Fraud Diamond Theory Detection on M-Score with Profitability as a Moderating Variable: A Case Study on Sharia Banking Companies

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Abstract

Financial statements provide information about a company's financial health and performance. Fraud involves deceit created for personal or group gain and can occur within financial reports. The Fraud Diamond model serves as a tool for fraud detection, while the M-Score method detects the financial health of a company. This research explores how profitability influences the relationship between fraud diamond variables and M-Score, aiming to prove whether profitability has an impact on the relationship between at least one fraud diamond variable and M-Score. Moderation Regression Analysis, facilitated by Microsoft Excel and SPSS, is employed as the analytical tool. The study utilizes data samples from Bank Mega Syariah, Bank Syariah Bukopin, Bank Syariah Indonesia, Bank Victoria Syariah, Bank Aladin Syariah, and BPD Riau Kepri Syariah for the period 2020-2022. The findings indicate that profitability strengthens the relationship between independent variables and dependent variables. Moreover, the moderating variable interactions significantly moderate 3 out of 5 X variables against Y. This research aims to fill knowledge gaps, provide deeper understanding, and make a significant contribution to the development of financial management theory. It also offers practical guidance for business stakeholders facing complex and dynamic challenges.

Keywords: *Profitability, Fraud Diamond, M-Score, Moderating Variable, Sharia Banks.*

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A. INTRODUCTION

Financial reporting is crucial for making well-informed decisions and playing a pivotal role in the business world. However, it grapples with a persistent challenge in the form of fraudulent financial reporting, commonly known as fraud. Auditors are tasked with the responsibility of remaining vigilant in the face of this threat. The customization of financial information not only poses the risk of misrepresentation but also establishes an environment that is susceptible to fraudulent activities (Faqir, 2023). Ensuring the integrity of financial reporting is paramount in facilitating informed decision-making. Fraudulent financial reporting, commonly referred to as fraud, poses an ongoing challenge in this realm. Auditors play a crucial role in this context, requiring constant vigilance to address the risks associated with tailored financial information. Beyond the potential for misrepresentation, the customization of financial data creates an atmosphere conducive to fraudulent activities, emphasizing the need for a proactive approach to maintain the credibility of financial reporting (Mendes de Oliveira et al., 2022).

Islamic finance places a significant emphasis on ethical conduct, condemning dishonest behaviors such as the misuse of assets and manipulation of financial reports as hypocritical. Within this framework, the Fraud Diamond theory offers a

comprehensive perspective on understanding fraudulent activities. This theory encompasses four key elements: Capability, Pressure, Opportunity, and Rationalization. Capability refers to the fraudster's skill in exploiting organizational positions for personal gain (Salin et al., 2020). Meanwhile, Pressure and Opportunity act as catalysts for fraudulent activities, typically stemming from internal control deficiencies within the financial system. In the context of the Fraud Diamond theory, Rationalization plays a crucial role in the commission of fraudulent acts. It involves the psychological process through which individuals justify their dishonest conduct (Endah et al., 2020). This element is significant in understanding the mindset of those engaged in fraudulent activities within the Islamic finance sphere. Moreover, strategic director replacements may be employed as a measure to eliminate individuals who possess knowledge about fraudulent practices, further emphasizing the importance of addressing the rationalization component in combating fraud (Alwi et al., 2021).

In Islamic finance, the intricate interplay of Capability, Pressure, Opportunity, and Rationalization, as outlined in the Fraud Diamond theory, underscores the multifaceted nature of fraudulent activities. The emphasis on ethical conduct is evident in the condemnation of behaviors like asset misuse and financial report manipulation as hypocritical. As the theory suggests, preventing fraud in Islamic finance requires addressing not only the skill and position of potential fraudsters but also the internal controls, psychological justifications, and strategic personnel changes that contribute to the perpetuation of dishonest practices (Mandal, 2023).

