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Prediction of Small and Medium Business (SME) Bankruptcy in Gianyar Regency During Covid-19

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ABSTRACT

The 2019 Corona Virus (Covid-19) pandemic has caused an economic shock that has affected the country's economy on a local, national and global scale. This effect is shown by the slowdown in production, consumption and trade as well as causing prolonged political, social and economic problems. Covid-19 has caused concern for the community, the activities of the business world in general and small and medium enterprises (SMEs) in particular. This virus pandemic is a situation that cannot be anticipated (uncontrollable) but its presence determines the survival of SMEs in maintaining and increasing their business growth. Bankruptcy is a condition where the company fails to carry out operational activities optimally so that it affects the expected profit and has an impact on the company's inability to pay off obligations that are due. Therefore, bankruptcy prediction is important as an early warning for SME entrepreneurs to immediately improve their performance and as a basis for consideration for interested parties to establish various policies so that SMEs can avoid bankruptcy. This research is a quantitative descriptive study that aims to describe the potential for bankruptcy of SMEs with the Altman model in Gianyar Regency during the Covid 19 pandemic. The study was conducted on 180 SME entrepreneurs who were determined by proportional random sampling technique. The results show that the handicraft sector SMEs in Gianyar Regency in 2018-2020 are in a gray or vulnerable condition where the company cannot be determined whether it is a bankrupt company or not because the value of the Z-Score is more than 1.81 and less than 2. 99 with an accuracy rate and type error of 0%. This bankruptcy prediction is expected to be able to assist entrepreneurs in making corporate decisions related to debt decisions and utilizing optimal assets.

Keywords: Bankruptcy, Altman Model, Small and Medium Enterprises.

1. INTRODUCTION

The 2019 pandemic has caused an economic shock that has affected the country's economy on a global scale. This effect is shown by the slowdown in production, consumption and trade as well as causing prolonged political, social and economic problems. This virus pandemic is an uncontrollable situation, but its presence determines the survival or failure of large-scale companies and SMEs in maintaining and increasing business growth. The results of a survey by the Indonesian Institute of Sciences in mid-2020 showed that during Covid 19 as many as 70% of SMEs experienced a decrease in turnover and as many as 58.76 experienced an increase in operating costs. This condition shows the potential risk when SMEs are unable to survive and are prone to bankruptcy. Bankruptcy occurs when a firm ceases to carry out its

operational activities, resulting in the inability of the company to pay off its maturing liabilities. [1].

Many previous studies have been carried out to reveal the potential for bankruptcy of a business with various analytical models but still show mixed findings. Altman Z-Score bankruptcy model was delivered since it has 71% accuracy rate for predicting business bankruptcy and is able to design and determine the classification of business failure predictions. The bankruptcy prediction test using the Altman model is expected to increase understanding for 1) academics that the potential for bankruptcy can be predicted and managed so that companies can avoid bankruptcy, 2) SME entrepreneurs, can provide early understanding and information about the potential for bankruptcy of their business so that various efforts can be made to avoid business from bankruptcy, 3) the government, as a

basis for consideration in determining strategies and materials for guidance and appropriate assistance for SME entrepreneurs to avoid bankruptcy.

The description shows that it is important to predict bankruptcy as an early warning for SME entrepreneurs about the condition of their business and immediately improve their performance.

2. LITERATURE REVIEW

2.1. Financial Distress

Financial distress is a situation in which a company's capacity to satisfy its obligations and finance operations is hampered by a lack of liquidity. This condition shows the company is experiencing financial distress (financial distress) which ultimately suffers from bankruptcy [2]. Financial difficulties are caused by: high expenses, too many illiquid assets, wrong financial planning, sales not reaching targets, poor cash flow management, unsold products, high employee turnover, over budget costs, asset abuse, the price of raw materials soared, the impact of changes in government policies. Financial distress can be overcome by 1) Restructuring credit, meaning that the company is given the flexibility to pay credit debts, such as lowering interest rates, extending credit terms, etc., 2) Controlling expenses, meaning that the company does this scenario, the company will cut the budget, such as budgeting for marketing, cutting salaries or bonuses, and even terminating employment, 3) Increasing opportunities for income sources, meaning the company is trying to find additional income by running a side business.

Financial distress is only one of several reasons that contribute to a company's collapse. More specifically, financial distress arises when working capital has a negative value, implying that current debt exceeds current assets. negative retained earnings, which indicates that no part of the company's retained earnings is used, causing the accumulated retained earnings to fall, and negative earnings before interest and tax (EBIT), which means that the company's operational expenditures exceed revenues [3].

