

# Determinant Factors of Infrastructure Firm's Value in Indonesia Stock Exchange

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*Submitted: May 2022, Revised: October 2022, Accepted: February 2023*

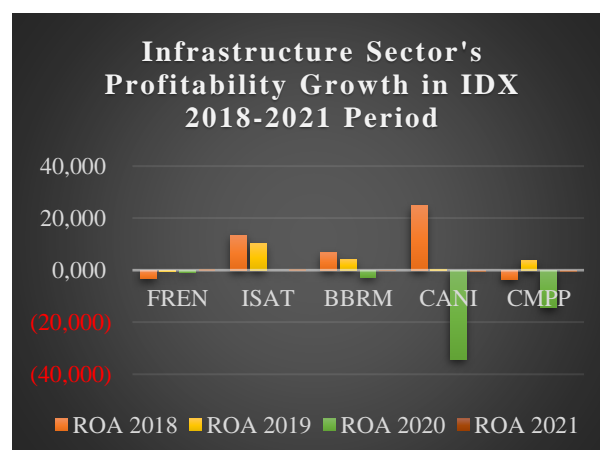
## ABSTRACT

This study will test whether profitability, solvency and firm size have influenced to the firm value for the infrastructure sector companies listed in IDX. Using the purposive sampling, this study obtains 30 companies from the 2018-2021 so that the total number of observations is 120 firm-years. The analysis result conducted by data panel regression shows that profitability and firm size have a significant effect on the firm value at level 10% and 5% respectively. The other finding is that solvency does not affect firm value. From this result, the study will imply that infrastructure sector firms in IDX have considered profitability and size in the effort of maximizing the company value and they actually tend not to use debt as the major regular financing sources.

**Keywords:** *Firm Value, Profitability, Solvability, Firm Size*

## 1. INTRODUCTION

The general financial ratios that constructed by profit, liquidity, leverage, and solvency are the most common indicators in predicting company valuation. Neal [1] argues that the profitability ratio and the five financial ratios can be used by the parties involved in analyzing company's financial performance but cannot be relied on in providing effective predictions for the initial problem of a company's loss. The following is a figure 1 processed by the researcher showing the profitability growth of infrastructure companies during 2018-2021 period.



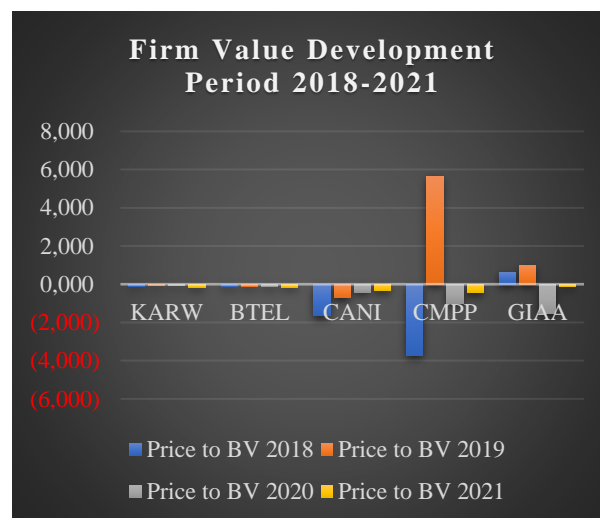
**Figure 1. Profitability growth of infrastructure companies during 2018-2021 periods**

Figure 1 indicates this declining development, based on samples taken from 5 companies, showing that there is a downward trend for profitability growth, where companies find it difficult to find consistent profits throughout the period. The problem will come for its future value development if it

continues like this; the more the company value dips down below expectations, the investors will stay away and pull away their stocks from the company because they do not believe that the on-going direction of development is positive.

In addition to profitability, the company also uses the solvency ratio to review the company's value on a regular basis. Solvency shows informing the company's ability to pay debts and bonds due for fulfillment. One other aspect that can influence the company in avoiding financial difficulties is their firm size or company size. Different company sizes can affect how financially capable they are in absorbing unwanted risks [2]. The firm size can be seen how much total assets or total sales are collected in a given period and also shows the information that the company has, useful for management regarding how important knowledge of the information it has [3].

The following graph in figure 2 explains the development of the value of infrastructure companies based on their book values during the 2018-2021 period.



**Figure 2. Firm Value Development during 2018-2021**

The ongoing development of the company value does not appear to have any growth at all, it looks stagnant throughout the period. The value of a company that does not have growth signifies the unattractive nature of said firm to many investors in the market and can affect the long-term viability of the company. The absence of investors who believe that the company will grow will have an impact on its value in the market. Except in CMPP 2019 where the value was high before falling again, each selected company did not have significant growth.

