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The Effect of ROE on the PBV of Toll Road, Airport, Port, and Sub-Sector Companies in the Indonesia Stock Exchange

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Abstract

This research has been conducting before and during the Covid 19 pandemic and aims to test the effect of the Return on Equity (ROE) to the Price Book Value (PBV) of toll road subsector's companies, airports, and the like on the Indonesian Stock Exchange (ISE) for 6 years in Indonesia. This type of research uses quantitative research and is equipped with verification with an explanatory survey method. The sampling method used a purposive. It took from five sample companies. Data analysis in this study used panel data regression with the results: The results of this study indicate that ROE has a strong effect on firm value.

Keywords: Return On Equity (ROE), Price Book Value (PBV).

1. Introduction

Return on Equity (ROE) is very influential growth of Price Book Value. While, ROE is part of the profitability ratio. The ratio is the company's ability to generate profits at certain levels of sales, assets and share capital (Saha, 2021). In this case, the companies studied are the toll road, airport and a similar sub-sector companies listed on the Indonesia Stock Exchange (ISE). These companies play a role in the Indonesian economy. They are the lifeblood of economic activity. Generally, these business activities are to provide infrastructure for the means of transportation used in these activities.

Price Book Value (PBV) measured growth of company's values. PBV is a ratio that indicates the price of traded shares has overvalued (above) or undervalued (below) the book value of the shares. The higher this ratio, it means that the market trusts the company's prospects (Hasanah, Hadiantini, & Kusumawardhani, 2021). PBV also shows how far a company is able to create firm value relative to the amount of invested capital. To find out a company that is performing well, the PBV ratio value generally reaches above one that indicate that the stock market values are greater than its book value. A high PBV reflects the level of prosperity of shareholders, where prosperity for shareholders is the main goal of the company (Miqdad & Oktaviani, 2021). A company that has a PBV ratio that increases from year after year means that the company has succeeded in creating and increasing company values. The higher the PBV ratio means the higher a company has valued by investors compared. It more the funds that have been invested in the company. The following is the PBV of toll road, airport and a similar sub-sector companies listed on the Indonesia Stock Exchange (ISE).

Table 1. PBV & ROE of Toll Road, Airport, and Similar Companies on the ISE 2015-2020

No	Company	Years	PBV(%)	ROE(%)
1	Cardig Aero Services (CASS)	2015	422	52,57
		2016	256	37,28
		2017	240	40,44
		2018	165	23,77
		2019	136	11,4
		2020	107	-5,97
2	Citra Marga Nusaphala Persada (CMNP)	2015	161	10,87
		2016	106	10,86
		2017	100	12,4
		2018	76	8,67
		2019	91	9,22
		2020	100	6,13
3	Jasa Marga (JSMR)	2015	287	10,67
		2016	226	11,04
		2017	253	11,4
		2018	165	8,9
		2019	169	8,99
		2020	139	0,87
4	ICTSI Jasa Prima (KARW)	2015	-10	74,75
		2016	-30	-6,39
		2017	-11	-7,11
		2018	-10	-2,07
		2019	-7,9	-2
		2020	-8,7	0
5	Nusantara Infrastructure (META)	2015	43	8,1
		2016	71	8,17
		2017	130	5,59
		2018	149	8,47
		2019	123	5,61
		2020	118	2,24

Source: https://www.idx.co.id/

Table 2. PBV of Toll Road, Airport, and Similar Sub-Sector Companies on the ISE 2015-2020

Tahun	PBV (%)
2015	180.6
2016	125.8
2017	142.4
2018	109
2019	102.22
2020	91.06

Souce: www.idx.co.id (2021)

Table 1 and 2 above shown the PBV value of the toll road, airport, and similar sub-sector companies in ISE tends to decline and only increased in 2017 for several companies. ROE shows the value of profitability for ordinary shareholders as an indicator of company performance (Mohamed, Ahmed, Mehdi, & Hussain, 2021; Owusu & Alhassan, 2021). In addition, ROE is also a reflection of the company in generating high returns to shareholders, which in turn will have an impact on company's value. A high ROE value will provide a positive signal for investors to buy company shares, an increase in demand for these shares will increase the share price that will then have an impact on increasing PBV. This study aims to examine the effect of ROE on the Price Book Value (PBV) of toll road, airport, and similar sub-sector companies in ISE before and during the Covid 19 pandemic.

2. Literature Review

Price Book Value (PBV)

Investing in stock investment instruments, of course, requires in-depth knowledge of the world of stocks starting from many terms that exist on the world of stocks and optimizing investment of various strategies. However, this time we are not discussing strategies to optimize stock investment in another thing that is no less important is the term of the world of stocks. PBV referred commonly to as the ratio of price booking to value. PBV is a measure that functions to see about shares in a company can be expensive or cheap. The PBV value is the division of the price per share of the company by the book value.

