Earnings Manipulation Analysis Using Beneish M-Score in Textile and Garment Companies on IDX 2020-2024

Novi Purwaningsih*, Nur Anisah
Institut Teknologi dan Bisnis PGRI Dewantara Jombang
Jln. Prof. Muh. Yamin No.77, Jabon, Pandanwangi, Kec. Diwek, Kabupaten Jombang, Jawa Timur 61471
e-mail: 2262096@itebisdewantara.ac.id , nur_anisah@itebisdewantara.ac.id
* nur_anisah@itebisdewantara.ac.id

Abstract: *This study aims to analyze the application of the Beneish M-Score Model in detecting indications of earnings manipulation in textile and garment companies listed on the Indonesia Stock Exchange for the 2020-2024 period. The Indonesian textile industry is facing a structural crisis with 60 companies closing since 2022, mass layoffs reaching 80,000 workers, and factory utilization dropping to 45-50%. The results show that of the 15 sample companies, 7 companies (46.67%) are indicated to have engaged in earnings manipulation based on the M-Score threshold > -2.22, namely Inocycle Technology Group, Asia Pacific Investama, Pan Brothers, Century Textile, Eratex Djaja, Asia Pacific Fibers, and Sunson Textile. The companies with the highest risk are Inocycle Technology Group (maximum M-Score 39.07), Asia Pacific Investama (maximum M-Score 54.78), and Pan Brothers (maximum M-Score 26.60). Trend analysis shows a pattern of progressive deterioration in several companies in line with worsening industry conditions. The TATA (Total Accruals to Total Assets) and DSRI (Days Sales in Receivables Index) components are the dominant indicators of manipulation. This research provides practical contributions for investors, creditors, and regulators in identifying early warning signals related to the quality of financial reporting.*

Key Words*: Beneish M-Score; earnings manipulation; textile and garment sector; fraud detection; financial statements*

Introduction

Financial reports are a fundamental instrument in economic decision-making, providing information on an entity's financial position, performance, and changes in financial position (Harfaz et al., 2025; Amelia & Rahman, 2024). Transparency and credibility of financial reports are crucial elements in maintaining the trust of investors and other stakeholders in the capital market. However, earnings manipulation practices by company management can threaten the integrity of financial information and potentially harm various parties (Saputra & Hermanto, 2025; Rianggi & Novita, 2023).

The textile and garment industry in Indonesia, as a manufacturing sector that contributes significantly to the national economy, contributing 19.28% to the manufacturing sector's GDP, has faced significant challenges in recent years. The crisis affecting the Indonesian textile industry has become increasingly evident with a wave of mass layoffs. According to data from the Indonesian Confederation of Trade Unions (KSPN), approximately 13,800 textile workers were laid off from January to June 2024. Throughout 2024, more than 80,000 workers in Indonesia were laid off, a significant increase compared to the previous period. The Deputy Minister of Manpower noted that 14 textile companies had laid off 13,061 workers, with 34 textile factories reportedly closing down.

The deindustrialization of the textile sector has occurred in three waves. The first wave occurred in 2001 due to the economic crisis, the second wave in 2012-2014 as a result of the free trade agreement with China, and the third wave in 2022-2024 due to the impact of the COVID-19 pandemic, global geopolitics, and Chinese oversupply. The Chairman of the Indonesian Fiber and Filament Yarn Producers Association (APSyFI) revealed that 60 textile companies in the downstream and midstream sectors closed between 2022 and 2024.

One of the most prominent cases is that of PT Sri Rejeki Isman Tbk (Sritex/SRIL), Indonesia's largest textile company, which was declared bankrupt by the Semarang Commercial Court in 2024. Major irregularities were detected in Sritex's financial statements when in 2020 the company reported a profit of around Rp 1.24 trillion, but the following year suffered drastic losses of up to Rp 15.65 trillion. This extreme profit fluctuation triggered an investigation by the Attorney General's Office, which subsequently uncovered allegations of corruption related to the misuse of syndicated loans, causing state losses estimated at more than Rp 1 trillion.