From the subject matter raised, the researcher was compelled to carry out research because the issues were inconsistent, so that the subject raised became a consideration for the researcher himself to conduct further studies on the related variables. The research that is now being carried out will be focused on the infrastructure industrial companies procured from the 2018-2021 period of Indonesia Stock Exchange.

## **1.1. Related Work**

The theories used in this study are as follows:

### **1.1.1. Asymmetric Information Theory**

Investment activities affects the value of company involves two parties in general; namely the company's internal management that has all financial information and the company's condition, and the external investors who receive this information to form their financial decisions. In this activity, there is a certain possibility of asymmetrical information, where the accuracy of information from the company's operational activities is better known to company managers than investors [4, p. 574]. The asymmetric information theory was first put forward in the form of an essay issued by George Akerlof

entitled "The Market of 'Lemons': Quality Uncertainty and The Market Mechanism" in the 1970s and became one of the bases in determining the literature on information economics. [5]. Asymmetric Information affects the managerial activities in terms of investment appraisal, the indication of a new share issuance signal being a negative signal will push the value of the company down in the future. The two theories used in this study based on information asymmetric theory are the Signaling Theory and the Pecking Order Theory.

### ***1.1.2. Signaling Theory***

Signaling Theory is a theory put forward by Michael Spence [6] which states that companies will provide unique signals in the form of information through financial statements issued. Information such as company operations and company performance becomes a positive or negative signal for investors about the company's condition that encourages investors to act or refrain from investing. This signal is considered a positive signal, if the relevant parties receive the signal and understand the information provided by the company which is driven by information asymmetry. The disparity of understanding between internal parties who really understands the operational situation and company performance compared to investors or outside parties who only rely on financial reports to make decisions encourages internal companies to give signals in the form of financial statements to outside parties.

### ***1.1.3. Pecking Order Theory***

Pecking Order Theory is a financial theory originated by Stewart Myers and Nicholas Majluf [7] explaining that managers who are assumed to know the value of the company actually apply for new equity in the market, investors conclude that the company is considered too expensive and will place a lower value on new equity. As a result, the value of the company is considered lower by investors because of the information gap. This theory states that conventional businesses will follow the order of sources of financing and generally prefers internal financing when it is available, and debt is preferred to equity if external financing is required [4]. Following that, the type of debt a company will be a signal of its external finances needs.

## ***1.2. Hypotheses Development***

Firm Value is a price that prospects are ready to pay if the company is sold in the market [8]. Investors who analyze the value of the company and find values that are profitable for them will push the value of the company up by investing externally in the form of shares to the company. A high corporate value indicates that management has achieved success in achieving the company with its growth and implementation of its management aspects, starting from the organizational structure, operational activities, and aspects of good financial performance. One way a company can increase its value is by submitting the company's shares to the stock exchange or going public [9]. The stock price will be an indicator of the company's value for investors. High stock prices reflect high investor confidence in the company's prospects in the present and future performance. The information emitted can also attract potential investors and other capital holders who can participate in increasing the value of the company.

Profitability according to Brigham & Ehrhardt [4, p. 107] is the net result of several policies and decisions taken by a company. The company's profitability reflects the various types of decisions taken by management to maximize the value of the company's results. Company's signals of making good financial decisions will show in its high profitability, proving the policies implemented in its business have worked with promising results. Hery [10, p. 192] mentions profitability as a tool that can be used to measure the ability of a business or company to generate profits from its business activities. The notion is supported by results from Nofitra [11] as well as Fatimah dan Azib [12] who proxies profitability with ROA found a significantly positive effect in measuring firm value. On the other, Wulandari and Wiksuana [13], Mulia and Setyawan [14] research finds that ROA has a negative impact on firm value. There are also studies that shows profitability has no effect on firm value [15].

Solvency is the company's ability to fulfill their liabilities in the future. When a company cannot pay its debts, then the company will be considered insolvent or insolvent, which is a warning signal for

companies where the inability of total assets or equity to cover total liabilities results in a negative company value. Higher solvency shows the company's financial health are in good condition. Low solvency indicates that the company cannot pay its debts and could go bankrupt. In a study conducted by Luthfiana [16] and Awulle et al [17], solvency is shown to have a positive and significant effect on firm value. On the other hand, the study of Santania and Jonnardi [18] together with Harfani and Nurdiansyah [19] shows that solvency has no effect on firm value.

