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# Beneish M-Score, Audit Opinions, and Financial Manipulation: Evidence from Indonesia's Infrastructure Sector

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**ABSTRACT**

This study investigates the extent to which audit opinions reflect indications of financial manipulation, utilizing the Beneish M-Score model as a diagnostic tool. The research focuses on infrastructure companies listed on the Indonesia Stock Exchange (IDX) during the 2019–2023 period. Employing a descriptive quantitative approach and binary logistic regression analysis, companies are classified as either manipulators or non-manipulators based on their M-Score and subsequently compared with the audit opinions they received. Findings reveal a sharp rise in the number of companies flagged as manipulators, reaching a peak of 85% in 2022 before declining to 65% in 2023. Alarmingly, most of these identified manipulators still received Unqualified Opinions, highlighting a significant audit expectation gap. This discrepancy suggests potential weaknesses in auditors' fraud risk assessment and underscores the urgent need for enhanced professional scepticism and analytical rigor in the audit process. The novelty of this study lies in its integration of the Beneish M-Score with audit opinion evaluation across multiple years, providing fresh empirical evidence from Indonesia's infrastructure sector. This contribution highlights the importance of combining statistical detection tools with professional judgment to improve audit quality.

## INTRODUCTION

Financial statements serve as the primary communication tool between a company and its stakeholders, both internal and external. The information disclosed in financial reports significantly influences economic decisions made by investors, creditors, regulators, and other interested parties (Irianto & Novianti, 2019). As such, the credibility and reliability of financial statements are crucial in maintaining market trust and ensuring informed decision-making (Durana, et al., 2022)

However, over the past few decades, a number of accounting scandals have demonstrated how financial statements can be manipulated to present a distorted view of a company's financial health (Christian & Junnestine, 2021), (Putri & Lestari, 2021), and (Patmawati & Rahmawati, 2023). According to the Association of Certified Fraud Examiners (2022), Indonesia ranks fourth in the Asia-Pacific region in terms of reported fraud cases, with 23 incidents recorded in 2022. Several state-owned enterprises, including PT Wijaya Karya (Persero) Tbk and PT Waskita Karya (Persero) Tbk, have been implicated in misleading financial reporting practices (Rahman, 2024). Alarmingly, in some cases, companies suspected of financial manipulation still received Unqualified Audit Opinions, which are supposed to indicate that the financial statements are free from material misstatements.

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This discrepancy raises serious concerns regarding the effectiveness of the audit process and the reliability of the audit opinions issued by auditors. Such a situation reflects the existence of an audit expectation gap—a divergence between the public's expectations of auditors and the actual scope of an audit (Suarsa & Nawawi, 2018). To address this gap, auditors and researchers have turned to quantitative methods, such as the Beneish M-Score model, as tools for detecting potential manipulations in financial reporting (Kamal, et al., 2016) and (Repousis, 2016)

The Beneish M-Score model, developed by Messod Beneish (1999), employs eight financial ratios to assess the likelihood of earnings manipulation. This model has gained widespread use in academic research and professional auditing as a red-flag indicator for financial fraud (Gupta & Gupta, 2015), (Aghghaleh, et al., 2016), (Widodo, et al., 2017), and (Durana, et al, 2022). Its application is particularly relevant in the Indonesian context, where corporate governance enforcement remains a significant challenge (Ariansyah & Yustikasari, 2020) and (Adilla & Ferli, 2021).

Previous studies have demonstrated that the Beneish M-Score is an effective model for detecting financial statement manipulation (Beneish, 1999; Kamal et al., 2016; Repousis, 2016). However, most research has primarily focused on testing the model as a tool for earnings manipulation detection without directly linking it to the audit opinions issued by independent auditors (Widodo et al., 2017; Marfuah, 2019). In the Indonesian context, research connecting Beneish M-Score results with the quality of audit opinions remains limited, often focusing on manufacturing firms with relatively short observation periods (Adilla & Ferli, 2021; Putri & Lestari, 2021).

Furthermore, the phenomenon of the audit expectation gap—differences between stakeholders' expectations and auditors' responsibilities in detecting fraud—has not been extensively examined empirically using quantitative fraud detection models. Prior studies have highlighted aspects such as independence, professionalism, or audit quality (Hasibuan et al., 2022; Suarsa & Nawawi, 2018), but only a few have incorporated statistical tools like the Beneish M-Score as part of fraud detection analysis. This gap creates an opportunity to explore how well audit opinions align with quantitative indicators of manipulation.

