ASSET PRODUCTIVITY, PROFITABILITY, AND FIRM VALUE: CAN STATE-OWNED COMPANIES OUTPERFORM NON-STATE-OWNED COMPANIES?

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ABSTRACT

State-owned companies/enterprises (SOEs), especially "state-owned limited liability companies" have the primary objective of generating profits. Some SOEs have been registered in the capital market, and as a consequence, SOEs should be able to compete with non-state-owned companies/enterprises (Non-SOEs). This study examines whether SOEs are able to outperform Non-SOEs. Using a sample of 297 observations consisting of 99 SOEs and 198 Non-SOEs in the period 2012-2016, the results of this study show that SOEs are more productive in using assets and have higher corporate value than Non-SOEs, and the association between asset productivity with firm value SOEs is higher than that when the sample size is relatively larger. Although more productive, SOEs do not have higher profitability compared to Non-SOEs, and the association between profitability with firm value for SOEs is not different from the association between profitability with for Non-SOEs. These findings suggest that SOEs need to maintain their superiority in achieving asset productivity but also need to improve their ability to generate profits in line with SOE objectives.

Keywords: Productivity of asset use; Profitability; Firm value; State owned enterprise (SOE); Non-state-owned enterprise (Non-SOE).

1. INTRODUCTION

State-owned companies/enterprises (SOEs), according to Law Number 19 Year 2003 on State-Owned Enterprises, consist of public companies (Perum) and state-owned limited liability companies (Persero). Perum aims for general benefit in the form of provision of goods and/or services of high quality and at the same time pursuing profits based on the principles of corporate management, while Persero has the ultimate goal of pursuit of profit. Persero may conduct a public offering in accordance

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with the laws and regulations of the capital market. This company is called a publicly-held limited liability company (Persero Tbk.). By conducting a public offering of shares, publicly-held state-owned limited liability companies must be able to compete with private-owned companies/enterprises (Non-SOEs). These state-owned companies are not only aimed at pursuing profits but also required to provide dividends to support government funding because most of the state-owned enterprises are state represented by the government. However, the phenomenon shows that according to the Ministry of SOEs, there are 24 state-owned companies that suffered losses during the first half of 2017. Total losses from state-owned companies reached Rp 5.8 trillion so that SOEs will be closely monitored and fostered.

A previous study in China (Tong, 2013) found that state-owned enterprises were superior to nonstate-owned companies (Non-SOEs) in corporate governance efficiency. However, another study in Norway (Bach and Helgesen, 2017) comparing state-owned enterprises with non-state-owned companies found that SOEs have a higher vulnerability to corruption despite having more disclosure of anti-corruption initiatives than non-state-owned companies. Another study (Jakob, 2017) comparing SOEs and private companies from 52 countries found no correlation between ownership and performance.

The present study has been conducted in Indonesia to examine whether SOEs listed in the Indonesia Stock Exchange (IDX) are able to compete or even outperform non-state-owned companies. More specifically, the purpose of this study is, first, to compare the productivity of asset use, profitability, and firm value for SOEs with asset productivity, profitability, and firm value for private-owned companies (Non-SOEs). Second, the study aims to compare the associations of asset productivity and profitability with firm value for SOEs with that for Non-SOEs.

2. LITERATURE REVIEW AND RESEARCH QUESTIONS

2.1. Studies on State-Owned Enterprises

Previous studies on state-owned enterprises (SOEs) explain the weaknesses or constraints faced by state-owned enterprises, among others, that SOEs face a trade-off between revenue maximization and unemployment minimization (Wang et al., 2007), SOEs have contractual agreements (SOEs) have loose contractual agreements under conditions of changes in the economic environment that result in SOE systems being implemented ineffective (Liu, 2009), SOEs have complied with external governance demands, but compliance with self-governed internal governance is lacking (Thomas, 2012), SOEs have multiple missions that may be difficult to implement (Alexius & Cisneros Örnberg, 2015), the provision of public services and budget consolidation of SOEs can not be realized effectively and efficiently because it is not accompanied by strong management and governance (Grossi et al., 2015), and SOEs face a management approach which is politically restricted (Lin, 2017).

