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State Owned Enterprises in Indonesia: Bankruptcy Analysis

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Abstract. This study aimed to look at the financial performance of SOEs, which was reported that SOEs went bankrupt in early 2020. Using the TSG model, this study tried to analyze the potential for bankruptcy in SOEs with data sourced from financial reports from 2014-2022. A total of 16 SOEs were sampled in this study. The results showed that two SOEs (GIAA and KRAS) became the SOEs with an enormous bankruptcy potential. For six consecutive years, the analysis results showed that there had been financial irregularities in Garuda Indonesia and Krakatau Steel. Other results showed that the Taffler model was not suitable for companies in the banking sector because this model focuses more on the company's short-term debt. The second model, the Springate model, showed almost the same results as the first model. While the third model, the Grover model, was slower or looser than the first and second models. In addition, this study also found that the t-score and s-score were not suitable for use in banking. Suggestions from the results of this study were that the two SOEs (GIAA and KRAS) need to refinance their debts, considering that the level of liquidity and leverage of their debts was very concerned.

Keywords: SOE, Taffler, Springate, Grover, Bankruptcy Analysis

Public Interest Statement

In recent years, we were shocked by the news that the State Electricity Company (SEC) debt swelled to 500 trillion. In addition to PLN, the state-owned airline company (Garuda Indonesia) had debts worth 70 trillion from the previous 20 trillion debt. The increase in Garuda Indonesia's debt was considered by many parties to be critical in Garuda Indonesia's body, and it was even estimated that Garuda Indonesia was headed for bankruptcy.

I. Introduction

Finance is necessary for every business to expand its operations both nationally and internationally. For an organization to scale up a simple business development into a global level business, finance is needed. The continuity of a business will depend on financial stability (Aviantara, 2021). It is like finance is a foundation in a business (Studies, 2018). An analytical study of company finances can help an organization plan its business activities for the smooth running of the business. The failure of a business is referred to as bankruptcy (Tsoulouhas, 2021). The bankruptcy of a business has a significant impact on the global economy, such as financial recession, unemployment, and worsening the country's economy. Therefore, it is essential to carry out a bankruptcy analysis whose purpose is to identify the financial stability of an organization. In general, bankruptcy prediction methods are classified into two types, namely quantitative methods and qualitative methods. Bankruptcy analysis with quantitative methods is carried out using financial ratios. Meanwhile, bankruptcy analysis using qualitative methods is carried out by considering external and internal business environmental factors (Coughlin, Datta, Berman, & Hatzigeorgiou, 2021).

State-Owned Enterprises (SOEs) are companies whose ownership is mainly owned by the state. SOE is a source of income for the state apart from the tax sector (Cattleyana, Iqbal, & Asyriana, 2020). As a government-owned company, SOE is undoubtedly required to generate profits, the aim of which is to increase the source of state revenue. Because it is a government-owned company, of course, most of its capital comes from the state budget. As a company that uses the state budget, SOE responsibly has a moral obligation to the government as the owner and the Indonesian people as taxpayers. This focus is something that sometimes gets people's attention.

As reported by (Kompas.com) at the beginning of June 2021, we were shocked by the news that the State Electricity Company (SEC) debt swelled to 500 trillion. In addition to PLN, the state-owned airline company (Garuda Indonesia) had debts worth 70 trillion from the previous 20 trillion debt. The increase in Garuda Indonesia's debt was considered by many parties to be critical in Garuda Indonesia's body, and it was even

estimated that Garuda Indonesia was headed for bankruptcy. In addition to PLN and Garuda Indonesia, several SOEs that had fantastic debts include Waskita Karya, with debts that must be paid worth 91.86 trillion, and also Indonesian railways, which owed 15.5 trillion. In total, the total value of SOE debt reached US$ 59.65 billion.