Positive profitability ratios, such as the Gross Profit Margin (GPM) and Net Profit Margin (NPM), serve as traditional indicators of a company's financial well-being and operational efficiency. These metrics, essential in financial analysis, provide valuable insights into the effectiveness of a company's cost management and revenue generation. The Gross Profit Margin specifically measures the percentage of revenue retained after deducting the cost of goods sold, reflecting the efficiency of production and pricing strategies (Hong & Najmi, 2020). On the other hand, the Net Profit Margin considers all operating expenses, providing a comprehensive view of overall profitability. In essence, maintaining positive GPM and NPM suggests that a company not only generates revenue successfully but also manages its costs effectively, contributing to a sustainable and healthy financial performance (Zhu et al., 2021).

This study applies the Fraud Diamond theory to the M-Score, with Profitability as a moderating variable. Focused on OJK-registered Sharia banks from 2020 to 2022, it aims to provide insights into the nuances of fraud detection mechanisms and their interplay with financial performance in Islamic finance.

B. LITERATURE REVIEW

1. Profitability

Profitability is a company's capacity to generate returns on investment based on existing resources and alternative investments. According to Ackermann, profitability is the ability of a business to generate profits, this is shown by the profits generated from sales and investment income. This is reflected in the sales and return

on investment achieved. The use of profitability indicators can be achieved by comparing various components of financial statements, especially the balance sheet and profit and loss statement (Barauskaite & Streimikiene, 2021).

Return on Assets (ROA) is the main ratio that shows the financial performance of a company as an indicator of how profitable the company is relative to its total assets. ROA assesses the capability of company management to generate profits using company assets. A higher ROA indicates that the company is more efficient in utilizing its resources. Net Profit Margin or Net Profit measures how much net profit or profit is generated as part of a company's revenue (Bunea et al., 2019).

Dewanto, Muslimin, and Kasim stated that the greater the Net Profit Margin (NPM), this will make the company more productive, increases investor confidence in the company's investment, and higher the value of the company along with increasing returns on investor investment. Net Profit Margin (NPM) can measure a company's ability to run a business by minimizing company expenses, maximizing company profits, and increasing company value (Nikmah & Fajarini, 2020).

2. Fraud

Nowadays, fraud or cheating is rampant. The Forensic Audit Model, IIA defines fraud as an illegal act characterized by deception, concealment, or breach of trust. According to Priantara, the elements of fraud consist of:

a. There are statements made that are false or misleading (misrepresentation) which can be in the form of reports, data or information, or proof of transactions;
b. Not only making false statements, but fraud is an act of violating rules, standards, and regulations and in certain situations breaking the law;
c. There is misuse or use of position, work, and position for personal interests and profits;
d. Covers the past or present because the calculation of losses suffered by the victim is generally related to actions that have occurred and are currently occurring;
e. Supported by material facts, meaning that they must be supported by objective evidence and following the law;
f. Misconduct or deliberate carelessness (make-knowing or recklessly); if gaps are made in data or information or reports or evidence of transactions, this is to cause a party to react or be influenced or make a mistake or be deceived in reading and understanding the data;
g. The aggrieved party relies on and is deceived by statements made that are false (misrepresentation) which are detrimental (detriment) (Haqq & Budiwitjaksono, 2019).

The results of the 2016 Association of Certified Fraud Examiners (ACFE) survey stated that three types of fraud were the most detrimental that occurred in Indonesia. The three types of fraud are:

a. Asset Misappropriation. This type includes misuse/theft of company or other party assets or property. This is the easiest form of fraud to detect because it is tangible or can be measured/calculated (defined value) (Nursifitri et al., 2023).
b. Fraudulent Statement. Includes actions taken by officials or executives of a company or government agency to cover up the true financial condition by carrying out financial engineering in the presentation of financial reports to gain profit (Hashim et al., 2020).
c. Corruption. This action often occurs in developing countries where law enforcement is weak and there is still a lack of awareness of good governance so the integration factor is still questionable (Wahyuni-TD et al., 2021).

3. Fraud Model

Fraud Models have developed very rapidly in the last few years, the first fraud model was introduced by Donald Cressey under the name Fraud Triangle. In 2004, the fraud model developed with the addition of one element, the inventors of which were Wolfe and Hermanson, and became known as Fraud Diamond (Cheliatsidou et al., 2023). The fraud triangle is a theoretical concept for identifying elements or factors that cause fraud to occur. Donald Cressey stated that three conditions are always present when financial statement fraud occurs. These three conditions are incentive or pressure, opportunity, and rationalization (Owusu et al., 2022).



