Kunuz: Journal of Islamic Banking and Finance Vol. 3, No. 2 (2023): 93-107
Website: http://ejournal.iain-manado.ac.id/index.php/kunuz
ISSN 2807-615X (online) ISSN 2807-680X (print)

ANALYSIS OF FINANCIAL STATEMENT MANIPULATION AND EARNINGS QUALITY IN MANUFACTURING COMPANIES: BENEISH M-SCORE APPROACH

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ABSTRACT

Financial reports are the main reference for investors in making the right investment decisions. However, financial reporting risks pose a threat to market integrity and investor losses. This research focuses on the relationship between performance and manipulation of financial reports in companies listed LQ45 and non-LQ45 on the Indonesia Stock Exchange. Using Beneish's M score, eight financial ratios were analyzed to assess the possibility of manipulation in manufacturing companies using samples from 2018 to 2020. This study categorized companies as manipulators, gray companies, or non-manipulators. The selected ratios include Days Sales in Receivable (DSRI), Gross Margin Index (GMI), Asset Quality Index (AQI), Sales Growth Index (SGI), Depreciation Index (DEPI), Leverage Index (LVGI), Total Accrual to Total Assets (TATA), and M Beneish score. The results that there are are a non-manipulative classification in both the LQ45 and non-LQ45 categories, based on the results of the Beneish Ratio Index. In 2020, one of the LQ45 companies, UNVR, was identified as a manipulator because of the potential manipulation of certain financial indicators.

Keywords: Beneish M-score; Beneish Ratio Index; Financial Statement Fraud Detection.

INTRODUCTION

The Indonesian capital market, as one of the investment avenues, plays a crucial role in the economic growth of Indonesia (Muklis, 2016). One significant aspect within the capital market is financial reports, which serve as references for investors to assess the performance of a company and make investment decisions (Apip et al., 2020). Financial reports are essential tools for obtaining information regarding the financial position and achievements of each company (Pongoh, 2013).

The problem that arises is the risk of manipulation of financial reports, which can disrupt the integrity of the capital market and cause losses for investors (Saad & Abdillah, 2019). Manipulation of financial reports can occur in various ways, such as altering numbers in financial statements, concealing crucial information, or disregarding applicable accounting standards. Financial statement fraud involves a deliberate material misstatement of financial statements by management (Putri, 2012).

The Indonesia Stock Exchange (IDX) is the capital market in Indonesia that comprises various types of stocks. One well-known category on the IDX is LQ45, consisting of 45 companies with high liquidity and market capitalization. Currently, many investors consider LQ45 stocks as an investment option because they are deemed more stable and have the potential for greater profits (Polakitan, 2015).

Previous studies have examined the relationship between factors such as audit committee characteristics (Rianti & Sari, 2014), institutional ownership (Dong et al., 2020), auditor tenure (Rahayu & Suryono, 2016), and market context on efforts to prevent financial statement manipulation (Sudarmanto, 2020). However, this study aims to explore the linkage between performance and financial

statement manipulation in companies listed in LQ45 compared to those not listed in LQ45 on the Indonesian stock market. This study will enhance our understanding of how company performance relates to the practice of financial statement manipulation, considering the specific characteristics of the Indonesian stock market as a novel research context. The research can provide deeper insights into factors that may act as moderators or mediators in the relationship between company performance and the practice of financial statement manipulation.

The aim of this research is to investigate whether there is an association between performing companies listed in the LQ45 index and the level of sign of financial statement manipulation. The study will analyze the level of financial statement manipulation among stocks within and outside the LQ45 category to determine whether companies listed in LQ45 exhibit higher levels of financial statement manipulation and whether non-LQ45 companies also have a high level of manipulation.

This research is motivated by the need to understand whether there is a significant connection between the performance category of companies in the LQ45 stock index and the potential indications of financial statement manipulation. The underlying assumption is that companies listed in the LQ45 category, considered as indicators of higher performance, may have greater incentives or motivations to engage in financial statement manipulation to maintain their position in the index. Companies outside the LQ45 category also have the potential to engage in manipulation to achieve or maintain expected performance.