PT. Garuda Indonesia (GIAA) is an SOE engaged in air transportation. It is the only airline that is the pride of Indonesia which has won many awards and certifications. The awards came from abroad for the services provided by Garuda to provide satisfaction to its service users. Even so, Garuda Indonesia's finances are in poor condition (Aviantara, 2021). For this reason, this study was conducted to examine the financial health of SOEs using the TSG model.

Responding to the financial problems in Garuda Indonesia, finance is needed for every business to expand its operations both nationally and internationally (Travis & Venkatesan, 2015; Jencova et al., 2019). For a business to expand its business internationally, financial health is needed. Since finance is an absolute business foundation, financial stability is something that must be realized. Predictive analysis of the company's financial difficulties can help companies plan their business activities to ensure sustainability. The financial failure of a business is called bankruptcy. Bankruptcy is something unexpected and troublesome for the global economy. The impact causes financial failure, recession, unemployment, and a bad economic situation (Iswahyudi & Saputra, 2020). Therefore, it is necessary to analyze the financial health of SOEs.

The Covid-19 pandemic that hit Indonesia and the world will worsen the finances of SOEs. Garuda Indonesia, an airline company, is undoubtedly the SOE that has the most impact due to the pandemic. Restrictions regarding traveling and regulations related to limiting the number of passengers will affect the company's income. Meanwhile, the costs borne by the company, such as aircraft rental costs, are fixed.

Bankruptcy is an objective and practical problem that every company should avoid (Salehi & Pour, 2016). Several models have been used to find the causes and reasons for bankruptcy. Prediction of bankruptcy is crucial for all organizations and companies, which significantly impacts the economy. When bankruptcy occurs, banks usually reduce the number of loans to companies about to go bankrupt. This action is undoubtedly rational because the bank will be cautious that the company will not provide loan repayments if the prediction turns out to be true. Therefore, on this basis, bankruptcy should be avoided.

The purpose of the bankruptcy prediction model is to effectively distinguish based on financial data between companies that have sound finances and companies that are experiencing financial difficulties (Karas & Srbová, 2019;Endri, Abidin, Simanjuntak, & Nurhayati, 2020). The beginning of creating a bankruptcy prediction model is to find and distinguish financially healthy companies and companies that are threatened with bankruptcy.

Several studies have been carried out, for example, research conducted by Kou et al. (2021) which examined the prediction of the bankruptcy of MSMEs in China. Bai and Tian (2020) examined bankruptcy due to lack of company innovation. Kang, James and Fabian (2020) examined strategies to avoid the threat of bankruptcy. Furthermore, Dasgupta and Mason (2020) examined the effect of interest on the potential for bankruptcy. From several studies that have been conducted, this research has differences, including the place or object studied, sector differences, and causes of bankruptcy. The existence of this difference will be able to enrich references related to bankruptcy.

Based on the above phenomenon, it is necessary to analyze the health of SOEs. SOE financial analysis is carried out through financial discriminant analysis. The financial discriminant is a financial analysis tool used to analyze whether a company (SOE) is categorized as having healthy finances or is in poor condition. Discriminant financial analysis, which is regularly used to analyze the good and bad of company finances, is the Taffler, Springate, and Grover (TSG) model.

This study aimed to examine the financial health of State-Owned Enterprises (SOEs) using the TSG model from 2014 to 2020. In addition, this study also aimed to formulate which model is suitable for predicting the bankruptcy of SOEs.

II. Literature Review

Bankruptcy Prediction

Research on the prediction of corporate bankruptcy can be found starting from the 1960s. (Altman, 1968) used a set of financial ratios taken from financial statements to measure bankruptcy risk. Since then, accounting-

based financial ratios and other non-financial information have been included to improve the accuracy of bankruptcy predictions (Altman & Saunders, 1997; Tian, Yu. Y, & H, 2015).

Financial risk indicates the possibility of loss arising from failure to achieve financial goals. The financial risks associated with the financial operations of a business can take many forms. Market risk is determined by changes in commodities prices, stocks, and other financial instruments (Vavrek & Kravˇ, 2021). This financial risk will vary and differ between companies in different sectors.

