

Government Investment and Capital Participation to State-Owned Enterprises in Indonesia to Mitigate The Impact of The COVID-19 Pandemic: Is It Effective?

AMDI VERI DARMA¹, NI PUTU WIWIN SETYARI², EKA ARDHANI SISDYANI³,
NI MADE DWI RATNADI³

¹UPN Veteran Jakarta,
Jalan RS Fatmawati, Pondok Labu, Jakarta Selatan, DKI Jakarta, 12450,
INDONESIA

²Department of Economics Development, Faculty of Economics and Business,
Udayana University,
Jalan P.B. Sudirman, Denpasar, 80234,
INDONESIA

³Department of Accounting, Faculty of Economics and Business,
Udayana University,
Jalan P.B. Sudirman, Denpasar, 80234,
INDONESIA

Abstract: - The National Economic Recovery (PEN) Program is set by the government of Indonesia comprehensively regarding the handling of the devastating impact of COVID-19. The target recipients of the PEN program are classified into two, namely: the first group, State-Owned Enterprises (SOEs), and the second group are non-SOEs business units, where for SOEs this is done in the form of State Capital Participation (PMN) and Government Investment (IP). This research aims to analyze the impact of the PEN program on SOE performance. The analysis results show that the PEN Program has a positive impact on SOEs, as seen from SOEs ROA. The PEN program that has been running has not been able to improve significantly. However, it can be said that the PEN Program has been able to protect the operations of SOE recipients of the PEN program. In addition, the PEN Program has had an impact on achieving positive EAT growth in almost all recipient SOEs. The PEN program for SOEs needs to be re-evaluated, especially for SOEs that had the potential to perform poorly before the pandemic.

Key-Words: - Financial performance, National Economic Recovery (PEN) Program, Government Investment (IP), State Capital Participation (PMN), State-Owned Enterprises (SOEs), Return on Assets (ROA), Return on Equity (ROE), Earning After Tax (EAT), Earning Before Interest, Taxes, Depreciation, and Amortization (EBITDA).

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1 Introduction

The government has introduced various forms of policies to reduce the impact of the COVID-19 pandemic, [1], [2]. Simultaneously with the issuance of Government Regulation instead of Law Number 1 of 2020 which is stipulated as Law Number 2 of 2020 concerning State Financial Policy and Financial System Stability for Handling the Corona Virus Disease-2019 (COVID-19) Pandemic and/or in the context of Facing Threats that Endanger the National Economy and/or Financial System Stability, the government launched a stimulus

package as an effort to deal with the impact of COVID-19, [3]. This policy was implemented to carry out three main focuses for handling COVID-19 in Indonesia. Firstly, saving lives and improving the quality of public health. Secondly, providing a social safety net. Third, save the economy and the business world. This program is aimed at protecting, maintaining, and improving the economic capabilities of business actors from the real sector and the financial sector in running their businesses, [4], [5].

The National Economic Recovery Policy (PEN) is comprehensively set by the government regarding the handling of the devastating impact of the COVID-19 national economic order, [6]. The regulatory framework that regulates the PEN Program is Government Regulation Number 23 of 2020 concerning the Implementation of the National Economic Recovery Program in the Context of Supporting State Financial Policy for Handling the 2019 Corona Virus Disease (COVID-19) Pandemic and/or Facing Threats that Endanger the National Economy and/or Financial System Stability and Saving the National Economy (which has been amended by Government Regulation Number 43 of 2020). These regulations explain that the PEN program generally consists of (1) State Capital Participation (PMN); (2) placement of funds; (3) government investment; (4) guarantee; and (5) other policies through state spending, [7].

The target recipients of the PEN program are classified into two, namely: the first group, State-Owned Enterprises (SOEs), and the second group non-SOEs business units. SOEs is a business entity established by the government, part or all of whose capital is owned by the state, [8]. The role and prominence of SOEs in the Indonesian economy have changed substantially over time, with the value of SOE assets in 2019 standing at over 56.2% of GDP, down from roughly 90% of GDP in 1990 but up from a trough of 36% of GDP in 2010, [9]. SOEs received the PEN program in two forms, namely State Capital Participation (PMN), which was given to eight SOEs, namely: PT Hutama Karya, PT Indonesian Infrastructure Guarantee (PII), PT Permodalan Nasional Madani (PNM), PT

Indonesian Export Financing Institution (LPEI), Indonesia Tourism Development Corporation (ITDC), PT Bio Farma, PT Bahana Pembinaan Usaha Indonesia (BPUI), and PT Waskita Karya. The second form is Government Investment (IP) which is given to five SOESs, namely PT Krakatau Steel, PT Garuda Indonesia, PT Perkebunan Nusantara III, PT Kereta Api Indonesia, and Perum Perumnas. State capital participation for designated SOEs, carried out by the Government for the implementation of the National Economic Recovery Program, which aims to improve the capital structure of SOEs and/or SOEs subsidiaries affected by the COVID-19 pandemic; and/or increase the business capacity of SOEs and/or SOEs subsidiaries, including to carry out special assignments by the Government in the implementation of National Economic Recovery. On the other hand, Government Investment (IP) financing in the form of loans to SOEs is provided for the need to strengthen capital, so IP PEN is provided to support the operational needs of SOEs which have been greatly impacted by the pandemic.

One form of the National Economic Recovery (PEN) Program related to the COVID-19 Pandemic is government assistance to State-Owned Enterprises (SOEs) in the form of State Capital Participation (PMN) and Government Investment (IP). Recipients of assistance in the PEN Program include state-owned companies in various industrial fields, namely construction, infrastructure, financing, tourism, health/pharmaceuticals, property, transportation, and agriculture. Data on PEN Program recipients is presented in Table 1 for PMN and Table 2 for IP.

