

Analysis Of Potential Income Manipulation Using Beneish M-Score Model

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Abstract

Objective & object: This research aims to analyze the potential for earnings manipulation in insurance sector companies listed on the Indonesia Stock Exchange (IDX) using the Beneish M-Score Model. The research variables include the eight Beneish financial ratios, namely Days Sales in Receivables Index (DSRI), Gross Margin Index (GMI), Asset Quality Index (AQI), Sales Growth Index (SGI), Sales, General and Administrative Expenses Index (SGAI), Leverage Index (LVGI), dan Total Accruals to Total Assets (TATA) of annual financial reports of insurance companies.

Methods: This research uses a descriptive quantitative approach with secondary data for the period 2022–2024. Data analysis techniques were carried out by calculating the Beneish M-Score to identify indications of earnings manipulation, where an M-Score value of > -2.22 indicates potential manipulation.

Results & Conclusions: Results show that some insurance companies, such as JMAS, MREI, TUGU, ABDA, and ASRM, have M-Score values above the threshold, which indicates potential earnings manipulation. The trend in the last three years shows a general increase in M-Score values, especially in the 2023–2024 period. This research supporting the hypothesis that there are indications of earnings manipulation practices in the Indonesian insurance sector. These findings strengthen agency theory and emphasize the importance of supervision and the implementation of effective corporate governance to maintain the integrity of financial reporting.

Limitations: Beneish M-Score model relies solely on financial ratios from the company's annual reports, thus not taking into account qualitative factors such as changes in management policy, internal audit practices, or the influence of corporate governance. Non-use of cross-sector comparisons, which could help to see if similar practices occur in other industries with different regulatory and economic pressures.

Implications: This study strengthens agency theory and the literature on earnings management, particularly within the highly regulated financial sector such as insurance. The findings indicate that despite stringent regulatory oversight, earnings manipulation remains a possibility. This contributes to the development of earnings manipulation detection models in the financial services sector, especially through the quantitative analysis of the Beneish M-Score. Furthermore, it serves as a critical reminder to enhance the effectiveness of financial statement oversight and auditing.

Keywords: Beneish M-Score, Earnings manipulation, Insurance Sector.

Abstrak

Tujuan & Obyek: Penelitian ini bertujuan untuk menganalisis potensi manipulasi laba pada perusahaan sektor asuransi yang terdaftar di Bursa Efek Indonesia (BEI) dengan menggunakan Model Beneish M-Score.

Metode: Penelitian ini menggunakan pendekatan kuantitatif deskriptif dengan data sekunder untuk periode 2022–2024. Teknik analisis data dilakukan dengan menghitung Beneish M-Score untuk mengidentifikasi indikasi manipulasi laba, di mana nilai M-Score $> -2,22$ menunjukkan potensi manipulasi.

Hasil & Kesimpulan: Hasil penelitian menunjukkan bahwa beberapa perusahaan asuransi, seperti JMAS, MREI, TUGU, ABDA, dan ASRM, memiliki nilai M-Score di atas ambang batas, yang menunjukkan potensi manipulasi laba. Trend dalam tiga tahun terakhir menunjukkan peningkatan umum pada nilai M-Score, terutama pada periode 2023–2024. Penelitian mendukung hipotesis bahwa terdapat indikasi praktik manipulasi laba di sektor asuransi Indonesia. Temuan ini memperkuat teori keagenan dan menekankan pentingnya pengawasan dan implementasi tata kelola perusahaan yang efektif untuk menjaga integritas pelaporan keuangan.

Keterbatasan: Model Beneish M-Score hanya mengandalkan rasio keuangan dari laporan tahunan perusahaan, sehingga tidak memperhitungkan faktor kualitatif seperti perubahan kebijakan manajemen, praktik audit internal, atau pengaruh tata kelola perusahaan. Tidak digunakannya perbandingan lintas sektor, yang dapat membantu melihat apakah praktik serupa terjadi di industri lain dengan tekanan regulasi dan ekonomi yang berbeda.