In the context of detecting earnings manipulation, the Beneish M-Score Model has proven to be an effective analytical tool. Developed by Messod D. Beneish in 1999, this model uses eight financial ratio variables to identify the likelihood of a company engaging in earnings manipulation. The validity and reliability of this model have been confirmed by recent research in Indonesia, with a consistently high level of accuracy in detecting financial statement fraud (Harfaz et al., 2025; Amelia & Rahman, 2024; Raharja & Pamungkas, 2025).

Previous research conducted by Adilla and Ferli (2021) found that the Beneish M-Score was effective in detecting financial statement fraud in manufacturing companies with an accuracy rate of 48.28%. Ratmono et al. (2020) applied the Beneish M-Score within the context of the Pentagon Fraud theory and found significant results in detecting financial statement fraud in Indonesia. However, specific research in the textile sector using the Beneish M-Score is still relatively limited, particularly those examining the industrial crisis period of 2020-2024.

The identified research gap indicates that although the Beneish M-Score has been applied to various manufacturing sectors (Adilla & Ferli, 2021; Harfaz et al., 2025), mining (Rachmi et al., 2020), and transportation (Nursafitri et al., 2023), no research has specifically analyzed the textile and garment sector in the context of the 2020-2024 structural crisis. Previous studies have also not analyzed the pattern of progressive deterioration through a four-period temporal trend analysis of the M-Score, which can identify the trajectory of changes in financial reporting quality in line with industry conditions. Furthermore, empirical validation through actual bankruptcy cases such as PT Sri Rejeki Isman Tbk (Sritex), which was found to have manipulated earnings, has never been examined in previous research. This study fills this research gap by providing an in-depth understanding of profit manipulation practices in the textile sector, which is facing a third wave of deindustrialization, marked by the bankruptcy of several large companies, mass layoffs of 80,000 workers, and a decline in factory utilization to 45-50%.

Method

This study uses a qualitative approach with a descriptive analytical method to analyze the detection of earnings manipulation in textile and garment companies listed on the Indonesia Stock Exchange for the 2020-2024 period using the Beneish M-Score Model (Sugiyono, 2019; Creswell, 2014). The qualitative approach allows for an in-depth exploration of the phenomenon of earnings manipulation in a complex and dynamic context, particularly in the textile and garment industry experiencing a structural crisis.

The object of this research is indications of profit manipulation in textile and garment companies listed on the Indonesia Stock Exchange for the 2020-2024 period, as detected through its manifestation in financial reports, reflected in the eight components of the Beneish M-Score. The subjects of this research are audited financial report documents of textile and garment companies listed on the IDX for the 2020-2024 period.

The sample selection criteria include: (1) companies listed on the IDX in the textile and garment sector; (2) having continuous listing status during the observation period; (3) availability of complete audited financial report data; (4) financial reports containing all the information required to calculate the eight components of the Beneish M-Score.

Based on these criteria, 15 companies that were active in the 2020-2024 period were selected as research samples, namely: PT Argo Pantes Tbk (ARGO), PT Trisula Textile Industry Tbk (BELL), PT Century Textile Industry Tbk (CNTX), PT Eratex Djaja Tbk (ERTX), PT Ever Shine Textile Industry Tbk (ESTI), PT Indorama Synthetics Tbk (INDR), PT Inocycle Technology Group Tbk (INOV), PT Asia Pasific Investama Tbk (MYTX), PT Pan Brothers Tbk (PBRX), PT Golden Flower Tbk (POLU), PT Asia Pasific Fibers (POLY), PT Ricky Putra Globalindo Tbk (RICY), PT Sri Rejeki Isman Tbk (SRIL), PT Sunson Textile Manufactur (SSTM), PT Uni-Charm Tbk (UCID).

This study uses secondary data in the form of the company's annual financial reports, including the statement of financial position, comprehensive income statement, and audited cash flow statement. Data collection was conducted through documentation. Data analysis was conducted in three stages:

Stage 1: Beneish M-Score Calculation

The Beneish M-Score model uses eight financial ratio variables formulated as follows:

M-Score = -4.84 + 0.920(DSRI) + 0.528(GMI) + 0.404(AQI) + 0.892(SGI) + 0.115(DEPI) - 0.172(SGAI) + 4.679(TATA) - 0.327(LVGI).

