



Paper 43

The Impact of National Economic Recovery Program in Indonesia on the Property and Real Estate Sector's Firm Performance and Distress

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ICMEM

The 7th International Conference on Management in Emerging Markets

Abstract - The COVID-19 Pandemic which started as a health issue affects the economy as the government tries to limit activities in multiple business sectors. One of the sectors that are severely affected by economic recession due to the COVID-19 Pandemic is the property and real estate, which experience a significant decline in profitability and a potential solvency issue. This sector needs to sustain itself as it has a multiplier effect on the economy. To deal with this situation, the Government of Indonesia has issued the National Economic Recovery Program (Pemulihan Ekonomi Nasional - PEN). This research aimed to examine the financial impact of the PEN program on the financial sustainability of the firm in the property and real estate sector, as measured in financial performance and financial distress. Financial performance is measured through ratio analysis, including liquidity, activity, solvency, and profitability ratios. Financial distress is measured using Altman Z-Score. The result shows that the PEN program has a significant effect on the net profit margin and Altman Z-Score.

Keywords - Financial Performance, Financial Distress, National Economic Recovery Program

I. INTRODUCTION

The COVID-19 virus that started in December 2019 in Wuhan, China had spread all over the world, causing multiple health problems and accumulating fears among people. While the COVID-19 pandemic is a health problem, the countermeasure policy that many governments take is about limiting activities in multiple sectors, including business activities, and therefore causing larger economic problems [1]. Such policy leads to logistical delays in business' supply chain, huge reductions in production and consumption activity, financial distress of multiple companies, increasing numbers of unemployment, and contributes to the remarkable decline in global economic growth [2] affecting 92.9% of countries in the world [3].

One of the sectors that were severely affected by the economic decline due to the covid-19 pandemic is the property and real estate [4] with declining profitability of more than -100% to -650% throughout the Q1-Q3 2020 [5]. Furthermore, a study found that 61% of the property and real estate companies have an interest coverage ratio below 1 during Q2 2020, indicating a solvency issue [6].

The Indonesian government has issued the National Economic Recovery (Pemulihan Ekonomi Nasional - PEN) Program since June 2020 to reduce the impact of the COVID-19 pandemic on the economy. The PEN program covers six categories, including health, social security, priority program, local government, MSMEs, and business incentives.

The property and real estate benefited most from the business incentive category, which includes fiscal incentives such as Income Taxes Article 21 borne by the government (Pajak Penghasilan 21 Ditanggung Pemerintah - PPh 21 DTP). Value Added Tax on Buying Property borne by the government (Pajak Pertambahan Nilai pembelian properti Ditanggung Pemerintah- PPN DTP Property), and the reduction of Income taxes fee for business entities.

The government allocates IDR 1.3 trillion in the housing incentive program for the lower to the middle-income group to drive the demand. Property, real estate, and constructions are also the third-largest sectors that benefit from the business incentive program, with a total of 24,832 eligible business entities[7]. While the sector only contributes 2.79% to the Indonesian GDP[8], it has a multiplier effect on the economy as it employs around 19 million people and positively affects other 170 industries toward economic recovery[9]. Therefore, it is important to ensure the financial sustainability of the firm within the property and real estate sector.

Financial sustainability is defined as "the ability of the industry or firms to earn profits sufficient to make it worthwhile to continue business in the long run" [10]. The firm needs to be financially sustained as it would affect the firm's business sustainability itself. Financial sustainability can be measured from the perspective of financial performance using financial ratio analysis [11] and from financial distress perspective using the bankruptcy-prediction model [12].

Previous studies show that Altman Z-Score has the highest accuracy in predicting bankruptcy in various industry, including property and real estate [13], telecommunication [14], manufacturing [15], and provide consistent result after being tested in multiple countries [16]. While financial ratios also have been used in several studies to conduct financial performance and have proven to generate credible data [11].

II. METHODOLOGY

A. Financial Performance Analysis

Financial performance is a measure of the company's ability to manage and control its resources [17]. It is a quantitative measure of company success in terms of revenues, costs, debt structure, assets used, and investment returns. Financial performance can be measured using financial ratio analysis, which consists of liquidity ratios, activity ratios, solvency ratios, and profitability ratios [11].