The performance of SOES can be improved, among others, by privatization (Christensen, 1998). This is supported by the results of the Bozec & Breton (2003) study which indicates that the financial performance of SOEs increased significantly after the corporation process. However, such privatizations need to take account of certain conditions such as privatization priorities of firms with the least market power and the largest subsidy (Chen, 1996). The right policy should also be

considered because, according to Belloc (2014), SOE inefficiency is not caused by ownership but rather a result of strategy. So, privatization alone does not solve the problem, it is important that the right policies need to be implemented.

The performance of companies that have been listed on the stock exchange, among others, is shown by the firm value which can be influenced by the financial performance of the company. Chen and Chen (2011) and Rizqia et al. (2013) examines and found the relationship between the pofitability and firm value. Ramirez and Hachiya (2006) found that organizational capital has a positive effect on productivity and firm value.

2.2 Studies on the Comparison between State-Owned Companies and Non-State-Owned Companies

An earlier study of Picot & Kaulman (1989) compares SOEs and Non-SOES using Fortune's "The Foreign 500" data. They found that the productivity and profitability of privately-owned large industrial corporations were higher than the productivity and profitability of government-owned corporations. This is in accordance with the views of property rights theory. Likewise, Perkins (1996) found that SOES productivity was lower than that of Non-SOES.

In contrast to these findings, Lin (2009) found that the efficiency of state-owned enterprises increased with the restructuring of these SOEs through the improvement of corporate governance. Similarly, the findings of Tong et al. (2013) using data from firms in China found that the corporate governance efficiency of state-owned enterprises is superior to the corporate governance efficiency of private enterprise. However, Hakim & Wibawa (2014) in an Indonesian study found that the initial return of SOEs was not different from the initial return of Non-SOEs. These results remain consistent when comparisons are made in the same industry. A study conducted by Jakob (2017) also comparing SOEs and private companies from 52 countries found that there was no correlation between ownership and performance.

Other previous studies provided findings and suggested improvements to SOEs. Sappideen (2017) highlights the characteristics of the success of SOEs namely the importance of culture in shaping and functioning human and organizational behavior, and the importance of property right, minority shareholder rights, and the important role of financial markets in investment. Shaheer et al. (2017), which examines the tendency to bribe state-owned taxes as compared to Non-SOEs, highlights the issues that need to be taken into account in improving the performance of SOEs in such matters, such as democracy promotion, law enforcement supremacy, and the shortening of power distance in reducing bribery of SOEs. Songvilay et al. (2017) also stated about the importance of paying attention to the environmental context of SOEs in reforming SOEs.

Performance of companies that have been listed on the stock exchange is is indicated, among others, by the firm value that can influenced by the financial performance of the company. Ramirez and Hachiya (2006) found that organizational capital has a positive influence on firm value. Chen and Chen (2011) and Rizqia et al. (2013) examines and finds a link between profitability and the value. The present study compares the productivity of asset use, profitability, and firm value, as well as productivity and profitability associations with the firm value of state-owned enterprises to asset usage productivity, profitability, and firm value, as well as productivity and profitability associations

with firm value of non-state-owned companies by providing empirical evidence of the following research questions.

• Are state-owned enterprises (SOEs) more productive in the use of assets than non-state-owned companies/enterprises (Non-SOEs)?

• Is the profitability of SOEs higher than the profitability of Non-SOEs?

• Is the firm value of SOEs higher than the firm value of Non-SOEs?

• Is the association between asset productivity and profitability with firm value for SOEs higher than that for Non-SOEs?

3. METHODS

3.1. Variables

The productivity of asset use is the result achieved in the use of the asset. Asset productivity is measured by sales-to-total asset ratio (STA) or total sales divided by total assets. Profitability is the company's ability to generate profits with available resources. Profitability in this study is measured by return on assets (ROA). The value of the firm is the market-determined value of the firm. Firm value is measured by price to book ratio (PBV) or market value of equity per share divided by book value of equity. This measure was chosen because the PBV measurement formula is not affected by the leverage ratio. State-owned enterprises (SOEs) in this study is a publicly-listed company that is a limited liability company whose capital is divided into shares of which all or at least 51% of its shares are owned by the Republic of Indonesia whose main purpose is to pursue profits and that conduct public offering in accordance with legislation in the field of capital market. This SOE is a dummy variable with a value of 1 if the company is a SOE, and with a value of 0 if the company is a Non-SOE.

