

ANALYSIS FINANCIAL REPORTS IN PREDICTING THE OCCURRENCE OF FRAUD WITH THE BENEISH M-SCORE MODEL IN MINING COMPANIES LISTED ON THE IDX IN 2021-2023

Luh Putu Jesita Wulandari

Faculty of Economics, Ganesha University of Education, Indonesia
(jesita@undiksha.ac.id)

I Gusti Ayu Purnamawati

Faculty of Economics, Ganesha University of Education, Indonesia
(ayu.purnamawati@undiksha.ac.id)

Gede Adi Yuniarta

Faculty of Economics, Ganesha University of Education, Indonesia
(adi.yuniarta@undiksha.ac.id)

ABSTRACT

This study aims to analyze the potential for financial reporting fraud in mining sector companies listed on the Indonesia Stock Exchange (IDX) for the period 2021 to 2023 using the Beneish M-Score model. This model is used to detect indications of financial reporting manipulation through the analysis of eight financial ratios that are processed into accumulative scores. Based on the results of the analysis, companies are grouped into three categories, namely manipulators, non-manipulators, and grey companies. The results showed that the number of companies classified as manipulators decreased significantly during the observation period, from 27.59% in 2021 to 6.90% in 2023. In contrast, the number of non-manipulators increased from 68.97% in 2021 to 86.21% in 2023. Meanwhile, grey companies experienced a slight increase, from 3.45% to 6.90%. These findings indicate that in general the integrity of financial reporting in mining companies has improved from year to year. This research is expected to provide relevant information for investors, creditors, and other interested parties in assessing the quality of the company's financial reports.

Keywords: beneish m-score, financial reporting fraud, manipulators, non-manipulators, grey companies.

INTRODUCTION

Many Indonesian mining companies, including coal and oil, are currently facing difficulties due to fluctuating prices that can go up or down over time. However, it is crucial for mining companies to have the resilience needed to build and maintain their business continuity in the face of these challenges. Companies that fail to compete effectively risk experiencing a decline in their business activities, which can lead to further declines. To facilitate operations, funding is essential and this can come from internal or external sources (Muhammad Lutfi Trianto, 2019).

Internal funding can consist of owner's capital or company profits while external funding usually involves loans from creditors through the issuance of securities on the Indonesia Stock Exchange (IDX). In order to raise funds in the capital market, companies must be listed on the Indonesia Stock Exchange (IDX) as a go-public company (Purnamawati et al., 2023). Information about a new policy or regulation has a significant impact on capital market activities because investors tend to take steps to make investment decisions based on the phenomena that occur. In other words, investment decisions made by investors are a reaction to the information they receive or an event that occurs that can influence their investment decisions (Yulane Talumewo, 2021).

The mining industry requires a different accounting method than other industries. This is because the mining industry has several specific activities such as stripping activities and environmental management. To support these activities, in 1994 the Indonesian Institute of Accountants (IAI) issued the Financial Accounting Standards Statement (PSAK) Number 33 concerning general mining accounting. PSAK No. 33 regulates the treatment, disclosure and presentation of financial statements for mining business operations. In 2011 PSAK No. 33 was revised not much different from 1994. However, in PSAK No. 33 (revised 2011) the scope regulates general mining accounting related to stripping activities and environmental management (Eni Nuraeni et al., 2024)

The recording method in PSAK that can cause conservative financial reports, including PSAK No. 14 concerning inventory related to the selection of inventory cost calculations, PSAK No. 16 concerning fixed assets and other assets that regulate the estimation of the useful life of a fixed asset, (PSAK No. 19) concerning intangible assets related to the amortization method, and PSAK No. 20 concerning research and development costs. It can be concluded that indirectly the concept of conservatism can affect the results of financial reports, in reporting financial reports the management must prepare financial reports based on the applicable Financial Accounting Standards (SAK)(Yuliawati & Yudiantara, 2022). The preparation standard will provide flexibility for management in choosing the accounting principles to be used in preparing financial statements. This flexibility will affect the behavior of managers in recording accounting and reporting the company's financial transactions. One of the financial accounting standards that regulates financial reporting in mining companies (Rahman et al., 2022).

However, not many companies publish financial reports in full or are dishonest in reporting the company's financial condition. Companies that are experiencing difficulties and have unhealthy financial reports often have their reports manipulated, so that many companies go bankrupt due to unhealthy financial reports or interference from company management who have committed fraud such as profit manipulation, corruption and other crimes, on the grounds of being able to obtain funds from the securities issued (Diatmika et al., 2023). The tendency of accounting fraud can be said to be a tendency of corruption in definition and terminology due to the involvement of several elements consisting of misleading facts,

violation of rules or abuse of trust (Rika et al., 2020). Financial reporting fraud is an intentional or unintentional error, such as misrepresenting amounts and information in financial statements for personal gain and misleading users of financial statements (Purnamawati and Yuniarta, 2021). In addition, there is another opinion that financial reporting is a form of accountability to motivate managers to improve their performance. Therefore, the performance presented aims to impress and meet the expectations of stakeholders ((Amerti Irvin Widowati & Linda Ayu Oktoriza, 2021).