The novelty of this study lies in integrating the Beneish M-Score with the evaluation of audit opinions over a five-year period (2019–2023) and focusing on the infrastructure sector, which is capital-intensive and highly exposed to financial pressures. This study not only identifies potential manipulators but also compares them with auditors' opinions to assess the extent to which audit reports reflect fraud risks. Accordingly, this research contributes to the auditing and fraud detection literature by reinforcing the importance of professional scepticism and the integration of analytical tools into audit procedures, especially in high-risk and strategic sectors like infrastructure.

The infrastructure sector is chosen due to its capital-intensive nature, exposure to project-related risks, and frequent use of public funds, either through government budgets or institutional investments (Sihombing & Rahardjo, 2014) and (Putri & Lestari, 2021). The primary aim of this research is to identify companies suspected of manipulating their financial statements using the Beneish M-Score model and to assess whether the audit opinions issued accurately reflect these findings.

This research is also grounded in signalling theory, which posits that audit opinions function as signals to external stakeholders regarding the integrity of financial reporting. When high-quality auditors (such as Big Four firms) issue opinions, they are expected to provide stronger and more reliable signals, reducing information asymmetry between management and stakeholders.

Ultimately, this research seeks to contribute to the understanding of the limitations of audit opinions and highlight the importance of enhancing analytical techniques in financial auditing. The findings are expected to provide valuable insights for auditors, regulators, and other stakeholders regarding the need for professional scepticism and the adoption of analytical tools to detect fraud at an early stage.

## MATERIALS AND METHODS

This study employs quantitative research design with a descriptive approach. The quantitative method emphasizes numerical measurement and statistical analysis of corporate financial data (Sugiyono, 2017). The descriptive approach is used to systematically and objectively portray the observed phenomena, particularly in examining financial statement manipulation detected through the Beneish M-Score model (Beneish, 1999) and its association with audit opinions issued by independent auditors (Kamal, Salleh, & Ahmad, 2016). To test the relationships between variables, this study applies logistic regression analysis, a method suitable for modeling binary outcomes (e.g., the presence or absence of financial statement manipulation or a qualified audit opinion). Logistic regression allows for the estimation of how independent variables (e.g., Beneish M-Score components, auditor size, or other

controls) influence the probability of a dichotomous dependent variable (Hosmer, Lemeshow, & Sturdivant, 2013).

The objects of this research are the financial statements of infrastructure sector companies listed on the Indonesia Stock Exchange (IDX) during the 2019–2023 period. The unit of analysis is the companies' annual financial reports, including audit opinions stated in the independent auditors' reports. Data collection was done through documentation, by downloading and archiving relevant financial statements and auditor reports from online sources. The collected data includes financial statement components for the Beneish M-Score calculation and audit opinion texts issued by external auditors.

The sample was selected using purposive sampling, which is based on specific criteria determined by the researcher. From an initial population of 76 companies, 13 companies met the criteria, yielding 65 observations (13 companies × 5 years).

**Table 1. Sample Selection Based on Criteria**

| Explanation | Total |
|---|---|
| Population | 76 |
| Infrastructure companies actively listed on IDX during 2019–2023 and not delisted. | (11) |
| Companies issuing financial statements in Indonesian Rupiah (IDR). | (1) |
| Companies with complete data for the eight financial ratios required for Beneish M-Score calculation. | (51) |
| Number of Companies | 13 |
| Total of sample 2019-2023 (13 sampel x 5 tahun) | 65 |

Source: Data processed by the researcher (2025)

The Beneish M-Score is calculated using the formula:

M-Score = –4.840 + 0.920(DSRI) + 0.528(GMI) + 0.404(AQI) + 0.892(SGI) + 0.115(DEPI) – 0.172(SGAI) – 0.327(LVGI) + 4.697(TATA) ……. (1)

Where:

DSRI : Days Sales in Receivables Index
GMI : Gross Margin Index
AQI : Asset Quality Index
SGI : Sales Growth Index
DEPI : Depreciation Index
SGAI : Sales, General & Administrative Expenses Index
LVGI : Leverage Index
TATA : Total Accruals to Total Assets

Interpretation:

M-Score > -2.22: categorized as a manipulator
M-Score < -2.22: categorized as a non-manipulator

After companies are categorized as manipulators or non-manipulators, their respective audit opinions are evaluated to determine whether there are inconsistencies between the Beneish M-Score results and the audit opinions issued (e.g., Unqualified, Modified Unqualified, Qualified, or Disclaimer).