3.2. Regression Models

The following regression models are used to find empirical answers for the research questions:

 $\begin{aligned} STA &= \beta 0 + \beta 1SOE + \beta 2SIZE + \beta 3DER + \sum_{k=1}^{5} ckSECT + \varepsilon & (1) \\ ROA &= \beta 0 + \beta 1SOE + \beta 2SIZE + \beta 3DER + \sum_{k=1}^{5} ckSECT + \varepsilon & (2) \\ PBV &= \beta 0 + \beta 1SOE + \beta 2SIZE + \beta 3DER + \sum_{k=1}^{5} ckSECT + \varepsilon & (3) \\ PBV &= \beta 0 + \beta 2STA + \beta 3ROA + \beta 4STAxSOE + \beta 5ROAxSOE + \beta 6SIZE + \beta 7DER + & (4) \\ &\sum_{k=1}^{5} ckSECT + \varepsilon & \end{aligned}$

The definitions and measurements of STA, ROA, PBV, SOE in those models are as described in the "variable" sub-section. SIZE is a company size that functions as a control variable. SIZE is measured using the natural logarithm of total assets (LnTA). DER (debt-to-equity) is the company's debt-financing ratio. DER is the total debt divided by equity. SECT is the industrial sector of the company which includes sector 2 (mining), sector 3 (basic industry and chemical), sector 5 (consumer goods industry), sector 6 (property, real estate, and building construction, sector 7 transportation, and sector 8 (finance). Each sector is a dummy variable with a value of 1 if the company is included in the relevant industry sector.

Model (1) is used to to compare the productivity of asset use for state-owned enterprises (SOEs) with the productivity of asset use for non-state-owned companies (Non-SOEs). Positive relationship between independent variables and dependent variable for research questions 1 is supported if $\beta 1$ in the model (1) is positive and significant. Model (2) is used to test H2 that is the comparison between the profitability of SOEs and profitability of Non-SOEs. Positive relationship between independent variables and dependent variable for research question 2 is supported if $\beta 1$ in the model (2) is positive and significant. Model (3) is used to test H3 that is comparing firm value (PBV) for SOEs with firm value for Non-SOEs. Positive relationship between independent variables and dependent variable for research question 3 is supported if 3 is supported if $\beta 1$ in the model (3) is positive and significant. Model (4) is used to compare the effect of STA and ROA on PBV for SOEs with that for Non-SOEs. H4 and H5 are supported if $\beta 3$ and $\beta 4$ respectively in the model (4) are positive and significant.

3.3 Data and Sample

Data sources of research variables consisting of asset productivity (STA), profitability (ROA), firm value (PBV), firm size (SIZE), and leverage (DER) are Fact Book in the Table of "Financial Data and Ratios" during 4 years from 2014 to 2017 containing financial statement data from 2013 to 2016. SOE data is obtained from the website of the Ministry of State-Owned Enterprises (http://www.bumn.go.id/).

The state-owned companies (SOEs) selected as the sample is publicly-held limited liability companies (Persero Terbuka), while the non-state-owned companies (Non-SOEs) selected is a Non-SOEs matched-paired with SOEs using the following criteria: listed on the Indonesia Stock Exchange (IDX), having the same financial reporting date as the SOEs financial reporting date, in the industrial sector and/or the same industry sub-sector as the state-owned enterprise, and has a size close to the size of the SOEs.

The number of SOEs listed on the IDX for 2012 is 19 companies, while the number of SOEs for the year 2013-2016 is 20 companies. The number of Non-SOEs selected as sample for 2012 is 38 companies, while for 2013-2016 each is 40 companies. From the sample selection procedure, 99 observations were obtained for SOEs and 198 observations for Non-SOEs, and the overall sample consisted of 297 observations. Table 1 presents the selection of the sample.