The results of a survey conducted by the Association of Certified Fraud Examiners (ACFE) show that the most detrimental fraud in Indonesia is corruption. In sequence, 167 respondents or 69.9% stated that corruption is the most detrimental fraud in Indonesia. Then, 50 respondents or 20.9% stated that manipulation of state and corporate assets or wealth caused losses. At the same time, 22 respondents or 9.2% stated that false financial reports caused major losses for the state and stakeholders due to the fraud that had been committed. There is the latest data taken from the release of the Association of Certified Fraud Examiners (ACFE) entitled Asia-Pacific Occupational Fraud (ACFE, 2019). *A Report to the Nations*, Indonesia was recorded as the country with the highest number of frauds in 2022, with 23 cases recorded. The most common frauds in Indonesia are corruption (64 percent), misuse of state and economic resources or property (28.9 percent), and currency fraud (6.7 percent). The largest fraud was found in PT Asabri with state losses according to the BPK (Supreme Audit Agency) of IDR 22.78 trillion, PT Jiwasraya IDR 16.81 trillion, and the latest fraud in PT Indosurya Inti Finance as the Financial Transaction Reports and Evaluation Center (PPATK) which cost customers IDR 106 trillion. The case of PT Timah Tbk which was accused of carrying out illegal activities with illegal operations from 2015 to 2022 and state losses were estimated to reach IDR 271 trillion. This is a very surprising case considering the value of the losses accumulated from 2015 to 2022. Then the figure of IDR 271 trillion was widely used as observation material (Hanyfah et al., 2024).

Based on the investigation (Association of Certified Fraud Examiners) ACFE Center for Research and Prevention of white-collar crime, P3K2P in 2022, the Fraud Type corruption case is a category of professional fraud that often occurs and is stated as the most damaging fraud in Indonesia. The percentage of corruption cases is 67% of the total employment fraud cases in Indonesia with a total loss of IDR 373,650,000,000, followed by asset misuse of 21% with a total loss of IDR 257,520,000,000 and financial statement fraud of 9.2% with a total loss of IDR 242,260,000,000. This shows that financial fraud cases are ranked fourth in Indonesia. There are many types of fraudulent acts, of course there are many things that can trigger these fraudulent acts. Various factors that can trigger fraud include pressure, opportunities and rationalization that exist in each company. According to the Association of Certified Fraud Examiners (ACFE), internal fraud is grouped into three types, namely misuse of assets, bribery and fraudulent financial statements (ACFE, 2019)

In the phenomenon that occurred in 2024, there were several companies that committed balance sheet fraud or fraud in the mining sector, including 167 cases of bribery, 50 cases of misappropriation of company and state assets, and 50 cases of falsification of financial reports. as many as 22 cases with losses due to these cases reaching Rp. 873,430,000,000 (ACFE, 2019) also shows that the four most fraudulent disclosure methods are financial reports with a percentage of 38.9%, in second place internal audits with 23.4%, followed by other media with 15.1% and finally external audits with 9.6%. In Indonesia, fraud cases have been verified at PT Timah Tbk. PT Timah Tbk is a company engaged in the mining sector, especially

tin, which is one of the largest tin producing companies in the world based on the assessment of the Timah Employees Association (IKT). This is because the company has recorded a fantastic percentage since 2013, from the original IDR 263 billion to IDR 2.3 trillion in 2016. Based on the financial performance of PT Timah Tbk, it has indeed published an annual report in the first semester: In 2015, it stated that the strategies and efficiencies achieved were translated into positive performance, even though the company's operating profit was inversely proportional to a loss of IDR 59 billion (Hanyfah et al., 2024).

Based on the survey conducted, there were several cases that occurred in mining companies, such as the case that occurred at PT BUMI Resources in 2018, which carried out accounting manipulation by...*mark down* in its financial report. Then, the case of PT Timah Tbk. from 2015 to 2024 after further processing has committed fraud on its financial report which resulted in losses of up to 300 trillion which caused the largest loss for the country. Furthermore, the fraud committed by PT Tiga Pilar Sejahtera Tbk. in 2021 which was carried out by former employees in the board of directors by engineering receivables to increase the amount in six distributor companies, so that the company was considered to have experienced an increase in sales accounts. In addition, there was engineering of the increase in stock prices which had reached its peak. Then PT AISA in 2018 which failed to pay bond interest. The next fraud case occurred at PT Cakra Mineral Tbk. overstated by consolidating the accounts of PT Tarakas Inti Lestari and PT Murni Jaya Perdana in its financial report, and manipulated the capital deposited by the two mining companies. This creates a very significant negative impact on the growth and development of the country, can damage the reputation and trust of stakeholders and investors for other companies. This phenomenon is a strong reason why the author chose the subject of mining companies, because there are many cases of fraud that have occurred and the negative impacts that will be felt significantly on an ongoing basis, besides that, mining companies in previous studies that used analysis models were very few, so further analysis is needed on mining companies. (Alfa Vivianita & Dian Indudewi, 2018),