2.2. Bankruptcy Prediction Method

General models that are usually used to predict company bankruptcy are Altman Z-Score, Grover, Zmijewski and Springate. The Altman Z-score method is used in predicting the bankruptcy of SMEs in Gianyar Regency because it can provide a prediction accuracy of up to 95 percent for data one year before the company went bankrupt [2]. Altman used statistical techniques to incorporate many financial parameters into predictive models. Working capital/total assets, retained earnings/total assets, earnings before interest and taxes/total assets, market value of equity/book value of total debt, and sales/total assets are the financial ratios

used in Altman's analysis. These financial ratios have their own classifications. The Z' value of <1.80 shows that the company is in a distress zone. When the value is between 1.80 to 2.99, the condition cannot be determined. Lastly, if the value is over 2.99, the company is in free-distress zone.

Based on the company's financial statements, it is possible to identify financial distress early through ratio analysis of the company's report. Profitability ratio is the ratio used to assess the company's ability to seek a profit based on the use of assets, the profitability ratio used in this study is return on assets.

The liquidity ratio is the ratio used to measure how liquid a company is, the liquidity ratio commonly used in various studies is the current ratio or current ratio which is the company's ability to pay short-term obligations when the obligation is billed in its entirety. In addition to these two ratios, the leverage ratio can also be used as an indicator to predict the occurrence of financial distress by measuring the extent to which the company's assets are financed by debt. In terms of financial decisions, SMEs can face financial risks due to errors in the decision to use debt or own capital by SME owners. In the long term, financial risks will have an impact on the resilience of SMEs. The resilience of SMEs is determined by the degree of business tolerance to risk.

Previous studies to predict the bankruptcy of SMEs were carried out with adequate supporting data for financial statements. In contrast to the real conditions in Indonesia, where SMEs generally do not have adequate financial reports, this study not only uses financial statement data but also includes non-financial elements such as type of industry, age of business, and location of SMEs as well as the demographic characteristics of the entrepreneurs. This study uses 5 (five) financial ratios to predict the possibility of bankruptcy in a company. Furthermore, these ratios are entered into a discriminant equation that has been formulated. Altman in his theory of discriminant analysis assumes that the ability of financial ratios to describe the actual financial condition of a company is very limited, because the existing financial ratios are calculated separately. Therefore, Altman strives to improve the interpretation of these financial ratios. Altman made an index based on the existing variables to classify the health level of a company. The advantages of Altman Z-Score are simple to use, combining diverse ratios, providing appropriate coefficients for combining independent variables, and better able to explain corporate situations in accordance with reality. Z-Score value is more stringent in assessing the level of bankruptcy. Furthermore, the calculation of the accuracy of the bankruptcy prediction is carried out to ensure the accuracy of the prediction of the bankruptcy of the business carried out.

Accuracy Rate = comparison of the number of correct predictions with the number of samples x 100% (1)

The number of correct predictions is the number of samples of companies calculated using the Altman method that do not experience bankruptcy, while the number of samples is the amount of data used in this study, which is five data. In addition to calculating the level of accuracy, this method also calculates the error rate of each method. The error rate is the error that occurs if the result predictions using the Altman method state that the sample companies are bankrupt. The error rate is calculated in the following way:

Error Rate = Comparison of the number of incorrect predictions with the number of samples x 100% (2)

The number of errors is the number of samples if calculated using the Altman model experiencing bankruptcy, while the number of samples is the amount of data used in the study.
Decision:
Good: The accuracy rate is high but the error rate is low.
Not good: The level of accuracy has a high value while the error rate is also high.

3. METHOD

This study is a quantitative descriptive study that aims to describe the potential for bankruptcy of SMEs with the Altman model in Gianyar Regency during the Covid 19 pandemic. This model is appropriate to use to predict the bankruptcy of SMEs because it is simpler to calculate by combining several financial ratios and clearly shows differences in certain characteristics to determine business failure prediction classification. In addition, the Altman Z-Score bankruptcy prediction model has proven to be the best model seen from its 95% accuracy rate. The study was conducted on 956 SME entrepreneurs in the handicraft sector in Gianyar Regency with the following criteria: 1) SME entrepreneurs who already have a business license because entrepreneurs who already have a business license make good financial transaction records. 2) handicraft entrepreneurs whose businesses are classified as small and medium enterprises based on the provisions of the Central Bureau of Statistics (BPS). The research sample was 180 entrepreneurs who were determined by proportional random sampling. Data collection is done by recording documents from financial statements, according to the formulation bill for the calculation of bankruptcy prediction with the Altman Z Score model.