To examine the effect of auditor quality, auditor size was included as an additional variable, operationalized as a dummy variable. Companies audited by Big Four accounting firms were coded as 1, while those audited by non-Big Four firms were coded as 0. The dependent variable, the audit expectation gap, was also measured as a dummy variable (1 = presence of an audit expectation gap, 0 = no audit expectation gap).

A binary logistic regression was applied using the following model:

$$\boldsymbol{Logit(P) = \alpha + \beta 1(M - Score) + \beta 2(Auditor\ Size) + \epsilon} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

Where:

| | |
|---|---|
| P | : Probability of audit expectation gap (1 = gap, 0 = no gap) |
| M-Score | : Dummy (1 = manipulator, 0 = non-manipulator) |
| Auditor Size | : Dummy (1 = Big Four, 0 = non-Big Four) |

## RESULTS AND DISCUSSION

Out of a total of 65 observations (13 companies × 5 years), all companies' Beneish M-Scores were calculated using 8 financial ratios: DSRI, GMI, AQI, SGI, DEPI, SGAI, LVGI, and TATA. Based on these calculations:

1) Companies are categorized as **manipulators** if **M-Score > -2.22**
2) Companies are categorized as **non-manipulators** if **M-Score < -2.22**
3)

**Table 2. Percentage of Companies Based on Beneish M-Score Categories**

| Year | Manipulator (%) | Non-Manipulator (%) |
|---|---|---|
| 2019 | 38% | 62% |
| 2020 | 38% | 62% |
| 2021 | 54% | 46% |
| 2022 | 85% | 15% |
| 2023 | 62% | 38% |

Source: Data processed by the researcher (2025)

Based on the results of the Beneish M-Score classification of 13 observed infrastructure sector companies from 2019 to 2023, significant fluctuations were observed in the percentage of companies indicated as manipulators. In 2019 and 2020, the percentage of manipulative companies was recorded at 38%, while the remaining 62% were classified as non-manipulators. These figures indicate a relatively stable initial condition. However, in 2021, there was an increase to 54%, peaking in 2022 with 85% of companies identified as manipulators. This phenomenon indicates financial pressures and management's tendency to aggressively manipulate financial reporting, especially in uncertain economic conditions (Djatnicka et al., 2023; Beneish, 1999).

Interestingly, in 2023, there was a significant decline in the proportion of manipulators to 65%, with 35% of companies classified as non-manipulators. This decline can be interpreted as a sign of recovery or increased corporate governance awareness following the reputational crisis and audit expectation gap that emerged in the previous year. This aligns with the findings of Durana et al. (2022), who stated that a decline in fraudulent reporting practices is often triggered by increased regulatory pressure and the use of analytical tools by external auditors.

The following is a trend chart illustrating the changes in the percentage of manipulators and non-manipulators during the 2019–2023 period. The chart highlights a sharp increase in manipulators in 2022 (85%) and a decline in 2023 (65%), while simultaneously showing the opposite trend for the non-manipulator category.