Firm Size can be assessed by the large scope of a company that can be seen through the total assets that the business has. A large company size will have large total assets as well, indicating that the company invests large enough capital for the company [20]. Large companies have better access to financial markets and are easier to raise funding with lower costs and fewer problems than small companies. This indicates that there's a positive and significant effect on firm value through the size of companies, according to the results of research from Sondakh [20] as well as Hirdinis [21]. On the contrary, Susanti and Restiana's research [22] shows that the company size has a negative effect on the value of the company, where the larger a company grows, the decision making of the company will decrease and shifts to the investors. Based on the explanation of the variables before, we concluded the following hypotheses:

- H1 : Profitability influences Company Value
- H2 : Solvency affects Company Value
- H3 : Firm Size affects Company Value

## 2. RESEARCH METHOD

The research focuses on infrastructure industry companies on the Indonesia Stock Exchange (IDX) in 2018 – 2021, with financial reports accessible through [www.idx.co.id](http://www.idx.co.id). The sample selection technique used in the study was purposive sampling with the following sampling criteria: First, the infrastructure industry companies listed on the Indonesia Stock Exchange for the 2018-2021 period. Second, infrastructure industry companies that provide complete annual financial report information after publication. Third, the infrastructure industry companies listed on the Indonesia Stock Exchange before 2018. The number of data that meet the research requirements are 30 infrastructure companies with a total sample of 120 data received in a 4-year period.

Firm Value will be the dependent variable, while profitability, solvency, and firm size will be the independent ones. Firm value will be measured with the Price-To-Book Value or PBV formula with the following equation [23]

$$PBV = \frac{\text{Market Price per Share}}{\text{Book Value per Share}} \quad (1)$$

Profitability is the first independent variable that is measured by the ROA formula where the explanation of the formula is as follows [24]:

$$ROA = \frac{\text{Net Profit of Company}}{\text{Total Assets of Company}} \quad (2)$$

Solvency is the second independent variable measured by the DER variable with an explanation of the formula as follows [25]:

$$DER = \frac{\text{Total Debt}}{\text{Total Equity}} \quad (3)$$

Firm Size is the third independent variable measured by the SIZE variable where the calculation is the natural logarithm value of the company's total assets. The formula used is as follows [26]:

$$SIZE = \ln \text{asset} \quad (4)$$

The study used descriptive statistical analysis to examine the entire sample of panel data. After the statistical test, a model selection test was conducted consisted of both the Chow test and Hausman test. While the panel data regression to test H1, H2 and H3 is formulated as follow:

$$PBV = \beta_0 + \beta_1 ROA + \beta_2 DER + \beta_3 SIZE + \varepsilon \quad (5)$$

Whereas:

PBV	=	price book value
ROA	=	return on asset
SIZE	=	firm size
$\beta_0$	=	intercept
$\beta_1 \beta_2, \beta_3$	=	slope or coefficient
$\varepsilon$	=	error term

The next test after establishing the model is the testing f hypothesis using the F statistic test, the coefficient of determination test or  $R^2$ , and the statistical T test.

### 3. RESULTS & DISCUSSIONS

#### 3.1. Results

The results of descriptive statistical analysis on the *dependent* variable, namely firm value (PBV) showed the mean value was 10.05844, the median was 1,165, and the standard deviation was 94,84971. Meanwhile, the company with the highest PBV value is owned by CMNP in 2021 with a maximum value of 1040.2. Meanwhile, the company with the lowest PBV value was owned by LAPD in 2019 with a minimum value of -9360. The independent variable Profitability (ROA) shows the mean value is -18.9682, the median is 0.085, and the standard deviation is 195.9742. The company with the highest ROA value was achieved by CMPP in 2018 with a maximum value of 24.73.

Meanwhile, the company with the lowest ROA value is owned by BTEL in 2020 with a minimum value of -2140.2. The independent variable Solvency (DER) shows the mean or mean value of 0.667275, the median value of 1.04, and the standard deviation of 3.323327. Meanwhile, the company with the highest DER value was achieved by BULL in 2021 with a maximum value of 12.2. Meanwhile, the company with the lowest DER value is owned by GIAA in 2020 with a minimum value of -22.7. The independent variable Firm Size (SIZE) shows the mean value of 8.107117, the median value of 8.178024, and the standard deviation of 2.297635. The company with the highest SIZE value was achieved by TLKM in 2021 with a maximum value of 12.41512. Meanwhile, the company with the lowest SIZE value was owned by LAPD in 2019 with a minimum value of 2.70805.

**Table 1. Descriptive Statistics**

	PBV	ROA	DER	SIZE
<b>Mean</b>	10.05844	-18.9682	0.667275	8.107117
<b>Median</b>	1.165	0.085	1.04	8.178024
<b>Maximum</b>	1040.2	24.73	12.2	12.41512
<b>Minimum</b>	-9.36	-2140.2	-22.7	2.70805
<b>Std. Dev.</b>	94.84971	195.9742	3.323327	2.297635

The model selection test is carried out so that the research determines the right test model. The model selection test was carried out with model options including the common, fixed, and random effect model. Chow's test and Hausman's test were used to determine the correct model. The Chow test is used to select between the common and the fixed effect model. The results show that the probability value of cross-section F is 0.0000. This value is smaller than the predetermined significance value of 0.05, so the fixed effect model was chosen as the estimation model for this study.