Bankruptcy is a condition where the company cannot pay its debts and can be considered the company's inability to maintain the market due to low productivity (Kou et al., 2021). Bankruptcy risk indicates the possibility of a company not being able to meet its debt obligations. Bankruptcy risk assessment is critical, especially for investors in making investment decisions. Failure prediction models are also essential tools for bankers, government agencies, and even companies themselves (Novi & Irianto, 2010).

The design of reliable models to predict bankruptcy is fundamental for many decision-making processes (Kang et al., 2020). The approach used to predict bankruptcy has evolved over the years (Altman, 1968). The large number of models used in predicting bankruptcy is due to the increasing number of companies experiencing financial difficulties.

This study used a bankruptcy prediction model with quantitative methods using financial ratios using three models, Tafller T-Score, Springate S-Score, and Grover G-Score. Taffler, Springate, and Grover are models with strong indications in predicting an organization's finances (Aviantara, 2021).

Taffler T-Score

firstly, used model is taffler, was created in 1977 and based on the altman model. Wheh conducting the final assesment. It is recommended to compare the obtained results in the sector that would allow a more accurate prediction.

Taffler Model Equation (Taffler & Tissaw, 1977)

$$T = 3{,}2 + 12{,}18X_1 + 2{,}50X_2 - 10{,}68X_3 + 0{,}0289X_4$$

the cut off value of the taffler model is 0.3, so it can be determined as follows. The results of the analysis using the Taffler model are said to have good finances if the results of the Taffler analysis are > 0.3. On the other hand, the results of calculations using the Taffler model reflect the company's poor financial condition if the results are < 0.3

Springate S-Score

The springate model is a ratio model that uses multiple discriminant analysis (MDA). In the MDA model, it takes more than one financial ratio related to the prediction of the company's bankruptcy to form a good model. In determining the ratio that is able to detect bankruptcy, Springate uses MDA with 4 ratios from 19 popular ratios, and is believed to be able to predict bankruptcy or the company's financial health. S-Score is calculated :

Springate Model Equation (Springate, 1978)

$$S = 1{,}03X_1 + 3{,}07X_2 + 0{,}66X_3 + 0{,}4X_4$$

the cut off value of the springate model is 0.862, so it can be determined as follows :

The analysis results using the Springate model are said to have good finances if the results of the Springate analysis are ≥ 0.862. On the other hand, the calculation results using the Springate model reflect the company's poor financial condition if the result is ≤ 0.862. s-score is able to produce an accuracy of 92.5% in predicting bankruptcy (Aviantara, 2021).

Grover G-Score

g-score merupakan model yang diciptakan untuk melakukan design dan penilaian ulang terhadap model altman. G-score mempunyai tingkat akurasi mendekati 100%. G-score dihitung dengan persamaan berikut :

grover model equation (Cattleyana et al., 2020)

$$G = 1{,}650X_1 + 3{,}404X_2 - 0{,}01X_3 + 0{,}057$$

the cut off value of the grover model is 0.01, so it can be determined as follows. The analysis results using the Grover model are said to have good finances if the results of the Grover analysis are ≥ 0.01. On the other hand, the calculation results using the Grover model reflect the company's poor financial condition if the result is ≤ -0.02

III. Research Methods

This research was conducted on SOEs listed on the Indonesia Stock Exchange (IDX). The company's financial statement data was taken from the idx.co.id website and also from the company's website from 2014 to 2022. The selection of BUMN companies as research objects was due to the phenomenon related to the viral condition of BUMN's finances that was on the verge of bankruptcy. The sample in this study were all state-owned companies that have registered themselves as members of the Indonesia Stock Exchange and published their financial statements during 2014-2022. A total of 16 companies were sampled in this study, so the total data was 112.

