

ACCURACY ANALYSIS OF FIVE BANKRUPTCY PREDICTION MODELS WITH PROFITABILITY RATIO ON PT. ASURANSI HARTA AMAN PRATAMA, Tbk.

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ABSTRACT

The aim of this study is to analyze the accuracy of the five bankruptcy prediction models (Altman-Z, Ohlson, Grover, Zmijewski, and Springate) that have been done previously by the authors namely on PT. Asuransi Harta Aman Pratama, Tbk. using the profitability ratio. The methodology of this study is qualitative with a quantitative approach using financial statement data that has been published on the Indonesia Stock Exchange (IDX) for the period 2012 - 2016 as a prediction year and 2017 - 2018 as a year after prediction. The results of the analysis show that in 2017 -2018 the ratio of underwriting has decreased with a ratio below the average of the previous 5 years, the burden of claims has increased significantly, and the commission expense has continuously decreased from 48% in 2012 to 2% in 2018. While ROA, ROE and RNP reached the minus point during 2017-2018. From the 5 bankruptcy prediction models that have been done before and using the profitability ratio analysis, it can be concluded that the most appropriate Altman-Z model.

Keyword: Bankruptcy Prediction Model, Profitability Ratio

1. INTRODUCTION

Financial distress is a stage of decline in financial conditions that occurred before bankruptcy and liquidation. Financial statements can be used as a basis for measuring the health of a company through the financial ratios in the report. Financial ratios are one of the important accounting information in the process of evaluating company performance, so the financial ratios can reveal the financial condition of a company and the performance that has been achieved by a company for a certain period (Widarjo : 2009).

For an insurance company, financial statements become very important because the products sold by the company are a surety for the losses that must be accepted due to the occurrence of risks that are guaranteed in a policy. A good insurance company is a

company that is able to maintain its performance. In general, the best performance of a company can be seen through the profitability of the company financial statements. According to Malik (2011) in Nurlatifah (2016), profitability is one of the most important goals of financial management which is to maximize the prosperity of the owner (the shareholders). Profitability is also a very important determinant of a company's performance. In a study conducted by Laitinen (2016) it is stated that profitability ratio have a significant influence on distress, A Widarjo (2009) and Mulyadi (2016) show the probability ratio has an influence on financial distress compared to other performance ratios. Berggrun, L. et all (2020) in his research found that profitability has the ability to predict level of stock return.

In a previous study conducted by author “Comparison Of Bankruptcy Prediction Models Analysis (Altman, Springate, Grover, Ohlson, and Zmijewski) On PT. Asuransi Harta Aman Pratama, Tbk.” (Putri : 2018), which is analyzing how the five bankruptcy models on PT. Asuransi Harta Aman Pratama, Tbk. Period 2012 - 2016. In that study there were differences in prediction results between the five models, only the Almant-Z model predicted bankruptcy while the other four models predicted not bankruptcy.

Based on the above description, it is interested to analyze accuracy of the five bankruptcy prediction models with profitability ratio on PT. Asuransi Harta Aman Pratama, Tbk using financial statements for the period 2017 - 2018

2. LITERATURE REVIEW

Profitability ratio used for measure how efficient a company is using their assets and perform company operations, also focus in on the net income (Ross: 2003). According to PSAK No. 28 (2009), the profitability ratio consists of an underwriting ratio, a claim expense ratio and a commission expense ratio. While according to Petchsakulwong, P and NaratipJansakul (2018), profitability ratio consist of ROA (Return on Total Assets), ROE (Return on Equity) and RNP (Return on Net Written Premium).

Underwriting Ratio

Underwriting ratio is the level of results obtained by the company and measures the level of net profit from the insurance business (Fitriani : 2017). The formula of underwriting ratio is as follows:

$$\frac{\text{Underwriting Income}}{\text{Premium Income}}$$

Claim Expense Ratio

Claim expense ratio is a claim that occurs in a company (Amani: 2019). The claim expense ratio formula is as follows:

$$\frac{\text{Claim expense}}{\text{Premium Income}}$$

Commission Expense Ratio

Commission expense ratio is to measure the acquisition cost of the obtained business (Fatimatuzzahra: 2019). The commission ratio formula is as follows:

$$\frac{\text{Commission expense}}{\text{Premium Income}}$$

Return on Asset

Return On Assets (ROA) is the profitability ratio and is used to measure the effectiveness of assets held to generate profits (Horne: 2012). The higher ROA means the more efficient the company in utilizing assets to make profit (Houston: 2010). The ROA formula is as follows:

$$\frac{\text{Net profit}}{\text{Total asset}}$$

Return on Equity

Return on Equity is the profitability ratio that shows the company ability to generate profits at the level of sales, assets and capital stock during a certain period (Setyawan : 2014). The ROE formula is as follows:

$$\frac{\text{Net profit}}{\text{Total equity}}$$

Return on Net Written Premium

According to Petchsakulwong, P and NaratipJansakul (2018), Return on Net Written Premium is the profitability ratio that is defined as follows:

$$\frac{\text{Net profit}}{\text{Premium income}}$$

Income Statement

The income statement is a report of the income earned and costs charged from an business unit in a certain period (BaridwanZ : 2013).

3. DATA AND RESEARCH TECHNIQUE ANALYSIS

This research was conducted at PT. AsuransiHartaAmanPratama, Tbk. Due to differences in prediction of the bankruptcy model on PT. AsuransiHartaAmanPratama, Tbk. using the source of financial statements for the period of 2012 to 2016, an accuracyanalysis of the five prediction models was conducted based on the profitability ratios in the 2017-2018 financial statements.

The type of research used in this research is qualitative research with a quantitative approach. Data collection

techniques are documentation of PT. AsuransiHartaAmanPratama, Tbk which has been published and has been audited. The data are financial statements such as the balance sheet, income statement, statement of equity and statement of cash flows. The data is recapitulated for the purpose of analysis.

The data analysis phase carried out in this study is profitability ratiofrom the predictions of the 2012-2016 financial statements related to financial statements for 2017 and 2018 as analysis of the prediction accuracy. The calculated profitability ratio consist of:

1. Underwriting Ratio
2. Claim Expense Ratio
3. Commission Ratio
4. ROA
5. ROE
6. RNP
7. Income statement (in addition to the analysis

Figure 1 shows the research flowchart as follows:

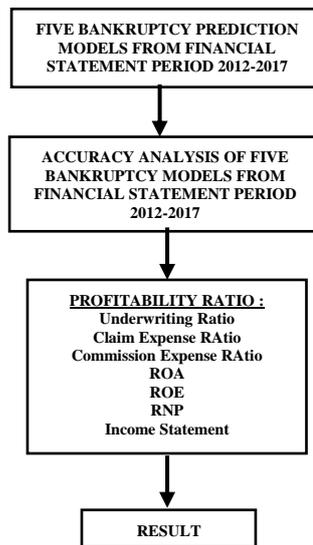


Figure 1: research flowchart

4. RESULT AND DISCUSSION
Result Five Models of Bankruptcy Prediction

Using a one-way ANOVA and descriptive different test analysis, in 2018 the author conducted a bankruptcy prediction analysis study using 5

prediction bankruptcy models, there are Altman Z, Ohlson, Grover, Zmijewski and Springate models at PT.

Harta Aman Pratama, Tbk. from the 2012 annual financial statements until 2016. The results obtained as in table 1 below:

Table 1: Calculation result five models of bankruptcy prediction

Model	Score Result	Year				
		2012	2013	2014	2015	2016
Altman Z	Score	2.045694	2.073876	2.019395	1.678787	1.637184
	Result	Grey Area	Grey Area	Grey Area	Bankrupt	Bankrupt
Ohlson	Score	-1.60581	-2.49972	-3.3467	-3.96864	-4.35807
	Result	Not Bankrupt				
Grover	Score	0.725581	0.753025	0.726356	0.663356	0.678683
	Result	Not Bankrupt				
Zmijewski	Score	-2.81725	-2.89789	-2.85702	-3.13486	-3.39811
	Result	Not Bankrupt				
Springate	Score	1.199407	1.253539	1.183339	0.930608	0.913011
	Result	Not Bankrupt				

Source: Putri, DPS (2016)

Based on table 1, it is revealed that the Ohlson, Grover, Zmijewski and Springate models predict not bankruptcy. As for Altman Z, from the 2012-2014 financial statements produced grey area, and the 2015-2016 period produced bankruptcy predictions.