Furthermore, the Hausman test was carried out as a determinant of the panel data model between the fixed and the random effect model. Hausman test concludes with the results of Fixed Effect Model, due to the cross-section F table has a probability value of 0.0000 or less than ( $<$ ) 0.05, meaning that the test results encourage the use of the fixed effect model and reject the random effect model. The researcher then presents the main research findings.

**Table 2. Chow Test Results**

Effect Test	Statistics	d.f.	Prob.
Cross-section F	3.556078	(29.87)	0.000

**Table 3. Hausman Test Results**

Test Summary	Chi-Sq. Statistics	Chi-Sq. d.f.	Prob.
Cross-section random	48.92887	3	0.0000

The results of this panel data analysis can be concluded with the following regression model equation:

$$PBV = 537.4549 + 0.075736 * ROA + 0.36684 * DER - 64.9065 * SIZE$$

The equation above shows the constant coefficient value of the firm value (PBV) variable is 537.4549. These results show that if the profitability (ROA), solvency (DER) and firm size (SIZE) variables have increased by 1 unit with other independent variables constant, then the firm value variable as measured by PBV will increase by 537.46.

**Table 4. T-Test Results**

VARIABLE	COEFFICIENT	STD. ERROR	T-STATISTIC	PROB.
C	537.4549	65.9476	8.1497	0.00
ROA	0.075736	0.04179	1.8122	0.07
DER	0.36684	2.50112	0.1466	0.88
SIZE	-64.9065	8.07431	-8.038	0.00

The T test is a test of whether the independent variables have non-significant effect on the dependent variables and vice versa. When the probability value is  $< 0.05$ , it shows that the independent variable has a significant effect on the dependent variable. On the other hand, when the probability value is  $> 0.05$ , the independent variable has no significant effect on the dependent variable. The results of all the tests carried out in this study can be seen in the following tables. The  $R^2$  test or the coefficient of determination test is a test to conclude the percentage of independent variables simultaneously on the dependent variable and how far the model's ability to explain the variations. Results of the test shows 41% of independent variable in this study can explain the variation of the dependent variable. The remaining 59% is falls outside the scope of the independent variable. The F test is a test for the simultaneous connection between the independent variable and the dependent variable. The F test shows the value of Prob. of 0.000002 or  $< 0.05$ . Thus, the results of the F-Statistic indicates that the independent variables simultaneously affect the dependent variable significantly.

**Table 5.  $R^2$  & F-Statistics Results**

R-squared	0.56574	Adjusted R-squared	0.406012	Prob (F-Statistics)	0.000002
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### 3.2. Discussion

The conclusion of this study based on the results provided is the independent variable Firm Size measured by SIZE significantly affects the Firm Value based on the results obtained. A large company size guarantees that the company will increase in value as long as the management of asset management is carried out properly. Asset management is also most crucial, as the majority of the spending should be contributed back to the company for the increasing of its value in the form of new production equipment's, new lands for facilities, human resources hiring, and any type of activities that contributes directly to the company. The independent variables Profitability measured by the ROA and Solvency measured by the DER have no significant effect on Firm Value. These results indicate that high profits with good debt management are not a guarantees access factor of increasing company value in general. There are many factors that can raise a firm value from the interest of would-be investors looking at the financial ratios of the company to banks appraising the firm capability for loans.

Ultimately, both of these factors should not be the primary focus when it comes to the handling of company value. The study also shows the simultaneous effect of Profitability (ROA), Solvency (DER), and Firm Size (SIZE) variables on Firm Value (PBV) with a 95% confidence level. The effects of all independent variables, given the right circumstances and certain conditions are met, can raise the firm value in a competitive market. The profitability aspect of company can attract investors to put their trust in return for a share of the profit, banks can rest easy knowing that their loans would be paid back in full from the firm, and good asset management will be able to raise firm value in the sector.

#### **4. CONCLUSION**

This study shows that profitability and solvency have non-significant effect on firm value. Significant effect was observed of firm size on firm value. The three independent variables, namely profitability, solvency, and firm size, together have a significant effect on firm value. Limitations arise from research that only uses three independent variables to explain firm value, namely profitability, solvency, and firm size. The period specified in the study only uses infrastructure industrial companies from the IDX in the period 2018 – 2021. This study also does not cover the influence of the COVID-19 pandemic period which directly or indirectly affects the firm value variable.

Suggestions that can be given for further research after explaining the limitations above are adding another independent variable and covering the effects of the COVID-19 pandemic period so that data collected can be explained more accurately in the future research.

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