Conference Paper

Testing of Fraudulent Financial Statements With the Beneish M-Score Model for Manufacturing Companies Listed in the Indonesian Stock Exchange

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Abstract

Fraudulent financial statements are disclosures of a company's financial condition which are intentionally made inaccurate by eliminating values. This study aimed to examine the effect of using the Beneish M-Score model against fraud reports of manufacturing companies listed in the Indonesian Stock Exchange in 2016 -2018. Purposive sampling was used and the sample consisted of 69 companies. The results showed that the Days Sales in Receivables Index, Gross Margin Index and Total Accrual to Total Asset had a significant positive effect on financial statement fraud, while the Asset Quality Index, Sales Growth Index, Depreciation Index, Sales General and Administrative Expenses Index, and Leverage Index did not affect fraudulent financial statements.

Keywords: fraud, Beneish, logistic regression

1. Introduction

According to PSAK No. 1 (2015), the objective of financial statements is to provide information about the financial position, financial performance and cash flows of an entity that is useful for report users in making economic decisions. Reports Financial should be able to provide information that is accurate, relevant and free of fraud. Companies' financial reports in the presentation do not close the possibility of misstatement, because of errors or fraud on manager intervention. The impact that arises from fraudulent financial statements is it can reduce the level of trust and will greatly mislead users of financial statements in the decision-making process.

Fraud is an act that is carried out deliberately and carried out for personal or other people's purposes that causes harm to certain parties. [1] stated that the types of fraud that are most detrimental in Indonesia are 77% corruption, 19% misuse of assets, and

4% fraudulent financial statements. Although the percentage of fraudulent financial statements is still low, the losses resulting from this case are quite large, reaching more than 10 billion Rupiahs. Fraud on the financial statements needs to get serious attention in order not to cause problems for the users of the financial statements in making decisions [2]. Therefore, prevention and early detection are necessary to minimize fraud practices that can harm various parties and hinder the use of resources. In various studies related to fraud, there is one analytical tool to detect fraud in corporate financial statements, namely the Beneish M-Score model.

Beneish M-Score is an analysis tool that is used to detect fraudulent financial statements of the company. The Beneish M-Score model is a statistical model that uses financial ratios calculated with accounting data from certain companies to check whether there is profit manipulation that is reported by the company [3]. Beneish indicated that the possibility of fraud was characterized by a tremendous increase in receivables, worsening gross margins, decreased assets, sales growth, and increased accruals.

The study conducted by [3] shows all the variables of Beneish M-scores model affect the detection of fraudulent financial statements. The results of the study leave behind with the study conducted by [4] and [5] which showed that all the variables do not affect fraudulent financial statements. The purpose of the research was to test back the effect of Beneish M-score model variable against fraudulent financial statements on manufacturing companies are listed on the Stock Exchange Indonesia from 2016 to 2018.

2. Literature Review

2.1. Beneish M-Score

Beneish M-Score is a ratio analysis that can identify the possibility of fraud and help CFE (Certified Fraud Examiner) to detect signs of manipulation. The Beneish M-Score model is a statistical model that uses financial ratios calculated with accounting data from certain companies to check whether the company's reported earnings may have been manipulated (Fadilah, et al., 2019). There are 8 Beneish M-Score index ratios that can be used to detect fraud, including Days Sales in Receivables Index (DSRI), Gross Margin Index (GMI), Asset Quality Index (AQI), Sales Growth Index (SGI), Depreciation Index (DEPI), Sales General and Administrative Index (SGAI), Leverage Index (LVGI) and Total Accruals to Total Assets Index (TATA).

2.2. Fraudulent Financial Statement

According to the Association of Certified Fraud Examiner (ACFE, 2014), a fraudulent financial statement is the disclosure of a company's financial condition that is intentionally made wrong which can be done by eliminating some values in the financial statements which aim to encourage investment through selling shares, obtaining loans, maintaining organizational status or bonus goals for management. Fraudulent financial statements can be caused due to the occurrence of any misstatement of material on the financial statements.

In connection with fraudulent financial statements (Ikatan Akuntan Indonesia, 2007) also explains in SPAP section 316 that:

a. Misstatement arising from the fraudulent financial statement, i.e. any misstatement or intentional removal of the amount or disclosure in the financial statement to fool the users of financial reports.

