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Evaluation of the Effectiveness of the Beneish M-Score Model as a Financial Statement Fraud Detection Tool

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ABSTRACT

Purpose – This study aims to investigate and evaluate the possibility of financial report fraud. The information utilized is secondary data taken from the financial reports of manufacturing companies in the food and beverage subsector that are listed on the Indonesia Stock Exchange (BEI). **Methodology/approach –** Utilizing Microsoft Excel and SPSS 26 software, a quantitative approach involving discriminant analysis is employed. Based on independent factors, an item can be divided into two or more categories using the discriminant analysis approach. **Findings –** The results of this research show that the variables that are able to distinguish between samples of financial reports that are suspected to have been manipulated and those that are suspected not to be manipulated are the Days Sales in Receivables Index (DSRI), Gross Margin Index (GMI), Asset Quality Index (AQI) and Sales Growth Index (SGI) variables) is proven to be able to distinguish financial reports that are suspected to have been manipulated. Meanwhile, the Depreciation Index (DEPI), Sales, General and Administrative Expenses Index (SGAI), Leverage Index (LVGI) and Total Accruals to Total Assets (TATA) variables were proven unable to distinguish financial reports that were suspected to have been manipulated.

INTRODUCTION

According to Hidayat and Wastam, (2018), financial reports are typically utilized as a source of information that summarizes a firm's financial situation and can also be used to characterize the financial performance of the organization. Because the financial statement information can be used to determine whether a company is good or harmful for those involved, published financial reports are thought to have significant value in evaluating a business. Fraud is the intentional misappropriation of company resources or assets at work with the intent to enrich oneself (ACFE, 2018). Financial statement fraud, or fraudulent financial statements, was the fraud that resulted in the largest losses worldwide in 2016, according to the Association of Certified Examiners (ACFE, 2016). Even though this one fraud instance accounted for only 10% of the 2,410 overall fraud cases, the losses associated with it reached 75% of the entire median loss. 13.8% of manufacturing industry cases involved financial statement fraud. With a percentage of 12.2%, the oil and gas business is the second largest. The construction industry had the highest frequency of fraud instances in financial statements (11.6%), followed by transportation and warehousing (10.4%), banking and finance (10.2%), and education (10%) (Adhania

et al., 2024; Hendrawati et al., 2022). The health sector (8%), social services (7.5%), services (6.7%), retail (6.5%), government and public administration 5%, and insurance (3.2%) are the industries with case frequencies less than 10%. According to the Association of Certified Fraud Examiners (ACFE, 2016), financial statement fraud is more common in the manufacturing sector than in other sectors. According to (Crowe, 2011), there are five variables that contribute to financial statement fraud in the fraud pentagon: pressure, opportunity, rationalization, capability/ competence, and arrogance. As a result, in order to prevent fraud, it is necessary to predict it. This is based on research done by (Beneish, 1999), which is known as the Beneish M-Score Model. Using eight financial ratios, Days Sales in Receivables Index (DSRI), Gross Margin Index (GMI), Asset Quality Index (AQI), Sales Growth Index (SGI), Depreciation Index (DEPI), Sales and General Administrative Expenses Index (SGAI), Leverage Index (LVGI), and Total Accruals to Total Assets (TATA), the study examined the quantitative differences between public companies that engage in financial manipulation and those that do not.