Implikasi: Studi ini memperkuat teori keagenan dan literatur tentang manajemen laba, khususnya di sektor keuangan yang sangat diatur seperti asuransi. Temuan menunjukkan bahwa meskipun pengawasan regulasi ketat, manipulasi laba tetap menjadi kemungkinan. Hal ini berkontribusi pada pengembangan model deteksi manipulasi laba di sektor jasa keuangan, terutama melalui analisis kuantitatif Beneish M-Score. Lebih lanjut, ini berfungsi sebagai pengingat penting untuk meningkatkan efektivitas pengawasan dan audit laporan keuangan.

Kata kunci: *Beneish M-Score, Manipulasi laba, Sektor Asuransi.*

1. Introduction

Financial reports are the primary medium for companies to convey information on financial performance to stakeholders (Putra Wijaya Mirza et al., 2021) (Destiani & Hendriyani, 2021) (Barauskaite & Streimikiene, 2021). The information contained in financial reports is expected to provide a comprehensive overview of the company's current condition and future prospects (Preselia et al., 2023) (Ayu Andrianie et al., 2023). For investors and creditors, financial reports play an important role in the economic decision-making process, while for management, financial reports serve as a means to account for their performance to the company owners. Financial performance also functions as an indicator of management's success in managing

company resources to achieve profitability and efficiency (Ahdi & Rakim, 2022). Therefore, the preparation of financial reports must follow the principles of fairness and honesty in accordance with generally accepted accounting standards. However, in practice, economic pressures and the demand to maintain a positive company image often lead management to manipulate financial reports, especially in the form of earnings manipulation to meet market expectations, maintain stock price stability, or avoid a decline in investor confidence.

Internal control plays a role as the main mechanism to maintain the integrity of financial reporting. Internal control is a system designed and implemented by management and all members of the organization to ensure the achievement of operational objectives, the reliability of financial reporting, and compliance with laws and regulations. An effective internal control system is capable of preventing, detecting, and minimizing the risk of fraud in the company's operational activities (Setyaningsih & Nengzih, 2020), because internal control has an important role for the Company's business activities (Madani et al., 2022). Weak internal supervision can provide opportunities for fraudulent acts (Madani et al., 2022) (Nawawi, 2017) (Wahyuni & Helmarini, 2020). This aligns with the view of agency theory, which explains that conflicts of interest between managers (agents) and owners (principals) can lead to opportunistic behavior by management when the supervision system is not effective. Therefore, strengthening the internal control system becomes a crucial aspect to prevent earnings manipulation practices that could mislead financial statement users.

The insurance sector is one sector that has a high level of complexity in financial management and accounting reporting. This complexity arises from the characteristics of insurance business activities which involve various types of products, premium management, determination of technical reserves, and claims that are estimative and long-term in nature. This condition opens up opportunities for insurance companies to utilize flexibility in the application of accounting policies, especially related to the recognition of premium income and claims expenses, in order to present financial performance that appears stable in the eyes of investors and regulators. Such practices, if not properly supervised, can lead to covert profit manipulation. Therefore, an analytical approach is needed that can identify early indications of earnings manipulation quantitatively and objectively. One of the models widely used in detecting potential financial statement manipulation is the Beneish M-Score Model, developed by Messod Beneish in 1999. This model uses eight financial ratios to assess the likelihood of a company manipulating its financial statements, by leveraging the behavioral differences of accounting figures that deviate from normal trends. The advantage of this model lies in its ability to detect earnings manipulation without requiring non-financial data, thus making it widely applicable across various industry sectors (Wahyuni & Helmarini, 2020) (Wisdianti et al., 2022).

In the Indonesian context, the application of the Beneish M-Score Model becomes very relevant, especially in the non-bank financial sector such as the insurance industry. This is due to the increasing public attention towards transparency and accountability of financial reports amidst complex regulatory dynamics and changes in

accounting standards. The insurance sector plays an important role in the national economy as it functions as a financial intermediation institution that manages risks and pools public funds. However, a number of financial reporting manipulation cases that have occurred in various countries, including Indonesia, indicate that this sector is not entirely free from fraudulent practices. Therefore, research on the potential for earnings manipulation in the insurance sector in Indonesia is very important to conduct. Through analysis using the Beneish M-Score Model, this study aims to identify the extent to which insurance sector companies listed on the Indonesia Stock Exchange (IDX) have the potential to commit earnings manipulation. The findings of this research are expected to provide empirical contributions to the forensic accounting literature, as well as provide practical insights for investors, auditors, regulators, and management in strengthening supervision of the integrity of financial reporting in the Indonesian insurance sector.