A financial ratio is a value obtained from comparing one item with another item in the financial statements with a relevant and significant relationship [18]. Financial ratio analysis can be described as a method of calculating and interpreting financial ratios to analyze and monitor a firm's performance [19].

This research will use the current ratio (CR) as a liquidity measure, total assets turnover ratio (TATO) as an activity measure, debt-to-equity ratio (DER) and interest coverage ratio (ICR) as a solvency measure, and net profit margin (NPM), return on assets (ROA), and return to equity (ROE) as a profitability measure.

B. Financial Distress Analysis

Financial distress is a term used that refers to a stage of decline in a financial condition that occurs before the event of liquidation or bankruptcy [20]. It is a condition in which a company cannot generate sufficient revenues or income, making it unable to meet or pay its financial obligations [21].

The severity of financial distress experienced by a company can be measured using the financial distress model. One of the prominent financial distress models that will be used in this research is the Altman Z-Score developed by Edward I. Altman (1968) [12]. It has been used in a wide variety of industries [16], including property and real estate which gives the highest accuracy among the Springate (1978) and Zmijewski (1984) models [13].

Altman Z-Score has 2 modified versions, the Z' model (1983) for private companies and the Z'' model for non-manufacturing companies and emerging markets [22]. In this research, the author will use the Z'' model as the property and real estate sector consists of non-manufacturing companies and the location of the research, Indonesia, is still considered an emerging market. The Z'' model has an equation as follows:

$$Z'' = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4 \quad (1)$$

Where:

Z'' = Altman Z-Score

X_1 = Working Capital / Total Assets

X_2 = Retained Earnings / Total Assets

X_3 = EBIT / Total Assets

X_4 = Book Value of Equity / Book Value of Total Liabilities

If Z-Score is > 2.60 , it indicates that the company is safe from bankruptcy. If it scored between 1.10 and 2.60 the company is in the gray area. And if it scored < 1.10 the company is in severe financial distress and is predicted to be bankrupt in 2-5 years [22].

C. Event Study Timeline

An event study is a statistical method to assess the impact of an event on the value of a firm. It starts by selecting the event window, the period over which observed variables of the firms involved in this event will be examined, then determining the pre-event and post-event window [23].

2020				2021			
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Post-Covid Impact		Pre-event		Event Window (2021 PEN Impact)		Post-event	
Inc. Realization (%)		22.89%	46.50%	23.98%	63.5%	94.60%	100%
Economic Growth		-3.49%	-2.19%	-0.71%	7.07%	3.51%	5.02%
Property Sector Growth		1.96%	1.25%	0.94%	2.82%	3.42%	3.95%

Fig. 1 Event study timeline

In this research, the author will use the PEN 2021 Program as an event of interest with the event window span from Q1-Q3 2021. It is chosen based on the business incentive realization of the PEN 2021 which is already 94.60% in Q3 2021. The estimation window is defined in Q4 2020, before the start of the PEN 2021, while the post-event is evaluated in Q4 2021 as the program ended.

D. Research Design

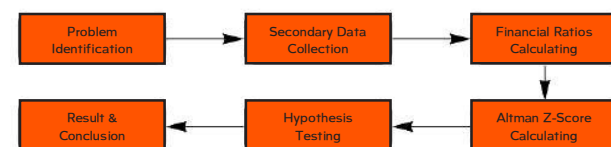


Fig. 2 Research Design

The research begins with identifying the problem of whether the PEN program brings significant changes to the financial sustainability of the firms in the property and real estate sectors. The author then collects secondary data from the Indonesia Stock Exchange (IDX) website. The author will calculate financial ratios and Altman Z-Score for the selected firms. After the calculation is finished, the author will do the hypothesis testing using a statistical test (paired t-test or Wilcoxon signed-rank test). The result will be discussed and summarized in conclusion.

E. Hypothesis Development

This research aimed to evaluate whether there are significant changes in the financial performance and/or financial distress of the property and real estate firms before and after the implementation of the PEN 2021 program. The hypotheses are as follows:

1. H1 : There is a significant difference in the current ratio before and after the program
2. H2 : There is a significant difference in the total assets turnover ratio before and after the program
3. H3 : There is a significant difference in the debt-to-equity before and after the program
4. H4 : There is a significant difference in the interest coverage ratio before and after the program
5. H5 : There is a significant difference in the net profit margin before and after the program
6. H6 : There is a significant difference in the return on asset before and after the program
7. H7 : There is a significant difference in the return on equity before and after the program
8. H8 : There is a significant difference in the Altman Z-Score before and after the program

III. RESULTS

A. Descriptive Statistics

This research uses 15 firms in the property and real estate sectors as samples.