This PBV value has used to assess. While, the price of shares offered by the company is an expensive or cheap stock price. Given the PBV value is above the value 1, it is certain that the stock price is expensive, and vice versa. Keep in mind, that a cheap share price is not a guarantee that will bring great profits to shareholders. It could be that this value is low (Carhuamaca-Flores, Almonacid-Carranza, Santillan-Zapata, Venegas-Rodriguez, & Deza-Quispe, 2021).

The PBV can be calculating by using the formula (Ligocká & Stavárek, 2019):

$$PBV = \frac{\text{Stock Price}}{\text{Book Value}}$$

Meanwhile, ROE is a ratio that shows the extent of company in managing their capital effectively. It shows the profitability of the business (Mohamed et al., 2021; Owusu & Alhassan, 2021). ROE can be calculated by the formula (Pennacchi & Santos, 2021):

$$\text{Return on Equity} = \frac{\text{Net Income}}{\text{Total Equity}}$$

Framework: The Effect of ROE on PBV

ROE is one of the calculations included in the profitability ratio. ROE shows a company's ability to generate net profit using its own capital and generate net income available to owners or investors. ROE calculation can be using as a measure of the company's financial performance. ROE is dependent on the business. A small company had small capital relatively. So that, the resulting ROE is small, and plenty for large companies. ROE is an indicator of the amount of return on net income on equity and was expressing in percentage terms. ROE commonly uses to measure the ability of a business entity to generate profits with the equity that has been investing by shareholders (Schüürmann, Ebert, Chen, Wang, & Kühne, 2008).

ROE shows the value of profitability for common shareholders as an indicator of company performance. In addition, ROE is also a reflection of the company in generating high returns to shareholders. A high ROE value will provide a positive signal for investors to buy it. This means that ROE can have a positive effect on PBV. This statement has supported by the results of research (Mohamed et al., 2021; Owusu & Alhassan, 2021; Pennacchi & Santos, 2021; Situm, 2021).

H_1: ROE has a positive effect on PBV

3. Methodology

The research location is the toll road companies, airports, and the like on the ISE. It carried out starting March 2021 that comes from financial data onto the ISE website. Methods and research to design. This type of research uses verification research with explanatory survey method used to test hypotheses (Canchy, Girardeau, Durand, Vouillac-Mendoza, & Ahmed, 2021; Ongan, Isik, & Ozdemir, 2020) and to explain phenomena in the form of relationships between variables. Research designed is a procedure that researchers use when selecting, collecting, and analyzing data as a whole. The study was conducting with the aim at examining the effect of ROE on the PBV of toll road, airport, and similar sub-sector companies on the ISE during the 2015-2020 period. Thus, the form of variable relationship of

this study has causally related to the unit of analysis. The structural measurement of each variable uses a ratio to measure the scale.

The sample, researchers used purposive sampling (Ames, Glenton, & Lewin, 2019; Barratt, Ferris, & Lenton, 2015; Etikan, 2016) with research considerations. So that, future data collection is more representative (Han, Byun, Cho, & Rim, 2021; Kao et al., 2021). The considerations for selecting the research sample are:

1) Samples of toll road, airport, and similar sub-sector companies listed on the Indonesia Stock Exchange

2) Sample of IPO companies ≥ 2015

3) The sample period studied was from 2015-2020

4) The sample of companies did not delist from the Indonesia Stock Exchange during the research

5) The sample companies have complete financial data onto 2015-2020

Based on these criteria according to the sampling method used, there are 5 sample companies to be studied.

Research Variables (Cole, 2021; Zhang et al., 2021)*:*

- Independent variable (X): ROE
- Dependent variable (variable Y): PBV

The data analysis technique uses panel data regression (Bernasconi, Wiest, Lavie, Milani, & Laukkanen, 2021; Sparapani, Spanbauer, & McCulloch, 2021) to determine the relationship between the ROE variable on the PBV of the toll road, airport, and similar sub-sectors on the ISE during the 2015-2020 period.

Data processing is using EViews 9 software. The goal is to test the significance of the independent - dependent variables (Cole, 2021; Zhang et al., 2021), it namely a Panel data. While, testing the hypothesis (Balsalobre-Lorente, Driha, Bekun, & Adedoyin, 2020; Pata & Caglar, 2021), this studied is using Panel data regression model (Bernasconi et al., 2021).

In addition, there are three methods of estimating the regression model using panel data, namely: random effects model based on data characteristics. To select the Panel data regression model, we used the Chow test (Eke, Eke, & Inyang, 2016; Nielsen & Whitby, 2015), Hausman test (Ahn & Moon, 2014; Aït-Sahalia & Xiu, 2019), and Lagrange multiplier test (Chen et al., 2021; Li & Yao, 2021). The regression model (Bernasconi et al., 2021; Sparapani et al., 2021):

$$\mathbf{PBV_{it} = \alpha + \beta_1 ROE_{it} + \varepsilon_{it}}$$

Where:

PBV = Price Book Value

ROE = Return On Equity

α = Constant

β = the regression coefficient of each independent variable

ε = Error terms

t = Period

i = *Cross section* company

Panel Data Regression Hypothesis Test:

Hypothesis testing is using the coefficient of determination (adjusted R2), F test, and T test with each probability less than 0.05 (Ongan et al., 2020).

