037. Therefore, according to the Durbin-Watson test, the obtained result is  $du < d < 4-du$  or  $1.69851 < 1.698963 < 2.301037$ , indicating that there is no autocorrelation issue in this regression model.

Redundant Fixed Effects Tests  
 Equation: Untitled  
 Test cross-section fixed effects

| Effects Test             | Statistic  | d.f.    | Prob.  |
|--------------------------|------------|---------|--------|
| Cross-section F          | 5.784116   | (28,55) | 0.0000 |
| Cross-section Chi-square | 119.395139 | 28      | 0.0000 |

Correlated Random Effects - Hausman Test  
 Equation: Untitled  
 Test cross-section random effects

| Test Summary         | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob.  |
|----------------------|-------------------|--------------|--------|
| Cross-section random | 3.622553          | 3            | 0.3052 |

Fig. 8. Chow and Hausman Test Results

According to Figure 8, it can be inferred that the value of Prob Cross Section Chi Square is  $0.0000 < 0.05$ , indicating that the selected model is Fixed Effect. If the chow test shows that the selected model is Fixed Effect, the next step is to conduct a Hausman test to choose between Fixed Effect or Random Effect model. Additionally, based on Figure 7, the value of Prob Cross Section Random is  $0.305 > 0.05$ , indicating that the selected model is Random Effect.

|                       |          |                    |           |
|-----------------------|----------|--------------------|-----------|
| Root MSE              | 0.452053 | R-squared          | 0.117838  |
| Mean dependent var    | 0.639758 | Adjusted R-squared | 0.085953  |
| S.D. dependent var    | 0.484089 | S.E. of regression | 0.462817  |
| Akaike info criterion | 1.341918 | Sum squared resid  | 17.77859  |
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| Hannan-Quinn criter.  | 1.387570 | F-statistic        | 3.695693  |
| Durbin-Watson stat    | 1.698963 | Prob(F-statistic)  | 0.014978  |

Fig. 9. Testing the Hypothesis of Coefficient of Determination (R2) and Simultaneous Significance Test (F-Statistic)

Hypothesis testing was conducted with a model summary graph which shows that the adjusted R-square value is 0.085, indicating that the proportion of the influence of Sales Growth, Leverage, and Company Size

variables on Return of Equity is 8.5%. This means that 8.5% of Return of Equity is influenced by Sales Growth, Leverage, and Company Size variables. From the regression result table, it can be seen that the value of F-test (F-statistic) is 3.695693 with a probability of 0.014978, which is below the significance level of 0.05. Thus,  $H_0$  is rejected and  $H_1$  is accepted, meaning that the independent variables Sales Growth, Leverage, and Company Size have a simultaneous effect on the value of ROE.

| Variable | Coefficient | Std. Error | t-Statistic | Prob.  |
|----------|-------------|------------|-------------|--------|
| C        | -0.653283   | 2.070291   | -0.315551   | 0.7535 |
| SG       | 0.432086    | 0.198567   | 2.176018    | 0.0339 |
| LEV      | -1.480032   | 0.678425   | -2.181572   | 0.0334 |
| CS       | 1.972315    | 2.044560   | 0.964665    | 0.3389 |

**Fig. 10.** Testing the Significance of Individual Parameters (t-Statistic Test)

#### 4.1 The Effect of Sales Growth on ROE

From Figure 10 above, it can be concluded that the Sales Growth variable has an influence on Return of Equity because the t-statistic value is 2.176018 with a probability of 0.0339 which is less than 0.05. Therefore,  $H_1$  is accepted, which means that Sales Growth does have an influence on ROE. This result is in line with previous research, which found that sales growth has a significant positive effect on ROE [20].

#### 4.2 The Effect of Leverage on ROE

From Figure 10, it can be concluded that the t-statistic value of the Leverage variable is -2.181572 with a probability of 0.0334. Since the probability value is less than 0.05 (i.e.  $0.0334 < 0.05$ ),  $H_1$  is accepted, which means that Leverage has an influence on Return of Equity. However, Leverage has a negative effect on company Return of Equity. This result supports previous research by which concluded that Leverage has a negative effect on profitability [21].

#### 4.3 The Effect of Company Size on ROE

Based on Figure 10, it can be concluded that the t-statistic value of the Company Size variable is 0.964665 with a probability of 0.3389. Since the probability value is greater than 0.05,  $H_0$  is accepted and  $H_a$  is rejected, and it can be concluded that there is no significant relationship between Company Size and Return of Equity. Company size does not guarantee the company's ability to generate good profits [22]. The more significant factor is the optimal use of company assets for operational activities aimed at generating profits. Company Size can be measured by the total assets of the company. Companies with large total assets reflect the maturity of the company [23].

Based on the analysis results, it can be concluded that during the COVID-19 pandemic, Sales Growth variable has a positive and significant effect on ROE, while Leverage variable has a negative and significant effect on

ROE. However, there is no significant difference in ROE between companies of different sizes. In addition, simultaneously, Sales Growth, Leverage, and Company Size variables affect the ROE value of property and real estate companies listed on the IDX in 2019-2021. The findings of this study can assist investors and other stakeholders in understanding the factors that affect the ROE of property and real estate companies during the COVID-19 pandemic. Therefore, more accurate and strategic investment decisions can be made. However, it should be noted that this study was only conducted on a sample of property and real estate companies listed on the IDX in 2019-2021, so the results may not be directly generalizable to companies outside the sample.

Future study directions may involve evaluating the impact of additional pertinent elements, including as liquidity ratios, industry-specific characteristics, or governmental initiatives, that may have an impact on ROE during crises. The results of comparison research across various nations or regions may also shed light on the differences in the effects of sales growth, leverage, and size on ROE during a pandemic.

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