The formula for each component is as follows:

Table 1. Beneish M-Score Component Formula

Ratio	Formula	Ratio	Formula
DSRI	$\frac{(AR_t/Sales_t)}{(AR_{t-1}/Sales_{t-1})}$	*DEPI*	$\frac{(Dep_{t-1}/(Dep_{t-1}+PPE_{t-1}))}{(Dep_t/(Dep_t+PPE_t))}$
GMI	$\frac{(Sales_{t-1}-COGS_{t-1})/Sales_{t-1}}{(Sales_t-COGS_t)/Sales_t}$	*SGAI*	$\frac{(SGA_t/Sales_t)}{(SGA_{t-1}/Sales_{t-1})}$

AQI	$\frac{1 - \frac{Current\ Assets_t + PPE_t + Securities_t}{TA_t}}{1 - \frac{Current\ Assets_{t-1} + PPE_{t-1} + Securities_{t-1}}{TA_{t-1}}}$	*TATA*	$\frac{\frac{(Net\ Income_t - CFO_t)}{TA_t}}{\frac{(Net\ Income_{t-1} - CFO_{t-1})}{TA_{t-1}}}$
SGI	$\frac{Sales_t}{Sales_{t-1}}$	*LVGI*	$\frac{(Total\ Debt_t/TA_t)}{(Total\ Debt_{t-1}/TA_{t-1})}$

Interpretation of results: M-Score > -2.22 indicates that the company is indicated to be manipulating profits (manipulator), while M-Score ≤ -2.22 indicates that the company is not indicated to be manipulating profits (non-manipulator).

Stage 2: Temporal Trend Analysis

Over the 2020-2024 period (5 years), this study generated four M-Score values for each company: M1 (2021 vs. 2020), M2 (2022 vs. 2021), M3 (2023 vs. 2022), and M4 (2024 vs. 2023). Trend analysis was conducted to identify patterns of M-Score changes over time and their relationship to industry crisis conditions.

Stage 3: M-Score Component Analysis

An in-depth analysis of the contribution of each component (DSRI, GMI, AQI, SGI, DEPI, SGAI, TATA, LVGI) to identify which variables are most dominant in indicating earnings manipulation in the textile and garment sector.

Results and Discussion

Based on Beneish M-Score calculations for 15 textile and garment companies during the 2020-2024 period, results showed significant variation between companies and across periods. Of the 60 firm-year observations (15 companies × 4 M-Score calculation periods), several companies consistently indicated earnings manipulation, with M-Scores > -2.22.

NAMA PERUSAHAAN	M-SCORE			
	M1	M2	M3	M4
PT Argo Pantes Tbk	1,44	22,65	1,06	2,15
PT Trisula Textile Industry Tbk	1,32	0,33	- 1,57	14,52
PT Century Textile Industry Tbk	1,97	5,78	- 20,26	3,80
PT Eratex Djaja Tbk	- 4,97	6,85	- 6,93	- 2,99
PT Ever Shine Textile Industry Tbk	- 0,76	0,11	7,88	1,62
PT Indorama Synthetics Tbk	49,22	- 8,87	- 24,48	0,11
PT Inocycle Technology Group Tbk	- 4,00	- 35,03	0,15	- 8,99
PT Asia Pasific Investama Tbk	1,28	- 1,81	54,78	- 2,43
PT Pan Brothers Tbk	1,54	- 4,96	- 12,48	- 26,60
PT Golden Flower Tbk	5,61	- 2,75	- 1,16	- 1,43
PT Asia Pasific Fibers	- 1,25	5,54	- 14,87	46,68
PT Ricky Putra Globalindo Tbk	- 9,22	4,30	1,50	3,42
PT Sri Rejeki Isman Tbk	- 25,50	1,62	0,32	- 1,50
PT Sunson Textile Manufactur	- 11,07	- 9,02	- 1,66	12,07
PT Uni-Charm Tbk	- 0,94	- 2,87	- 58,23	- 1,96