Based on several cases and the many accounting scandals that have occurred, this is one of the important reasons why the author chose this forecasting model, the main reason is that financial reports are very important for obtaining information from a company, there are many negative impacts. aspects of accounting cases so that there are many cases of financial reporting fraud, the author uses the Beneish M-Score analysis model to analyze financial reports that may commit financial reporting fraud, there are several analysis models that can be used such as the Z-Score model, F-Score model but the author focuses on the phenomenon of fraud that often occurs and focuses on This prediction model is used to analyze the occurrence of fraud in financial reports. Can analyze financial reports to minimize the occurrence of financial reporting fraud by identifying various fraudulent activities before they become major cases that can harm the state, society and stakeholders who may invest in shares or capital (Driptyanto & Wahyuati, 2018).

Beneish M-Score ratios used to describe financial statement manipulation are Days Sales in Receivables Index (DSRI), Gross Margin Index (GMI), Asset Quality Index (AQI), Sales Growth Index (SGI), depreciation index (DEPI), Selling General and Administrative Expense Index (SGAI), Leverage Index (LVGI) and Total Accrual to Total Asset Index (TATA) (Isna et al., 2022). The results of Beneish's research show that 76% of samples manipulate their financial reports, Beneish revealed that the significant variables in detecting the possibility of manipulation were 5 of the total 8 variables mentioned, namely the DSRI, GMI, AQI, SGI and TATA variables, while the coefficients on leverage, depreciation and sales

administration costs were not significant or were not definitely related to manipulation (Wisdianti et al., 2022). Utilization of relationships developed by Beneish et al., (1999) has been used for various studies in various parts of the world with varying results. In addition to the Beneish M-Score model used in predicting fraud in financial reports, there is another model, namely the F-Score method itself is specifically designed so that users can get scores directly without using an index in its calculations. The F-Score model is the sum of two variables, namely accrual quality and financial performance (Paransi et al., 2023). In research, if the mean value produced is lower but the standard deviation is high, then the potential for fraud is greater. The results of the study stated that the F-Score of the company involved in the incident had an F-Score value of more than 1 indicating that the incident had occurred and if the F-Score was less than 1 or negative, it was not indicated. Dechow F-Score stated that the F-Score of the company involved in fraud had an F-Score value greater than 1 indicating fraud and if the F-Score was less than 1 or negative, it did not indicate fraud (Yuniarta et al., 2021). Dechow F-Score is a fraud detection method that develops the Beneish M-Score calculation method and is considered more comprehensive than the Beneish M-Score because the scope of data testing includes the entirety of the Accounting and Auditing Enforcement Releases (AAERs) issued by the SEC from 1982 to 200 (Isna et al., 2022).

Based on the basic description above, the author is interested in conducting research with the title "Analysis Financial Reports in Predicting Fraud with the Beneish M-Score Model in Mining Companies Listed on the IDX in 2021-2023" This study aims to analyze the possibility of fraud in financial reports that have been published on the Indonesia Stock Exchange using the Beneish M-Score analysis model in mining companies in Indonesia that have been listed on the IDX 2021-2023. This study has a small scope where the population of this study only focuses on mining companies with the aim of obtaining more specific results because from the company's perspective it has better characteristics in other sectors.

LITERATURE REVIEW

Agency theory, this theory describes the relationship between the owner (principal) and the manager (agent) in the context of a business, where the manager represents the owner. In the context of financial reporting, there is a potential conflict of interest between managers who may have incentives to manipulate financial statements for personal gain or to meet market expectations, and owners who want accurate and transparent information to make investment decisions. By using agency theory as a framework, this study can provide a deeper understanding of the dynamics between managers and owners in the context of financial reporting fraud in mining companies listed on the Indonesia Stock Exchange (Purnamawati et al., 2023).

Basically, the agent has known the mistakes and how to cover up the fraudulent actions so that they are not known by the principal, this is what causes financial statement fraud. In addition, fraud also occurs because of pressure from the principal on the agent who demands that the agent can carry out the company's operational activities well so that the desired target must be achieved. This situation makes the agent stressed and will commit fraud with the aim of wanting to show that the company is in good condition (Devi Permatasari & Unsa Laila, 2021).