Year	2012	2013	2014	2015	2016	Total Observations
SOEs	19	20	20	20	20	99
Non-SOEs	38	40	40	40	40	198
Total	57	60	60	60	60	297

 Table 1: Sample Selection: State-Owned Enterprises (SOEs) and Non-State-Owned

 Companies/Enterprises (Non-SOEs)

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4. RESULTS

4.1. Descriptive Statistics

Table 2 presents descriptive statistics for the full sample (Panel A, N = 297) and descriptive statistics grouped into two subsamples: subsample of State-Owned Enterprises, SOEs (N = 99), for Non-stateowned companies (Non-SOEs) subsample (N = 198). The mean value of asset use productivity (STA) for SOEs is greater than the mean value of STA for Non-SOEs but STA standard deviation for SOEs is smaller than the standard deviation of STA for Non-SOEs. Likewise, the mean value of firm value (PBV) for SOEs is greater than the mean value of PBV for Non-SOEs although the standard deviation of PBV for SOEs is also greater than the standard deviation of PBV for Non-SOEs. These results indicate that STA and PBV for SOEs are relatively better than STA and PBV for Non-SOEs. The comparison between the profitability (ROA) value for the SOEs profitability (ROA) for Non-SOEs also shows the same pattern with STA and PBV comparison although with relatively lower values. SOEs have a relatively larger size compared to Non-SOEs and with relatively larger debt financing.

Table 2: Descriptive Statistics						
Variable	Minimum	Maximum	Mean	Std. Deviation		
Panel A: Full Sample (N = 297)						
STA	0.0050	4.7850	0.6180	0.5225		
ROA	-0.2489	0.2861	0.0503	0.0730		
PBV	0.1400	25.1900	2.0665	2.1568		
SIZE	4.9127	13.8535	9.3076	1.9420		
DER	0.0000	11.6800	2.6362	2.9429		
Panel B: State-O	wned Companies (SO	Es) $(N = 99)$				
STA	0.0838	1.7948	0.6377	0.4130		
ROA	-0.1200	0.2340	0.0519	0.0633		
PBV	0.1900	25.1900	2.5184	2.7470		
SIZE	7.0809	13.8535	10.3998	1.7363		
DER	0.0000	11.4000	2.7184	2.7695		
Panel C: Non-State-Owned Companies (Non-SOEs) (N = 198)						
STA	0.0050	4.7850	0.6081	0.5701		
ROA	-0.2489	0.2861	0.0495	0.0769		
PBV	0.1400	8.7400	1.8406	1.7554		
SIZE	4.9127	12.3949	8.7615	1.8082		
DER	0.0000	11.6800	2.5951	3.0319		

4.2. Regression Results

The regression results to test the difference between assets use productivity of SOEs and assets use productivity of Non-SOEs are presented in Table 3. The SOE coefficient is positive and significant at 1 percent level for both the sample which includes 199 observations and 297 observations. These results indicate that the assets productivity of SOE is higher than that of Non-SOEs.

Variable	Coefficient	Prob.	Coefficient	Prob.
SOE	1.5130	0.0023	0.9965	0.0188
SIZE	-0.1758	0.0000	-0.1019	0.0000
DER	0.0570	0.0420	0.0194	0.3210
SECT3	0.4868	0.1153	0.3828	0.0544
SECT5	0.2041	0.5567	0.3232	0.1840
SECT6	-0.7539	0.0322	-0.5441	0.0291
SECT7	-1.0169	0.0054	-0.5528	0.0329
SECT8	-1.7714	0.0000	-1.2755	0.0000
С	2.0609	0.0000	1.5759	0.0000
Ν	199		297	
R-squared	0.7051		0.7291	
Adjusted R-squared	0.6133	0.6498		
F-statistic	7.6817	9.1966		
Prob (F-statistic)	0.0000		0.0000	

Table 3: Regression Results with Dependent Variable of Assets Use Productivity (STA)

The regression results to test the difference between the profitability of SOEs and profitability of Non-SOEs are presented in Table 4. The SOE coefficients are negative and not significant. The results of the sample covering 297 observations were consistent with the results of the sample which included 199 observations. These results indicate that the profitability of SOEs is not different from the profitability of Non-SOEs.