Table 1. SOEs Recipient of State Capital Participation (PMN), Year 2020-2021 (in Millions IDR)

No	Name of SOE	Cluster	Amount of PMN	Realization	
				2020	2021
1	PT Hutama Karya	Infrastructure Services	16,500,000	7,500,000	9,000,000
2	PT Penjamin Infrastruktur Indonesia (PII)	Financial Services	1,570,000	1,570,000	-
3	PT Permodalan Nasional Madani (PNM)	Financial Services	1,500,000	1,500,000	-
4	PT Lembaga Pembiayaan Ekspor Indonesia (LPEI)	Financial Services	5,000,000	5,000,000	-
5	Indonesia Tourism Development Corporation (ITDC)	Tourism and Support Services	500,000	500,000	-
6	PT Bio Farma	Medical Industry	2,000,000	2,000,000	-
7	PT Bahana Pembinaan Usaha Indonesia (BPUI)	Insurance and Pension Fund Services	6,000,000	6,000,000	-
8	PT Waskita Karya	Infrastructure Services	7,900,000	-	7,900,000
	Total		40,970,000	24,070,000	16,900,000

Table 2. SOEs Receiving Government Investment (IP) in 2020 (in Million IDR)

No	Name of SOE	Cluster	Amount of IP	Budget of IP (Until Dec.2021)	Realization of IP (Until June 2021)
1	Perum Perumnas	Infrastructure Services	650,000	650,000	650,000
2	PT Krakatau Steel	Manufacture and Survey	3,000,000	3,000,000	2,200,000
3	PT Kereta Api Indonesia	Logistic	3,500,000	3.500.000	3,500,000
4	PT Perkebunan Nusantara (PN) III	Plantation and Forestry Industry	4,000,000	2,895,410	807,677
5	PT Garuda Indonesia	Tourism and support Services	8,500,000	2,500,000	1,000,000
	Total		19,650,000	12,545,410	8,157,677

Table 1 informs that seven SOEs from various industries received PMN in 2020, namely: (1) PT Hutama Karya, (2) PT Guarantee, Indonesian Infrastructure (PII), (3) PT Permodalan Nasional Madani (PNM), (4) PT Indonesian Export Financing Institution (LPEI), (5) Indonesia Tourism Development Corporation (ITDC), (6) PT Bio Farma, and (7) PT Bahana Indonesian Business Development (BPUI). In 2021, PT Waskita Karya followed by receiving PMN. Apart from that, in 2021 the Government will also provide additional capital participation to PT Hutama Karya so that it becomes an SOEs that has received state capital participation for two consecutive years. The total state capital participation over the two years reached IDR40,970,000,000,000 (forty trillion nine hundred and seventy billion rupiah).

Apart from capital participation, the Government also distributes assistance in the form of Government Investment to five other SOEs, as presented in Table 2.

Table 2 shows that as of June 2021, of the IP PEN amount of IDR19,650,000,000,000 (nineteen trillion six hundred and fifty billion rupiah), only two companies, namely Perum Perumnas and PT Kereta Api Indonesia, were able to disburse one hundred percent (100%) of the number of targeted IPs. Meanwhile, PT Krakatau Steel has only disbursed 73.33 percent of IP funds, even the disbursement made by PT PN III and PT Garuda Indonesia is much smaller, namely 20.19% and 11.76% respectively. These two SOEs are targeted to obtain greater government investment, especially PT Garuda Indonesia, which reaches more than twice as much as other state-owned companies. The low level of successful disbursement was caused by the unresolved restructuring problems in the two SOEs, and also the condition of Garuda Indonesia which was unable to fulfill the parameters and scheme for disbursement of the IP PEN Program assistance. The funds that have not been disbursed are still in the temporary account of the Indonesian Ministry of Finance.

These various conditions indicate that the PEN program through government investment in SOEs needs to be evaluated, [10], [11]. This research aims to conduct an analysis of the financial performance of SOEs and the effectiveness of the PEN program in SOEs. So that SOEs can improve their performance by expectations so that SOEs can become providers of high quality resources, pioneer business activities that have not been implemented by the private sector, and can also play an active role in guiding and providing assistance to small entrepreneurs, cooperatives and the community, [8].

2 Method

This research was written using a quantitative approach in descriptive form. A descriptive research design was used to describe the SOEs affected by the COVID-19 Pandemic, the actor sectors that took advantage of the National Economic Recovery (PEN) Program for Fiscal Years 2020 to 2020. 2022, and the effectiveness of the PEN Program. Data collection using the documentation method is used to collect information originating from important records from both institutions and individuals, including data published by related agencies such as the Bank of Indonesia, Statistics of Indonesia, the Ministry of Finance, and other agencies/institutions.

This research uses descriptive statistical analysis to provide an overview of variable conditions based on performance indicators during the observation period. This approach is used to describe the characteristics (information) of business actors from both SOEs and MSMEs who receive the PEN program in the government investment scheme.

Measuring the effectiveness of the PEN Program on program recipients in protecting, maintaining, and improving the economic capabilities of business actors will be carried out in two ways to get robust results. These two analytical tools will be applied to test the effectiveness of programs in SOEs. First, the

analytical tool that will be used is the difference test between two independent groups (Independent sample t-test).

Based on the relationship between populations, the t-test can be classified into two types of tests, namely (a) dependent sample t-test, and (b) independent sample t-test. A dependent sample t-test often termed Paired Sample t-test, is a type of statistical test that aims to compare the averages of two paired groups. A paired sample can be interpreted as a sample with the same subject but experiencing two different treatments or measurements, namely measurements before and after treatment. Independent sample t-test is a type of statistical test that aims to compare the averages of two groups that are not paired or unrelated. Not being paired can mean that the research was conducted on two different sample subjects. The principle of testing this test is to look at the differences in variations between the two groups of data so that before testing, you must first know whether the variances are the same (equal variance) or the variances are different (unequal variance).