Table 1 - DESCRIPTIVE STATISTICS

	N	Before PEN 2021 Program			
		Mean	Min.	Max.	Std. Dev.
CR	15	2.3607	0.67	6.18	1.322
TATO	15	0.1660	0.02	0.39	0.087
DER	15	1.0013	0.11	3.15	0.775
ICR	15	17.0967	-10.11	109.28	37.922
NPM	15	-0.2356	-1.98	0.51	0.698
ROA	15	-0.0161	-0.38	0.20	0.128
ROE	15	-0.0336	-0.55	0.24	0.202
Z-Score	15	4.6113	1.32	13.01	3.090

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The descriptive statistics above show that there is an increase in the liquidity, as indicated by the mean value of CR which increase from 2.36 to 2.72. In the activity ratio, there is only a slight improvement in the mean value of TATO, from 16.60% to 16.93% in the period after PEN 2021 program.

For the solvency ratios, DER, the mean value slightly decreases from 1.0013 to 0.9900, while ICR shows an increase with the mean value of 17.10 to 29.18 in the period after the PEN 2021 program.

For the profitability ratios, NPM shows an increase in the mean value from -23.56% to 18.00% after the implementation of the PEN 2021 program. The ROA also shows an increase in the mean value from -1.61% to 2.85% in the period after PEN 2021. The ROE shows a similar pattern with the mean value increasing from -3.36% to 3.98% following the PEN 2021 program.

For the financial distress analysis, the property and real estate sectors are generally in the safe zone with the Altman Z-Score above 2.60 in both observed periods. The PEN 2021 program increases the Z-Score of the firms, with the mean value from 4.61 to 5.21, further reducing the possibility of financial distress within this sector.

Since the data sample (n=15) is lower than the minimum acceptable sample size to assume normality (n=30), the data cannot be assumed to be normally distributed. The statistical non-parametric test will be conducted to measure whether there is a significant difference in the variables.

B. Liquidity Ratios

The liquidity ratio reflects the firm's ability to pay its short-term (usually less than a year) liabilities as they come due. The author uses the current ratio to measure the liquidity of the firm.

As the data are not normally distributed, the statistical nonparametric test can be conducted to measure whether there is a significant difference in the current ratio for the property and real estate firms before and after the implementation of the PEN 2021 program. The author will use Wilcoxon signed-rank test to determine if there is a significant median difference in both data and test the H_1

Table 2 - WILCOXON SIGNED RANK TEST - CURRENT RATIO

Hypothesis Test Summary			
	Null Hypothesis	Test	Sig.
Pair 1	The median of differences between CR_Before and CR_After equals 0.	Wilcoxon Signed Rank Test	0.078

The pair of "CR before" and "CR after" has a significant value of 0.078, higher than $\alpha = 0.05$. Therefore, H_1 is rejected, meaning that there is no significant difference in the current ratio before and after the PEN 2021 program implementation.

C. Activity Ratios

Activity ratios are a financial measure of how efficiently a firm is utilizing its assets to generate revenues and cash. The author uses the total assets turnover ratio to measure the activity of the firm.

As the data are not normally distributed, the statistical nonparametric test can be conducted to measure whether there is a significant difference in the total assets turnover ratio for the property and real estate firms before and after the implementation of the PEN 2021 program. The author will use Wilcoxon signed-rank test to determine if there is a significant median difference in both data and test the H_2

Table 3 - WILCOXON SIGNED RANK TEST - CURRENT RATIO

Hypothesis Test Summary			
	Null Hypothesis	Test	Sig.
Pair 2	The median of differences between TATO_Before and TATO_After equals 0.	Wilcoxon Signed Rank Test	0.409

The pair of "TATO before" and "TATO after" has a significant value of 0.409, higher than $\alpha = 0.05$. Therefore, H_2 is rejected, meaning that there is no significant difference in the current ratio before and after the PEN 2021 program implementation.

D. Solvency Ratios

Solvency ratios refer to the firm's ability to meet its long-term obligations. The author uses both the debt-to-equity

and interest coverage ratio to measure the solvency ratio of the observed firms.