4. Result

Model Development Results: The panel data model in this study uses a random effect model. The feature tested model selection of the research data characteristics. The model is suitable for use for this study. The following is the result of the regression analysis.

Table 3. Regression Analysis

Dependent Variable: PBV
Method: Panel EGLS (Cross-section random effects)
Date: 03/22/21 Time: 10:31
Sample: 2015 2020
Periods included: 6
Cross-sections included: 5
Total panel (balanced) observations: 30
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	105.0004	42.19258	2.488599	0.0190
ROE	1.659188	0.640338	2.591113	0.0150

Effects Specification		
	S.D.	Rho
Cross-section random	89.86086	0.7202
Idiosyncratic random	56.00885	0.2798

Weighted Statistics			
R-squared	0.195592	Mean dependent var	30.86897
Adjusted R-squared	0.166863	S.D. dependent var	60.93525
S.E. of regression	55.61946	Sum squared resid	86618.70
F-statistic	6.808203	Durbin-Watson stat	0.762281
Prob(F-statistic)	0.014401		

Unweighted Statistics			
R-squared	0.153092	Mean dependent var	125.1800
Sum squared resid	261243.3	Durbin-Watson stat	0.252744

Source: EViews Processing Results

Based on Table 3 above, the panel data regression-equation model in this study is:

$$\mathbf{PBV_{it} = 105{,}0004 + 1{,}659188_{it} ROE_{it} + \varepsilon_{it}}$$

The equation mentioned above can be explaining as follows:

a) PBV = *Price Book Value*

b) 105,0004 is the value of the coefficient α (constant)

c) 1,659188 is the value of the regression coefficient of ROE

d) ε = *Error terms*

e) t = Period of year (2015-2020)

f) i = *Cross section* Company

Hypothesis Test Results

• Determination Coefficient Test (Adjusted R^2) (Heo, Kho, Shin, Kim, & Kim, 2008; Schüürmann et al., 2008):

This study found the Adjusted R^2 value has a value of 0.166863. This means that the independent variables in this study provide information on the prediction of variations in the dependent variable. It closed to one (1). In this case, PBV has influenced by ROE of 16.6863%. The rest has influenced by other variables in this study 83.3137%.

• F tests (Wang, 2008)

It has known that probability F statistical significance valued (0.01440). This means that ROE has a significant effect on PBV with a probability of <0.05.

• T tests (Kim, 2015; Sanderson & Windmeijer, 2016)

- Testing the Effect of ROE on PBV

The initial hypothesis states that ROE has a positive effect on PBV. Based on the results of hypothesis testing, it has known that the probability of ROE is 0.0150 with a positive coefficient that indicates that the variable has a significant effect on PBV. The hypothesis is proven (reject H_0).

Discussion

The Effect of ROE on PBV

Based on the results of the T test, the ROE variable has an influence on PBV. It has a probability value of 0.0150 and has a positive coefficient. This shows that the initial hypothesis that states that ROE has a positive effect on PBV has proven (Mohamed et al., 2021; Owusu & Alhassan, 2021; Saha, 2021).

ROE shows the value of profitability for common shareholders as an indicator of company performance. In addition, ROE is also a reflection of the company in generating high returns to shareholders. A high ROE value will provide a positive signal for investors to buy it. The share will increase. It will have an impact on increasing PBV (Hasanah et al., 2021; Mohamed et al., 2021; Owusu & Alhassan, 2021).

The PBV value of a company is often comparing with the value of other companies. This comparison aims to compare the expensive level of stock prices between companies. However, what needs to be considering in comparing the two values is to look at the similarity in the specifications of the two companies. Of course, investors must compare two companies with the same specifications. It is on a company scale, or from its movement sector. Such company specifications must be ensuring to be the same. They were different. Of course, an effective comparison could not be doing.

5. Conclusion

Abovementioned the descriptions listed, it can be concluding that the PBV valued is highly correlated with ROE. This is an important measure in stock purchase decisions on investors. The PBV value determines that the stock price offered by the company is included in high or low price.

It should be note in relation to the PBV value that large-scale companies engaged in finance are very reasonable if they have a high PBV value. It is not detrimental to buy shares from large companies that have high PBV's values.

6. Implication

This pandemic distorted the correlation between ROE and PBV. Some small companies' growth is more resilient. The ROE movement does not follow the pattern of normal periods (non-pandemic). Even some large companies are experiencing ROE growth pressure (Table 2). The positive effect on ROE and PBV have not steady indicator for investors' purchasing decisions. They should also consider ROE patterns of this pandemic.

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