LITERATURE REVIEW

Financial statements are structures that show an entity's financial condition and financial performance, according to (IAI, 2012). Financial statements serve the public interest by providing data on an entity's cash flows, financial performance, and financial condition (Agustina et al., 2024; Iskamto, 2016; Iskamto et al., 2019; Kamaruddin et al., 2022; Siswanto & Daniswara, 2022). This data is particularly helpful in helping users make financial decisions. In order to accomplish this goal, the entity's components—assets, liabilities, net worth, costs and revenue (including gains and losses), changes in equity, and cash flows—are detailed in the financial statements. After this data, there are remarks that will help users project future cash flows. "Financial statement fraud is a deliberate attempt by corporations to deceive or mislead users of published financial statements, especially investors and creditors, by preparing and disseminating materially misstated financial statements," according to (Hema, 2013) definition of financial statement fraud. According to academic research, a firm's financial statements can be analyzed to determine whether it qualifies as a manipulator company or not, meaning it has the potential to commit financial statement deception. Professor Messod Daniel Beneish created the score, which is also referred to as the Beneish M-Score (Adhania et al., 2024; Alfina & Wiwik, 2024; Andardini et al., 2024; Fadison et al., 2024; Markonah et al., 2023). This approach determines whether there may be fraud in the company by using eight financial ratios to calculate a score.

METHOD

(Sugiyono, 2017) defines quantitative research methods as research techniques grounded in the positivist philosophy that are applied to specific populations and samples, data collection through the use of research instruments, and quantitative or statistical data analysis, all with the intention of testing preconceived notions. Discriminant analysis, on the other hand, is a statistical method that may be applied to dependency connections—that is, interactions between variables in which it is possible to identify which variables are explanatory and which are response variables. These techniques are employed in this study since the goal is to provide a clear explanation of how the Beneish M-Score model may identify financial statement fraud. Furthermore, because quantitative research data is presented as numbers and is examined through statistical analysis, the methodology employed in this study is also quantitative.

According to (Sugiyono, 2017), the sample is part of the number and characteristics of the population. In this study, the sample used was 60 during the 2017-2021 period. Then the sampling technique is carried out using purposive sampling, which is a sampling method with the consideration that the sample can represent the population with the aim of getting a representative sample according to the criteria. The criteria used in selecting samples are a) food and beverage sub-sector manufacturing companies that publish financial reports and do not experience delisting during the 2017-2021 period and b) companies that have complete data required in this research for the 2017-2021 period.

Table 1. Research Samples

No	Code	Company Name
1	AISA	Tiga Pilar Sejahtera Tbk
2	ALTO	Tri Banyan Tirta Tbk
3	CEKA	Wilmar Cahaya Indonesia
4	DLTA	Delta Djakarta Tbk
5	ICBP	Indofood CBP Sukses Makmur Tbk
6	INDF	Indofood Sukse Makmur Tbk
7	MLBI	Multi Bintang Indonesia
8	MYOR	Mayora Indah Tbk
9	ROTI	Nippon Indosari Corpindo Tbk
10	SKLT	Sekar Laut Tbk
11	STTP	Siantar Top Tbk
12	ULTJ	Ultrajaya Milk Industry and Trading Company Tbk

RESULT

Days Sales in Receivables Index (DSRI)

Days Sales in Receivables Index (DSRI) is the ratio of daily sales in the form of receivables in year (t) to year t-1 (previous year). The following are the DSRI results for the 2017-2021 period:

Table 2. DSRI Data

Code	Company Name	2017	2018	2019	2020	2021
AISA	Tiga Pilar Sejahtera Tbk	0,681	1,059	0,522	1.475	0,731
ALTO	Tri Banyan Tirta Tbk	0,837	1,094	0,754	0,896	0,843
CEKA	Wilmar Cahaya Indonesia	0,992	1,173	1,438	0,998	0,916
DLTA	Delta Djakarta Tbk	0,997	0,992	1,354	0,782	0,701
ICBP	Indofood CBP Sukses Makmur Tbk	1,004	0,988	0,891	1.181	0,997
INDF	Indofood Sukses Makmur Tbk	1,037	1,025	0,959	1,114	0,976
MLBI	Multi Bintang Indonesia	1,903	1,003	1,369	0,732	0,784
MYOR	Mayora Indah Tbk	1,160	0,839	1,018	0,947	0,949
ROTI	Nippon Indosari Corpindo Tbk	1,173	1,144	0,967	0,746	1,072
SKLT	Sekar Laut Tbk	0,999	1,229	0,879	0,885	0,935
STTP	Siantar Top Tbk	0,954	1,140	1,032	0,754	0,964
ULTJ	Ultrajaya Milk Industry and Trading Company Tbk	1,048	0,937	1,014	0,961	1,003