As the data are not normally distributed, the statistical nonparametric test can be conducted to measure whether there is a significant difference in the debt-to-equity ratio for the property and real estate firms before and after the PEN 2021 program implementation. The author will use Wilcoxon signed-rank test to determine if there is a significant median difference in both data and test the H_3

Table 4 - WILCOXON SIGNED RANK TEST -DEBT-TO-EQUITY RATIO

Hypothesis Test Summary			
	Null Hypothesis	Test	Sig.
Pair 3	The median of differences between DER_Before and DER_After equals 0.	Wilcoxon Signed Rank Test	0.414

The pair of "DER before" and "DER after" has a significant value of 0.414, higher than $\alpha = 0.05$. Therefore, H_3 is rejected, meaning that there is no significant difference in the debt-to-equity ratio before and after the PEN 2021 program implementation.

The next solvency ratio used is the interest coverage ratio. As the data are not normally distributed, the statistical nonparametric test can be conducted to measure whether there is a significant difference in the interest coverage ratio for the property and real estate firms before and after the PEN 2021 program implementation. The author will use Wilcoxon signed-rank test to determine if there is a significant median difference in both data and test the H_4

Table 5 - WILCOXON SIGNED RANK TEST -DEBT-TO-EQUITY RATIO

Hypothesis Test Summary			
	Null Hypothesis	Test	Sig.
Pair 4	The median of differences between ICR_Before and ICR_After equals 0.	Wilcoxon Signed Rank Test	0.691

The pair of ICR before and ICR after has a significant value of 0.691, higher than $\alpha = 0.05$. Therefore, H_4 is rejected, meaning that there is no significant difference in the interest coverage ratio before and after the PEN 2021 program implementation.

E. Profitability Ratios

Profitability ratios are financial metrics used to evaluate a firm's ability in generating profit relative to its revenue. The author uses the net profit margin, return on assets, and return on equity to assess the profitability of the observed firms.

As the data are not normally distributed, the statistical nonparametric test can be conducted to measure whether there is a significant difference in the net profit margin for the property and real estate firms before and after the PEN 2021 program implementation. The author will use Wilcoxon signed-rank test to determine if there is a significant difference in both data and test the H_5

Table 6 - WILCOXON SIGNED RANK TEST - NET PROFIT MARGIN

Hypothesis Test Summary			
Null Hypothesis		Test	Sig.
Pair 5	The median of differences between NPM_Before and NPM_After equals 0.	Wilcoxon Signed Rank Test	0.038

The pair of "NPM before" and "NPM after" has a significant value of 0.038, lower than $\alpha = 0.05$. Therefore, H_5 is accepted, meaning that there is a significant difference in the net profit margin before and after the PEN 2021 program implementation.

The next profitability ratio used is the return on assets (ROA). As the data are not normally distributed, the statistical nonparametric test can be conducted to measure whether there is a significant difference in the return on assets for the property and real estate firms before and after PEN 2021 implementation. The author will use Wilcoxon signed-rank test to determine if there is a significant median difference in both data and test the H_6

Table 7 - WILCOXON SIGNED RANK TEST - RETURN ON ASSETS

Hypothesis Test Summary			
Null Hypothesis		Test	Sig.
Pair 6	The median of differences between ROA_Before and ROA_After equals 0.	Wilcoxon Signed Rank Test	0.106

The pair of "ROA before" and "ROA after" has a sig. value of 0.106, higher than $\alpha = 0.05$. Therefore, H_6 is rejected, meaning that there is no significant difference in the return on assets before and after the PEN 2021 program implementation.

The next profitability ratio that the author use is the return on equity (ROE). As the data are not normally distributed, the statistical nonparametric test can be conducted to measure whether there is a significant difference in the return on equity for the property and real estate firms before and after the PEN 2021 program. The author will use Wilcoxon signed-rank test to determine if there is a significant median difference in both data and test the H_7

Table 8 - WILCOXON SIGNED RANK TEST - NET PROFIT MARGIN

Hypothesis Test Summary			
Null Hypothesis		Test	Sig.
Pair 7	The median of differences between ROE_Before and ROE_After equals 0.	Wilcoxon Signed Rank Test	0.139

The pair of "ROE before" and "ROE after" has a significant value of 0.139, higher than $\alpha = 0.05$. Therefore, H_7 is rejected, meaning that there is no significant difference in the return on equity before and after the PEN 2021 program implementation.