2. Literature Review

Various previous studies have been conducted to identify earnings manipulation indications using the Beneish M-Score Model across various industry sectors and countries. The results of study (Nurjanah et al., 2023) indicate that insurance sector companies have relatively low M-Score values, meaning the potential for financial statement fraud in that sector tends to be small. Nevertheless, the study has methodological limitations because it only used five out of the eight financial ratios developed by Beneish. This resulted in the findings not being able to comprehensively represent the financial condition of insurance companies. These limitations are significant because each ratio in the Beneish Model has complementary analytical roles in detecting changes in accounts receivable, profit margins, depreciation, and leverage levels, all of which can indicate signs of earnings manipulation. Meanwhile, research (Septian et al., 2024) found that a number of companies in the property and real estate sectors in Indonesia were classified as manipulators, however, that research did not extend its analysis to the financial sector, so those findings could not be generalized across industries.

Research in various countries also shows significant variation in results regarding the effectiveness of the Beneish Model in detecting earnings manipulation. Research (Khatun et al., 2022) for example, reveals that some banks in Bangladesh exhibit a lack of consistency and integrity in preparing financial statements, which can indicate the practice of earnings manipulation. Meanwhile, (Ozkan & Alfarhan, 2025) found that companies suspected of earnings manipulation tend to have higher cash levels compared to non-manipulating companies, indicating differences in managerial behavior in managing cash flows. However, this relationship is not always consistent across different regions or industry types. Differences in market characteristics, regulations, and the level of external oversight are important factors influencing variations in results between countries. Therefore, further research is needed that is more contextual to specific sectors and regions, including Indonesia, in order to gain a deeper understanding of the patterns of earnings manipulation that occur.

The practice of financial statement manipulation is generally carried out through various aggressive accounting techniques, such as recording fictitious revenue, recognizing unearned revenue as actual revenue, inflating inventory values, and presenting inaccurate information on capital participation (Beneish, 1999). Manipulation is also often done by overstating revenue, increasing intangible assets, or reducing certain expenses so that profits appear larger (Khatun et al., 2022). These activities can have serious impacts on the integrity of financial reporting, because the information presented no longer reflects the company's actual economic condition. For investors, profit manipulation increases investment risk and erodes confidence in the capital market. In addition, financial statement fraud can damage a company's reputation and reduce public trust in the effectiveness of corporate governance mechanisms (Agustina & Pratomo, 2019). Therefore, early detection of potential earnings manipulation is crucial as a preventive measure against fraudulent practices and the decline of accounting transparency.

Based on the literature review, it can be concluded that there is still a research gap related to the analysis of earnings manipulation potential in the insurance sector, especially in Indonesia. Previous research has mostly focused on the manufacturing, property, and banking sectors, while the insurance sector is rarely the subject of in-depth study. However, the insurance sector has high accounting complexity, especially in terms of premium revenue recognition, claim reserves, and liability estimation. Therefore, this research has an element of novelty by comprehensively applying the Beneish M-Score Model using eight financial ratios to detect potential manipulation of financial statements in the insurance sector in Indonesia. This research is expected to provide three main contributions. First, it provides new empirical evidence regarding the potential for earnings manipulation in the insurance sector, which has unique characteristics compared to other sectors. Second, it enriches the empirical accounting literature in Indonesia regarding the effectiveness of the Beneish M-Score model. Third, it provides practical implications for investors, auditors, and regulators in improving the effectiveness of supervision and transparency of financial reporting in the non-bank financial sector.

Based on the theoretical description and previous research results, the hypotheses proposed in this study are as follows:

H_1 : There is a potential for earnings manipulation in insurance sector companies listed on the Indonesia Stock Exchange (IDX).

3. Research Method

This research uses a descriptive quantitative approach aimed at analyzing the potential for earnings manipulation in insurance sector companies listed on the Indonesia Stock Exchange (IDX) using the Beneish M-Score Model. The quantitative approach was chosen because this research focuses on numerical measurement and testing of financial data sourced from the companies' annual reports.