Agency theory is based on the basic assumption that there is a conflict of interest between the principal (owner, shareholder) and the agent (company management). This conflict arises because both parties have different goals and incentives, as well as non-transparent information that can be misused by

the agent for personal gain (Husein et al., 2023.). In the context of financial reporting, this conflict often leads to potential fraud or manipulation of financial statements by management to create a better financial picture of the company than it actually is, meet market expectations, receive bonuses, or protect their positions. Critically, agency theory assumes that management, as agents, has an incentive to hide the true financial condition by manipulating financial statements if they feel pressured to show high results. This situation is exacerbated by the existence of moral hazard, where agents are not fully responsible for the consequences of manipulation, and information asymmetry makes it difficult for shareholders to detect fraud at an early stage (Aqilah et al., 2021).

To identify potential fraud, the financial ratios processed in the Beneish M-Score can be considered as empirical indicators of such behavior. These ratios reflect specific aspects of the financial statements that are susceptible to manipulation, such as the Days Sales in Receivables Index (DSRI), which measures the likelihood of revenue expenditure, or Total Accruals to Total Assets (TATA), which indicates the level of potential earnings manipulation through the management of reserves, assets, and revenue recognition (Holda, 2020).

Agency theory suggests that financial statement manipulation is a strategy used by management to achieve desired financial goals, which may be implicitly supported by incentive costs and pressures from the company's external and internal environments. The Beneish M-Score has been empirically an indicator of potential manipulative actions, because it shows patterns of financial behavior that are inconsistent with actual conditions or indicate the possibility of improper changes in the figures in the financial statements (Kusuma et al., 2021). In addition, agency theory can justify the use of the Beneish M-Score as an early detection tool, because this model is based on the assumption that manipulative behavior will leave certain statistical traces in empirically verified financial ratios. Therefore, the analysis of these ratios can provide early warning of a larger problem with the agency, namely fraud in financial reporting by management (Marfuah, 2018).

The Beneish M-Score model, introduced by Beneish et al. (1999), was developed based on data from publicly traded companies in the United States. The results of the initial study showed that the financial ratios comprising the M-Score were significant in distinguishing between manipulative and non-manipulative firms, with an accuracy rate of approximately 76%. This model has since become an effective early warning system, particularly in the context of U.S. Securities and Exchange Commission (SEC) regulation and external audits. Further research by Dechow and Dichev (2002), using a global dataset, confirmed the M-Score's ability to detect earnings manipulation with over 80% accuracy, especially among firms that reported significantly overstated profits. Similarly, a study by Tliuc et al. (2015) conducted in the European market found the Beneish M-Score to be highly effective, with a success rate of around 75%, although its effectiveness was noted to be more prominent among large corporations and specific industry sectors.

In the Indonesian context, several national studies have supported the M-Score's relevance and applicability. Sulistyaningsih and Rafika (2023), using data from banking companies between 2014 and 2018, demonstrated that the Beneish M-Score was effective in identifying potentially manipulated financial statements, with a success rate exceeding 70%. These findings are consistent with international studies and validate the M-Score's relevance in the Indonesian financial landscape, particularly in the banking sector. In addition, Widowati and Oktoriza (2021) found that the M-Score predicted financial statement

manipulation in listed companies with an accuracy rate of 68%, though they noted that the model was less sensitive when applied to smaller firms with incomplete or less transparent financial data. By integrating evidence from both international and domestic studies, this research aims to apply the Beneish M-Score model to mining companies listed on the Indonesia Stock Exchange (IDX) during the period 2021–2023. The objective is to determine whether the model can effectively serve as an early detection tool for potential financial reporting fraud in the mining sector, which is characterized by unique industrial dynamics and risk profiles. This study is expected to contribute empirical insights grounded in agency theory, particularly in the context of capital markets in Indonesia.

The Beneish M-Score model presents multiple strengths: its ratios are empirically relevant, as numerous studies have confirmed their ability to detect statistical signs of earnings manipulation (Taleb & Abdldreda, 2024; Sharif & Asfakuzzaman, 2023). Moreover, the model is user-friendly: the eight ratios it employs are straightforward, easily calculated, and suitable for automated screening (Valášková & Fedorko, 2021). From a regulatory standpoint, the Beneish M-Score serves as a supportive tool for auditors and market supervisors, providing an initial line of defense in detecting financial irregularities (Elhawary & Elbolok, 2024). However, its limitations must also be acknowledged: the model exhibits sectoral sensitivity, performing less accurately for small firms or industries with unique structures (Lumadi & Rusgowanto, 2023), and is prone to false positives companies undergoing rapid growth or restructuring may trigger alarm signals despite no wrongdoing (Abusharbeh, 2024). Furthermore, external economic factors—such as business cycles, regulatory shifts, or unusual industry conditions can distort M-Score results without indicating fraud (Elhawary & Elbolok, 2024). Lastly, the accuracy of the model depends heavily on data quality; in emerging markets like Indonesia, where financial disclosures may be incomplete or unreliable, this poses a challenge (Sharif & Asfakuzzaman, 2023). Nevertheless, the Beneish M-Score remains relevant today: internationally, it continues to function effectively as an initial fraud screening mechanism, particularly in well-regulated markets; in Indonesia and other emerging economies, it provides valuable statistical insights, though it is best used alongside qualitative assessments and manual audits; and within corporate governance, it enhances transparency, supports financial oversight, and encourages the integrity of reporting practices.