F. Altman Z-Score

Altman Z-Score (ALT) is a bankruptcy-prediction model that can be used to assess if a firm is financially distressed. The author will use Altman Z-Score to address the bankruptcy risk of the firm within the property and real estate sector and determine whether the PEN 2021 program brings significant changes to the observed firms.

As the data are not normally distributed, the statistical nonparametric test can be conducted to measure whether there is a significant difference in the Altman Z-Score for the property and real estate firms before and after the PEN 2021 program. The author will use Wilcoxon signed-rank test to determine if there is a significant median difference in both data and test the H_8

Table 9 - WILCOXON SIGNED RANK TEST - NET PROFIT MARGIN

Hypothesis Test Summary			
Null Hypothesis		Test	Sig.
Pair 8	The median of differences between ALT_Before and ALT_After equals 0.	Wilcoxon Signed Rank Test	0.009

The pair of "ALT before" and "ALT after" has a significant value of 0.061, higher than $\alpha = 0.05$. Therefore, H_8 is accepted, meaning that there is a significant difference in the Altman Z-Score before and after the PEN 2021 program implementation.

IV. DISCUSSION

A. The PEN 2021 Program

The PEN 2021 program affects property and real estate companies the most through its business incentive category. The PEN program aimed to recover the Indonesian economy by improving both the demand and supply side through various stimuli, incentives, and fiscal policy. Below are the policies that are considered to have some effect on the property and real estate sector.

1. PPN DTP Property: DTP stands for ditanggung pemerintah, meaning that the PPN (value added tax/ VAT) from buying a property, which is usually borne by the customer, is now fully or partially borne by the government. It could reduce the price, improve the buying power of the customer, and have the potential to increase the demand and subsequently, sales and revenue. As of December 2021, the government has disbursed IDR 0.79 trillion (23.8% of the allocated budget) to 941 property sellers [7].
2. PPN DTP for Room Rent: During the PEN 2021 program, the 10% rent VAT is fully borne by the government. This program is given to the retail traders who sell the products or services to the end user. This program gives benefits to the property and real estate segments as some of the companies operate shopping centers, malls, hospitals, offices, and other types of buildings while generating revenue from the rent fee. The program is expected to give a demand boost which could translate into increased revenue for property and real estate firms. As of December 2021, the government has disbursed IDR 0.17 trillion (14.2% of the allocated budget) to 885 retail traders [7].
3. PPh 21 DTP: Tax article 21 on income taxes (Pajak Penghasilan – PPh 21) is an income tax that is paid by individual and business entities. During the PEN 2021 program, the government bore the income tax of the employees in the sectors that are heavily affected by the covid-19 pandemic, including property and real estate. This fiscal incentive is given by the government to increase the buying power of the affected employees by giving them a full salary (not deducted by income taxes). From the employer's perspective, the PPh 21 DTP could reduce the unemployment rate during the economic recession due to the covid-19 pandemic so that the firm's productivity remains stable. As of December 2021, the government has disbursed IDR 3.63 trillion (70.3% of the allocated budget) to 87,100 eligible taxpayers [7].
4. Installment reduction for PPh 25: Tax Article 25 on Income Taxes (Pajak Penghasilan – PPh 25) is an income tax that is paid in installments by a business entity with historical company data. When there is a decrease in business activity, such as the economic recession due to the COVID-19 Pandemic, the taxpayer can apply for a reduction in the installment of PPh 25. During the PEN 2021 program, the installment reduction is up to 50% for the selected sectors, including property and real estate. As of December 2021, the government has disbursed IDR 25.23 trillion or 123.1% of the allocated budget to 58,100 eligible taxpayers [7].
5. Tax rate reduction for the business entity: In 2020, the

tax rate for a business entity is 25% of taxable income and 20% for public firms. During the PEN 2021 program, the tax rate is reduced to 22%. The rate is 3% lower for the public firms that have a minimum of 40% of their stock traded on the Indonesia Stock Exchange, with a tax rate of 19% in 2020 and 17% in 2021 [24]. The tax rate reduction applies to all business entities in every sector. As of December 2021, the government has disbursed IDR 5.79 trillion, or 88.7% of the allocated budget [7].