b. Misstatement arising from improper intervention. It is often referred to as the misuse or embezzlement relating to the theft of assets of an entity that resulted in the financial statement that is not presented by principles which are acceptable in Indonesia.
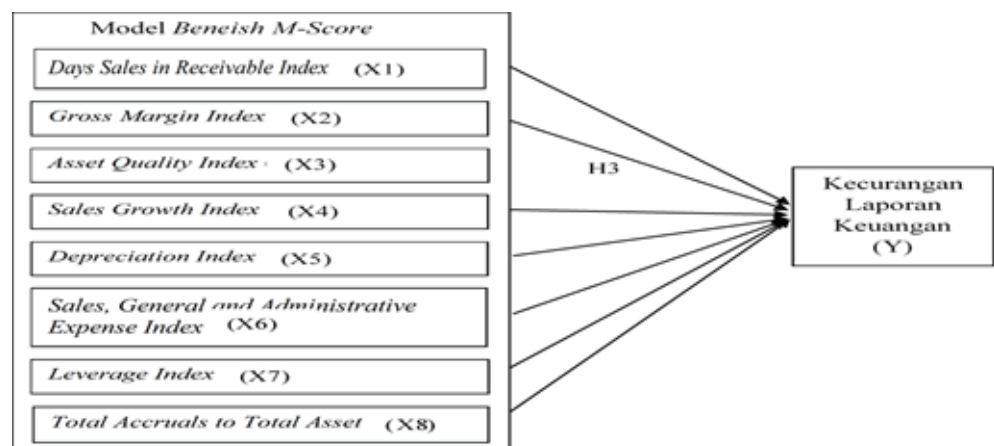
2.3. Theoritical Framework And Hyphotesis

Figure 1: Theoretical framework

Hyphotesis

H 1: Days Sales in Receivables Index has a positive effect on fraudulent financial statements.

H 2: Gross Margin Index has a positive effect on fraudulent financial statements.

H 3: Asset Quality Index has a positive effect on fraudulent financial statements.

H 4: Sales Growth Index has a positive effect on fraudulent financial statements.

H 5: Depreciation Index has a positive effect on fraudulent financial statements.

H 6: Sales, General and Administrative Expense Index have a positive effect on fraudulent financial statements.

H 7: Leverage Index has a positive effect on fraudulent financial statements.

H 8: Total Accruals to Total Asset has a positive effect on fraudulent financial statements.

3. Research Method

This research used a quantitative study to examine the effect of Beneish M-score Model (X) as independent variables against fraudulent financial statements (Y) as the dependent variable.

The type of data used was the secondary data of manufacturing companies in Indonesia Stock Exchange financial report period 2016 -2018 as the population of the research. Selection of the sample using the purposive sampling technique acquired 69 companies.

The analysis method of data using analysis of regression logistic test with assessing the overall models, to test the feasibility of the model regression by using the Hosmer and Lemeshow's Goodness of Fit Test and test the coefficient of determination.

Equation model of regression logistics used are as follows:

FRAUD (Y) = β_0 + β_1 DSRI + β_2 GMI + β_3 AQI + β_4 SGI + β_5 DEPI + β_6 SGAI + β_7 TATA + β_8 LVGI + ε_i

3.1. Operational Definition of Variables

1. Days Sales in Receivables Index (DSRI)

   The ratio of the number of days of sales in the accounts receivable in the first year (year t) to the measurement of the previous year (year t-1)

2. Gross Margin Index

   The ratio that measures the level of company profitability compares the gross profit margin for the year before (t-1) and the current year (t) and can represent the company's prospects in the future.

3. Asset Quality Index

The ratio that measures the risk of assets in the year (t) to (t-1).

4. Sales Growth Index

The ratio that measures the first year's sales (t) to the previous year's sales (t-1). If SGI> 1 then it illustrates that the company experienced an increase in sales from the previous year.

5. Depreciation Index

The ratio that measures and compares the burden of the depreciation of the assets remains before depreciation in a year (t) and the year before (t-1).

6. Sales, General, and Administrative Expense Index

The ratio that measures sales, general and administrative costs to sales in one year (t) and the previous year (t-1).

7. Leverage Index

The ratio that compares the total debt to total assets in a year (t) with the previous (t-1) which aims to find out how big the level of debt that is owned by the company to total assets from year to year.

8. Total Accruals to Total Assets

The ratio of total accruals to total assets. Total accruals are calculated as changes in working capital accounts other than cash and tax receivables minus depreciation.

4. Result and Discussion

4.1. Assess the model's feasibility

Testing the feasibility of the model regression logistic using Hosmer and Lemeshow test.

TABLE 1: Hosmer and Lemeshow Test Results

Step	Chi-square	df	Sig.
1	9,976	8	,882

Source: Secondary data (processed)

Based on the analysis in the table above, the values of significance Hosmer and Lemeshow shows that the value of Chi-square of 9.976 with significance at 0,882 > alpha 0,05. From the result, it can be seen that the model regression logistic already fulfills the eligibility data.