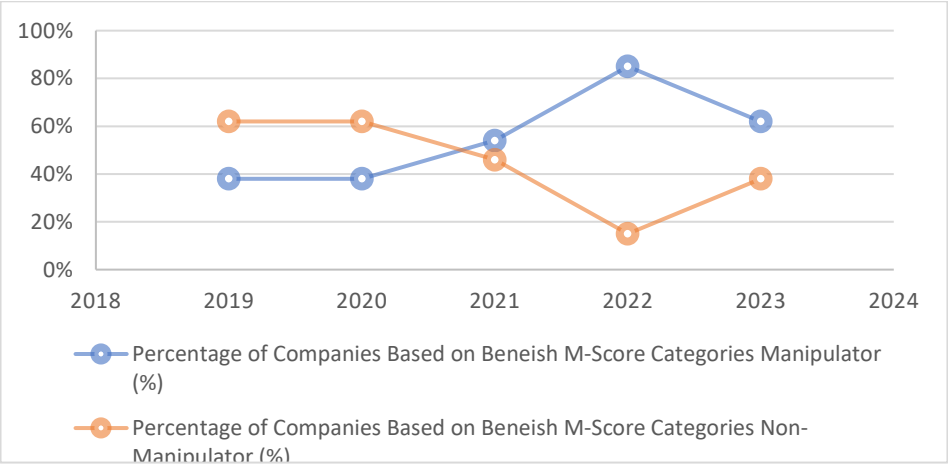


**Figure 1. Chart Percentage of Companies Based on Beneish M-Score Categories**

This improving trend also supports the view of Ramírez-Orellana et al. (2017) that the application of quantitative models such as fraud scores or the Beneish M-Score in audit procedures can help identify manipulation patterns and provide early warning signals useful for stakeholders. However, the manipulator percentage remaining at 65% indicates that the risk of financial statement manipulation is still relatively high, and mitigation efforts must continue to be strengthened, whether through regulatory oversight, the use of analytical models by auditors, or the ethical awareness of company management (Kamal et al., 2016; Suarsa & Nawawi, 2018).

After classifying the companies based on their M-Scores, the researchers identified the type of audit opinion issued by independent auditors for each company. The primary objective was to assess whether the auditor's provided opinions aligned with the manipulation risk indicated by the quantitative model.

**Table 3. Comparison of Audit Opinions by Company Category**

| Company Category | Unqualified Opinion | Modified Unqualified Opinion | Total |
|---|---|---|---|
| Manipulator | 29 | 7 | 36 |
| Non-Manipulator | 21 | 8 | 29 |

Source: Data processed by the researcher (2025)

The table compares the distribution of audit opinions between companies identified as financial statement manipulators and non-manipulators. Among 36 manipulator companies, the majority (29, or ~80.6%) received unqualified (clean) opinions, while a smaller subset (7, or ~19.4%) received modified unqualified opinions (e.g., opinions with emphasis-of-matter paragraphs). In contrast, 29 non-manipulator companies showed a slightly lower rate of unqualified opinions (21, or ~72.4%), with 8 (~27.6%) receiving modified opinions. This suggests that manipulator companies were more likely to receive unqualified opinions than non-manipulators, despite their higher risk of misstatement. Potential implications include: (1) auditors may fail to detect manipulation, (2) modified opinions are underutilized for high-risk firms, or (3) manipulators could exert influence to avoid audit modifications. These findings supports the existence of an audit expectation gap, or a divergence in perceptions between financial statement users and auditors regarding the responsibility to detect fraud (Hasibuan et al., 2022).

These finding show a difference and includes several additional insights from the research results. Certain Beneish M-Score ratios, such as TATA and SGI, strongly indicated manipulator companies, particularly in 2021 and 2022. Companies like PT Wijaya Karya (Persero) Tbk and PT Waskita Karya (Persero) Tbk consistently scored above the manipulation threshold (-2.22) yet still received Unqualified Opinions in their audit reports. This suggests a possible under-detection by auditors or a difference in materiality assessments compared to those assumed in statistical models.

**Table 4. The logistic regression results**

**Parameter Estimates**

| Audit_Expetaiton_Gap[a] | B | Std. Error | Wald | df | Sig. | Exp(B) | 95% Confidence Interval for Exp(B) | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower Bound | Upper Bound |
| Intercept | -1.325 | .604 | 4.813 | 1 | .028 | | | |
| M_Score | 2.388 | .592 | 16.269 | 1 | .000 | 10.892 | 3.413 | 34.759 |
| Auditor_Size | -.141 | .640 | .048 | 1 | .826 | .869 | .248 | 3.045 |

a. The reference category is: 1,00.

Source: Data processed by the researcher (2025)

The logistic regression analysis reveals a significant influence of financial statement manipulation indicators on the audit expectation gap. The M_Score variable with category 1 (companies indicating manipulation) shows a statistically significant positive coefficient of 2.388 ($p < 0.001$), with an odds ratio (Exp(B)) of 10.892. This indicates that companies flagged for financial statement

manipulation are 10.9 times more likely to experience an audit expectation gap compared to non-manipulative firms. The 95% confidence interval for the odds ratio (3.413 to 34.759), which excludes 1, further confirms the significance of this finding. The significant model constant (p = 0.028) suggests a baseline probability of audit expectation gap when all independent variables are held constant.