The policies mentioned above could be divided into the demand-side and supply-side policies. The demand-side policies are the policy to increase the demand and subsequently, sales of the firms. These policies are PPN DTP Property, PPN DTP for Room Rent, and PPh 21 DTP. The supply-side policies are the policy to lower costs for the firms and subsequently, increase the supply to the market. These policies are Installment reduction for PPh 25 and the tax rate reduction for the business entity.

B. Financial Performance Analysis

The financial performance analysis is based on the result of the selected financial ratios that have been calculated, consisting of liquidity ratios, activity ratios, solvency ratios, and profitability ratios.

For the liquidity measure, most firms show an increase in liquidity as shown in the current ratio (CR) which increases from 2.36 to 2.72. This is mainly due to the decision to reduce the current liabilities of the firm while maintaining a similar amount of the current assets. This action is taken by many firms to reduce the risk of not being able to pay their short-term liabilities given that the economic growth is still negative at the end of 2020.

For the activity measure, there is a slight increase in activity as shown in the total assets turnover (TATO) which increases from 0.166 to 0.170. From the financial statements, most of the firms' total assets are relatively similar in both periods while some firms experience an increase in sales. The result shows that the PEN 2021 program from the demand side, affects the companies which most of its operations consist of landed houses, flats, malls, and shopping centers. In addition, potential users found that it is difficult to use the tax incentive due to the disorganized regulations at the local government level, while many others have not aware of these policies [25]. These findings could attribute to the insignificant changes in sales and hence in TATO.

For the solvency measure, this research uses both the debt-to-equity ratio and interest coverage ratio. Most firms do not take more debt, even lowering the debt as shown in the debt-to-equity ratio (DER) which decreases

slightly from 1.001 to 0.990. These actions are mainly the result of the rising uncertainty due to the declining economy at the end of 2020. In addition, the property and real estate sector is not receiving the debt restructuring policy in the PEN 2021 program and this may result in a more careful approach toward debt given the economic uncertainty.

From the ICR perspective, most firms show an ability to meet their interest payment obligation as the interest coverage ratio (ICR) scores above 1, and the average ICR score increases from 17.10 to 29.18. Based on the financial statements, most of the interest expenses are relatively similar in Q4 2020 and Q4 2021. The PEN 2021 program also does not have any policy which regulates the amount of interest payment or debt restructuring for the property and real estate sector, which further implies that the rise in ICR is mainly due to the business decisions taken by firms.

For the profitability measure, the author uses the net profit margin, return on assets, and return on equity. Based on the calculation, most firms experience profit after the program is implemented as shown in the average value of net profit margin (NPM) which increases from -23.57% to 18.00% and is found to be statistically significant. Looking at the financial statements, most of the firms' tax expenses are found to be lower in Q4 2021 as opposed to Q4 2020. This could be a result of the PEN 2021 program, as it has multiple fiscal policies that are eligible for the property and real estate sector, including installment reduction for PPh 25, and tax rate reduction for the business entity.

From the ROA perspective, most firms increase their profit-generating efficiency as shown by the average value of ROA that changes from -1.61% to 2.85% after the implementation of the PEN 2021 Program. The increase in ROA is a result of an increased net income due to several fiscal policies implemented by the government during the program, while the total assets for most firms are not changing much during the observed period.

From the ROE perspective, most firms increase their profit-generating efficiency as shown by the average value of ROE that changes from -3.36% to 3.98% after the implementation of the PEN 2021 Program. Using the Dupont analysis, the increase in ROE can be explained by the increase in the net profit margin as the other two components, the total assets turnover, and financial leverage does not change much during the observed period.

C. Financial Distress Analysis

Using Altman Z-Score, the property and real estate sector was in the "safe" category before the implementation of

the PEN 2021 Program, with a Z-Score of 4.61, higher than the safe limit of Z-score > 2.60 . It indicates that even if the average profitability for the sector is negative in Q4 2020, the sector is still considered safe from bankruptcy.

After the implementation of the PEN 2021 program, the Altman Z-score rose significantly from 4.61 to 5.20. A higher Z-score means that the sector is considered safer from bankruptcy or has a negligible bankruptcy probability. Looking at each component of the equations, the mean value differs significantly for the X4 component. This can be caused by some reduction in the total liabilities or an increase in the retained earnings which further increase the total equity of the firm.