The mining industry has unique characteristics, such as commodity price fluctuations, high levels of exploration and production, and external factors that can have a significant impact on financial statements. These conditions can cause high volatility in Beneish M-Score variables, such as the gross margin index (GMI) and sales growth index (SGI), which is not necessarily related to manipulation but rather a natural result of industry conditions (Lalura et al., 2021). Therefore, modification or adjustment of the parameters and thresholds in the Beneish M-Score model is needed to make the model more sensitive to the characteristics of the mining industry. For example, thresholds for certain variables can be adjusted based on mining industry data for a certain period, or variables specific to this industry can be added, such as reported reserve values or exploration cost levels (Novita et al., 2021).

The Beneish M-Score model has demonstrated varying levels of effectiveness across international and national contexts. International studies report accuracy levels ranging from 75% to 80%, indicating a high success rate in detecting earnings manipulation, which can be attributed to the availability of more comprehensive financial data and stricter regulatory frameworks (Taleb & Abdldreda, 2024; Valášková & Fedorko, 2021). In contrast, national studies conducted in Indonesia show slightly lower accuracy levels,

ranging from 68% to 70%, often due to limited data quality and less standardized reporting practices (Sulistyaningsih & Rafika, 2023; Widowati & Oktoriza, 2021). In terms of sectoral suitability, the model tends to be more effective in large companies and particularly in the financial sector, where financial reports are more structured and data availability is higher (Elhawary & Elbolok, 2024). However, the model exhibits lower sensitivity when applied to smaller enterprises or industries with non-standard reporting, such as agriculture or informal sectors (Lumadi & Rusgowanto, 2023). Despite these limitations, the Beneish M-Score remains a valuable tool for both regulators and auditors. Internationally, it is often utilized as a supporting mechanism in fraud risk assessment during audits, while in emerging markets like Indonesia, it serves primarily as an early detection tool to identify firms with potentially manipulated financial statements. Therefore, while relevant and adaptable across various contexts, the model is most effective when used in conjunction with qualitative assessments and manual auditing procedures (Sharif & Asfakuzzaman, 2023).

METHODS, DATA, AND ANALYSIS

This study uses an associative approach, which is a type of research that aims to determine the relationship or connection between two or more variables. In this context, the author attempts to analyze whether there is a significant relationship between the financial ratios in the Beneish M-Score model as independent variables, such as *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 Expenses Index* (SGAI), *Leverage Index* (LVGI), and *Total Accruals to Total Assets Index* on indications of financial statement fraud as dependent variables in mining companies. The subjects in this study were mining companies listed on the Indonesia Stock Exchange during 2021 to 2023, while the objects of the study included the Beneish M-Score ratio (X1) and indications of financial statement fraud (Y). The population in this study was 65 mining companies consisting of various sub-sectors such as metals and minerals, coal, energy, gold, construction industry raw materials, copper, and aluminum, whose company data were obtained from the official website of the Indonesia Stock Exchange and the websites of each company. The sample selection was carried out using a purposive sampling technique, namely selecting 29 companies that met the criteria such as not being delisted, consistently publishing audited annual financial reports during the study period, and having complete data related to the variables studied. The total number of observations used was 87 (29 companies multiplied by 3 years). This study uses a quantitative approach that is systematic, planned, and measurable, with the main objective of testing the relationship and influence between variables analyzed in numerical form, and using the Beneish M-Score model to detect indications of manipulation in financial reports. The data source used in this study is secondary data, namely financial report data downloaded from the website www.idx.go.id and supported by literature studies from journals, books and other relevant references.

RESULTS AND DISCUSSION

The Beneish M-Score model is a tool used to detect possible manipulation of financial statements through eight ratios or indices. These ratios are calculated based on the company's financial statement data and compared to the parameter values determined by (Beneish, 1999). In this study, each ratio is used to

measure the company's tendency to commit fraud based on changes or irregularities in certain values in the financial statements.