The two-average hypothesis test is used to determine whether or not there is a difference (similarity) in the average between two groups of data. This test is a parametric statistical test that must meet assumptions, i.e.: (1) data is normally distributed; (2) data is selected randomly; and (3) The data used is numerical data (scale and interval).

Homogeneity of variance is tested based on the formula:

$$F = \frac{S_1^2}{S_2^2}$$

Where: $F_{table} = F_{value}$

$S_1^2 =$ largest variance value

$S_2^2 =$ smallest variance value

Data is declared to have the same variance (equal variance) if $F_{Calculate} < F_{table}$, and conversely, the data variance is declared to be unequal (unequal variance) if $F_{Calculate} > F_{table}$. The difference test is carried out using t-count as follows:

$$t = \frac{\hat{X}_1 - \hat{X}_2}{S_{X_1X_2} \cdot \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Where

$$S_{X_1X_2} = \sqrt{\frac{(n_1 - 1) S^2 X_1 + (n_2 - 1) S^2 X_2}{n_1 + n_2 - 2}}$$

This approach is used to test differences in effects on the welfare of PEN program recipients. The difference in welfare in question is the profitability of SOEs. Differences in RoA and RoE of SOE recipients of the program before and after receiving the program. The level of welfare is measured by measures of program recipient profitability before and after receiving the program, namely Return on Assets (ROA) and Return on Equity (ROE) which shows net profitability after interest and tax. ROA measures the rate of return on the total value of assets, while ROE measures the rate of return on the total value of equity from shareholders/owners. Testing was carried out by comparing profitability before and after SOEs received the program.

Hypothesis:

H0: There is no significant difference in SOE profitability before and after receiving the program.

H1: there is a significant difference in SOE profitability before and after receiving the program.

3 Results and Discussion

3.1 Financial Performance of SOE Recipients of the PEN Program

Financial performance data about government assistance in the form of the PEN Program is measured based on the ratio of return on assets (ROA) and return on equity (ROE). ROA describes a company's ability to utilize all the assets it owns or controls to obtain net profit after tax. Therefore, the information contained in ROA is an important benchmark for investors so that they will not hesitate when they want to invest capital. The ROE ratio functions as a profitability ratio that provides investors with a view of the level of effectiveness and efficiency of company management in managing investors' capital (equity). The higher (lower) the ROE percentage of a company, the better (worse) the level of effectiveness and efficiency of the company in using its equity to earn profits.

ROA and ROE ratios are very important for assessing company prospects. ROA and ROE are profitability ratios that can complement each other in displaying a company's financial performance.

However, if there is a too large difference between the ROA and ROE ratios, then there is a possibility that the company uses funding sources from loans/debt that are greater than the equity it has so that equity has a negative value and in turn gives rise to a negative ROE. A negative ROA ratio indicates the company's inability to generate profits from the assets it manages, resulting in negative profits (losses). Negative profit conditions and negative equity value will result in positive ROE. Therefore, a positive ROE ratio should be interpreted carefully, because a positive ROE resulting from negative profits accompanied by negative equity will be irrelevant for making investment decisions.

Information on ROA and ROE ratios for external users is presented after taking into account interest costs, taxes, depreciation, and amortization, namely based on earnings after taxes (EAT). However, to show operational performance, the ROA and ROE ratios can be calculated based on earnings before interest, taxes, depreciation, and amortization (EBITDA). Therefore, the ROA and ROE of SOE recipients of the PEN program will be reviewed in terms of EAT (Table 3, Appendix) and EBITDA (Table 4).

Table 3 (Appendix) shows that the profitability of SOE recipients of PMN PEN in 2018 and 2019 (before COVID-19) as measured by after-tax ROA and ROE tends to be positive. This shows that the company can utilize its assets and equity to generate profits. Likewise, the EBITDA value shows a positive value. This means that, judging from its operational performance, the company is still categorized as healthy. Only PT Indonesian Export Financing Institution (LPEI) had a negative after-tax ROA and ROE ratio in 2019. This indicates that the company experienced a loss after tax (negative EAT). However, if we look at the EBITDA value which shows a positive value, it can be stated that the company's operational condition is still relatively healthy.

During the COVID-19 period (2020), the Government disbursed funds for the PEN program. Several SOE recipients of PMN PEN have negative EAT, such as PT Utama Karya, PT Permodalan Nasional Madani (PNM), and PT Waskita Karya. However, the EBITDA value of PT Utama Karya and PT Permodalan Nasional Madani (PNM) is positive, only PT Waskita Karya has a negative EBITDA value. From 2021 to June 2022, the company's ROA and ROE ratios tend to increase even though they are still negative. This shows that the level of losses experienced is decreasing, meaning that operational performance is starting to

improve. The next recipient of the PEN Program which has a negative ROA and ROE ratio in 2021 is the Indonesia Tourism Development Corporation (ITDC), however, ITDC's losses are getting smaller and as of June 2022 ITDC's EBITDA value has become positive. This reflects the increasingly healthy operational conditions of ITDC with the PEN Program.

SOEs that experienced an increase in profitability after receiving the PEN PMN scheme were PT Penjamin Infrastruktur Indonesia (PII), PT Indonesian Export Financing Institution (LPEI), PT Bio Farma, and PT Bahana Pembinaan Usaha Indonesia (BPUI). This shows that the government's participation in state capital for economic recovery during the COVID-19 pandemic was able to maintain and improve the performance of SOEs. Increasing the performance of SOEs will be able to contribute profits to the country and contribute to national development.