This study focused on the analysis of SOE finances using the TSG model. The following formula was used to analyze the financial health of SOEs using the TSG model:

Taffler Model Equation (Taffler & Tissaw, 1977)

$$T = 3{,}2 + 12{,}18X_1 + 2{,}50X_2 - 10{,}68X_3 + 0{,}0289X_4$$

$$X1 = \frac{\text{Profit Before Tax}}{\text{Current Liabilities}}$$

$$X2 = \frac{\text{Current Assets}}{\text{Total Liabilities}}$$

$$X3 = \frac{\text{Current Liabilities}}{\text{Total Assets}}$$

$$X4 = \frac{\text{Net Profit After Tax}}{\text{Total Assets}}$$

The results of the analysis using the Taffler model are said to have good finances if the results of the Taffler analysis are > 0.3. On the other hand, the results of calculations using the Taffler model reflect the company's poor financial condition if the results are < 0.3

Springate Model Equation (Springate, 1978)

$$S = 1{,}03X_1 + 3{,}07X_2 + 0{,}66X_3 + 0{,}4X_4$$

$$X1 = \frac{\text{Working Capital}}{\text{Total Assets}}$$

$$X2 = \frac{\text{Profit Before Interest and Tax}}{\text{Total Assets}}$$

$$X3 = \frac{\text{Profit Before Tax}}{\text{Current Liabilities}}$$

$$X4 = \frac{\text{Sales}}{\text{Total Assets}}$$

The analysis results using the Springate model are said to have good finances if the results of the Springate analysis are ≥ 0.862. On the other hand, the calculation results using the Springate model reflect the company's poor financial condition if the result is ≤ 0.862

Grover Model Equation

$$G = 1{,}650X_1 + 3{,}404X_2 - 0{,}01X_3 + 0{,}057$$

$$X1 = \frac{\text{Working Capital}}{\text{Total Assets}}$$

$$X2 = \frac{\text{Profit Before Tax}}{\text{Total Assets}}$$

$$X3 = \frac{\text{Net Profit}}{\text{Total Assets}}$$

The analysis results using the Grover model are said to have good finances if the results of the Grover analysis are ≥ 0.01. On the other hand, the calculation results using the Grover model reflect the company's poor financial condition if the result is ≤ -0.02

IV. Results And Discussion

Based on the calculations using the TSG model, different results were obtained from 2014 to 2020. Several viral companies reported to be experiencing financial difficulties showed results that were not much different

from what was proclaimed based on the TSG analysis. Based on the analysis of the Taffler model, Garuda Indonesia and Krakatau Steel were the companies with the worst analysis results. From the analysis of the last seven years, both companies are on the verge of bankruptcy at six years. As an airline company, Garuda Indonesia has shown indications of bankruptcy that continue to increase from 2016 to 2022. This occurrence is also exacerbated by the Covid-19 pandemic, which has a very influential impact on the company. The existence of restrictions on mobilization and restrictions on flight quotas worsen the condition of Garuda Indonesia. In addition, the existence of Garuda Indonesia's debt which matures in 2021, makes Garuda Indonesia's finances even bleaker. Aircraft rentals that must be paid immediately even though the fleet is not used become even more burdensome for Garuda Indonesia. On the one hand, revenues were disrupted due to reduced flight volume. On the other hand, expenses continued to flow due to contractual agreements. Now what Garuda Indonesia can do is refinance its debts. It is hoped that Garuda Indonesia's financial condition can be resolved in the following years, and it can rise like a Garuda bird because this airline is the pride of all of us.