Gross Margin Index (GMI)

Gross Margin Index (GMI) is the ratio of gross profit margin in the previous year (t-1) to profit margin in the year (t). If the gross margin index is greater than 1, it indicates a negative signal for the company's prospects. If a company has negative prospects, then the company is more susceptible to manipulating profits. Following are the GMI results for the 2017-2021 period:

Table 3. GMI Data

Code	Company Name	2017	2018	2019	2020	2021
AISA	Tiga Pilar Sejahtera Tbk	0,889	0,985	0,980	1,195	1,106
ALTO	Tri Banyan Tirta Tbk	1,890	1,584	0,813	1,048	1,183
CEKA	Wilmar Cahaya Indonesia	1,583	0,883	0,646	1,269	1,365
DLTA	Delta Djakarta Tbk	0,945	1,013	1,011	1,073	0,961
ICBP	Indofood CBP Sukses Makmur Tbk	1,009	0,973	0,938	0,922	1,035
INDF	Indofood Sukses Makmur Tbk	1,025	1,028	0,929	0,906	1,002
MLBI	Multi Bintang Indonesia	0,982	1,084	1,004	1,300	0,860
MYOR	Mayora Indah Tbk	1,117	0,889	0,840	1,061	1,202
ROTI	Nippon Indosari Corpindo Tbk	0,983	0,973	0,973	0,988	1,033
SKLT	Sekar Laut Tbk	0,992	1,014	1,012	0,950	0,956
STTP	Siantar Top Tbk	0,962	0,990	0,808	0,975	1,143
ULTJ	Ultrajaya Milk Industry and Trading Company Tbk	0,933	1,045	0,949	1,008	1,040

Asset Quality Index (AQI)

Asset Quality Index (AQI) is the ratio of non-current assets to total assets which measures the proportion of total assets to future profits that lack certainty. Beneish stated that the higher the ratio, the more likely the company is to increase deferred costs or increase intangible assets and manipulate income. The following are the AQI results for the 2017-2021 period:

Table 4. AQI Data

Code	Company Name	2017	2018	2019	2020	2021
AISA	Tiga Pilar Sejahtera Tbk	1,796	1,038	0,903	1,025	1,219
ALTO	Tri Banyan Tirta Tbk	0,079	1,634	1,095	0,938	0,743
CEKA	Wilmar Cahaya Indonesia	1,851	0,992	0,684	0,655	0,994
DLTA	Delta Djakarta Tbk	0,741	0,976	1,043	1,035	1,102
ICBP	Indofood CBP Sukses Makmur Tbk	1,018	1,264	1,003	2,418	0,882
INDF	Indofood Sukses Makmur Tbk	0,872	0,742	1,044	2,141	0,905
MLBI	Multi Bintang Indonesia	0,654	1,715	1,278	1,360	1,144
MYOR	Mayora Indah Tbk	0,678	2,298	2,139	0,543	0,633
ROTI	Nippon Indosari Corpindo Tbk	1,235	1,246	0,849	1,842	0,945
SKLT	Sekar Laut Tbk	1,116	0,999	0,732	0,766	0,951
STTP	Siantar Top Tbk	0,886	0,942	1,901	0,571	0,842
ULTJ	Ultrajaya Milk Industry and Trading Company Tbk	1,041	2,977	0,857	0,817	0,324

Sales Growth Index (SGI)

Sales Growth Index (SGI) is a ratio that can provide information on companies that include fake sales. An increase in SGI indicates that the company considers normal growth. Growth accompanied by a decline in share prices encourages companies to manipulate. The following are the SGI results for the 2017-2021 period:

Table 5. SGI Data

Code	Company Name	2017	2018	2019	2020	2021
AISA	Tiga Pilar Sejahtera Tbk	0,298	0,812	0,954	0,850	1,185
ALTO	Tri Banyan Tirta Tbk	0,884	1,107	1,185	0,935	1,141
CEKA	Wilmar Cahaya Indonesia	1,035	0,852	0,860	1,164	1,475
DLTA	Delta Djakarta Tbk	1,003	1,149	0,926	0,661	1,247
ICBP	Indofood CBP Sukses Makmur Tbk	1,036	1,079	1,101	1,103	1,218
INDF	Indofood Sukses Makmur Tbk	1,053	1,046	1,044	1,067	1,216
MLBI	Multi Bintang Indonesia	1,039	1,055	1,038	0,535	1,246
MYOR	Mayora Indah Tbk	1,134	1,156	1,040	0,978	1,140
ROTI	Nippon Indosari Corpindo Tbk	0,988	1,111	1,206	0,963	1,024
SKLT	Sekar Laut Tbk	1,096	1,143	1,226	0,979	1,082
STTP	Siantar Top Tbk	1,075	1,001	1,243	1,095	1,103
ULTJ	Ultrajaya Milk Industry and Trading Company Tbk	1,041	1,122	1,140	0,956	1,109

Depreciation Index (DEPI)

Depreciation Index (DEPI) is a ratio that compares depreciation expense to fixed assets before depreciation in the year (t) and the previous year (t-1). If this index is more than 1, it means there is a decrease in the depreciation expense for fixed assets, while a decrease in this ratio indicates an increase in the depreciation expense for fixed assets, which means there is a possibility of profit manipulation. The following are the DEPI results for the 2017-2021 period:

Table 6. DEPI Data

Code	Company Name	2017	2018	2019	2020	2021
AISA	Tiga Pilar Sejahtera Tbk	0,642	0,951	1,229	0,582	1,024
ALTO	Tri Banyan Tirta Tbk	5,310	0,991	0,996	2,318	1,061
CEKA	Wilmar Cahaya Indonesia	0,803	0,747	1,067	0,978	1,117
DLTA	Delta Djakarta Tbk	1,016	1,056	1,053	1,066	1,058
ICBP	Indofood CBP Sukses Makmur Tbk	0,991	1,147	1,002	1,314	1,035
INDF	Indofood Sukses Makmur Tbk	1,040	2,005	0,682	1,294	0,941
MLBI	Multi Bintang Indonesia	0,931	0,889	0,851	0,640	0,859
MYOR	Mayora Indah Tbk	0,776	0,963	0,914	1,145	1,120
ROTI	Nippon Indosari Corpindo Tbk	0,966	0,963	0,729	0,568	1,079
SKLT	Sekar Laut Tbk	0,921	0,963	1,164	0,892	1,062
STTP	Siantar Top Tbk	1,146	1,415	1,483	1,709	0,529
ULTJ	Ultrajaya Milk Industry and Trading Company Tbk	0,984	4,609	0,996	0,413	0,888

Sales, General and Administrative Expenses Index (SGAI)

Sales, General and Administrative Expenses Index (SGAI) is a ratio that compares sales, general and administrative expenses to sales in the year (t) and the previous year (t-1). If this index is smaller than 1, it means there has been a decrease in operational expenses or an increase in sales. The following are the SGAI results for the 2017-2021 period:

Table 7. SGAI Data

Code	Company Name	2017	2018	2019	2020	2021
AISA	Tiga Pilar Sejahtera Tbk	0,980	0,914	0,996	1,516	0,856
ALTO	Tri Banyan Tirta Tbk	1,418	0,621	0,813	0,755	0,758
CEKA	Wilmar Cahaya Indonesia	1,043	1,328	0,774	1,199	0,783
DLTA	Delta Djakarta Tbk	0,980	0,914	0,996	1,516	0,856
ICBP	Indofood CBP Sukses Makmur Tbk	0,940	1,060	0,997	1,032	0,885
INDF	Indofood Sukses Makmur Tbk	0,970	1,039	1,029	1,002	0,897
MLBI	Multi Bintang Indonesia	0,870	0,727	1,033	1,416	0,872
MYOR	Mayora Indah Tbk	0,857	1,297	1,210	0,963	1,011
ROTI	Nippon Indosari Corpindo Tbk	1,413	1,101	0,953	1,067	0,875
SKLT	Sekar Laut Tbk	0,987	0,953	0,929	1,090	0,998
STTP	Siantar Top Tbk	1,003	0,977	0,954	0,880	1,138
ULTJ	Ultrajaya Milk Industry and Trading Company Tbk	1,073	1,089	0,926	0,945	0,860

Leverage Index (LVGI)

Leverage Index (LVGI) is a ratio that compares the amount of debt to total assets in the current year (t) and the previous year (t-1). The leverage index aims to find out how the level of debt a company has relative to its total assets from year to year. If the leverage index is more than 1 then there is an increase in the composition of debt assets which has the potential for possible earnings manipulation. The following are the LVGI results for the 2017-2021 period:

Table 8. LVGI Data

Code	Company Name	2017	2018	2019	2020	2021
AISA	Tiga Pilar Sejahtera Tbk	4,987	1,078	0,651	0,312	0,910
ALTO	Tri Banyan Tirta Tbk	1,059	1,047	1,006	1,012	1,005
CEKA	Wilmar Cahaya Indonesia	0,932	0,468	1,142	1,039	0,935
DLTA	Delta Djakarta Tbk	0,945	1,074	0,948	1,127	1,359
ICBP	Indofood CBP Sukses Makmur Tbk	0,993	0,950	0,917	1,654	1,043
INDF	Indofood Sukses Makmur Tbk	1,007	1,031	0,904	1,179	1,004
MLBI	Multi Bintang Indonesia	0,901	1,035	1,014	0,839	1,230
MYOR	Mayora Indah Tbk	0,984	1,015	0,933	0,896	0,999
ROTI	Nippon Indosari Corpindo Tbk	0,754	0,881	1,010	1,810	1,164
SKLT	Sekar Laut Tbk	1,079	1,057	0,951	0,914	0,824
STTP	Siantar Top Tbk	0,818	0,915	0,680	0,883	0,702
ULTJ	Ultrajaya Milk Industry and Trading Company Tbk	1,066	0,745	1,026	3,146	0,675

Total Accruals to Total Assets (TATA)

Total Accruals to Total Assets (TATA) is a ratio that explains that high total accruals indicate a high amount of accrued profits owned by the company. If accruals are positive there is a higher possibility of income manipulation

Table 9. TATA Data

Code	Company Name	2017	2018	2019	2020	2021
AISA	Tiga Pilar Sejahtera Tbk	-2,943	-0,158	0,789	1,089	0,078
ALTO	Tri Banyan Tirta Tbk	-0,036	-0,028	-0,035	-0,028	-0,034
CEKA	Wilmar Cahaya Indonesia	-0,034	-0,129	-0,128	0,023	0,188
DLTA	Delta Djakarta Tbk	-0008	0,036	0,061	-0,094	-0,084
ICBP	Indofood CBP Sukses Makmur Tbk	0,001	0,052	0,000	-0,001	0,031
INDF	Indofood Sukses Makmur Tbk	0,025	0,033	-0,039	-0,006	0,012
MLBI	Multi Bintang Indonesia	0,095	0,090	0,129	-0,131	-0,101
MYOR	Mayora Indah Tbk	0,079	0.123	-0,007	-0,045	0,037
ROTI	Nippon Indosari Corpindo Tbk	-0,025	-0,023	-0,026	-0,052	-0,056
SKLT	Sekar Laut Tbk	0.062	0,053	0,033	-0,033	-0,033
STTP	Siantar Top Tbk	0,010	0,035	0,041	-0,051	0,001
ULTJ	Ultrajaya Milk Industry and Trading Company Tbk	-0,022	0,057	0,025	0,017	0,029