Conversely, audit firm size (Auditor_Size) demonstrates no significant impact on the audit expectation gap. The coefficient for Auditor_Size category 0 (non-Big Four) of -0.141 is statistically insignificant (p = 0.826), with an odds ratio of 0.869. This result implies that using non-Big Four auditors only reduce the likelihood of audit expectation gap by 13.1% compared to Big Four auditors, but this difference is not significant. The 95% confidence interval for the odds ratio (0.248 to 3.045), which includes 1, further supports the non-significance of this relationship. These findings suggest that the reputation of large audit firms (Big Four) does not automatically reduce the audit expectation gap in this research context. The study highlights the stronger predictive power of financial manipulation indicators compared to institutional factors like audit firm size in explaining audit expectation gaps. This outcome suggests that both groups face similar challenges when manipulation arises subtly through accrual-based adjustments. Although Big Four auditors are often associated with superior resources and reputational incentives (Gupta & Gupta, 2015; Suarsa & Nawawi, 2018), their audit opinions—like those of non-Big Four auditors—remain bounded by materiality thresholds that may not capture statistical red flags. Consistent with earlier evidence (Repousis, 2016; Kamal et al., 2016) and more recent studies highlighting under-detection in emerging markets (Durana et al., 2022; Djatnicka et al., 2023), the findings indicate that audit quality in Indonesia depends less on firm size and more on professional scepticism and the integration of analytical tools such as the Beneish M-Score.

The study found a discrepancy between quantitative fraud detection results and professional audit evaluations. In practice, auditors consider materiality and audit risk when issuing their opinions (IAI, 2021). However, the Beneish M-Score can detect statistical patterns of financial distortion, which may not yet meet the materiality threshold for auditors. This mismatch illustrates the audit expectation gap—a difference between public (including investor and regulator) expectations of auditors and the actual audit approach (Beneish, 1999; Widodo et al., 2017).

The Beneish M-Score proved effective in detecting manipulation signals using variables such as increased receivables (DSRI), declining gross margins (GMI), and sales growth not matched by cash flows (SGI and TATA). It is considered reliable due to its historical data basis and its focus on identifying earnings manipulation, which often escapes traditional audit procedures. However, in the Indonesian context, regulatory frameworks, accounting standards, and oversight of public auditors are still evolving (IAI, 2022). Therefore, the potential for false positives or negatives in interpreting M-Scores must be considered. Even so, the M-Score remains relevant as an early warning system to enhance audit analytical procedures.

Unqualified opinions given to companies with high Beneish M-Scores indicate that auditors may lack sufficient professional skepticism, or may rely too heavily on formal documentation without fully investigating the substance of transactions. In financially pressured situations or when management has incentives to meet market expectations, auditors should strengthen both substantive and analytical audit procedures (Huang, et al., 2016) and (Abbas & Basuki, 2020). This research suggests that auditors should incorporate analytical tools like the Beneish M-Score during audit planning and execution stages to detect early red flags. This would lead to audit opinions that better reflect the true quality of information presented by management.

According to signalling theory, financial statements and audit opinions function as signals that help reduce information asymmetry between company management and external stakeholders (Sihombing & Rahardjo, 2014). In this study, the Beneish M-Score detected a high percentage of manipulator firms, particularly in 2022 when the figure reached 85% before declining to 65% in 2023. Ideally, such signals of potential manipulation should also be reflected in the audit opinions issued by independent auditors, thereby allowing investors and regulators to recognize the heightened risks.

However, the results show that most firms identified as manipulators still received Unqualified Opinions. This mismatch indicates a gap between the quantitative signal (Beneish M-Score) and the formal signal (audit opinion) delivered to the market, thereby reducing the effectiveness of audit opinions as credible signals. This finding is consistent with previous studies (Repousis, 2016; Kamal et al., 2016), which observed that the Beneish model often provided early warnings not necessarily acknowledged by auditors. Therefore, this study underscores the importance of integrating quantitative detection

models with auditors' professional scepticism to ensure that audit opinions genuinely serve as reliable signals for stakeholders.