Besides Garuda, Krakatau Steel (KRAS) also showed poor results from Taffler analysis from 2014 to 2019. In 2022, the results of the analysis improved. Improvements made by KRAS, based on the data, were by refinancing debt in 2020. In 2020, the company paid off the debt of more than 60%, so that this debt settlement created a positive sentiment towards the results of the company's financial analysis. This event can be an example for Garuda Indonesia to do the same thing as KRAS. Companies with good financial fundamentals, namely Perusahaan Gas Negara (PGAS), PP Property (PTPP), Semen Indonesia (SMGR), Semen Baturaja (SMBR), PT Timah (TINS), Jasamarga (JSMR), Telkom (TLKM), Indofarma (INAF), Kimia Farma (KAEF), PT. Bukit Asam (PTBA) and Adhi Karya (ADHI) showed excellent results from the Taffler analysis. Although one or two years showed poor results out of the seven years analyzed, it reflected an indication of improvement. For example, when PTPP showed poor Taffler analysis results in 2014, the company immediately made improvements in 2015 by showing good Taffler analysis results in the following year. It indicates that these companies also conduct bankruptcy analyses on the sustainability of their business. The existence of a pandemic starting from the beginning of 2020 does not appear in their financial statements. For instance, PGAS showed the results of a classy analysis from 2014 to 2022. As state-owned enterprises (SOEs), these results show that they have had strong fundamentals in navigating such a severe pandemic. In the end, they will support Indonesia's state budget, most of which comes from the taxes they pay.

The results of the Taffler analysis on SOEs engaged in banking show unsatisfactory results. After being traced, the Taffler model, which is based on the amount of debt owed by the company, makes the analysis results not satisfying. We know that banking is a company that carries out business activities by accommodating customer funds and then channeling customer funds to credit applicants. This situation makes banking companies have large current debts, which come from customer funds collected (savings), so it is seen that banks have large current debts.

When viewed in relation to the level of prediction accuracy using a t-score which reaches 92.5%, this is indeed the case. For example, KRAS and GIAA which get bad scores on the tafler analysis show indications of bankruptcy. Management has acknowledged that KRAS and GIAA are on the verge of bankruptcy. However, for some banking companies that are indicated to have gone bankrupt, this does not indicate the actual condition, this is because companies in the banking sector use a lot of leverage aspects that are commonly used. So this study also finds that the t-score is not suitable for use in banking companies.

The analysis results using the Springate model showed results that were not much different from the Taffler model. Using the Springate model, Garuda Indonesia (GIAA) and Krakatau Steel (KRAS) were the companies with the most prominent bankruptcy potential from 2014 to 2022. The average calculation result using the Springate model for GIAA and KRAS was below 0.6. If based on the Springate model, the company is said to be financially healthy if the calculation result of the Springate model is above 0.862. Apart from GIAA and KRAS, the construction sector (PTPP and ADHI) also showed less promising results. This state was due to the surge in current debt from the two companies, considering that recently, Indonesia is focusing on infrastructure development as proclaimed by President Joko Widodo.

Similar to the t-score, the s-score also shows the mismatch of the model to companies in the banking sector. This mismatch is because these two models prioritize the company's ability to fulfill its liabilities. So that with banks that use more capital from customer savings, it will certainly make the banking liquidity ratio unhealthy. In fact, from customer savings, this is not a real short-term liabilities, because we know that customers will not necessarily spend their savings in the near future, customers may use their savings for a long period of time and more than one year(contingency). So that these two models are not suitable for use in banking. Or if these two models are still used, there needs to be a change in the model, for example from initially using current debt as a comparison, changing to using long-term debt as a divisor.

The third model used in this study was the Grover model. The calculation results of the Grover model (Appendix 1) show that the average company has healthy finances. This shows that the Grover model is not as strict as the Taffler and Springate models. Suppose the Taffler and Springate models look more at the company's

ability to pay debts. In that case, the Grover model looks more at comparing the work model, profits, and the size of the company's assets.

V. Conclusion

From the analysis and discussion results, it is known that there are two SOEs whose conditions are not adequately. These two SOEs are the pride of Indonesia Airline (Garuda Indonesia) with the stock symbol GIAA and Krakatau Steel with the stock symbol KRAS. If we look at the conditions, the two SOEs have difficulty paying their debts due to the high short-term debt maturing this year, so it is necessary to hold refinancing of their debts. The Taffler model and the Springate model emphasize the company's ability to meet obligations to its debtors. Therefore, companies with liquidity ratios that are below the normal will have the potential to go bankrupt. Meanwhile, the Grover model has predictors that are not as sharp as the Taffler model and the Springate model.

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