Figure 1. Fraud Triangle

Wolfe and Hermanson perfected the fraud theory based on previous discoveries by Donald Cressey, known as the fraud diamond theory. This theory adds an element of capability as a cause of fraud (Vousinas, 2019).



Figure 2. Fraud Diamond

The following is an explanation of the elements of fraud:

a. Pressure

The pressure that usually occurs in a company can be caused by motivation within management to commit fraud, for example, a lack of income earned, and sufficient living needs, this triggers management to act in their interests (Hashim et al., 2020).

According to SAS No. 99, several types of conditions commonly occur under pressure as a cause of fraud. These conditions are financial stability and external pressure. Measuring financial stability and external pressure in assessing financial statement fraud can be proxied by ACHANGE and LEVERAGE.

1). Financial Stability

Fraud committed by management in managing financial stability is closely related to the growth of company assets, for this reason, financial stability is proxied by changes in total assets (ACHANGE) (Wicaksono & Suryandari, 2021).

2). External Pressure

External pressure is excessive pressure felt by management in meeting the requirements or expectations of third parties. This excess pressure is related to the relationship between high leverage and a higher likelihood of loan covenant violations, as well as the relationship between high leverage and a lack of ability to obtain additional financing through loans (Achmad et al., 2022). Therefore, external pressure is proxied by debt (LEV).

b. Opportunities

SAS No. 99, states that opportunities or opportunities for financial statement fraud can occur in several categories, including ineffective monitoring and the nature of the industry.

1). Ineffective Monitoring

According to Skousen, "ineffective monitoring was caused by weakness of the internal controlling system of a company," which means that the weakness of the company's internal control system is the cause of ineffective supervision. Supervision within the company is carried out by policies made by the board of directors. Changing directors in a short period means that policies in the company change frequently, creating opportunities for fraud (Napitupulu, 2023). Therefore, ineffective monitoring is proxied by the change of directors (BDOUT).

2). Nature of Industry

The nature of industry is the ideal state of a company in the industry. One form of the nature of industry is the condition of the company's receivables. According to Skousen, a good company will reduce and reduce the company's receivables and increase the company's cash flow (Irwandi et al., 2019).

Receivables accounts have a risk of default on each transaction. Therefore, companies always have bad debt accounts within the company which require subjective assessment depending on management policy. The nature of industry calculation uses the total receivables ratio. Therefore, the nature of the industry is proxied by the total receivables ratio (RECEIVABLE).

c. Rationalization

Rationalization is the act of thinking or justifying something that has been done and avoiding the real explanation. Someone who has committed fraud will look for an excuse to say that what he did rationally was the right action or not deviant. This justification is made so that perpetrators of fraud can be free from punishment and other risks (Shepherd & Button, 2019). Rationalization is proxied by a change of auditor (AUDCHANGE).

d. Capability

Capability in committing fraud describes a person's ability to act fraudulently. The relationship between competence and agency theory is that the ability possessed by company management arises because of management's self-interest in gaining a lot of benefits for themselves so that management no longer acts in the interests of the principal. The management's ability is increasingly supported by changes in the board of directors within the company (Wahyudi et al., 2022). Therefore, competency is proxied by a change of directors (DCHANGE).

C. METHOD

This research employs a quantitative method to analyze the influence of independent variables, namely fraud diamond, on the dependent variable, M-score, influenced by profitability as a moderating variable. The study aims for optimal results, focusing on Sharia banking companies registered with OJK (Financial Services

Authority) during the period 2020-2022. The population comprises all Sharia banking companies registered with OJK that published financial reports for the fiscal years 2020 to 2022. The sampling method utilized is non-probability purposive sampling, encompassing all Sharia banking companies registered with OJK. Analysis tools include moderation regression analysis using Microsoft Excel 2019 for initial data input and SPSS for advanced data processing. Moderation regression analysis is chosen due to the linear regression relationship between independent and dependent variables, along with the moderating variable's ability to measure its impact.