The type of data used is secondary data, which is data obtained indirectly through official company publications in the form of annual financial reports (annual report) and audited financial reports. Data was collected using the documentation study method,

by searching and downloading the financial reports of insurance companies that have been published on the official website of the Indonesia Stock Exchange (www.idx.co.id) and the respective official websites of each company.

The population in this study is all insurance sector companies listed on the IDX during the last three years (2022–2024). The sampling method used was purposive sampling, which is the selection of samples based on specific criteria relevant to the research objectives. The criteria used include: (1) the company published audited annual financial statements during the observation period; (2) the financial statements presented all the information needed to calculate the eight Beneish M-Score ratios; and (3) the company did not experience stock trading suspension or changes in its fiscal year during the research period.

Data analysis techniques are performed by calculating the Beneish M-Score value based on financial ratios, namely: *Days Sales in Receivables Index (DSRI)*, *Gross Margin Index (GMI)*, *Asset Quality Index (AQI)*, *Sales Growth Index (SGI)*, *Sales, General and Administrative Expenses Index (SGAI)*, *Leverage Index (LVGI)*, and *Total Accruals to Total Assets (TATA)*. The calculation is performed manually with the help of Microsoft Excel software to obtain the per-ratio results, then formulated into the Beneish M-Score equation. The resulting M-Score value is interpreted based on the criteria (Beneish, 1999), which is $M\text{-Score} > -2.22$ indicating potential earnings manipulation, while $M\text{-Score} \leq -2.22$ indicates the company is not indicated to be manipulating profits.

Table 1. Beneish M-Score Formula:

$$\text{Beneish M-Score} = -4,840 + 0,920 (\text{DSRI}) + 0,528 (\text{GMI}) + 0,404 \text{ AQI} + 0,892 (\text{SGI}) - 0,172 (\text{SGAI}) - 0,327 (\text{LVGI}) + 4,697 (\text{TATA})$$

Source: Beneish, (1999)

Table 2. Classification of Beneish M-Score Values Based on Financial Ratios

No	Indeks Ratio	Indeks Parameter		
		Non Manipulator	Grey Company	Manipulator
1	DSRI	<1,031	1,031 < indeks <1,465	>1,465
2	GMI	<1,014	1,014 < indeks <1,193	>1,193
3	AQI	<1,039	1,039 < indeks <1,254	>1,254
4	SGI	<1,134	1,134 < indeks <1,067	>1,067
5	SGAI	<1,054	1,054 < indeks <1,041	>1,041
6	LVGI	<1,037	1,037 < indeks <1,111	>1,111
7	TATA	<0,018	0,018 < indeks <0,031	>0,031

Source : Data Processing

4. Results and Discussion

4.1. Results

The research results indicate that there are indications of potential earnings manipulation in some insurance sector companies listed on the Indonesia Stock Exchange. The Beneish M-Score analysis shows that in 2022, most companies had an M-Score ≤ -2.22 , which means no profit manipulation was indicated. However, some companies such as JMAS, MREI, and TUGU showed M-Scores > -2.22 , indicating the potential for earnings manipulation. In 2023, there was an increase in the number of companies with M-Scores above the threshold of -2.22 , such as ABDA, ASBI, ASRM, JMAS, and VINS, indicating an increasing tendency for potential profit manipulation, and in 2024, this phenomenon became more evident with extreme spikes in several companies, particularly PNIN (16.159) and PNLF (25.763), which indicate anomalies or strong indications of financial statement manipulation. Overall, the last three years' trend shows a general increase in M-Score values, supporting the hypothesis that there is potential for earnings manipulation in insurance companies in the IDX. The table below shows the results of data processing using the Beneish M-Score formula for 18 Companies.