METHODS

This research utilizes the Beneish M-score to assess the likelihood of financial statement manipulation that may impact earnings quality by examining

eight variables related to financial statement characteristics. In this calculation, the Beneish M-score is computed using the annual financial reports of companies listed in LQ45 and those not listed in LQ45 on the Indonesia Stock Exchange (BEI). The Beneish model is a predictive model for earnings management, wherein the contained ratios have proven abilities to predict financial statements. A study conducted by Hugo (2019) tested the effectiveness of the Beneish M-score model in detecting financial statement fraud. The results of this research show that the Beneish M-score model is effective in detecting financial statement fraud in the modern era.

The data analysis process in this study involves several structured steps. The initial stage involves calculating the Beneish Ratio Index (Rodhiyah, 2022), where the required data is extracted from the financial statements of manufacturing companies that serve as samples in the research. Evaluation is conducted on eight parameters within the Beneish Ratio Index to assess the possibility of financial statement manipulation. The companies are then categorized based on the calculated ratios, distinguishing between manipulator companies, gray companies, and non-manipulator companies (Sugiyono, 2017). The next stages involve an analysis using the Beneish M-score, aiming to evaluate the performance of manufacturing companies and its relevance to the quality of earnings (Beneish et al., 2012). Data generated from the Beneish M-score provide profound insights into the performance of companies that may impact the quality of earnings presented in financial statements. These stages aid in understanding the characteristics and behavior of companies and analyzing the relationship between company performance and the quality of its earnings.

RESULTS AND DISCUSSION

This research collected sample data from seven manufacturing companies listed on the Indonesia Stock Exchange (IDX) in the years 2019 and 2020.

Table 1
Results of Days Sales in Receivable (DSRI) Calculation

NO	Company Code	*DSRI*	Company Category	Year	Category
1	ASII	0,954211252	LQ45	2019	N
2	WSBP	0,630073296	LQ45	2019	N
3	ASII	0,786164995	LQ45	2020	N
4	UNVR	0,991312645	LQ45	2020	N
5	ADMG	0,743923616	NON-LQ	2019	N
6	ZONE	0,80880741	NON-LQ	2019	N
7	TPIA	0,463271621	NON-LQ	2020	N
8	LMSH	1,44521409	NON-LQ	2020	G

Source: Processed Data 2023

After calculating the DSRI ratio using financial data from manufacturing companies in 2019 and 2020, the results show that in 2019, both LQ45 and non-LQ45 manufacturing companies are classified as non-manipulators. However, in 2020, it is observed that one non-LQ45 company falls into the category of a gray company. Based on the calculations, it is identified that one company has an average ratio exceeding one, showing an increase in accounts receivable. The increase in accounts receivable suggests a potential risk of fraud. According to Beneish's theory in Assyifa (2021), if the DSRI ratio is ≥ 1.465, it is classified as manipulative; conversely, if the DSRI ratio is ≤ 1.031, it is classified as non-manipulative.

Table 2
Results of Gross Margin Index (GMI)

NO	Company Code	*GMI*	Company Category	Year	Category
1	ASII	1,000520482	*LQ45*	2019	N
2	WSBP	1,027917128	*LQ45*	2019	G

3	ASII	0,9892878	*LQ45*	2020	N
4	UNVR	0,9807497	*LQ45*	2020	N
5	ADMG	0,635797588	*NON-LQ*	2019	N
6	ZONE	0,65442252	*NON-LQ*	2019	N
7	TPIA	1,0004821	*NON-LQ*	2020	N
8	LMSH	1,0629017	*NON-LQ*	2020	N

Source: Processed Data 2023

After conducting the GMI calculation, the results in Table 2 show that, in 2019, among the two LQ45 manufacturing companies, one is classified as a gray company, while both non-LQ45 companies sampled in 2019 are categorized as non-manipulators. In 2020, both LQ45 and non-LQ45 manufacturing companies are classified as non-manipulators. According to Beneish's theory in Assyifa (2021), if the GMI ratio is ≥ 1.193, it is classified as manipulative; conversely, if the DSRI ratio is ≤ 1.014, it is classified as non-manipulative.