**Profitability Ratio Analysis
 Underwriting Ratio**

Underwriting ratio or can be called gross profit margin shows the company's ability to generate gross profit from sales made by the company (Rompas : 2013). This ratio illustrates the level of efficiency achieved by the production

department. The underwriting ratio is the main determinant of the insurance company operating profit position. The profit increase from the insurance business is the company main business (Widiati : 2013).

Underwriting ratios shows the level of the obtained underwriting result and is used to measure the level of profit from a loss business by comparing it with premium income. Underwriting ratio has a normal limit of at least 40% (Nurfadilla : 2015). Underwriting ratio of PT. Asuransi Harta Aman Pratama, Tbk. are as follows:

Table 4.1: Underwriting Ratio of PT. Asuransi Harta Aman Pratama, Tbk. Period 2012 – 2018

UNDERWRITING RATIO						
Years of Prediction					After prediction	
2012	2013	2014	2015	2016	2017	2018
23%	25%	26%	25%	32%	12%	22%

Source: Self Proceed

Based on table 2, it is known that the Underwriting Ratio of PT. Asuransi Harta Aman Pratama, Tbk. Is still below the normal minimum, even in 2017 showed a drastic decline. Underwriting is to maximize profits through the acceptance of a risk distribution that is expected to bring in

profits. Without efficient underwriting, a company will not be able to compete.

Claim Expense Ratio

The claim expense ratio greatly influences the company ability to generate profits from the insurance business and maintain company liquidity (Sapari: 2017). Claim expense ratio is the

ratio of claim expense to increase in premium income (Jhongpita: 2012). Claim expense ratio of PT.

AsuransiHartaAmanPratama, Tbk. are as follows:

Table 4.2: Claim Expense Ratio of PT. AsuransiHartaAmanPratama, Tbk. Period 2012 – 2018

CLAIM EXPENSE RATIO						
Years of Prediction					After prediction	
2012	2013	2014	2015	2016	2017	2018
30%	33%	38%	44%	43%	59%	77%

Source: Self Proceed

Based on table 3, it is known that the claim expense ratio of PT. AsuransiHartaAmanPratama, Tbk. from 2012 continues to increase until it reaches 59% in 2017 and reaches 77% in 2018.

Commission ratio is used to measure the commission costs incurred from the business conducted so that the company earns income (Andrea: 2019). There is no normal limit for this ratio. Claim expense ratio of PT. AsuransiHartaAmanPratama, Tbk. are as follows:

Commission Expense Ratio

Table 4.3: Commission Expense Ratio of PT. AsuransiHartaAmanPratama, Tbk. Period 2012 – 2018

COMMISSION EXPENSE RATIO						
Years of Prediction					After prediction	
2012	2013	2014	2015	2016	2017	2018
48%	42%	36%	31%	25%	29%	2%

Source: Self Proceed

Based on table 4, it is known that the commission expense ratio of PT. AsuransiHartaAmanPratama, Tbk. from 2012 48% decreased continuously until 2018 reaching a very small ratio of 2%. Reducing the cost of commissions can increase profits, but it should be noted that significantly reducing commission cost can affect agents loyalty. Otherwise, insurance agents are one of the spearheads of the company

amid increasingly fierce competition in the insurance industry.

Return on Asset

Wiagustini in Gunadi (2015), states that return on assets (ROA) is measuring the ability to produce a profit on total assets used. Every company tries to get a higher ROA value because it can increase profitability. Return on Assets PT. AsuransiHartaAmanPratama, Tbk. are as follows:

Table 4.4: Return on Asset of PT. AsuransiHartaAmanPratama, Tbk. Period 2012 – 2018

RETURN ON ASSET						
Years of Prediction					After prediction	
2012	2013	2014	2015	2016	2017	2018
6.6%	7.3%	6.1%	1.7%	1.8%	-10%	-4.3%

Source: PT. Asuransi Harta Aman Pratama, Tbk.

Based on table 5, it is known that return on assets tend to decline since 2015, until it reached minus in 2017 and continues to be still minus in 2018.