Discriminant Function Analysis

Discriminant analysis is carried out following the passing of multiple assumption tests, including the normal test. This study uses discriminant analysis to determine which independent variables are most useful in distinguishing between financial statements that appear to have been changed and those that have not. We shall discuss the stages of discriminant analysis as follows:

Discriminant Function Analysis

The Test of Equality Group Means is used to test the equality of variable means. This test uses Wilk's Lambda and significance value. If the Wilk's Lambda number is close to 0 then there tends to be differences within the group. Testing hypothesis as follows:

H0: If the significance value is > 0.05 then there are no group differences.

H1: If the significance value is <0.05 then there are group differences.

Table 10. Test of Equity of Group Means

Tests of Equality of Group Means

	Wilks' Lambda	F	df1	df2	Sig.
DSRI	.910	5.717	1	58	.020
GMI	.951	3.012	1	58	.006
AQI	.832	11.692	1	58	.001
SGI	.946	3.290	1	58	.007
DEPI	.997	.177	1	58	.675
SGAI	.988	.696	1	58	.408
LVGI	.993	.384	1	58	.538
TATA	.961	2.369	1	58	.129

The significant numbers can be used to inform decisions about the test results. If the value of sig. < 0.05 indicates that there is a difference in the variable between groups that are thought to have been manipulated and groups that are thought not to have been. Table 4.3 above indicates that the dependent variable is significantly influenced by the DSRI, GMI, AQI, and SGI variables, all of which have sig values less than 0.05. There are sig values for the TATA, LVGI, SGAI, and DEPI variables. 0.05 is immediately disqualified from creating the discriminant function since it fails the test.

Variables Entered/Removed

At this stage, the variables that enter the model are variables that have a meaningful influence and do not cause the F value to be insignificant. Variable entry is determined by the size of the sig number of F to Remove where the smallest number will come first.

Table 11. Test of Equity of Group Means

Variables Entered/Removed[a,b,c,d]

		Wilks' Lambda				Exact F			
Step	Entered	Statistic	df1	df2	df3	Statistic	df1	df2	Sig.
1	AQI	.832	1	1	58.000	11.692	1	58.000	.001
2	DSRI	.728	2	1	58.000	10.672	2	57.000	.000
3	GMI	.619	3	1	58.000	11.506	3	56.000	.000
4	SGI	.557	4	1	58.000	10.923	4	55.000	.000

At each step, the variable that minimizes the overall Wilks' Lambda is entered.

a. Maximum number of steps is 16.

b. Minimum partial F to enter is 3.84.

c. Maximum partial F to remove is 2.71.

d. F level, tolerance, or VIN insufficient for further computation.

Which variables can be entered and utilized to create a discriminant function are displayed in the table. Only the variables AQI, DSRI, GMI, and SGI are thought to be able to differentiate between groups that are suspected of being manipulated and those that are suspected of not being manipulated out of the eight Beneish variables that are available. The variables DEPI, SGAI, LVGI, and TATA are eliminated in the discriminant function equation. The AQI variable's computed F number in the first stage has a significant value of 0.001. It is known that the DSRI variable has the second biggest significant F value, 0.000, in the second stage after the independent variable has been lowered by one. The estimated F number for the GMI variable is in third place with a value of 0.000 in the third stage, after the variable has been lowered by two. With a significant value of 0.000, the SGI variable comes in last among the variables that should be included in the discriminant function. Based on the Beneish M-Score Model grouping, it can be determined that the AQI, DSRI, GMI, and SGI variables can discriminate or distinguish between manipulated and unmanipulated financial reports because all four have significant numbers below 0.05.