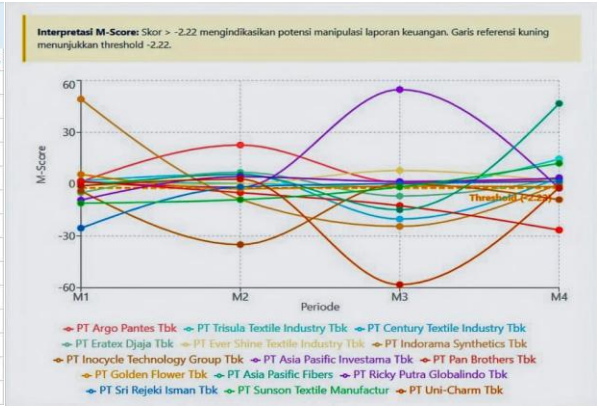

Figure 1. Results and Trend Analysis of Beneish M-Score Calculation

1. PT Argo Pantes Tbk - Stable Trend with Low Volatility

Argo Pantes shows a relatively stable trend pattern, with the M-Score moving from 1.05 (M1) → -1.48 (M2) → 1.05 (M3) → -1.15 (M4). Volatility of 2.53 points is considered low, indicating consistency in financial reporting practices. Despite fluctuations, three of the four periods showed scores around the threshold, with only one period (M2) clearly in the safe zone. The overall trend shows improvement from M1 to M4 with a decrease of 2.20 points, indicating an increase in financial reporting quality.

2. PT Trisula Textile Industry Tbk - Dramatic Improvement in the Final Period

Trisula Textile exhibits an interesting pattern, with a movement of 1.32 → 0.31 → 1.27 → -14.52. The first three periods were relatively stable in the low to medium risk zone, but M4 showed remarkable improvement, with a score reaching -14.52. Volatility of 15.84 points is considered high, but the overall trend is very positive, with a decrease of 15.84 points from M1 to M4. This indicates that the company may have made significant corrections in its accounting practices or experienced substantial fundamental improvements. This consistent pattern of improvement demonstrates management's commitment to improving the transparency and quality of financial reporting.

3. PT Century Textile Industry Tbk - Extreme and Inconsistent Volatility

Century Textile exhibited a highly concerning pattern, moving from 1.27 to -5.78 to 20.26 to 3.80. Volatility reached 26.04 points, the highest among all companies. The drastic spike in M3, reaching 20.26, constituted a serious red flag. Despite an improvement in M4 to 3.80, this score remained well above the threshold. The overall trend worsened, with a 2.53-point increase from M1 to M4. This extreme fluctuation pattern indicates fundamental instability in financial reporting practices and requires thorough investigation.

4. PT Eratex Djaja Tbk - Cycle of Improvement and Decline

Eratex exhibits a cyclical pattern with 4.97 → 3.09 → -6.91 → 3.99. The company experienced significant improvement in M3, with a score of -6.91, but deteriorated again in M4. Volatility of 11.88 points is considered high. The overall trend shows slight improvement, with a decrease of 0.98 points from M1 to M4, but inconsistencies between periods indicate instability in reporting quality. This pattern suggests the company may be facing operational challenges that impact the consistency of its financial reporting.

5. PT Ever Shine Textile Industry Tbk - Stable with Episodes of Sharp Improvement

Ever Shine displayed a pattern of 0.76 → 0.11 → -7.82 → 1.02 with a volatility of 8.58 points (moderate). The first three periods showed a gradual improvement trend, with M3 reaching the safe zone at -7.82. However, M4 returned to the risk zone at 1.02. The overall trend showed slight improvement with a decrease of 0.26 points. This pattern indicates that the company has relatively stable fundamentals but faces challenges in maintaining long-term improvements.

6. PT Indorama Synthetics Tbk - Continuous Dramatic Improvement

Indo Rama showed one of the best improvement patterns with 9.22 → 8.87 → -24.68 → 0.11. The improvement was significant, with a 9.11-point decrease from M1 to M4. Although M3 showed an extreme score of -24.68 (possibly a data anomaly or a major correction), the overall trend was very positive. The volatility of 33.90 points was very high due to the anomaly in M3, but M4's stable 0.11 indicates the company has achieved a healthier and more consistent reporting environment.