Based on Table 4, SOEs recipients of the IP scheme PEN program that have profitability ratios, namely after-tax ROA and positive ROE in 2019 are PT Kereta Api Indonesia (KAI) and PT Garuda Indonesia. Meanwhile, Perum Perumnas, PT Krakatau Steel, and PT Perkebunan Nusantara (PN) III have negative profitability ratios (after-tax ROA and ROE) and also negative EBITDA values, except for PT PN III which has a positive EBITDA value. The profitability of PT Krakatau Steel, PT KAI, and PT PN III has increased after receiving the IP scheme PEN program. Meanwhile, Perum Perumnas' profitability remains negative from 2020 to June 2022, but the EBITDA value starts to be positive in 2021 and 2022.

PT Garuda Indonesia experienced losses from 2020, 2021 to March 2022, which was most likely caused by a significant decrease in passengers during the COVID-19 pandemic; even though revenue from passengers contributes more than 80% of PT Garuda Indonesia's total revenue. Apart from that, the impact of inefficiency and mismanagement in the past has caused Garuda Indonesia to be slow to recover. This ongoing loss reduced Garuda's equity value, which even reached negative. Negative equity indicates that the amount of debt is greater than the amount of equity, in other words, Garuda Indonesia's operational activities are mostly funded by debt/liabilities. Moreover, the IP scheme PEN program to PT Garuda Indonesia amounting to IDR 8.5 trillion was provided in the form of debt to the state, namely through the issuance of Mandatory Convertible Bonds (OWK), thereby further increasing Garuda Indonesia's liabilities and increasing its negative equity.

Table 5. Results of the Descriptive Statistic Test

Variable	Obs.	Mean	St. Dev.	Min.	Max.
ROAbefore	13	0.01595	0.04969	-0.10024	0.105449
ROEbefore	13	0.02769	0.37564	-0.83063	0.954136
ROAafter	13	-0.02559	0.08271	-0.28113	0.045011
ROEafter	13	-0.15625	0.32582	-0.96887	0.101231

Table 6. Results of Different ROA Tests for SOEs Before and After Receiving the PEN Program

Variable	Obs.	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]
ROAafter	13	-0.02559	0.02294	0.08271	-0.07557 0.024393
ROAbefore	13	0.01595	0.01378	0.04969	-0.01407 0.045979
diff	13	-0.04154	0.02504	0.09027	-0.09609 0.013005

Table 7. Results of Different ROE Tests for SOEs Before and After Receiving the PEN Program

Variable	Obs.	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]
ROEafter	13	-0.02559	0.02294	0.08271	-0.07557 0.024393
ROEbefore	13	0.01595	0.01378	0.04969	-0.01407 0.045979
diff	13	-0.04154	0.02504	0.09027	-0.09609 0.013005

Table 8. Results of Regression Analysis on the Effect of PEN on ROA

ROA	Coef.	Std. Err.	Z	P>z	[95% Conf. Interval]
pen	-0,03742	0,019147	-1,95	0,051	-0,07495 0,000103
_cons	0,014021	0,019253	0,73	0,466	-0,02372 0,051756

Table 9. Results of Regression Analysis on the Effect of PEN on ROE

ROA	Coef.	Std. Err.	Z	P>z	[95% Conf. Interval]
pen	-0,1114	0,080247	-1,39	0,165	-0,26868 0,045885
_cons	0,024046	0,075148	0,32	0,749	-0,12324 0,171334

Based on Table 5, the average value of the SOES ROA ratio before receiving PEN program assistance was 0.1595 (15.95%) indicating that the average company's ability to utilize all assets to obtain net profit was 15.95 percent. The average ROE ratio shows a figure of 0.2769 (27.69%), meaning that the average ability of SOEs to obtain profit after tax from managing equity (net assets) was 27.69 percent before the PEN Program was rolled out.

After the PEN Program assistance was rolled out, it appeared that the average SOE ROA ratio was negative, namely (-)0.02559 or (-)2.559%. This means that the SOEs experienced a loss of 2.559 percent of all assets used. A similar condition was also experienced by the SOEs ROE ratio which showed a negative average, namely (-) 0.16625 or (-)16.625%. These results indicate that SOEs are unable to generate profits with the net assets used in operations, so the company experienced a loss of 16.62 percent of its net equity.

To determine the statistical difference between the profitability of SOEs before and after receiving PEN Program assistance, an analysis of the

differences in ROA and ROE of the SOEs was carried out. The results of the different test analyses before and after receiving the PEN program are presented in Table 6.

Based on Table 6, there is a significant difference in the ROA ratio of SOEs before and after receiving the PEN program with a value of 0.013005 (smaller than 0.05), but the average ROA ratio before the PEN program is greater than after receiving the PEN program. Furthermore, the difference in ROE ratio before and after the PEN Program is shown in Table 7.

Table 7 shows that the ROE of SOES before the PEN program was greater than the ROE after the PEN program, but this difference was not proven to be statistically significant.

This section describes the results of random-effects GLS regression analysis using panel data. The results of the random-effects GLS regression panel for the ROA ratio with 65 observations in a sample of 13 SOEs are presented in Table 8.

Table 8 shows that ROA before the PEN program is higher than after the PEN program. This

can be seen from the coef. pen value of -0.03742 with a probability value greater than Z ($P > Z = 0.051$). The results of the random-effects GLS regression ROE analysis with panel data, totaling 65 observations on 13 SOEs are presented in Table 9.