Eigenvalue

In the Eigenvalue table there are canonical correlation values. The canonical correlation value is used to measure the degree of relationship between discriminant results or the amount of variability that can be explained by the independent variable on the dependent variable.

Table 12. Table Eigenvalue

Eigenvalues

% of Variance	Cumulative %
100.0	100.0

a. First 1 canonical discriminant functions were used in the analysis.

The canonical correlation value is the number that is used as a guide for interpreting test findings based on the table. On a scale of 0 to 1, the degree of relationship between the two groups and the discriminant function is measured using canonical correlation. According to the test findings, the canonical correlation score is 0.665. This figure shows that, with the discriminant function constructed, there is a rather tight link between the manipulated group and the unmanipulated group. (Ghozali, Imam, 2014) states that in order to obtain a percentage value, the canonical correlation value must be squared and multiplied by 100. Following (Ghozali, Imam, 2014) instructions will result in a percentage of 44.2%. Based on this, it can be said that the independent variables—the AQI, DSRI, GMI, and SGI variables—that merit more investigation can account for 44.2% of the variation in the dependent variable (Y).

Wilk's Lambda

The Wilk's Lambda table explains the differences between the non-manipulated group (code 0) and the manipulated group (code 1). Meanwhile, the significance value is <0.05, so the variables for each group have significant differences.

Table 13. Table Wilk's Lambda

Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	.557	32.742	4	.000

The distinctions between the manipulated group (code 1) and the unmanipulated group (code 0) are explained by the Wilk's lambda table. The four independent variables that passed the test cannot account for 55.7% of the variation, as indicated by the value 0.557 in the Wilks' Lambda column. The chi-square value, on the other hand, is 32.742 with a significance level below 0.05, indicating a significant difference between the manipulated and unmanipulated groups.

Classification Result

Table provides information on the % error rate in this study as well as the accuracy of the classification findings derived from the discriminant function or equation. As can be seen in the original section, 37 financial report samples, or 86% of the original data, were classified in the unmanipulated group or "decision 0" using the Beneish model equation. In the non-manipulated group, there are 36 financial report samples totaling (83.7%) when the discriminant function is included.

Table 14. Table Classification Result

Classification Results[a,c]

			Predicted Group Membership		
		M_Score	.000	1.000	Total
Original	Count	.000	37	6	43
		1.000	6	11	17
	%	.000	86.0	14.0	100.0
		1.000	35.3	64.7	100.0
Cross-validated[b]	Count	.000	36	7	43
		1.000	6	11	17
	%	.000	83.7	16.3	100.0
		1.000	35.3	64.7	100.0

a. 80.0% of original grouped cases correctly classified.
b. Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.
c. 78.3% of cross-validated grouped cases correctly classified.

Discussion

The Day Sales in Receivables Index (DSRI)

The Days Sales in Receivables Index (DSRI) variable is able to differentiate between financial reports that are suspected to have been manipulated and those that are suspected not to have been manipulated. The Days Sales in Receivables Index (DSRI) variable has a significant value of 0.000, which is below 0.05, according to the results of the discriminant analysis test. The DSRI variable may distinguish between financial reports that have been altered and financial reports that have not, which means that the first hypothesis is accepted based on the analysis's findings. These test results align with the findings of (Beneish, 1999) research.

The Gross Margin Index (GMI)
The Gross Margin Index (GMI) variable is able to differentiate between financial reports that are suspected to have been manipulated and those that are suspected not to have been manipulated. 0.000, which is less than 0.05, is the significant value of the Gross Margin Index (GMI) variable, according to the results of the discriminant analysis test. Because the GMI variable can distinguish between financial records that have been falsified and financial reports that have not, it can be concluded that the second hypothesis is true.