## CONCLUSIONS AND SUGGESTION

This study aims to evaluate the quality of audit opinions in relation to indications of financial statement manipulation using the Beneish M-Score model in infrastructure sector companies listed on the IDX during the 2019–2023 period. Based on calculations using the eight financial ratios in the Beneish model, fluctuations were found in the proportion of companies indicated as potential manipulators. In 2019 and 2020, the percentage of manipulator companies was recorded at 38%, then increased to 54% in 2021 and peaked at 85% in 2022. However, in 2023, this figure declined to 65%, suggesting improvements in corporate governance or increased vigilance against fraud risks.

Nevertheless, the majority of companies categorized as manipulators based on the Beneish M-Score still received an Unqualified Opinion from independent auditors. This discrepancy indicates a gap between quantitative detection using statistical models and auditors' professional judgment in formulating audit opinions, known as the audit expectation gap (Hasibuan et al., 2022; Suarsa & Nawawi, 2018). These findings are also consistent with prior studies by Kamal et al. (2016) and Repousis (2016), which show that the Beneish M-Score model can detect red flags of manipulation that are often not reflected in auditor opinions.

Additionally, the Beneish model has proven effective in identifying manipulation indicators based on components such as Total Accruals to Total Assets (TATA) and Sales Growth Index (SGI), which in this study contributed significantly to detecting manipulator companies—a finding supported by research from Durana et al. (2022) and Djatnicka et al. (2023). However, the model's reliability also heavily depends on the institutional context and audit system of the respective country (Aghghaleh et al., 2016; Marfuah, 2019).

Overall, the findings of this study provide several practical implications. First, they emphasize that audit opinions should not be relied upon as the sole indicator of financial reporting integrity, as many firms classified as manipulators using the Beneish M-Score still received unqualified opinions. For auditors, this highlights the need to strengthen professional scepticism and integrate analytical fraud detection tools into audit procedures, particularly when assessing accrual-based risks. For regulators, the results signal the importance of reinforcing oversight mechanisms and encouraging the use of quantitative detection models to complement traditional audit practices. Finally, for investors and other stakeholders, the study underlines the necessity of critically evaluating audit opinions and considering additional analytical measures—such as the Beneish M-Score—when assessing the reliability of financial statements, especially in high-risk sectors like infrastructure.

## REFERENCES


Adilla, R., & Ferli, O. (2021). Seberapa efektif pendeteksian kecurangan laporan keuangan dengan model Beneish M-Score pada perusahaan sektor manufaktur di Bursa Efek Indonesia. *Journal of Applied Business Administration, 5*(2), 200–209.

Abbas, M., & Basuki, B. (2020). Pengaruh profesionalisme auditor, independensi, dan etika terhadap kualitas audit. *Jurnal Akuntansi dan Keuangan, 15*(2), 101–110.

Aghghaleh, S. F., Mohamed, Z. M., & Rahmat, M. M. (2016). Detecting financial statement frauds in Malaysia: Comparing the abilities of Beneish and Dechow models. *Asian Journal of Accounting and Governance, 7,* 57–65.

Ariansyah, A., & Yustikasari, Y. (2020). Pendeteksian kecurangan laporan keuangan dengan Beneish M-Score pada perusahaan manufaktur. *Jurnal Pena-Mas Akuntansi, 10*(1), 45–56.

Association of Certified Fraud Examiners. (2022). *Report to the nations: 2022 global study on occupational fraud and abuse.* https://www.acfe.com

Azizsyah, H. N., & Meiranto, W. (2023). Analisis fraud diamond dalam mendeteksi fraudulent financial statement menggunakan Beneish M-Score model (Studi empiris pada perusahaan BUMN non-keuangan yang terdaftar di Bursa Efek Indonesia tahun 2017–2021). *Diponegoro Journal of Accounting, 12*(4), 150–160.

Beneish, M. D. (1999). The detection of earnings manipulation. *Financial Analysts Journal, 55*(5), 24–36. https://doi.org/10.2469/faj.v55.n5.2296

Christian, C., & Junnestine, J. (2021). Kasus manipulasi laporan keuangan: Studi kasus PT Garuda Indonesia. *Jurnal Akuntansi dan Audit, 18*(1), 45–56.