Ratio of Days Sales in Receivables Index (DSRI) describes the balance between accounts receivable and sales. If accounts receivable increase significantly without being followed by a comparable increase in sales, then there is an indication that the company may have manipulated its income. The analysis results show that in 2021 there were five companies classified as manipulators, nine as grey companies, and fifteen as non-manipulators. In 2022, the number of manipulators remained at five, grey companies decreased to three, and non-manipulators increased to twenty-one. In 2023, the number of manipulators remained at five, grey companies increased to eleven, and non-manipulators decreased to twelve. On average, seven companies showed a DSRI ratio value above one, which means that there was an increase in receivables that was not comparable to sales, and this is a strong indication of fraud in the income item.

Gross Margin Index Ratio (GMI) is used to assess a company's ability to reduce the cost of goods sold. If the gross margin decreases, this indicates that the company has failed to control its production costs efficiently. The calculation results show that in 2021 there were seven manipulator companies, three grey companies, and nineteen non-manipulators. In 2022, there was a significant increase in the number of manipulators to thirteen, grey companies to six, and a decrease in non-manipulators to ten. 2023 recorded eight manipulators, seven grey companies, and fourteen non-manipulators. Four companies have GMI ratio values above one, indicating a decline in gross margin and the possibility that the company is hiding the fact that its performance is declining as a form of fraud.

Asset Quality Index Ratio (AQI) describes the quality of a company's assets. A decline in asset quality usually occurs due to suboptimal use of assets or because the company defers costs to improve the appearance of asset performance. In 2021, there were twelve manipulator companies, six grey companies, and eleven non-manipulators. In 2022, there were ten manipulators, five grey companies, and fourteen non-manipulators. Meanwhile, in 2023, there was a decrease in the number of manipulators to four, grey companies to nine, and non-manipulators increased to sixteen. There were seven companies that had an AQI ratio value of more than one, which indicates the possibility of deferral of costs as a form of financial statement manipulation.

Sales Growth Index Ratio (SGI) shows sales growth from one period to the next. If there is a significant increase in sales, this could be an indicator that the company is trying to maintain a good performance image, although it may not be fully supported by actual operational conditions. In 2021, there were seven manipulators, twelve grey companies, and eleven non-manipulators. In 2022, there were four manipulators, eleven grey companies, and fourteen non-manipulators. Meanwhile, in 2023, there was only one manipulator, four grey companies, and twenty-four non-manipulators. A total of twenty-one companies has an average SGI value above one, which means an increase in sales, but with the possibility of manipulation to attract investors or creditors to the seemingly impressive performance.

Depreciation Index Ratio (DEPI) measures whether a company is slowing down the recognition of depreciation expense. If depreciation slows down, the company's profit appears higher due to lower depreciation expense. In 2021, there were eleven manipulator companies, four grey companies, and fourteen non-manipulators. In 2022, there were ten manipulators, six grey companies, and thirteen non-manipulators. In 2023, there were seven manipulators, three grey companies, and nineteen non-manipulators. A total of eight companies showed a DEPI ratio value of more than one, which means there

is an unreasonable depreciation slowdown, and this could be a form of financial statement manipulation, because it causes expenses to decrease unrealistically and profits to appear to increase.

Table 1. Company Classification Results for the Year 2021

No	Category	Company Codes
1	Manipulator	PTBA, SMMT, DWGL, MITI, AIMS, ZINC, SGER, ALKA
2	Non-Manipulator	IFSH, CITA, BESS, CNKO, FIRE, INAI, SURE, BTON, ISSP, LMSH, ELSA, RUIS, ANTM, DKFT, CTTH, TINS, TCPI, TEBE, BAJA, GDST
3	Grey Company	OPMS

Based on the results of the Beneish Ratio Index analysis, the classification of companies during the three years of observation showed variations in the classification of manipulators, non-manipulators, and grey companies. In 2021, companies classified as manipulators consisted of PTBA, SMMT, DWGL, MITI, AIMS, ZINC, SGER, and ALKA. One company, namely OPMS, was categorized as a grey company. Meanwhile, companies classified as non-manipulators included IFSH, CITA, BESS, CNKO, FIRE, INAI, SURE, BTON, ISSP, LMSH, ELSA, RUIS, ANTM, DKFT, CTTH, TINS, TCPI, TEBE, BAJA, and GDST.