3.1. Data Analysis Technique

The analytical technique used in this study is a descriptive analysis technique of bankruptcy prediction using the Atman Z-Score model. The bankruptcy prediction of this model is formulated as follows.

$Zi + 0.717(X1) + 0.847 (X2) + 3.107 (X3 + 0.420 (X4) + 0.998 (X5)$

Where:

$X1$ = (current assets-current liabilities)/ total assets

$X2$ = retained earnings/total assets

$X3$ = profit before interest and tax/total assets

$X4$ = capital market value/ book value of debt

$X5$ = sales/total assets

Furthermore, the criteria for the bankruptcy of SMEs are set as follows.

Table 1. The criteria for SMEs bankruptcy

Z Score	Explanation
Z > 2,90	The company is in good health
1,20 ≤ Z ≥ 2,90	Companies in the gray area or prone to bankruptcy
Z < 1,20	The company has the potential to go bankrupt

4. RESULTS & DISCUSSION

4.1. Descriptive Statistics

The data in Table 4.1 shows that most of them are 137 people or 76.11% of SME entrepreneurs are men and only 43 people or 23.89% are women entrepreneurs. In addition, the age of entrepreneurs 50 years and over with the highest number is 98 entrepreneurs or 54.44%.

Judging from the level of education, most entrepreneurs have a bachelor's degree and some have even attained postgraduate education. This shows that entrepreneurs have enough experience and with a higher level of education it is hoped that entrepreneurs will be more open to receiving new information in making decisions, managing businesses and increasing business growth.

Table 2. Characteristics of SME Entrepreneurs

No	Characteristics	Criteria	f	Percentage (%)
1.	Gender	Male	137	76,11
		Female	43	23,89
2.	Entrepreneur Age	25 -39	5	2,78
		40 -49	77	42,78
		50 ≥	98	54,44
3	Education	< bachelor	69	38,3
		bachelor ≥	111	61,7

Source: data analysis results

Table 3. Characteristics of Handicraft SMEs

No	characteristics	Criteria	f	Percentage (%)
1	Company Age	4-10	47	26,11
		10 >	133	73,89
2	Company Size	small business	75	41,70
		Medium Enterprise	105	58,30

Source: data analysis results

Table 4. Results of SME Financial Ratio Analysis in 2018-2020

No	Variable	Score		Mean	SD
		Min	Max		
1	WCTA	0,02	0,21	0,13	0,07
2	RETA	0,18	0,24	0,22	0,03
3	EBITTA	0,08	0,10	0,09	0,01
4	VEVD	0.88	1,15	1.03	0,13
5	SLTA	0,70	0,81	0,76	0,04

Source: data analysis results

4.2. Characteristics of SMEs

The characteristics of handicraft SMEs are seen from the age and size of the company. The age of the company shows the length of time the company has been established, while the size of the company is distinguished from the number of workers managed. The characteristics of handicraft SMEs are shown in Table 3.

4.3. Description of Research Results

Data The data used in this study are secondary data in the form of financial report of SMEs in Gianyar Regency for the period 2018-2020 with the amount of data observation for 2 years. The value of the financial ratios used To predict the bankruptcy of SMEs during the COVID-19 pandemic, it is shown in Table 4.

Working capital to total assets (WCTA) is described as having a minimum value of 0.02, a maximum value

of 0.21, and an average value of 0.13, as shown in table 4. The standard deviation of 0.07 is also shown. RETA's minimum value is 0.18, its maximum value is 0.24, its average value is 0.22, and its standard deviation is 0.03 percent. When it comes to EBITTA, the range is 0.08 to 0.21. The average (0.09) and standard deviation (0.01) are also within this range. With a range of 0.88 to 1.15, the market value of equity to total liabilities (MVETL) ratio has a standard deviation of 0.13. To put it another way, sales to total assets (STA) has an average value of 0.76, with a standard deviation (SDS) of 0.04. There is a greater average value (mean) than the standard deviation for working capital to total assets, retained earnings to total assets, earnings before interest and taxes to total assets, market value of equity to book value of total liabilities, and sales to total assets for the 2018-2020 period.