Table 3. Beneish M-Score Values

CODE	BENEISH M-SCORE		
	2022	2023	2024
ABDA	-2,384	-1,914	1,659
AHAP	-2,150	-2,700	-1,762
AMAG	-3,652	-2,605	-2,378
ASBI	-2,889	-2,132	-1,556
ASDM	-2,456	-2,247	-2,036
ASJT	-2,452	-2,277	-2,865
ASMI	-2,286	-3,222	-2,751
ASRM	-2,441	-1,949	-1,754
BHAT	-2,426	-2,455	-2,689
JMAS	-0,159	-1,670	-0,139
LIFE	-1,962	-3,334	-2,786
LPGI	-2,206	-2,659	-1,558
MREI	-0,865	-3,303	-2,740
MTWI	-2,494	0,867	-2,061
PNIN	-2,437	16,159	-2,662
PNLF	3,828	25,763	-2,901
TUGU	-1,103	-1,818	-2,483
VINS	-2,948	-0,155	-2,594

Source : Data processing

4.2. Discussion

This result also reflects the financial pressure and managerial motivation in the insurance industry that can drive earnings manipulation practices. Theoretically, this phenomenon can be explained through several approaches: 1) Agency Theory, which describes the relationship between shareholders and management, where information asymmetry often occurs, meaning management has more information about the company's internal conditions. To maintain a positive performance image,

management may engage in earnings management to make financial reports appear stable and attractive to investors or regulators; 2) Post-Pandemic Economic Factors and Financial Market Uncertainty in 2022–2024 is a period of post-pandemic economic recovery, where some companies faced declining premiums and investment results. Under such conditions, earnings manipulation can be a short-term way to show stable financial performance; 3) Beneish M-Score Research Design The use of the Beneish M-Score model highlights financial ratio aspects such as *Days Sales Receivable Index (DSRI)*, *Gross Margin Index (GMI)*, and *Total Accrual to Total Assets (TATA)*. Extreme values in these ratios indicate aggressive revenue or expense recognition practices, forming the basis for identifying earnings management. Consequently, an increasing M-Score during the study period signifies a shift towards more opportunistic financial reporting behavior amid economic pressures and insurance industry regulations.

This study strengthens agency theory and the literature on earnings management, particularly within the highly regulated financial sector such as insurance. The findings indicate that despite stringent regulatory oversight, earnings manipulation remains a possibility. This contributes to the development of earnings manipulation detection models in the financial services sector, especially through the quantitative analysis of the Beneish M-Score. Furthermore, it serves as a critical reminder to enhance the effectiveness of financial statement oversight and auditing.

These results are in line with research (Beneish, 1999) and several studies in Indonesia (Mostafa & Ibrahim, 2019) (Sihombing et al., 2014) which found that companies with high performance pressure tend to commit fraud. However, this study expands the context to the insurance industry, which has rarely been studied before, thus providing a new perspective regarding the detection of earnings management in the non-bank financial services sector.

5. Conclusion

This research concludes that there are indications of potential earnings management in some insurance sector companies listed on the Indonesia Stock Exchange during the 2022–2024 period. Based on the Beneish M-Score analysis, most companies show scores close to or exceeding the threshold for indications of manipulation, especially in 2023 and 2024. These findings suggest that financial reporting practices in the insurance sector tend to shift towards more opportunistic approaches, possibly in response to performance pressures, shareholder demands, and unstable post-pandemic economic conditions. This result confirms that although the insurance industry is a strictly regulated sector, the potential for earnings management can still occur through specific accounting policies that are subjective.

This research has several limitations that need to be considered. First, the use of the Beneish M-Score model relies solely on financial ratios from the company's annual reports, thus not taking into account qualitative factors such as changes in management policy, internal audit practices, or the influence of corporate governance. Second, the research period limited to three years (2022–2024) may not fully represent long-term patterns of earnings manipulation practices in the insurance sector. Third, this research only focuses on insurance companies listed on the IDX, so the results

cannot be generalized to the entire national insurance industry, including those that are not yet publicly listed. Another limitation is the non-use of cross-sector comparisons, which could help to see if similar practices occur in other industries with different regulatory and economic pressures.

Based on the results of this research, it is recommended that future research expand the scope of analysis by adding corporate governance variables, audit quality, and managerial ownership to gain a deeper understanding of the factors influencing earnings management practices in the insurance sector. Further research can also utilize a mixed methods approach with management interviews or qualitative analysis of the accounting policies used. For regulators and external auditors, these findings can serve as a warning to enhance the effectiveness of surveillance systems and forensic audits to detect early indications of earnings manipulation. Meanwhile, for insurance companies, these research results are expected to encourage an increase in transparency, accountability, and the implementation of stronger governance principles to maintain investor and public trust in financial reporting.

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