Table 3
Result of Asset Quality Index (AQI)

NO	Company Code	AQI	Company Category	Year	Category
1	ASII	0,965938	LQ45	2019	N
2	WSBP	0,94717	LQ45	2019	N
3	ASII	1,02518243	LQ45	2020	N
4	UNVR	1,0349372	LQ45	2020	N
5	ADMG	1,124968	NON-LQ	2019	N
6	ZONE	1,20307	NON-LQ	2019	N
7	TPIA	1,08136133	NON-LQ	2020	N
8	LMSH	1,03969291	NON-LQ	2020	N

Source: Processed Data 2023

After calculating the AQI, the results in Table 3 show that, in both 2019 and 2020, manufacturing companies in both LQ45 and non-LQ45 categories are classified as non-manipulators because they do not exceed the reference index parameters. According to Beneish's theory in Assyifa (2021), if the DSRI ratio is ≥ 1.254, it is classified as manipulative; conversely, if the DSRI ratio is ≤ 1.039, it is classified as non-manipulative.

Table 4
Result of Sales Growth Index (SGI)

NO	Company Code	SGI	Company Category	Year	Category
1	ASII	0,991476	LQ45	2019	N
2	WSBP	0,93338	LQ45	2019	N
3	ASII	0,738074	LQ45	2020	N
4	UNVR	1,001163	LQ45	2020	N
5	ADMG	0,654423	NON-LQ	2019	N
6	ZONE	1,318124	NON-LQ	2019	N
7	TPIA	0,960369	NON-LQ	2020	N
8	LMSH	0,702038	NON-LQ	2020	N

Source: Processed Data 2023

After calculating the SGI ratio, the results in Table 4 show that, in both 2019 and 2020, companies classified under LQ45 are categorized as non-manipulators because the SGI index values obtained are less than the specified parameter index. Similarly, non-LQ45 manufacturing companies in 2019 and 2020 are also classified as non-manipulators. According to Beneish's theory in Assyifa (2021), if the DSRI ratio is ≥ 1.607, it is classified as manipulative; conversely, if the DSRI ratio is ≤ 1.134, it is classified as non-manipulative.

Table 5
Result of Depreciation Index (DEPI)

NO	Company Code	DEPI	Company Category	Year	Category
1	ASII	0,964739	LQ45	2019	**N**
2	WSBP	0,919289	LQ45	2019	**N**
3	ASII	0,81897	LQ45	2020	N
4	UNVR	0,971668	LQ45	2020	N
5	ADMG	0,844141	NON-LQ	2019	N
6	ZONE	0,826387	NON-LQ	2019	**N**
7	TPIA	0,967686	NON-LQ	2020	N
8	LMSH	0,889252	NON-LQ	2020	N

Source: Processed Data 2023

In the obtained results from Table 5, it is found that, in 2019, manufacturing companies classified under both LQ45 and non-LQ45 are categorized as non-

manipulators because the obtained index values are below the parameter index. Similarly, in 2020, the results show companies classified under both LQ45 and non-LQ45 are also categorized as non-manipulators. According to Beneish's theory in (Liliya, 2021), if the DSRI ratio is ≥ 1.077, it is classified as manipulative; conversely, if the DSRI ratio is ≤ 1.001, it is classified as non-manipulative.

Table 7
Result of Leverage Index (LVGI)

NO	Company Code	LVGI	Company Category	Year	Category
1	ASII	0,94978249	*LQ45*	2019	N
2	WSBP	1,02923296	*LQ45*	2019	N
3	ASII	0,8992689	*LQ45*	2020	N
4	UNVR	1,0206218	*LQ45*	2020	N
5	ADMG	1,41264484	*NON-LQ*	2019	M
6	ZONE	0,92712347	*NON-LQ*	2019	N
7	TPIA	1,0980047	*NON-LQ*	2020	G
8	LMSH	1,4959362	*NON-LQ*	2020	M

Source: Processed Data 2023

From the calculated results of the LVGI ratio, the findings in Table 7 reveal that in 2019, LQ45 companies are classified as non-manipulators because the LVGI parameter index yields results below the specified parameter index. Meanwhile, among non-LQ45 companies, one company is showed as manipulative. In 2020, both LQ45 manufacturing companies are categorized as non-manipulators, while among non-LQ45 companies, one is showed as manipulative, and another is categorized as a gray company. For companies showed as manipulative, it implies that these companies have experienced an increase in debt. If the debt increases, the obligations to be fulfilled by the company also increase. When the debt amount is disproportionate to the size of the assets owned, the company may face difficulties in meeting those obligations. This situation may trigger manipulative actions.