Table 2. Company Classification Results for the Year 2022

No	Category	Company Codes
1	Manipulator	CITA, BTON, ELSA, MITI, AIMS, OPMS, BAJA
2	Non-Manipulator	IFSH, PTBA, BESS, CNKO, FIRE, INAI, SURE, CITA, ISSP, LMSH, ZINC, RUIS, ANTM, DKFT, CTTH, TINS, TCPI, TEBE, ALKA, GDST, SMMT
3	Grey Company	DWGL

In 2022, there was a change in the composition of the classification. Companies classified as manipulators are CITA, BTON, ELSA, MITI, AIMS, OPMS, and BAJA. DWGL is classified as a grey company. Non-manipulator companies include IFSH, PTBA, BESS, CNKO, FIRE, INAI, SURE, CITA, ISSP, LMSH, ZINC, RUIS, ANTM, DKFT, CTTH, TINS, TCPI, TEBE, ALKA, GDST, and SMMT. In 2023, the number of manipulators decreased and only consisted of SMMT and SGER, while grey companies consisted of RUIS and ZINC. Companies categorized as non-manipulators are IFSH, PTBA, BESS, CNKO, FIRE, INAI, SURE, CITA, ISSP, LMSH, DWGL, MITI, ANTM, DKFT, CTTH, TINS, TCPI, TEBE, ALKA, GDST, BAJA, OPMS, AIMS, and BTON.

Table 3. Company Classification Results for the Year 2023

No	Category	Company Code
1	Manipulator	SMMT, SGER
2	Non-Manipulator	IFSH, PTBA, BESS, CNKO, FIRE, INAI, SURE, CITA, ISSP, LMSH, DWGL, MITI, ANTM, DKFT, CTTH, TINS, TCPI, TEBE, ALKA, GDST, BAJA, GDST, OPMS, AIMS, BTON
3	Grey Company	RUIS, ZINC

The percentage results of companies classified as manipulators, non-manipulators, and grey companies can be calculated by comparing the number of companies classified as

manipulators, non-manipulators, and grey companies, then compared with the total sample, then multiplied by 100%.

Percentage Results of Companies Classified as Manipulators

Based on the results of the analysis using the benefit ratio index with 29 company samples during the three years of research, the percentage results obtained during the three years of research are known that. In 2021, companies classified as manipulators had a percentage value of 27.59%. Then in 2022, the percentage of companies classified as manipulators decreased by 3.45% with a percentage of 24.14%. In 2023, companies classified as manipulators with a percentage of 6.90%, compared to the percentage of companies classified as manipulators in 2021 to 2023 experienced a very significant decline.

Table 4. Calculation of Percentage of Manipulator Companies

Year	Calculation	Results
2021	$m = \frac{8}{29} \times 100\%$	27.59%
2022	$m = \frac{7}{29} \times 100\%$	24.14%
2023	$m = \frac{2}{29} \times 100\%$	6.90%

The research results obtained are in line with research conducted by (Kurnianingsih et. al 2019) which states that, Fraud is usually carried out by exaggerating assets and profits, so as to attract the attention of investors and creditors to invest or provide credit loans to them. Financial reporting fraud carried out by the company will harm the related parties who need financial reports. This fraud can increase the risk of low returns on investment that investors invest in the company. In addition, this study also supports research conducted by (Lukas, 2021) which states that companies that commit fraud on their financial reports can harm the parties who use the financial reports, because the financial reports are presented not in accordance with the existing reality. Thus, it is hoped that investors and creditors can be careful in investing and providing loans to companies that are classified as manipulators.

Percentage Results of Companies Classified as non-Manipulators

Based on the results of the analysis using the Beneish Ratio Index with 29 company samples during the three years of research, the percentage results obtained during these three years showed that in 2021, companies classified as non-manipulators were 68.97%. Then in 2022, companies classified as non-manipulators increased by 3.44% with the percentage result in that year being 72.41%. In 2023, companies classified as non-manipulators increased again by 13.8% with the percentage of companies classified as 86.21%. Compared to the percentage results of companies classified as non-manipulators in 2021 to 2023, there was a very significant increase.

The research results obtained are in line with research (Christy, 2018) which states that, During the three years of research, companies classified as non-manipulators have increased, this indicates that banking companies in Indonesia have been able to present financial reports that are

free from manipulation. In addition, this research is supported by (Lukas, 2021) which states that, Investors and creditors can increase their trust in companies that fall into the non-manipulators category, because the financial reports they submit do not indicate fraud, so that they can reduce the risk of the rate of return on capital for investors and the risk of loans that are not returned for creditors. Therefore, companies that fall into the non-manipulators category deserve awards (rewards) from related parties for their commitment to protecting the interests of users of their financial reports.

Table 5. Calculation of Percentage of Manipulator Companies

Year	Calculation	Results
2021	$n = \frac{20}{29} \times 100\%$	68.97%
2022	$n = \frac{21}{29} \times 100\%$	72.41%
2023	$n = \frac{25}{29} \times 100\%$	86.21%

Percentage Results of Companies Classified as Grey Companies

Based on the results of the analysis using the benefit ratio index with 29 company samples during the three years of research, the percentage results obtained during these three years are known that in 2021 to 2022, companies classified as gray companies were 3.45%. Then companies classified as gray companies in 2023 experienced an increase of 3.45%, with the percentage results in that year being 6.90%.