D. RESULT AND DISCUSSION

1. Normality Test Results

The normality test is carried out to see whether, in the regression model, the dependent variable and the independent variables both have a normal distribution or not. One method that can be used to detect residuals that are normally distributed or not is by statistical tests. In this study, the test used was the Kolmogorov-Smirnov normality test.

Table 1. One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		
Normal Parameters[a.b]	Mean	.0000000
	Std. Deviation	8.07319909
Most Extreme Differences	Absolute	.177
	Positive	.177
	Negative	-.094
Test Statistic		.177
Asymp. Sig. (2-tailed)		.142[c]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

In the Kolmogorov-Smirnov test results, it is known that the Asymp. sig (2-Tailed) test result value is 0.142 or greater than 0.05, which means the data used is normally distributed.

2. Heteroscedasticity Test Results

This test is carried out to find out whether, in the regression model, there is an inequality of variance from the residuals of one observation to another. Heteroskedasticity shows that the variation of variables is not the same for all observations. In heteroscedasticity, the errors that occur are not random but show a systematic relationship according to the magnitude of one or more variables. In this study, the heteroscedasticity test used is the Glejser test with the following test results:

Table 2. Heteroscedasticity Test

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.116	1.485		2.771	.017
	LEVERAGE	-1.039	1.341	-.027	-.775	.454
	ACHANGE	.390	.645	.020	.605	.557
	BDOUT	-1.126	2.377	-.019	-.474	.644
	DCHANGE	-69.313	2.547	-1.013	-27.216	.095
	MODERATING	-.500	.688	-.031	-.726	.482
	AUDCHANGE	-66.245	2.501	-1.003	-23.046	.081

In this study, it can be observed that the test results for each variable X, consisting of a significance test with results of sig > 0.05, indicate that the data used does not exhibit heteroscedasticity symptoms.

3. Multicollinearity Test Results

This test was carried out to find out whether there was a large correlation between the independent variables in the multiple linear regression model. If there is a large correlation between the independent variable and the dependent variable then the ties between the independent and dependent variables will be disturbed. To test the multicollinearity constraint, the variance inflator factor (VIF) and tolerance value are tested. The test results in this research are as follows:

Table 3. Collinearity Statistics

Model		Collinearity Statistic	
		Tolerance	VIF
1	LEVERAGE	.652	1.535
	ACHANGE	.728	1.374
	BDOUT	.520	1.924
	DCHANGE	.585	1.710
	MODERATING	.440	2.274
	AUDCHANGE	.526	1.690

In the test for multicollinearity, the condition for not experiencing symptoms is when the tolerance value is < 10 and VIF > 0.1. In the above test, it can be observed that all variables X and Z have tolerance values < 10 and VIF > 0.1. Therefore, it can be concluded that in this test, the data used does not exhibit multicollinearity symptoms.

4. Pre-Moderation Regression Analysis Test

The coefficient of determination test in linear regression is used to determine the percentage influence of predictor variables simultaneously on the dependent variable. The r^2 test results (coefficient of determination) can be seen in the table below:

Table 4. Pre-Moderation Determination Coefficient

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.592	.351	.151	95614681.70257

Based on the table above, it shows that the adjusted r square (r^2) value is 0.351 or 35.1%. Therefore, all predictor variables have an effect of 35.1% on the dependent

variable. Meanwhile, the remaining 64.9% is explained by other variables that are not in this study.

5. Post-Moderation Regression Analysis Test

The coefficient of determination test in linear regression is used to determine the percentage influence of predictor variables simultaneously on the dependent variable. The r2 test results (coefficient of determination) can be seen in the table below:

Table 5. Post-Moderation Determination Coefficient

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.782	.611	.339	84375507.5080

Based on the table above, it shows that the adjusted r square (r2) value is 0.611 or 61.1%. Therefore, all predictor variables have a 61.1% influence on the dependent variable. Meanwhile, the remaining 38.9% is explained by other variables that are not in this study.