Table 5. Altman Z-Score Method Calculation Results

No	Year	WCTA	RETA	EBITA	VEVD	SLTA	Z	Note
1	2018	0,12	0,24	0,10	1,15	0,81	2,31	grey
2	2019	0,13	0,24	0,10	1,14	0,79	2,29	grey
3	2020	0,02	0,24	0,09	1,07	0,76	2,08	grey

Based on the calculation of the Altman Z-Score method in predicting bankruptcy in SMEs in Gianyar Regency in table 4.4 it is known that from 2018 to 2020 it is in a grey or vulnerable condition where the company cannot be determined whether it is a bankrupt company or not due to the value of The Z-Score is more than 1.81 and less than 2.99.

4.4. Discussion

Prediction of bankruptcy for SMEs in Gianyar Regency for the 2018-2020 period is in a vulnerable or gray condition, which means the company cannot be determined whether it is a bankrupt or healthy company. The company is in a gray condition seen from working capital to total assets (WCTA). Working capital is important to measure the liquidity of a company. Liquidity means the company's ability to pay its short-term obligations current assets. Working capital is projected to be the difference between current assets and current liabilities of the company. The working capital of SMEs in Gianyar Regency. The 2018-2020 period fluctuated because current assets and current liabilities also fluctuated. Which states that one of the internal factors that cause bankruptcy in companies is the imbalance between the amount of company capital and the amount of debt, debt that is too large can result in a large interest expense and burden the company. This is supported by the findings of [4].

In addition, retained earnings to total assets (RETA) is a profitability ratio. This ratio measures the accumulated profit during the company's operations. The longer the company operates, the more likely it is to increase retained earnings [5]. Retained earnings in SMEs in Gianyar Regency. the 2018-2020 period has been quite good with always increasing every year, however, due to the larger number of assets owned by the company and tends to fluctuate, the ratio of retained earnings to total assets is low. This is supported by the findings of [6].

Furthermore, earnings before interest and taxes to total assets (EBITTA) is a profitability ratio that measures the company's ability to earn earnings before interest and taxes. EBIT on SMEs in Gianyar Regency. the 2018-2020 period has increased every year but is not significant so that it can affect the ratio of earnings before interest and taxes to total assets. [7] states that the indicators of financial difficulty are showing negative profits. This is supported by the findings of [4]. Equity to book value of total liabilities (MVETL) is part of the activity ratio. The value of own capital in question is the market value of its own capital, namely the number of company shares multiplied by the market price per share (amount of equity), while the total debt where the amount of short-term debt plus the amount of long-term debt, which will describe how much total liabilities can be paid. borne by the value of the

company's shares in question outstanding on the stock market.

Equity to book value of total liabilities for SMEs in Gianyar Regency. the 2018-2020 period fluctuated due to the amount of equity increasing every year while total debt fluctuated even in 2014 and 2015 total debt was greater than total equity, causing this ratio to be low. [4]. [8], stated that the higher the value of sales and share capital, the better the company's ability to earn profits. This is supported by the findings of [8]. Sales to total assets (STA) is part of the activity ratio, sales to total assets indicate the company's level of success in using all of its assets to generate optimal sales volume so that it can earn profits from these sales, sales to total assets in SMEs in Indonesia. Gianyar Regency. the 2018-2020 period experienced fluctuations due to sales increasing but not significantly, and total assets experiencing fluctuations.

Sales volume can be affected by several factors, including supply levels, rising commodity or raw material prices and weakening consumer purchasing power. The findings from [9] are that the higher the value of sales to total assets, the more input in the form of cash. The more assets the company has in the form of cash, the easier it will be for the company to pay off all its obligations so that the company avoids the risk of bankruptcy.

For financing, the company uses debt more, this is at risk of difficulty in payment in the future due to debt that is greater than the assets owned plus the interest that must be paid. If this situation cannot be handled properly, the potential for SME financial distress will occur.

5. CONCLUSION

Based on the analysis and discussion data that has been carried out, it is concluded that the prediction of bankruptcy for SMEs in Gianyar Regency for the 2018-2020 period with the Altman Z-Score method is predicted to be in a gray condition. The accuracy and type of error with the Altman Z-Score method is 0% in predict the bankruptcy of SMEs in Gianyar Regency.

Based on the conclusions that have been formulated, it can be suggested as follows: 1) the Altman Z-Score method in predicting the bankruptcy of SMEs in Gianyar Regency. because it has a better level of accuracy, 2) This bankruptcy prediction is expected to be able to assist management in making company decisions, it is expected that the company will be able to reduce debt to a minimum and increase profits more optimally by utilizing the assets owned.

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