V. CONCLUSION

This research examines the impact of the PEN 2021 program on financial performance and distress within the property and real estate sector. Financial performance is measured by ratio analysis, consisting of liquidity (current ratio), activity (total assets turnover ratio), solvency (debt-to-equity and interest coverage ratio), and profitability (net profit margin, return on assets, return on equity) while the financial distress is measured by Altman Z-Score model.

Upon the completion of this study, one profitability ratio (net profit margin) and the Altman Z-Score were found to be increased significantly from the period before and after the implementation of the PEN 2021 program. The other profitability ratio (return on assets and return on equity) were also increasing but not significant. On the contrary, the liquidity, activity, and solvency ratio were not significantly different in both observed periods.

Based on the calculation result and discussions, the PEN 2021 program has a significant impact on the profitability and the Altman Z-Score of the observed firms. The increase in profitability and Altman Z-Score can be attributed to the supply-side policies of the PEN program, which is to reduce the tax burden of the business entities. Policies such as installment reduction on PPh 25 and tax rate reduction for business entities further lower the taxes paid by the firms and subsequently increase their profit. The financial distress level is also reduced since the firm now has excess money that can be allocated to its capital as retained earnings, making the firm could last longer during an unpleasant business situation. A study about fiscal policy during the global financial crisis in 2009 also report similar findings in which the firms' profitability increase significantly after the stimulus given [26].

On the other hand, the PEN 2021 program does not have a significant impact on the liquidity, activity, and solvency of the firms. While it is true that the program has

several policies to stimulate the demand, such as PPN DTP Property, PPN DTP for Room Rent, and PPh 21 DTP, the number of users is insufficient to drive the sales of the property[7] and real estate firms combined with the regulatory issue[25], resulted only in a slight increase in the activity ratio. A study about government fiscal policy also finds that the demand-side policies mentioned above do not have a significant impact to increase purchasing power or consumption [27].

As for the debt, it is much more likely to be affected by the economic circumstances and individual decisions of the firms to not increase the debt or even reduce it. The PEN 2021 program has a debt restructuring policy, but it is not received by property and real estate firms. As a result, most firms maintain a relatively stable debt position and do not make any drastic or significant changes, as indicated by the liquidity and solvency ratios. These decisions were taken mainly due to the increased uncertainty. A similar decision was also observed during the global financial crisis in 2009 [28].

During the PEN 2021 program, the property and real estate firms experience significant changes in profitability and reduced financial distress, showing that the supply-side policies are effectively implemented in this sector. On the contrary, the demand-side policies are not effectively implemented as showed by insignificant changes in the activity ratio and the small number of users that get benefit from these policies. As the PEN program does not have any policies regarding debts, the liquidity and solvency ratio remains unaffected.

Based on the findings in this research, the property and real estate sector with its multiplier effect could contribute to a faster economic recovery if properly managed. For the next 2022 PEN program, there are several recommendations for the government in making policies for the property and real estate sectors:

1. For the supply-side policies, such as installment reduction on PPh 25 and tax rate reduction for business entities, the government could reduce the budget allocation on these policies by normalizing the installment on PPh 25 and/or increasing the tax rate gradually to the normal rate since most firms have shown a positive net profit at the end of 2021.
2. For the demand-side policies, such as PPN DTP property, PPN DTP for Room Rent, and PPh 21 DTP, the government should focus on promoting the tax benefit to the wider prospective audiences while working on the regulatory issues in many local governments so that the demand could increase significantly and have a noticeable impact on the property and real estate firms.

3. For the policies regarding debt, the government does not have to be concerned since most firms will be able to pay for the short-term liabilities as it has enough current assets and the long-term liabilities as it has enough operating profit to pay for their interest expenses while the proportion of debts in most companies are on par with its equity for most firms.

In conclusion, there is sufficient evidence to support that the PEN program significantly affects the financial sustainability of the property and real estate sector by increasing its profitability and reducing its financial distress.

ACKNOWLEDGMENT

The author would like to express gratitude to Allah, God Almighty, for all His blessings throughout the author's life; Mr. Mandra Lazuardi Kitri as the author's supervisor that support the research process and creation of this paper; families, friends, and relatives that always be the source of joy and spirit for the author to finish the work in the best possible way.

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