Return on Equity

Return on equity (ROE) is a measurement of income which available for the owners to assess the capital they

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invest in the company (Widiati : 2013). Return on equity PT. AsuransiHartaAmanPratama, Tbk. are as follows:

Table 4.5: Return on Equity of PT. AsuransiHartaAmanPratama, Tbk. Period 2012 – 2018

RETURN ON EQUITY						
Years of Prediction					After prediction	
2012	2013	2014	2015	2016	2017	2018
20%	21.5%	18.1%	4.4%	4.3%	-20.7%	-10.1%

Source: PT. Asuransi Harta Aman Pratama, Tbk.

Based on table 6, it is known that Return on equity has gradually declined since 2014, until reaching minus in 2017 and still minus in 2018.

Return on Net Written Premium

Return on net written premium (RNP) or can be called net profit margin shows the company ability to generate

net profits from sales made by the company (Sugiono: 2009). This ratio reflects the efficiency of all parts, namely production, personnel, marketing, and finance in the company. Net profit margin of PT. AsuransiHartaAmanPratama, Tbk. are as follows:

Table 4.6: Return on Net Written Premium of PT. AsuransiHartaAmanPratama, Tbk. Period 2012 – 2018

RETURN ON NET WRITTEN PREMIUM						
Years of Prediction					After prediction	
2012	2013	2014	2015	2016	2017	2018
8.5%	9.5%	8.9%	6.7%	3.8%	-24%	-17.8%

Source: Self Proceed

Based on table 7, it is known that the average return on net written premium of PT. AsuransiHartaAmanPratama, Tbk. below 10%, from 2015, 2016 has decreased until until 2017 has experienced a minus and continues in 2018.

Income Statement

As an additional analysis, the author use the income statement to produce better analysis. PT. AsuransiHartaAmanPratama, Tbk. are as follows:

Table 4.7: Income Statement of PT. AsuransiHartaAmanPratama, Tbk. Period 2012 – 2018 (in 000.000.000)

RETURN ON NET WRITTEN PREMIUM						
Years of Prediction					After prediction	
2012	2013	2014	2015	2016	2017	2018
15.46	21.07	22.94	6.37	8.32	-40.96	-24.69

Source: PT. Asuransi Harta Aman Pratama, Tbk.

Based on table 8, it is known that since 2015 decreased of profit, there were large losses in 2017 and 2018. Based on the 2019 financial statements the third quarter of the company still experienced a loss of 42.5 billion, a decrease compared to the third quarterly period in 2018 a loss of 33.5 Billion (IPS Research : 2019).

Analysis of Profitability Ratio and Bankruptcy Prediction on PT. AsuransiHartaAmanPratama, Tbk.

Based on the above analysis, it was found that there was a drastic decrease in all profitability ratios. A summary of the results made in table 9 is as follows:

Table 4.8: Summary Analysis of Profitability Ratio on PT. AsuransiHartaAmanPratama, Tbk.

No	Profitability ratio	Result
1	Underwriting Ratio	In 2017 it experienced a drastic decline is 12%. In 2018 an increase but still below compared to the previous 5 year
2	Claim expense ratio	Claim Expenses increase continuously from 30% in 2012 to be 59% in 2017 and reach 77% in 2018
3	Commission expense ratio	Commission expense ratio tend decrease continuously until 29% in 2017 and 2% in 2018
4	ROA	In 2017 and 2018 it reached a minus value
5	ROE	In 2017 and 2018 it reached a minus value
6	RNP	In 2017 and 2018 it reached a minus value
7	Income Statement	In 2017 suffered of loss 40.96 Billion and 24,69 in 2018. In quartal 3 of 2019 still loss until 42.5 Billion

Source: Self Proceed

From the results of the analysis of profitability ratios that have been carried out by author along with the results of the 2017 income statement until the third quarter of 2019, it is produced that PT. AsuransiHartaAmanPratama, Tbk. suffered a great loss.

Based on the results above among the five bankruptcy prediction models, the Altman-Z model is the most accurate in predicting bankruptcy at PT. AsuransiHartaAmanPratama, Tbk. These results are consistent with research conducted by El Khoury, Rim, and Al Beaino, Roy (2014) stating that the Altman-Z model has a high degree of accuracy for the same company type engaged in finance.

5. CONCLUSION

The conclusion of the research conducted is that among the five

prediction models conducted at PT. AsuransiHartaAmanPratama, Tbk. namely the Altman-Z, Ohlson, Grover, Zmijewski, and Springate models by using profitability ratios produced that the Altman Z model is the most accurate in predicting bankruptcy using the profitability ratio.

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