The Assets Quality Index (AQI)
The Assets Quality Index (AQI) variable is able to differentiate between financial reports that are suspected to have been manipulated and those that are suspected not to have been manipulated. The Discriminant Analysis Test results indicate that the variable representing the Assets Quality Index (AQI) has a significant value of 0.001, which is less than 0.05. The Assets Quality Index (AQI) variable's ability to distinguish between financial reports that have been falsified and those that have not leads to the conclusion that the third hypothesis is valid.

The Sales Growth Index (SGI)
The Sales Growth Index (SGI) variable is able to differentiate between financial reports that are suspected of being manipulated and those that are suspected of not being manipulated. Discriminant analysis test findings indicate that the Sales Growth Index (SGI) variable has a significant value of 0.000, well below the significance level of 0.05. Because the Sales Growth Index (SGI) can distinguish between financial reports that have been falsified and those that have not, the fourth hypothesis is deemed to be true. These test results align with the findings of (Beneish, 1999) research.

The Depreciation Index (DEPI)
The Depreciation Index (DEPI) variable is unable to differentiate between financial reports that are suspected to have been manipulated and those that are suspected not to have been manipulated. Based on the results of the discriminant test, it shows that the Depreciation Index (DEPI) variable has a significance of 0.675 above 0.05. This demonstrates how the DEPI variable cannot distinguish between financial reports that have been changed and those that have not, making it unable to forecast fake financial statements. These findings rule out the fifth hypothesis, which states that the Depreciation Index (DEPI) variable is unable to distinguish between financial reports that have been falsified and those that have not. These test results align with the findings of Beneish's (1999) research.

The Sales General and Administrative Expenses Index (SGAI)
The Sales General and Administrative Expenses Index (SGAI) variable is unable to differentiate between financial reports that are suspected of being manipulated and those that are suspected of not being manipulated. The Sales General and Administrative Expenses Index (SGAI) variable has a significant value of 0.408 above 0.05 based on the discriminant analysis test findings. Given these findings, the sixth hypothesis is disproved since the SGAI variable is unable to distinguish between financial reports that have been altered and those that have not. These test results align with the findings of (Beneish, 1999) research.

The Leverage Index (LVGI)
The Leverage Index (LVGI) variable is unable to differentiate between financial reports that are suspected to have been manipulated and those that are suspected not to have been manipulated. The Leverage Index (LVGI) variable has a significance value of 0.538 above 0.05, according to the findings of the discriminant analysis test. Because the debt index (leverage) cannot distinguish between financial reports that have been falsified and financial reports that have not, the seventh hypothesis in this study is rejected based on this value. The findings of this study corroborate those of (Aulia Rachmi, 2020) investigation.

The Total Accrual to Total Assets (TATA)
The Total Accrual to Total Assets (TATA) variable is able to differentiate between financial reports that are suspected to have been manipulated and those that are suspected not to have been manipulated. The total accrual to total assets (TATA) variable has a significant value of 0.129 above 0.05 based on

the discriminant analysis test findings. The ninth hypothesis was deemed invalid based on the test findings since the TATA index was unable to distinguish between financial reports that had been altered and those that had not.

CONCLUSION

The Beneish M-Score Model analysis has an impact on identifying the possibility of fraudulent financial statements carried out in manufacturing companies in the food and beverage sub-sector listed on the Indonesia Stock Exchange (IDX) in the 2017–2021 period, where the manipulator category increased in 2018 and decreased in 2019–2021, according to the research findings.In the meantime, the discriminant test results indicate that the DSRI, GMI, AQI, and SGI variables have a sig. <0.05, indicating that these variables have a significant impact on the dependent variable or are capable of differentiating between financial reports that have undergone manipulation and those that have not. With regard to the TATA, LVGI, SGAI, and DEPI variables, each has a sig value greater than 0.05. This further demonstrates that these variables are unable to discriminate between financial reports that have been and have not been falsified. The equation or discriminant function formed in this study is: M-score = -2.452 + 0.426 AQI + 0.752 DSRI + 0.805 GMI + 0.645 SGI

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