4.2. Assessing the Overall Model (Overall Model Fit)

The overall model assessment is carried out by comparing the value between -2 Log-Likelihood (-2LL) at the beginning (Block Number = 0), where the cost model includes a constant with a value of -2 Log-Likelihood (-2LL) at the end.

TABLE 2: Overall Model Fit Test Results

Iteration	-2 Log likelihood
Step 0	194,608
Step 1	157,350

Source: Secondary data (processed)

Based on the table above shows the decreasing of -2LL value on the regression model logistics so that can be concluded the regression model is good or hypothesized model fit to the data.

4.3. Coefficient of Determination (Nagelkerke R-square)

To see the magnitude of the ability of all these independent variables in influencing or explaining the variability of the variable financial reporting fraud practices

TABLE 3: Value Nagelkerke R-Square

Step	Nagelkerke R Square
1	0,723

Source: Secondary data (processed)

Based on the results of the calculations above, the Nagelkerke R Square value of the logistic regression model is 0.723, which means the ability of the variable days' sales receivables index, gross margin index, asset quality index, sales growth index, depreciation index, selling and general administrative expenses index, leverage index, and total accruals to total assets index to fraudulent financial statements is 72,3 %, while the rest of them will be explained by other variables outside of the research.

4.4. Logistic Regression Test Results

5. Discussion

Based on the results of this study showed that the variables of Days Sales in Receivables Index value of the coefficient of the regression of 6.113 and significance of 0,001. It is meant Days Sales in Receivables Index significant positive effect on the fraudulent

<p align="center">TABLE 4: Variables in the Equation</p>

	B	Sig.
Days Sales in Receivables (H1)	6,113	,001
Gross Margin Index (H2)	,533	,002
Asset Quality Index (H3)	-6,290	,404
Sales Growth Index (H4)	-7,997	,232
Depreciation Index (H5)	,687	,551
Sales General and Administrative Expenses Index (H6)	2,008	,304
Leverage Index (H7)	2,920	,071
Total Accruals to Total Asset (H8)	5,963	,020

financial statements. The more increasing the value of Days Sales in Receivables Index, the greater the potential for the company to do fraudulent financial reports.

Based on the results in this study, it shows that the Gross Margin Index variable has a regression coefficient value of 0.533 and a significance of 0.002. This means that the Gross Margin Index has a positive effect on fraudulent financial statements. The more the Gross Margin Index value increases, the greater the potential for the company to commit fraudulent financial statements.

Based on the results in this study indicate that the variable Asset Quality Index regression coefficient value is -6.290 and a significance is 0,404. It means that the Asset Quality Index does not affect fraudulent financial reports because a large or small degree of asset quality index was not going to affect the management to commit fraud.

Based on the results of the study shows that the variable Sales Growth Index value of the coefficient of the regression is -7.997 and significance is 0,232. It means that the Sales Growth Index does not affect fraudulent financial statements. With the existing or absence of pressure for management in the growth of sales, management still trying to manage the company well so that is not going to commit fraud.

Based on the results of the study shows that the variable Depreciation Index value of the coefficient of regression is 0.687 and the significance is 0.551. It means that the Depreciation Index does not affect fraudulent financial statements.

Based on the results of the study shows that the variable of Sales General and Administrative Expenses Index, the value of the coefficient of the regression is 2.008 and significance is 0, 304 It means that the Sales General and Administrative Expenses Index does not affect fraudulent financial statements. The management can use assets to maintain their sales value so that they will not commit fraud.

Based on the results of the study shows that the variable Leverage Index, the value of the coefficient of the regression is 2.920 and the significance is 0, 071. It means that the Leverage Index does not affect fraudulent financial statements. Although the increase of leverage occurs in the company, management does not commit fraud.

Based on the results of the study shows that the variable Total Accrual to the total asset, the value of the coefficient of the regression is 5,963 and the significance is 0,020. It means that Total Accrual to Total Asset influence positively significantly against fraudulent financial statements. The more increased value Total Total Asset Accrual, the more potential for the company to do fraudulent financial statements.

6. Conclusion

Based on testing of eight hypotheses which is done by using the logistic regression method, the test results show that the Days Sales in Receivables Index, Gross Margin Index and Total Accrual to Total Asset have a significant positive effect on fraudulent financial statements, while the Asset Quality Index, Sales Growth Index, Depreciation Index, Sales General and Administrative Expenses Index and Leverage Index have no effect on fraudulent financial statements.

The ability of the variable days sales receivables index, gross margin index, asset quality index, sales growth index, depreciation index, selling and general administrative expenses index, leverage index, and total accruals to total assets index in explaining fraudulent financial statements is 72,3 %, while the rest will be explained by other variables outside the research.

The next research is expected to expand the research period so the number of companies investigated will be increased and are expected to add other variables independent such as financial ratios.

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