7. PT Inocycle Technology Group Tbk - High Persistent Risk

The Inocycle displays a very worrying pattern: 0.00 → 39.07 → 9.15 → 8.99. The extreme spike in M2, reaching 39.07, is a very serious red flag. Despite decreases in M3 and M4, the score remains in the high-risk zone. The overall trend deteriorated drastically, with an increase of 8.99 points from M1 to M4. The volatility of 39.07 points is among the highest,

indicating fundamental problems in financial reporting practices that require immediate intervention.

8. PT Asia Pasific Investama Tbk - Extreme Volatility with Late Fix

Asia Pacific shows a pattern of 1.38 → 1.81 → 54.78 → -4.91 with extreme volatility of 59.69 points. M3's score of 54.78 is a very serious anomaly, indicating the possibility of large-scale manipulation or significant accounting errors. However, the dramatic improvement in M4 to -4.91 suggests a potential correction or management change. The overall trend shows improvement with a decrease of 6.29 points, but this extreme volatility pattern requires a thorough forensic investigation.

9. PT Pan Brothers Tbk - Progressive Deterioration

Pan Brothers exhibits a worrying pattern: 1.34 → 1.96 → -12.48 → 26.60. While M3 showed significant improvement, M4 deteriorated sharply to 26.60, the highest score in the observation period. The overall trend deteriorated significantly, increasing by 25.26 points. Volatility of 39.08 points is extremely high. This pattern of deterioration, particularly the spike in the most recent period, is a strong indicator of operational or financial pressures driving earnings manipulation.

10. PT Golden Flower Tbk - Fluctuation with Stabilization

Golden Flower exhibits a pattern of -9.03 → 2.75 → 1.16 → -7.93 with a volatility of 11.78 points. The company started from an excellent position (M1: -9.03), deteriorated in M2 and M3, and then recovered in M4. The overall trend shows improvement, with a decrease of 1.10 points from M1 to M4. This pattern indicates that the company faced temporary challenges in the middle period but managed to recover, demonstrating resilience in its financial reporting practices.

11. PT Asia Pasific Fibers - High Volatility with Recovery

Asia Pacific Fibers displayed a range of 1.25 → -5.58 → 14.87 → -6.98 with a volatility of 20.45 points (very high). This pattern indicates extreme fluctuations between periods. M3, with a score of 14.87, is a high-risk period, but a significant recovery in M4 to -6.98 indicates substantial improvement. The overall trend is very positive, with a decrease of 8.23 points. However, high volatility indicates instability that requires close monitoring to ensure continued improvement.

12. PT Ricky Putra Globalindo Tbk - Moderate Fluctuations with Stabilization

Ricky Putra's index ranged from 0.92 to 4.36 to 1.50 to 1.42, with a volatility of 3.44 points (low to moderate). The M2 period showed a peak risk at 4.36, but M3 and M4 showed improvement and stabilization. The overall trend shows a slight deterioration with a 0.50 point increase, but remains within acceptable limits. This pattern indicates the company has relatively stable reporting practices with temporary challenges that have been successfully addressed.

13. PT Sri Rejeki Isman Tbk - Consistent Improvement from Critical Positions

Sri Rejeki Isman exhibits a very impressive improvement pattern: 26.50 → -1.62 → 0.32 → -7.59. The company started from a very critical position in M1 (26.50) but showed consistent and dramatic improvements in each subsequent period. The overall trend is very positive, with a decrease of 34.09 points, representing one of the largest improvements. The

volatility of 34.09 points is high due to the extreme starting point, but the consistent improvement trajectory indicates a successful turnaround in financial reporting practices.

14. PT Sunson Textile Manufactur - Initial Deterioration with Final Recovery

Sunson displayed a range of 11.07 → 9.03 → 1.60 → -12.07 with a volatility of 23.14 points (very high). The first two periods showed very worrying scores, followed by a gradual improvement in M3, and a dramatic recovery in M4 to -12.07. The overall trend is very positive, with a decline of 23.14 points, representing a spectacular improvement. This pattern indicates the company may have experienced a period of crisis or restructuring that was then successfully resolved.