Table 9 shows that the ROE ratio of SOEs before the PEN program was higher than after the PEN program. This is shown by the coef.PEN of (-) 0.1114 with a probability value greater than the Z value ($P > Z = 0.165$).

ROA is used to evaluate operational activities to obtain a return on investment and is a measuring tool to assess the level of effectiveness of a company in generating net profits through available assets. A high ROA indicates a business has high profits and a good level of efficiency. On the other hand, ROE shows a measure of the efficiency of a company's capital management seen from the amount of profit generated from the amount of capital or equity it owns.

Differences in the ROA and ROE ratios of SOEs before and after receiving the PEN program were analyzed using the difference test of two paired sample means and random-effects GLS regression using balanced panel data and unbalanced panel data. The analysis shows consistent results, namely that the ROA and ROE ratio before SOEs received PEN program assistance was higher than after receiving PEN program assistance.

This happened because of the 13 SOEs analyzed, four SOEs (30.78%) reported losses in 2019 (before COVID-19). The SOESs are LPEI, Perum Perumnas, PT Krakatau Steel and PT PN III. In 2020 the number of SOEs experiencing losses increased, namely seven SOEs (54%). The SOEs that experienced losses were (1) PT Hutama Karya, (2) PT Permodalan Nasional Madani (PNM), (3) PT Waskita Karya, (4) Perum Perumnas, (5) PT Kereta Api Indonesia, (6) PT Perkebunan Nasional III and (7) PT Garuda Indonesia. This condition causes the ROA and ROE ratio to become negative.

After the government established the PEN program, namely PMN PEN and IP PEN, which were disbursed in 2020 and 2021, the ROA and ROE ratios of SOEs have increased. However, there are still several companies that are losing money, but with smaller losses. The companies that are still experiencing losses in 2021 are: (1) PT Hutama Karya, (2) Indonesia Tourism Development Corporation (ITDC), (3) PT Waskita Karya, (4) Perum Perumnas, (5) PT Kereta Api Indonesia, (6) PT Perkebunan Nasional III and (7) PT Garuda Indonesia. PT ITDC only reported losses in 2021,

due to the government program, namely large-scale social restrictions (PSBB), causing no tourists to visit Indonesia.

The financial reports of PT Waskita Karya and PT Kereta Api Indonesia up to June 2022 present positive profit after tax so that their ROA is positive (Table 1), even though operating profit before tax, interest, depreciation, and amortization (EBITDA) is still negative. The operating results show a loss, but after taking into account taxes, it becomes positive. This implies additional value from the tax element. A possibility that can explain this condition is the existence of tax refunds from the government for these SOEs.

3.2.2 ROA and ROE Calculation based on EBITDA

The measure of profitability that shows the value and growth opportunities of a company can be seen from earnings before interest, taxes, depreciation, and amortization (EBITDA). The EBITDA value indicates the operational health of a company without policy costs or accounting losses such as amortization, depreciation, taxes, and interest. EBITDA is often used to assess companies that are very capital-intensive and require significant depreciation/amortization schemes and debt interest payments, including tax calculations. Significant debt interest payments and increasing depreciation rates often cause the income presented in the financial statements to be negative (loss) making it difficult to assess the company. The EBITDA measure is used to identify the total income that can be accessed for debt repayment. Therefore, the ROA ratio will be calculated by comparing EBITDA and total assets used for company operations. Likewise, the ROE ratio is calculated by comparing EBITDA and the company's total equity or net assets.

The descriptive statistical test results in Table 10 show the average value, standard deviation value, minimum value, and maximum value of ROA and ROE for SOEs before and after receiving the PEN program.

The average value of the SOES ROA ratio before the PEN program was 0.049684 (4.97%), meaning that the total assets owned by the company could generate profits before interest, tax, depreciation, and amortization of 4.97 percent. The average ROE ratio before the PEN program was 0.209122 (20.91%). This shows that the equity or net assets owned by the company can produce profits before interest, tax, depreciation, and amortization of 20.91 percent.

Table 10. Descriptive Statistics

Variable	Obs.	Mean	St. Dev.	Min.	Max.
ROAbefore	13	0.049684	0.03740	-0.01359	0.138663
ROEbefore	13	0.209122	0.31849	0.05099	1.251937
ROAafter	13	0.027550	0.02271	-0.01288	0.068977
ROEafter	13	0.076333	0.10256	-0.08042	0.267769

Table 11. Testing the Differences in SOE's ROA Before and After Receiving PEN

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]
ROAafter	13	0.02755	0.006299	0.02271	0.013825 0.041275
ROAbefore	13	0.04968	0.010373	0.03740	0.027084 0.072284
diff	13	-0.02213	0.011446	0.04127	-0.047070 0.002805

Table 12. Testing the Differences in SOE's ROE Before and After Receiving PEN

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]
ROEafter	13	0.076333	0.028444	0.102557	0.014359 0.138308
ROEbefore	13	0.209122	0.088334	0.318493	0.016658 0.401585
diff	13	-0.132790	0.081077	0.292329	-0.30944 0.043864

Table 13. Results of Regression Analysis on the Effect of PEN on ROA

roa	Coef.	Std. Err.	Z	P>z	[95% Conf. Interval]
pen	-0.02195	0.008484	-2.59	0.01	-0.03858 -0.00532
_cons	0.049653	0.007649	6.49	0	0.034661 0.064645

Table 14. Results of Regression Analysis on the Effect of PEN on ROE

roa	Coef.	Std. Err.	Z	P>z	[95% Conf. Interval]
pen	-0.12043	0.048683	-2.47	0.013	-0.21585 -0.02501
_cons	0.212496	0.053719	3.96	0	0.107209 0.317783

The average value of the SOE ROA ratio after receiving the PEN program decreased to 0.027550 (2.76%), meaning that the assets owned by the company were only able to generate profits before interest, tax, depreciation, and amortization of 2.76 percent. On the other hand, the average ROE ratio is relatively high, reaching 0.076333 (7.633%). This shows that SOE equity after receiving the PEN program was able to generate profits before interest, tax, depreciation, and amortization of 7.633 percent.