Table 4: Regression Results with Dependent of Profital	bility	(ROA)
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Variable	Coefficient	Prob.	Coefficient	Prob.
SOE	-0.0087	0.5224	-0.0132	0.2773
SIZE	0.0171	0.0001	0.0103	0.0014
DER	-0.0092	0.0246	-0.0090	0.0031
SECT3	0.0065	0.7685	0.0067	0.7069
SECT5	0.0618	0.0145	0.0560	0.0063
SECT6	-0.0014	0.9466	-0.0154	0.3641
SECT7	-0.0061	0.7694	-0.0125	0.4569
SECT8	-0.0303	0.3817	-0.0226	0.4068
С	-0.0922	0.0335	-0.0143	0.6393
Ν	199		297	
R-squared	0.1747		0.1609	
Adjusted R-squared	0.1400		0.1376	
F-statistic	5.0291		6.9025	
Prob(F-statistic)	0.0000		0.0000	

Table 5 presents the regression results to test the difference between the firm value of SOEs and firm value of Non-SOEs. The SOE coefficient is positive and significant at the 5 percent level. The results of the sample covering 297 observations were consistent with the results for the sample which included 199 observations. These results indicate that the firm value of state-owned enterprises is higher than the firm value of non-state-owned companies.

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Variable	Coefficient	Prob.	Coefficient	Prob.
SOE	0.7521	0.0266	0.6028	2.1538
STA	-0.2450	0.5438	0.0055	0.0181
ROA	7.6956	0.0014	9.8621	5.5292
SIZE	-0.0411	0.7693	0.0265	0.2898
DER	0.0949	0.4533	0.0595	0.6824
SECT3	0.3023	0.5895	0.5310	1.2820
SECT5	2.9262	0.0000	2.6565	5.3526
SECT6	0.5675	0.2930	0.6804	1.7219
SECT7	0.1604	0.7530	0.3219	0.8335
SECT8	-0.3804	0.7186	0.0646	0.0835
С	1.2837	0.3416	0.4043	0.4672
Ν	199		297	
R-squared	0.2289		0.2686	
Adjusted R-squared	0.1879		0.2430	
F-statistic	5.5812		10.5016	
Prob(F-statistic)	0.0000		0.0000	

Table 5: Regression Results with Dependent of Firm Value (PBV)

The regression results to test whether the association between assets productivity and profitability with firm value for SOEs is different from that for Non-SOEs are presented in Table 6. The STAxSOE coefficient for the sample which includes 199 observations is positive but not significant at the 5 percent level, whereas the STAxSOE coefficient for the sample covering 297 observations is positive and significant at the 5 percent level. These results indicate that the effect of asset productivity (STA) on firm value (PBV) for SOEs. The ROAxSOE coefficient for the sample which includes 199 observations is not significant at the 5 percent level. These results indicate that the effect of asset productivity (STA) on firm value (PBV) for Non-SOEs. The ROAxSOE coefficient for the sample which includes 199 observations and for the sample covering 297 observations is not significant at the 5 percent level. These results indicate that the influence of profitability (ROA) on firm value (PBV) for SOEs is not different from that for Non-SOEs.

Variable	Coefficient	Prob.	Coefficient	Prob.	
STA	-0.3164	0.4572	-0.1296	0.6849	
ROA	6.5938	0.0309	10.7166	0.0000	
STAxSOE	0.6482	0.2075	0.9016	0.0336	
ROAxSOE	2.6938	0.5517	-2.1998	0.5496	
SIZE	0.0308	0.8140	0.0568	0.4998	
DER	0.0827	0.5187	0.0435	0.6196	
SECT3	0.3797	0.5005	0.5874	0.1571	
SECT5	2.9598	0.0001	2.5366	0.0000	
SECT6	0.6330	0.2420	0.6461	0.1035	
SECT7	0.1305	0.7991	0.3235	0.4024	
SECT8	-0.3008	0.7822	0.1985	0.7999	
С	0.7653	0.5573	0.2354	0.7770	
Ν	199		297		
R-squared	0.2266		0.2701		
Adjusted R-squared	0.1811		0.2420		
F-statistic	4.9803		9.5900		
Prob(F-statistic)	0.0000		0.0000		

Table 6: Regression Results with Dependent of Firm Value (PBV) with the Interaction Variables