Table 6. Calculation of Percentage of Manipulator Companies

Year	Calculation	Results
2021	$g = \frac{1}{29} \times 100\%$	3.45%
2022	$g = \frac{1}{29} \times 100\%$	3.45%
2023	$g = \frac{2}{29} \times 100\%$	6.90%

This trend of decreasing manipulation may be attributed to improvements in corporate governance practices within specific industries, particularly the mining sector which constitutes a significant portion of the sample. Several mining companies have adopted better internal control systems and transparency policies in response to increased regulatory oversight from Otoritas Jasa Keuangan (OJK) and compliance with revised PSAK standards. According to Daryanto (2021), enhanced enforcement of corporate governance regulations in Indonesia has contributed to reducing financial fraud, especially in capital-intensive industries like mining. Furthermore, this positive trend may reflect the impact of the COVID-19 pandemic, which forced companies to reevaluate risk management strategies and adopt more conservative financial practices. Research

by Nugraheni and Kurniawati (2021) found that the pandemic heightened external scrutiny and increased the emphasis on trustworthy reporting, especially in publicly listed firms.

Contextually, the declining manipulation trend aligns with findings from other industries during similar periods. For instance, Christy (2018) and Lukas (2021) reported consistent improvements in the banking sector's reporting quality due to digitization, increased transparency, and evolving stakeholder expectations. This correlation may indicate that macroeconomic and regulatory shifts play a substantial role across sectors, not just in mining. However, it is essential to consider confounding factors. Changes in financial accounting standards, particularly the adoption of new PSAK regulations, may have affected the detectability of financial manipulation. Additionally, OJK's evolving policies and mandatory disclosures could have indirectly discouraged fraudulent behavior by increasing the cost of non-compliance. These findings are in line with research by Maulidina and Hapsari (2022), who emphasized the role of dynamic regulatory frameworks in curbing financial misreporting.

The research results obtained are in line with the research (Christy, 2018) which states that, during the three-year study, the number of companies classified as grey companies decreased. This indicates that the company has the potential to manipulate financial reports, although the potential that arises is not significant. In addition, this research is supported by (Zulzilawati, 2021), this also applies to the non-manipulator group, because the ratio index value exceeds the limit of the non-manipulator company parameter index. Therefore, companies classified as grey companies are considered to have possibly manipulated with immaterial values. Although immaterial, investors and creditors must still be careful with this type of company. Although the value is immaterial, it is more advisable for investors and creditors to remain careful with the type of company classified as a grey company.

CONCLUSION

Based on the analysis of financial statement fraud using the Beneish M-Score model in mining companies listed on the Indonesia Stock Exchange from 2021 to 2023, it was found that the number of companies classified as manipulators decreased significantly, from 8 companies (27.59%) in 2021 to only 2 companies (6.90%) in 2023. In contrast, the number of non-manipulator companies increased from 20 companies (68.97%) in 2021 to 25 companies (86.21%) in 2023, reflecting increased compliance with accounting standards. Meanwhile, companies classified as gray companies increased slightly, from 1 company (3.45%) in 2021 and 2022 to 2 companies (6.90%) in 2023, indicating that there are still indications of manipulation with immaterial values. These findings indicate that in general the integrity of mining companies' financial statements has tended to improve in the last three years.

IMPLICATIONS AND SUGGESTIONS

This study has important implications both theoretically and practically. Theoretically, this study enriches the literature on financial statement fraud detection using the Beneish M-Score model, which has been proven to be able to identify manipulator companies, grey companies, and non-manipulators during the 2021–2023 period. Practically, the results of this study can be used by investors and creditors as a tool in decision-making, by making company categories based on the M-Score as a risk indicator. In addition, regulators such as the OJK and IDX can use this model as an initial screening tool to detect potential financial statement manipulation in order to increase transparency and integrity of the capital market. For company management, these findings serve as an important reminder of the need to maintain accountability and honesty in financial reporting in order to maintain stakeholder trust and maintain the company's reputation.

Based on the conclusions obtained and the limitations of the existing research, the suggestions that the author can provide in the results of this study, with the hope that they can be considered in making investment and economic decisions for related parties are as follows: (1) Further research is expected to be able to choose a longer observation period, expand the research sample, so that it is not limited to just one sector, with the aim that the results obtained will be more accurate so that they can describe the phenomenon of financial statement fraud. In addition, further research can also calculate the level of significance of each accounting variable, so that it can be known which variables are significantly able to distinguish between manipulator companies, gray companies and non-manipulator companies. (2) For companies, it is expected not to commit fraud in presenting their financial reports, because it can harm users of the financial reports. (3) For investors, prospective investors, shareholders and creditors and capital market analysts in making decisions to buy shares, it is expected to be able to conduct a good analysis of the financial reports or seek additional information outside the financial reports.

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