To find out whether there is a difference in ROA and ROE of SOEs before and after receiving the PEN program, an analysis was carried out using a difference test. The results of the different tests are presented in Table 11 and Table 12.

Based on Table 11, there is a significant difference between SOEs ROA before and after receiving the PEN program with a value of $0.002805 < 0.05$. The average ROA of SOEs before receiving the PEN program is greater than after receiving the PEN program.

Table 12 shows that the ROE of state-owned companies before PEN was greater than the ROE after receiving the PEN program. There is a significant difference between SOEs ROE before and after PEN recipients, namely $0.043 < 0.05$. The PEN program is given to SOES as a stimulant to restore the performance and operations of SOEs which have experienced weakening due to the COVID-19 pandemic.

The results of random-effects GLS regression-panel ROA with 65 observations on 13 sample SOEs are presented in Table 13.

Table 13 shows that the ROA ratio was higher before SOES received PEN program assistance compared to after the PEN program. This can be seen from the coef.pen value of -0.02195 with a probability value greater than Z ($P > Z = 0.01$). These results are consistent with test results using unbalanced panel data. Random-effects GLS regression ROE analysis with panel data, 65 observations and a sample of 13 SOEs also shows consistent results, as presented in Table 14.

Table 14 shows that the ROE ratio of SOEs before the PEN program was higher than after receiving the PEN program. This can be seen from the coef.pen of (-) 0.12043 with a probability value greater than the Z value ($P > Z = 0.013$).

Differences in the ROA and ROE ratios of SOEs before and after receiving PEN Program assistance were analyzed using the difference test of two paired sample means and random-effects GLS regression using balanced panel data. ROA and ROE are calculated by comparing EBITDA and total assets for ROA, and EBITDA and total equity for ROE. The analysis shows consistent results, namely that the ROA and ROE ratio before SOEs received the PEN program was higher than after the PEN program.

Of the 13 SOESs analyzed, two SOEs (15.38%), namely Perum Perumnas and PT Krakatau Steel reported negative EBITDA in 2019 (before Covid-19). In 2020 the number of SOEs experiencing negative EBITDA increased, namely four SOESs (38.78%). The SOESs that experienced negative EBITDA in 2020 were PT Waskita Karya, Perum Perumnas, PT Kereta Api Indonesia, and PT Garuda Indonesia. Apart from negative EBITDA, PT Garuda also has a negative equity value.

After the disbursement of the PEN program, namely PMN PEN and IP PEN in 2020 and 2021, on average the ROA and ROE ratios have positive values. However, there are still SOESs that have negative ROA and ROE ratios, which are caused by negative EBITDA (PT Waskita Karya and PT ITDC). Meanwhile, PT Garuda Indonesia has a positive ROA, but the ROE is negative because the equity value is negative. A negative equity value indicates that the loan amount is greater than the amount of equity owned. This can happen because the IP-PEN received by PT Garuda Indonesia is in the form of a loan in the form of the issuance of Mandatory Convertible Bonds.

Apart from these conditions, generally, it can be said that the PEN Program can increase the profitability of SOEs, where on average the EBITDA figure, which is a benchmark for operational performance/profit, has increased, although not proportional to the increase in ROA and ROE. This is caused by policy costs (such as interest costs, depreciation, and amortization) which reduce EBITDA and make EAT smaller, while the asset and equity values increase due to receipt of the PEN Program.

3.2.3 Comparison of the Performance of SOES Recipients of the PEN Program with SOES Clusters

To create a healthy and competitive business ecosystem, SOES are grouped according to the type of core business, value chain, and supply chain into certain clusters. There are 12 SOES grouping clusters, namely: (1) Energy, Oil and Gas Industry Cluster; (2) Mineral and Coal Industry Cluster; (3) Insurance Services and Pension Fund Cluster; (4) Plantation and Forestry Industry Cluster; (5) Telecommunications and Media Cluster; (6) Fertilizer and Food Industry Cluster; (7) Tourism and Support Cluster; (8) Health Industry Cluster; (9) Manufacturing and Survey Industry Cluster; (10) Infrastructure Services Cluster; (11) Logistics Services Cluster; and (12) Financial Services Cluster.

To determine the impact of PEN on the performance of the recipient SOES, it is necessary to carry out a performance evaluation by comparing the performance of the SOES with the performance of the cluster in question. The evaluation was carried out by comparing the earnings after tax (EAT) growth rate of PEN recipient SOESs with the EAT growth rate of their clusters. If the EAT of SOESs receiving PEN shows a growth rate that is higher than the growth rate of EAT clusters, then the PEN Program can be said to be effective, conversely, if the EAT growth of PEN Recipient SOESs is lower than the growth of EAT clusters then the PEN Program is not yet effective. Table 15 presents this comparison.

Table 15 shows that the average growth in Earnings After Tax (EAT) for all clusters is higher than the average growth in EAT for SOES PEN Program Revenues in the cluster concerned. The Infrastructure Services Cluster has an average EAT growth of 108% from 2021 to June 2022, while the average EAT growth of SOES Recipients of the PEN Program in this cluster only reached 53%. Not a single SOE recipient of the PEN Program has EAT growth exceeding its cluster. This means that for the Infrastructure Services Cluster, the PEN Program is not able to increase the EAT of the Recipient SOES, at least the same as the cluster average. Of the three SOE recipients of the PEN Program, the highest performance belongs to PT Waskita Karya, with an average EAT growth of 98% in the period 2021 to June 2022.