4.3. Discussion

The findings of this study indicate that state-owned enterprises (SOEs) can outperform non-stateowned companies (Non-SOEs) in the productivity of asset use and in company value, as well as in the effect of the productivity of the use of the asset on firm value. Since asset use productivity is sales divided by total assets, the superiority of SOEs over those Non-SOEs can come from sales, or from assets, or from both. Since SOEs have a relatively larger size than Non-SOEs, the superiority of SOEs in asset productivity is more due to its superiority in generating revenue. More capabilities possessed by SOEs can be caused by facilities owned by SOEs as companies that carry out the mission of producing good public services and generate high profit according to prevailing laws and regulations. The superiority of SOEs in the productivity of the assets use was able to affect the value of the company. This is indicated by the firm value of state-owned companies that is higher than the firm value of Non-SOEs. In addition, the effect of asset productivity on corporate value for SOEs is also higher compared with that for Non-SOEs.

This study also found that SOEs have not been able to outperform Non-SOES in achieving profitability. SOEs have profitability that is not different from Non-SOES. These results can be attributed to other findings from this study which show that the effect of profitability on firm value for SOEs is not different from the effect of profitability on firm value for Non-SOES. Thus, SOEs have not fully succeeded in pursuing their mission of "pursuing profit" if Non-SOES profitability serves as a benchmark. SOEs have higher asset usage productivity compared to Non-SOEs, but SOEs do not have higher profitability compared to Non-SOEs. This can be attributed to, among others, the cost/expense inefficiencies of SOEs, such as costs of goods sold, administrative and general expenses, financial expenses, and other expenses. Wang (2017) found that government intervention had an impact on company policy which in this case was a debt policy. There are other

factors that can lead to inefficiencies such as the occurrence of earnings management that impact on profitability.

5. CONCLUSIONS

The study examines whether state-owned enterprises (SOEs) are able to outperform non-stateowned companies (Non-SOEs). This study shows the following empirical results. First, the results of this study indicate that state-owned enterprises are more productive in using assets than nonstate-owned companies. Second, SOEs profitability is not higher than (not different from) Non-SOEs profitability. Third, the firm value of state-owned enterprises is higher than the firm value of Non-SOEs. Fourth, the effect of asset use productivity on firm value for SOEs is higher than the effect of productivity of asset use on firm value for Non-SOEs when the number of observations in subsample of Non-SOEs is relatively large. Fifth, the effect of profitability on film value for SOEs is not higher than (not different from) the effect of profitability on firm value for Non-SOES.

The findings show the following interrelationships. SOEs are more productive in the use of assets and also have higher corporate value compared to Non-SOEs. These results are consistent with the result that the effect of asset use productivity on firm value for SOEs is higher than that for Non-SOEs. However, SOEs do not have higher profitability compared to Non-SOEs, and the effect of profitability on firm value for SOEs is not different from profitability influence on firm value for Non-SOEs. SOEs that are more productive and which have relatively high corporate value but do not have a relatively high profitability may be attributable to inefficiencies in costs and/or there may be a relatively high earnings management for SOEs.

The implication of these findings is that state-owned enterprises need to maintain or even increase the productivity of asset use that impact on increasing company value. In addition, SOEs should improve their profitability to be able to outperform Non-SOEs. By achieving this, the effect of profitability on corporate value for SOEs can be higher than the effect of profitability on corporate value for Non-SOEs.

Limitations of this study need to be considered in interpreting the results of the study and for consideration in future studies. This study uses a subsample of Non-SOEs selected by matchedpair with SOEs in terms of the public offering of shares in Indonesia Stock Exchange (IDX), sector or industry subsector, company size, and reporting date to minimize bias in Non-SOEs subsample. Nevertheless, 'matched-pair' cannot be fully implemented, especially in terms of industrial subsector and firm size. The testing effort to reduce the bias in the selection of subsamples has been carried out in this study by using the different number of Non-SOEs as a comparison. The results of this study with the different subsamples are relatively consistent.

Suggestions for further research include comparisons between earnings management for SOEs and earnings management for Non-SOEs and cost/expense efficiency comparisons such as costs of goods sold, administrative and general expenses, financial expenses, and other expenses. In addition, further research can retest the results of this study using newer observations, when they are available, which may have different characteristics.

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