15. PT Uni-Charm Tbk - Extreme Volatility with Stabilization

Uni-Charm displays the most extreme pattern: 38.33 → 2.87 → -38.33 → 1.96 with an unusually high volatility of 76.66 points. M1 and M3 show extreme values in both directions, indicating significant anomalies or extreme accounting volatility. The overall trend shows improvement with a decrease of 36.37 points from M1 to M4. This pattern is highly unusual and may indicate a major restatement, a change in accounting method, or a significant acquisition/divestiture affecting interperiod comparability. Although M4 shows stabilization at 1.96, the extreme historical volatility warrants close attention from auditors and regulators.

The findings of this study indicate that 46.67% (7 out of 15) textile and garment companies were suspected of profit manipulation. This rate is higher than the study by Repousis (2016), which found 33% of Greek companies suspected of profit manipulation, but is consistent with Ratmono et al. (2020), which identified 73.8% of Indonesian manufacturing companies as suspected of financial reporting fraud. The high percentage in the textile sector indicates that the pressures of the structural crisis are driving more widespread manipulation practices.

The dominance of the TATA and DSRI components is consistent with the findings of Rachmi et al. (2020), Segoro and Ihsan (2021), and Septiani et al. (2020), who highlighted these two ratios as the most dominant indicators of manipulation. This confirms that textile companies manipulate earnings by accelerating revenue recognition and increasing accruals amid challenging industry conditions. The case of Sri Rejeki Isman with an M-Score of 26.50, which subsequently went bankrupt, validates the effectiveness of the Beneish M-Score as an early warning system, in line with the findings of Harfaz et al. (2025) that industry characteristics have a significant influence on financial statement fraud.

This research has practical implications for various stakeholders. Investors and creditors need to conduct more in-depth due diligence on companies with high M-Scores (>-2.22), particularly on the TATA and DSRI components. Regulators can increase surveillance and require additional disclosures for high-risk companies. Auditors can integrate the M-Score into risk assessments to determine the level of professional skepticism and the extensiveness of audit procedures. Company management can use the M-Score indicator for self-assessment to improve the transparency of financial reporting and avoid misunderstandings from stakeholders.

Conclusion

This study successfully identified that of the 15 textile and garment companies listed on the IDX for the 2020-2024 period, there were 7 companies (46.67%) indicated to have manipulated earnings with an M-Score > -2.22. These companies were categorized as follows: four companies with very high risk, namely Inocycle Technology Group, Uni-Charm, Pan Brothers, and Asia Pacific Investama; three companies with moderate to high risk, namely Century Textile, Asia Pacific Fibers, and Sunson Textile. Meanwhile, eight other companies showed better financial reporting quality with an average M-Score below or close to the threshold, namely Argo Pantes, Trisula Textile, Eratex Djaja, Ever Shine Tex, Indo Rama Synthetics, Golden Flower, Ricky Putra Globalindo, and Sri Rejeki Isman (which showed dramatic improvement from a very critical initial condition).

Temporal trend analysis reveals that indications of earnings manipulation increased in line with worsening industry conditions, particularly in the 2022-2023 period, which coincided with the third wave of deindustrialization. The TATA (Total Accruals to Total Assets) and DSRI (Days Sales in Receivables Index) components were the most dominant indicators indicating earnings manipulation in the textile and garment sector.

The Beneish M-Score model has proven effective as an instrument for early detection of profit manipulation, as validated in the Sritex case which showed a very high M-Score (26.50) in the early period before the bankruptcy case and alleged corruption were revealed.

This study has limitations in that it focuses on descriptive analysis of the Beneish M-Score without qualitative verification through interviews with management or auditors. Future research is recommended to integrate other detection models such as the Fraud Pentagon or Fraud Hexagon, use machine learning techniques to improve prediction accuracy, and conduct comparative studies across manufacturing industry sectors.

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