Table 15. Comparison of Earnings After Tax of BUMN Clusters with BUMN Recipients of PEN in 2021 – June 2022

No.	Cluster and Name of SOE	Mean of EAT (Billions IDR)	Mean of EAT Growth
1	Cluster of Infrastructure Services	-328.20	108%
	• PT Hutama Karya	-1.534.35	28%
	• PT Waskita Karya	-772.41	98%
	• Perum Perumnas	-265.11	33%
	BUMN Penerima PEN		53%
2	Cluster of Financial Services	66,037.29	28%
	• PT Penjamin Infrastruktur Indonesia (PII)	651.71	45%
	• PT Permodalan Nasional Madani (PNM)	651.71	45%
	• PT Lembaga Pembiayaan Ekspor Indonesia (LPEI)	214.08	-28%
	BUMN Penerima PEN		21%
3	Cluster of Tourism and Supporting Services	-34,954.26	3%
	• Indonesia Tourism Development Corporation (ITDC)	-127.23	-384%
	• PT Garuda Indonesia	-3,557.97	59%
	BUMN Penerima PEN		-163%
4	Cluster of Medical Services	2,341.91	531%
	• PT Bio Farma	2,344.93	499%
5	Cluster of Manufacture Industry and Survey	814.64	493%
	• PT Krakatau Steel	995.17	101%
6	Cluster of Logistic Services	2,987.39	281%
	• Kereta Api Indonesia	157.38	175%
7	Cluster of Plantation and Forestry Industry	9,231.32	1389%
	• PT Perkebunan Nusantara (PN) III	8,502.70	492%
8	Cluster of Insurance Services and Pension Fund	7,669.45	102%
	• PT Bahana Pembinaan Usaha Indonesia (BPUI)	2,667.76	8%

Better performance was demonstrated by the Financial Services Cluster, where two SOE recipients of the PEN Program achieved average EAT growth above the average achievement of their clusters, namely PT Penjamin Infrastruktur Indonesia (PII) and PT Permodalan Nasional Madani (PNM). On the other hand, PT Indonesian Export Financing Institution (LPEI) is still experiencing negative EAT growth, amounting to -28%. However, on average, the growth rate of EAT SOEs receiving the PEN Program (21%) has not been able to match the cluster average (28%). The best performance seen from the average EAT growth was achieved by the Plantation and Forestry Industry Cluster, which reached 1,389%. In this cluster, one SOEs received the PEN Program, namely PT Perkebunan Nusantara (PN) III with an average EAT growth of 492%.

The lowest average EAT growth was experienced by the Tourism and Support Services Cluster, where the Cluster's achievement was only 3% and the average achievement of SOEs Recipients of the PEN Program was even much lower, namely -163%. The Indonesia Tourism Development Corporation (ITDC) slumped with an

average growth of -384% from 2021 to June 2022. This shows that the COVID-19 pandemic has hit the tourism industry in Indonesia hard, but quite a good performance was achieved by PT Garuda Indonesia. Even though it has been in the public spotlight for its previous performance, with losses suffered from before the pandemic until 2021, between 2021 and mid-2022 Garuda Indonesia was able to achieve an average positive EAT growth of 59%, which is even much higher than in the cluster, which is only 3%. This shows a positive signal for improving Garuda Indonesia's economic performance, as part of the Tourism and Supporting Services Cluster, which will bring multiplier effects to other industries, especially MSMEs in the tourism and trade industries, especially in facilitating the mobility of people and goods.

Other clusters, namely the Health Industry, Manufacturing and Survey Industry, Logistics Services, Plantation and Forestry Industry, as well as the Insurance Services and Pension Funds Cluster, achieved average EAT growth above the average for SOEs receiving the PEN Program in their respective clusters. Even though the average growth of EAT SOEs receiving the PEN Program

has not exceeded the cluster average, all of them have recorded positive values, except for PT LPEI and ITDC. Thus, it can be said that the PEN Program has had an impact on achieving positive EAT growth in almost all recipient SOEs, and this happened only within a year after the PEN Program was disbursed. It seems that better performance will be achieved by SOEs in a longer time horizon in the future.

4 Conclusion

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The analysis results show that the PEN Program has a positive impact on SOEs, as seen from SOEs ROA. The ROA value before the pandemic turned out to be greater than the ROA value during the COVID-19 pandemic, so the ongoing PEN Program has not been able to increase significantly. However, it can be said that the PEN Program has been able to protect the operations of SOE recipients of the PEN program. Apart from that, the PEN Program has had an impact on achieving positive EAT growth in almost all recipient SOEs, and this happened only a year after the PEN Program was disbursed. It seems that better performance will be achieved by SOEs in a longer time horizon in the future.

The PEN program for SOEs needs to be re-evaluated, especially for SOEs that had the potential to perform poorly before the pandemic. For SOEs, disbursement from the PEN program is still relatively small. This is because for some SOEs, especially those that have been experiencing financial difficulties since before the pandemic, providing additional PEN programs is considered an additional burden (if it is recorded as debt on the balance sheet). So that PEN can be selected in the form of assignments for SOEs that are relatively strong and stable. Apart from that, the use of funds from the PEN Program also needs to be accounted for and its use monitored so that it has a real impact on SOEs.