6. Moderation Regression Analysis Test

To analyze the effect of moderation on the relationship between independent and dependent variables, linear regression analysis was carried out accompanied by interactions between independent and moderation. The results of the analysis are shown in the following table:

Table 6. Moderation Regression Analysis Test

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	150927713.395	66827928.369		2.258	.047
	LEVERAGE	-17.649	12.313	-.721	-1.433	.182
	ACHANGE	.482	3.030	.039	.159	.877
	BDOUT	-1978490.501	1067600.765	-513	-1.854	.093
	AUDCHANGE	155942573.271	138629569.107	.296	1.362	.229
	DCHANGE	145684263.204	129482004.078	.289	1.168	.268
	LEVERAGE/M	0.000001084	.000	.109	. 237	.818
	ACHANGE/M	-0.0000001441	.000	-.182	-.703	.498
	AUDCHANGE/M	-15.538	5.470	-.895	-2.992	.027
	BDOUT/M	.158	.062	.777	2.543	.029
	DCHANGE/M	-15.190	5.386	-.834	-2.820	.018

The table above presents the results of the analysis conducted in the SPSS application. With the results as shown above, it is evident that from the interaction between variables X and M, the interactions between LEVERAGE-MODERATING and ACHANGE-MODERATING have significance levels greater than 0.05, while other interactions have significance levels smaller than 0.05.

In the moderation regression analysis, concerning the interaction between variable X and M in influencing variable Y, it is found that the moderating variable significantly moderates at least one of the variable X's impact on Y. The moderating variable moderates the relationship between AUDCHANGE, BDOUT, and

DCHANGE variables and the Y variable. Therefore, the conclusion from this analysis indicates that the alternative hypothesis A (H1A) is accepted, where the Moderating Variable (M) has a moderating effect on the relationship between at least one of the independent variables (X1, X2, X3, X4, X5) and the dependent variable (Y).

The moderation test results show that the presence of the profitability variable as a moderator in this study indicates its influence on the relationship between independent and dependent variables. With the presence of this moderating variable, the relationship between the independent and dependent variables becomes stronger. This is evidenced by the change in the R Square value from 35.1% to 61.1%, indicating that the presence of the moderating variable will amplify the relationship between independent and dependent variables. From this, it can be concluded that alternative hypothesis B (H1B) is accepted, meaning that the Moderating Variable (M) strengthens or weakens (in this case, strengthens) the relationship between the independent variable and the dependent variable (Y).

E. CONCLUSION

From the moderation test, it is evident that the moderating variable, profitability, acts to strengthen the relationship between the independent and dependent variables. Additionally, the regression analysis demonstrates that the interaction between independent variables and the moderating variable significantly influences the relationship. This finding holds for the majority of the examined independent variables. In conclusion, the moderation analysis underscores the enhancing role of profitability in the relationship between independent and dependent variables. Moreover, the regression results affirm the substantial impact of the interaction between independent variables and the moderating variable on the overall relationship.

REFERENCES

1. Achmad, T., Ghozali, I., & Pamungkas, I. D. (2022). Hexagon fraud: Detection of fraudulent financial reporting in state-owned enterprises Indonesia. *Economies*, *10*(1), 13.
2. Alwi, Z., Parmitasari, R. D. A., & Syariati, A. (2021). An assessment on Islamic banking ethics through some salient points in the prophetic tradition. *Heliyon*, *7*(5).
3. Barauskaite, G., & Streimikiene, D. (2021). Corporate social responsibility and financial performance of companies: The puzzle of concepts, definitions and assessment methods. *Corporate Social Responsibility and Environmental Management*, *28*(1), 278-287.
4. Bunea, O. I., Corbos, R. A., & Popescu, R. I. (2019). Influence of some financial indicators on return on equity ratio in the Romanian energy sector-A competitive approach using a DuPont-based analysis. *Energy*, *189*, 116251.
5. Cheliatsidou, A., Sariannidis, N., Garefalakis, A., Azibi, J., & Kagias, P. (2023). The international fraud triangle. *Journal of Money Laundering Control*, *26*(1), 106-132.