According to Beneish's theory in Assyifa (2021), if the DSRI ratio is ≥ 1.111, it is classified as manipulative; conversely, if the DSRI ratio is ≤ 1.037, it is classified as non-manipulative.

Tabel 8
Result of Total Accrual to Total Asset (TATA)

NO	Company Code	TATA	Company Category	Year	Category
1	ASII	0,054481	*LQ45*	2019	M
2	WSBP	0,001626	*LQ45*	2019	N
3	ASII	0,111421	*LQ45*	2020	M
4	UNVR	0,407312	*LQ45*	2020	M
5	ADMG	0,037054	*NON-LQ*	2019	M
6	ZONE	0,050242	*NON-LQ*	2019	M
7	TPIA	0,108082	*NON-LQ*	2020	M
8	LMSH	0,005451	*NON-LQ*	2020	N

Source: Processed Data 2023

From the results obtained in the TATA ratio, in 2019, one LQ45 company is showed as a manipulator, and one non-LQ45 company is also classified as a manipulator. In 2020, among LQ45 companies, one is categorized as a manipulator, and in non-LQ45, there is also one company classified as a manipulator. Out of the four companies calculated for the TATA ratio, two are classified as manipulators in 2019 and two in 2020. If classified as manipulators, the possibility of manipulation exists in the significant increase in this ratio without clear reasons. This may show manipulation, and a high accuracy level can reveal manipulation in actual income or expenses. According to Beneish's theory in Assyifa (2021), if the DSRI ratio is ≥ 1.465, it is classified as manipulative; conversely, if the DSRI ratio is ≤ 1.031, it is classified as non-manipulative

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Classification of Beneish M-score Parameter Indices in Manufacturing Companies for the Years 2019-2020

Classification of Beneish M-score parameter indices in manufacturing companies for the year 2019 was conducted based on an assessment of eight parameters serving as indicators of potential financial statement manipulation. These parameters include variables such as sales, changes in assets, changes in liabilities, credit sales, year-end sales, non-financial costs, aggressive sales, and changes in equity. Company categorization was done by considering whether the company met certain thresholds for these parameters. Companies whose Beneish M-score parameter values exceeded the thresholds were classified as potential manipulators, while those with values below the thresholds were categorized as non-manipulators or not engaging in manipulation. This classification aids in identifying companies with the potential or tendency to manipulate their financial statements in the year 2019.

Figure 1.
Beneish M-score Parameter Index for Manufacturing Companies 2019

Company LQ45										
No	*Company Code*	DSRI	GMI	AQI	SGI	DEPI	SGAI	LVGI	TATA	*Result*
1	ASII	N	N	N	N	N	N	N	M	NON-M
2	WSBP	N	G	N	N	N	M	N	N	NON-M
Company NON-LQ45										
1	ADMG	N	N	N	N	N	M	M	M	NON-M
2	ZONE	N	N	N	N	N	M	N	M	NON-M

The classification results in figure 1 reveal that, in 2019, LQ45 companies, namely ASII and WSBP, are classified as non-manipulators. This determination is based on the analysis of eight components, showing that only three ratio indices, where the parameter indices show manipulation, are found compared to non-LQ45

companies. Out of the two companies, ADMG and ZONE, examined in Table 9, both are classified as non-manipulators, as they have only three ratio indices where the parameter indices show manipulation. The results from the table show that LQ45 companies, specifically ASII and WSBP, reflect a commitment to safeguarding financial statement integrity by not presenting manipulated financial interests. Similarly, non-LQ45 companies, ADMG and ZONE, also demonstrate a commitment to protecting financial interests by avoiding any manipulation or fraudulent practices in financial reporting. However, it is crucial to note that this research does not claim that companies classified as manipulators engage in financial statement fraud; the obtained results are merely predictive.

Figure 2.
Beneish M-score parameter index

Company LQ45									
No	*Company Code*	DSRI	GMI	AQI	DEPI	SGAI	LVGI	TATA	*Result*
1	ASII	N	N	N	N	M	N	M	NON-M
2	UNVR	N	N	N	N	M	N	M	NON-M
Company NON-LQ45									
1	TPIA	N	N	N	N	N	G	M	NON-M
2	LMSH	G	N	N	N	M	M	N	NON-M

The classification results in figure 2 show that, in 2020, LQ45 companies, namely ASII and UNVR, are classified as non-manipulators. Similarly, for non-LQ45 companies, TPIA and LMSH, the results show they are classified as non-manipulators as well. With the obtained results for both categories of companies, LQ45 and non-LQ45, these companies have been operating effectively, reflecting a commitment to safeguarding the financial interests of the company.