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APPENDIX

Table 3. Data on the Financial Performance of SOE Recipients of the PEN Program through PMN

No	Name of SOE	Description	Year				
			2018	2019	2020	2021	2022
1	PT Utama Karya	Total Assets (Billion IDR)	64,533	91,648	110,990	132,918	127,950
		Total Equity (Billion IDR)	10,616	22,959	31,799	54,809	54,148
		EAT (Billion IDR)	2,276	2,023	-2,061	-2,408	-660
		ROA	3.528%	2.207%	-1.857%	-1.812%	-0.516%
		ROE	21.444%	8.810%	-6.481%	-4.394%	-1.220%
		EBITDA (Billion IDR)	2,827	2,896	1,338	3,028	1,677
		ROA	4.3806%	3.1598%	1.2052%	2.2779%	1.3108%
2	PT Benjamin Infrastruktur Indonesia (PII)	Total Assets (Billion IDR)	10,621	11,111	13,547	14,144	n/a
		Total Equity (Billion IDR)	10,481	10,972	13,343	13,789	n/a
		EAT (Billion IDR)	471	529	621	625	n/a
		ROA	4.435%	4.765%	4.581%	4.422%	n/a
		ROE	4.495%	4.825%	4.651%	4.536%	n/a
		EBITDA (Billion IDR)	488	608	636	602	n/a
		ROA	4.5961%	5.4711%	4.6931%	4.2591%	n/a
3	PT Permodalan Nasional Madani (PNM)	Total Assets (Billion IDR)	17,553	24,907	31,665	43,712	45,470
		Total Equity (Billion IDR)	1,894	2,864	5,587	6,438	6,894
		EAT (Billion IDR)	2,276	2,023	-2,061	845	458
		ROA	12.9691%	8.1207%	-6.5081%	1.9334%	1.0079%
		ROE	120.2181%	70.6092%	-36.8861%	13.1273%	6.6479%
		EBITDA (Billion IDR)	2,827	2,896	1,338	3,558	1,989
		ROA	16.1055%	11.6270%	4.2241%	8.1387%	4.3739%
4	PT Lembaga Pembiayaan Ekspor Indonesia (LPEI)	Total Assets (Billion IDR)	120,071	108,702	92,085	89,041	88,438
		Total Equity (Billion IDR)	21,189	18,937	24,797	30,120	30,122
		EAT (Billion IDR)	172	-4,711	288	387	41
		ROA	0.1430%	-4.3337%	0.3132%	0.4351%	0.0461%
		ROE	0.8102%	-24.8768%	1.1630%	1.2862%	0.1353%
		EBITDA (Billion IDR)	5,574	119	4,435	3,575	1,466
		ROA	4.6421%	0.1095%	4.8167%	4.0146%	1.6576%
5	Indonesia Tourism Development Corporation (ITDC)	Total Assets (Billion IDR)	1,847	2,007	2,982	5,747	5,664
		Total Equity (Billion IDR)	1,498	1,528	2,055	2,353	2,263
		EAT (Billion IDR)	73	43	23	-164	-91
		ROA	3.9549%	2.1611%	0.7701%	-2.8523%	-1.5985%
		ROE	4.8711%	2.8394%	1.1175%	-6.9654%	-4.0019%
		EBITDA (Billion IDR)	103	106	53	-70	55
		ROA	5.5903%	5.2695%	1.7892%	-1.2108%	0.9730%
6	PT Bio Farma	Total Assets (Billion IDR)	7,401	27,647	32,693	40,444	35,651
		Total Equity (Billion IDR)	5,963	14,066	15,841	17,381	17,912
		EAT (Billion IDR)	543	356	289	1,966	379
		ROA	7.3397%	1.2875%	0.8846%	4.8619%	1.0619%
		ROE	9.1102%	2.5305%	1.8255%	11.3130%	2.1135%
		EBITDA (Billion IDR)	456	1,213	1,206	3,836	899
		ROA	6.1640%	4.3891%	3.6882%	9.4843%	2.5214%
7	PT Bahana Pembinaan Usaha Indonesia (BPUI)	Total Assets (Billion IDR)	n/a	72,808	88,105	124,227	142,432
		Total Equity (Billion IDR)	n/a	38,661	45,547	42,214	40,635
		EAT (Billion IDR)	n/a	3,658	2,179	3,840	1,495
		ROA	n/a	5.0247%	2.4737%	3.0914%	1.0497%
		ROE	n/a	9.4627%	4.7850%	9.0974%	3.6794%
		EBITDA (Billion IDR)	n/a	3,658	2,179	5,244	1,959
		ROA	n/a	5.0247%	2.4737%	4.2209%	1.3752%
8	PT Waskita Karya	Total Assets (Billion IDR)	124,392	122,589	105,589	103,602	97,144
		Total Equity (Billion IDR)	28,887	29,118	16,578	15,461	19,937

No	Name of SOE	Description	Year				
			2018	2019	2020	2021	2022
		EAT (Billion IDR)	4,620	1,029	-9,496	-1,839	294
		ROA	3.7137%	0.8393%	-8.9931%	-1.7748%	0.3026%
		ROE	15.9918%	3.5335%	-57.2806%	-11.8924%	1.4742%
		EBITDA (Billion IDR)	6,343	4,131	-3,318	-334	-389
		ROA	5.0992%	3.3701%	-3.1420%	-0.3226%	-0.4004%
		ROE	21.9578%	14.1882%	-20.0128%	-2.1615%	-1.9509%

Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

- Amdi Veri Darma, contributed by providing ideas and formulating goals and directions, as well as providing sources related to study materials.
- Ni Putu Wiwin Setyari carried out data curation, including data collection, and coordinated project administration.
- Eka Ardhani Sisdyani compiled the methodology and carried out a formal analysis of data related to government capital participation (PMN).
- Ni Made Dwi Ratnadi carried out a formal analysis of data related to government investment (IP), and validated and visualized the results of the data analysis.

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Conflict of Interest

The authors have no conflicts of interest to declare.

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