6. Endah, N., Tarjo, T., & Musyarofah, S. (2020). The implementation of good corporate governance and efforts to prevent fraud in banking companies. *Jurnal Reviu Akuntansi Dan Keuangan*, *10*(1), 136-149.
7. Faqir, R. S. (2023). Digital Criminal Investigations in the Era of Artificial Intelligence: A Comprehensive Overview. *International Journal of Cyber Criminology*, *17*(2), 77-94.
8. Haqq, A. P. N. A., & Budiwitjaksono, G. S. (2019). Fraud pentagon for detecting financial statement fraud. *Journal of Economics, Business, and Accountancy Ventura*, *22*(3), 319-332.
9. Hashim, H. A., Salleh, Z., Shuhaimi, I., & Ismail, N. A. N. (2020). The risk of financial fraud: a management perspective. *Journal of Financial Crime*, *27*(4), 1143-1159.
10. Hong, S. J., & Najmi, H. (2020). The relationships between supply chain capability and shareholder value using financial performance indicators. *Sustainability*, *12*(8), 3130.
11. Irwandi, S. A., Ghozali, I., & Pamungkas, I. D. (2019). Detection fraudulent financial statement: Beneish M-score model. *WSEAS Transactions on Business and Economics*, *16*(1), 271-281.
12. Mandal, A. (2023). Fathoming fraud: unveiling theories, investigating pathways and combating fraud. *Journal of Financial Crime*.
13. Mendes de Oliveira, D. K., Imoniana, J. O., Slomski, V., Reginato, L., & Slomski, V. G. (2022). How do internal control environments connect to sustainable development to curb fraud in Brazil?. *Sustainability*, *14*(9), 5593.
14. Napitupulu, I. H. (2023). Internal control, manager's competency, management accounting information systems and good corporate governance: Evidence from rural banks in Indonesia. *Global Business Review*, *24*(3), 563-585.
15. Nikmah, U., & Fajarini, I. (2020). The effect of financial performance on profit growth moderated by CSR disclosure. *Accounting Analysis Journal*, *9*(3), 179-185.
16. Nursifitri, N., Rahayu, S., & Yudi, Y. (2023). The Influence of Religiosity, Organizational Culture, Implementation of Internal Controls and Information Asymmetry on Accounting Fraud. *Journal of Business Management and Economic Development*, *1*(01), 70-88.
17. Owusu, G. M. Y., Koomson, T. A. A., Alipoe, S. A., & Kani, Y. A. (2022). Examining the predictors of fraud in state-owned enterprises: an application of the fraud triangle theory. *Journal of Money Laundering Control*, *25*(2), 427-444.
18. Salin, A. S. A. P., Manan, S. K. A., & Kamaluddin, N. (2020). Ethical framework for directors–learning from the prophet. *International Journal of Law and Management*, *62*(2), 171-191.
19. Shepherd, D., & Button, M. (2019). Organizational inhibitions to addressing occupational fraud: A theory of differential rationalization. *Deviant Behavior*, *40*(8), 971-991.
20. Vousinas, G. L. (2019). Advancing theory of fraud: the SCORE model. *Journal of Financial Crime*, *26*(1), 372-381.

21. Wahyudi, S., Achmad, T., & Pamungkas, I. D. (2022). Prevention Village Fund Fraud in Indonesia: Moral Sensitivity as a Moderating Variable. *Economies*, *10*(1), 26.
22. Wahyuni-TD, I. S., Haron, H., & Fernando, Y. (2021). The effects of good governance and fraud prevention on performance of the zakat institutions in Indonesia: A Sharīʿah forensic accounting perspective. *International Journal of Islamic and Middle Eastern Finance and Management*, *14*(4), 692-712.
23. Wicaksono, A., & Suryandari, D. (2021). The Analysis of Fraudulent Financial Reports Through Fraud Hexagon on Public Mining Companies. *Accounting Analysis Journal*, *10*(3), 220-228.
24. Zhu, L., Li, M., & Metawa, N. (2021). Financial risk evaluation Z-score model for intelligent IoT-based enterprises. *Information Processing & Management*, *58*(6), 102692.