Table 9
Results from Beneish M-Score

No	*Company Code*	*M-score*	*Category Company*	*Year*	*Category*
1	ASII	-2,27945	*LQ45*	2019	N
2	WSBP	-2,980247	*LQ45*	2019	N
3	ASII	-2,449247	*LQ45*	2020	N
4	UNVR	-0,609051	*LQ45*	2020	M
5	ADMG	-3,237418	*NON-LQ*	2019	N
6	ZONE	-2,244144	*NON-LQ*	2019	N
7	TPIA	-2,511257	*NON-LQ*	2020	N
8	LMSH	-2,490654	*NON-LQ*	2020	N

Source: Processed Data 2023

From the M-score results obtained in table 9, manufacturing companies classified under LQ45 and non-LQ45 in 2019 show that the M-score values show Beneish M-score ratios classified as non-manipulators. In 2020, among LQ45 companies, one company, UNVR, is classified as a manipulator, where the Beneish M-score results show manipulation potential, specifically in the SGAI indicator. This suggests a high likelihood of increased costs, general and administrative expenses, impacting the income statement and showing a less favorable outlook for the company. Unusual sales growth or significant increases in sales without clear reasons can reflect manipulative actions, such as fictitious sales or sped up revenue recognition. The TATA ratio index also shows manipulative tendencies, potentially affecting the accuracy of the company's financial statements.

In Table 11, companies categorized as non-manipulators based on the Beneish M-score index show strong financial performance. These companies effectively manage financial positions in their financial statements, particularly in the income statement, showcasing the ability to control production costs, sales expenses, and more. The Beneish M-score can serve as a reference for the financial information needs of both the company and investors planning to invest in it. The results of the Beneish M-score analysis, when associated with earnings quality,

imply that the financial statements and measurement indices of the above companies accurately reflect operational performance. They provide an accurate overall picture of the company's financial condition, which is valuable for analysts and investors.

It is essential to note that the Beneish M-score results for manufacturing companies in 2019 and 2020 should be considered as a method highlighting the potential manipulation of financial statements. The 2019 M-score results show that most companies, whether part of the LQ45 index, are classified as non-manipulators, suggesting a strong tendency to maintain the honesty of financial reporting. However, in 2020, one LQ45 company is found to be a manipulator, showing a potential for manipulation in specific aspects of the financial statements. UNVR, falling into this category, shows potential manipulation in the SGAI and TATA indicators, significantly impacting the company's profit and loss. This may reflect the influence of internal policies that lack transparency or weaknesses in financial management, affecting the integrity of financial reporting. In contrast, non-manipulator companies demonstrate strong performance in managing production and sales costs, showing a good ability to present honest financial statements. Thus, the results of the Beneish M-score analysis provide a deeper insight into the potential manipulation of financial statements and highlight the importance of transparency and integrity in presenting financial information for both companies and investors.

CONCLUSION

The results of the analysis of financial fraud in the financial statements of manufacturing companies on the Indonesia Stock Exchange in 2019 show that the sampled companies, both those classified under LQ45 and non-LQ45 categories,

are not classified as manipulators. This assessment is based on the Beneish Ratio Index results, which show that they have fewer than three types of ratio indices showing manipulation out of the eight sets. However, in 2020, for both LQ45 and non-LQ45 companies, the analysis results show that most sampled companies are not classified as manipulators. One company, namely UNVR, in 2020 is identified as a manipulator. The potential for manipulation is observed in the SGAI indicator, showing high costs, general and administrative expenses impacting the income statement, and the TATA ratio indicator that can influence the narrative of financial statements. Based on these Beneish M-score results, companies classified as non-manipulators demonstrate good financial quality and the ability to manage positions in financial statements efficiently. This analysis provides an accurate overview of the company's financial condition, benefiting analysts and investors in making better investment decisions.

ACKNOWLEDGMENTS

We would like to express our deepest gratitude to all parties who have assisted and supported the completion of this research. Thanks to the supervisory team, advisors, and colleagues for their valuable advice, guidance, and input throughout the research process.

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