Djatnicka, E. W., Purba, J., & Wulandari, D. S. (2023). Fraud triangle perspective: Detecting financial statement fraud using the Beneish M-Score model in property and real estate companies listed on the Indonesia Stock Exchange. *East Asian Journal of Multidisciplinary Research, 2*(7), 3113–3130. https://doi.org/10.55927/eajmr.v2i7.4894

Durana, P., Blazek, R., Machova, V., & Krasnan, M. (2022). The use of Beneish M-scores to reveal creative accounting: evidence from Slovakia. *Journal of Risk and Financial Management, 15*(3), 123. http://dx.doi.org/10.24136/eq.2022.017

Gupta, P. K., & Gupta, S. (2015). Corporate frauds in India–Perceptions and emerging issues. *Journal of Financial Crime, 22*(1), 79–103. https://doi.org/10.1108/JFC-07-2013-0045

Hasibuan, D. H. M., Amyar, F., & Hidayah, N. N. (2022). Government audit quality: Audit expectation–performance gap. *Asian Journal of Economics, Business and Accounting, 22*(23), 373–386. https://doi.org/10.9734/ajeba/2022/v22i23881

Hosmer, D. W., Lemeshow, S., & Sturdivant, R. X. (2013). *Applied logistic regression* (3rd ed.). Wiley.

Huang, S. Y., Lin, C. Y., Chiu, A. A., & Yen, D. C. (2017). Fraud detection using fraud triangle risk factors. *Inf Syst Front 19, 1343–1356*. https://doi.org/10.1007/s10796-016-9647-9 .

Ikatan Akuntan Indonesia. (2021). *Standar profesional akuntan publik (SPAP).* IAPI.

Ikatan Akuntan Indonesia. (2022). *Pernyataan standar akuntansi keuangan (PSAK).* IAI.

Irianto, G., & Novianti, E. (2019). *Fraud: Teori dan deteksi.* UMM Press.

Kamal, H., Salleh, Z., & Ahmad, A. (2016). Detecting financial statement fraud by Malaysian public listed companies: The reliability of the Beneish M-Score model. *Jurnal Pengurusan, 47,* 23–32.

Kartika, A., & Irianto, G. (2010). Analisis model Beneish untuk deteksi manipulasi laba pada perusahaan publik di Indonesia. *Jurnal Akuntansi dan Keuangan Indonesia, 7*(1), 1–15.

Marfuah, M. (2019). Model Beneish M-Score untuk mendeteksi kecurangan pada perusahaan perbankan di Indonesia. *Optimum: Jurnal Ekonomi dan Pembangunan, 8*(2), 123–134.

Patmawati, P., & Rahmawati, M. (2023). Deteksi financial statement fraud: Model Beneish M-Score dan model F-Score. *E-Jurnal Akuntansi, 33*(1), 45–60.

Putri, N., & Lestari, I. P. (2021). Analisis determinan financial statement fraudulent dengan model Beneish M-Score (Studi pada perusahaan manufaktur yang terdaftar di Bursa Efek Indonesia tahun 2016–2018). *Jurnal Ilmiah Ekonomi Bisnis, 26*(1), 75–85.

Rahman, A. (2024, January 3). BPKP selesaikan audit Waskita Karya, terbukti manipulasi laporan keuangan? *Liputan6.com.* https://www.liputan6.com/bisnis/read/5496177/bpkp-selesaikan-audit-waskita-karya-terbukti-manipulasi-laporan-keuangan?page=2

Ramírez-Orellana, A., Martínez-Romero, M. J., & Mariño-Garrido, T. (2017). Measuring fraud risk in publicly traded companies: A new fraud score model. *Journal of Business Research, 76,* 63–70. https://doi.org/10.1016/j.jbusres.2017.03.003

Repousis, S. (2016). Using Beneish model to detect corporate financial statement fraud in Greece. *Journal of Financial Crime, 23*(4), 1063–1073. https://doi.org/10.1108/JFC-07-2015-0039

Sihombing, K., & Rahardjo, S. N. (2014). Agency theory dan asimetri informasi dalam hubungan keagenan. *Jurnal Ekonomi dan Bisnis, 9*(2), 37–46.

Sugiyono. (2017). *Metode penelitian kuantitatif, kualitatif dan R&D.* Alfabeta.

Suarsa, I. M., & Nawawi, S. E. (2018). Opini audit dan kualitas laporan keuangan. *Jurnal Akuntansi Multiparadigma, 9*(1), 1–14.

Widodo, A., Prabowo, H. Y., & Yanti, I. (2017). Beneish M-Score sebagai alat deteksi kecurangan laporan keuangan. *Jurnal Akuntansi dan Keuangan Indonesia, 14*(2), 134–145.