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FRAUDULENT FINANCIAL REPORTING IN MALAYSIA: FROM FRAUD TRIANGLE THEORY PERSPECTIVE

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Abstract

Fraudulent financial reporting (FFR) activities have a negative impact on market value, companies' reputation, accounting profession credibility, and loss of investors' confidence in financial statements. Despite the establishment of new regulations and governance, the FFR cases in Malaysia keep on growing. The involvement of top management in fraud cases is induced by fraud triangle components, namely pressure, opportunity, and rationalisation. However, the impact of fraud triangle elements on fraudulent financial reporting is inconclusive. Hence, the objectives of this study are twofold: to determine the trend of fraudulent financial reporting in Malaysia for five years from 2016 to 2020 and to examine whether the fraud triangle elements have a significant impact on fraudulent financial reporting.This study used the Binary Logistic Regression model to achieve its second objective. The independent variables used to determine fraudulent financial reporting comprise fraud triangle elements, namely pressure, opportunity, and rationalisation. The fraudulent financial reporting is proxied by M-score of the Beneish model. This study provides empirical evidence that even though pressure and opportunity have no significant relationship with fraud likelihood, rationalisation has a significant impact on fraudulent financial reporting. Besides contributing to the literature on corporate fraud issues, this study offers imperative insights to financial information users in determining the possibility or indication of fraudulent reporting. Future research may incorporate other proxies for fraud triangle elements to augment this study or include companies with specific fraud cases, such as PN17.

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Keywords:

Fraud Triangle, Fraudulent Financial Reporting, Beneish Model

Introduction

The Association of Certified Fraud Examiners (ACFE, 2020) has conducted a study indicating that the greatest average loss is due to fraudulent financial reporting. Fraudulent financial reporting refers to significant misstatement of financial statements that misleads the users of financial statements (Rostami & Rezaei, 2021; Tiffani & Marfuah, 2015). The adverse impact of fraudulent financial reporting includes material losses to the companies, negative reputation toward the accounting profession, and loss of public confidence in financial statements (Ghorbani & Salehi, 2021). Accounting scandals such as Enron in the USA caused significant losses of US$50 billion to the company, US$32 billion to its investors, and around US$1 billion to pension funds (Spathis, 2002).

Malaysia is not immune to fraudulent financial reporting cases being a developing country with unstable economic and political conditions. The survey conducted by Price Waterhouse Coopers (2020) shows that the fraud cases in Malaysia are alarming and remain high. Fraud cases have increased slightly from 41% in 2018 to 43% in 2020. The survey highlighted that fraudulent financial reporting continues to grow over time despite the establishment of new laws and regulations and governance enhancements to prevent fraudulent financial reporting (Girau et al., 2021).

Empirical evidence of fraudulent financial reporting suggests top management involvement in accounting fraud (Skousen et al., 2009). Cressey (1971) proposes three main factors explaining top management involvement in fraudulent financial reporting activities: incentives and perceived pressure, perceived opportunities, and rationalisation, known as fraud triangle components. Even though the fraud triangle framework is commonly used in detecting fraudulent financial reporting, there is conflicting evidence in fraudulent financial reporting research. Ghafoor et al. (2019), Lehmann et al. (2018), and Machado and Gartner (2018) suggest that the three fraud triangle components are significant in fraudulent financial reporting activities. Other studies find that only two components contribute to fraudulent financial reporting (Chen et al., 2016; Skousen et al., 2009), while others found only one component contributes to fraudulent financial reporting (Homer, 2020; Schuchter & Levi, 2015). In view of the mixed conclusions, this study provides another perspective on whether the fraud triangle framework can be adopted to detect fraudulent financial reporting in a developing country such as Malaysia. Hence, the objectives of this study are twofold. The first objective is to determine the trend of fraudulent financial reporting in Malaysia from 2016 to 2020. The second objective is to examine whether the fraud triangle elements, namely pressure, opportunity, and rationalisation, have a significant impact on fraudulent financial reporting among the listed companies in Malaysia.

The findings of this study contribute to the existing literature and understanding of the fraud triangle framework in detecting fraudulent financial reporting activities. The results should benefit the companies and their stakeholders in preventing fraudulent financial reporting and

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reducing its negative impact on the economy, companies' reputation, accounting profession credibility, and individuals.

Literature Review

The objective of the general purpose of financial reporting or financial reports, as stated in para 1.2 of the Conceptual Framework for Financial Reporting (MASB, 2018), is "to provide financial information about the reporting entity that is useful to existing and potential investors, lenders, and other creditors in making decisions about providing resources to the entity." According to the framework, the expectation about the entity's return made by the existing and potential users of the financial reports depends on the estimation or valuation of the future benefits of the entity and the assessment of the management's stewardship of the entity's economic resources. Information about the assets, liabilities, and changes in those assets and liabilities must be correctly presented in the financial reports to make a better assessment (Sabatian & Hutabarat, 2020). Further, in para 1.4 of the framework, the assessment also requires information relating to the efficiency and effectiveness of the entity's management and the governing board in discharging their responsibilities to use the entity's assets because users rely on the information to appraise the reporting entity (MASB, 2018).

Regardless of the framework provided by the Malaysian Accounting Standard Board (MASB), fraudulent financial reporting still occurs (Price Waterhouse Coopers, 2020). Fraudulent financial reporting is the intentional misrepresentation of a firm's financial statements by breaking the law or the regulatory framework to achieve personal returns (Girau et al., 2021; Rostami & Rezaei, 2021; Sallal et al., 2021; Tiffani & Marfuah, 2015) or by reporting a false impression about the firm's operating performance and profitability (Sallal et al., 2021). The financial report users' concerns relating to fraud reporting have increased due to the wake of big corporate scandals like Enron, WorldCom (Sallal et al., 2021), and the most serious corruption scandals in Malaysia, The 1 Malaysia Development Fund Bhd (1MDB) (Jones, 2020).

To explain fraudulence further, many researchers (Demetriades & Owusu-Agyei, 2022; Putri & Irwandi, 2016; Yulistyawati et al., 2019) have used the agency theory. The agency theory explains the contractual relationship between an agent and the principal (Jensen & Meckling, 1976). An agent (manager) and the principal (owner) will do their best to increase the value of the entity generally and specifically in the interest of the external owner, the investors (Barbir, 2021). This relationship can effectively work because the principal and the agent discharge their responsibilities efficiently (Jan, 2018). Despite discharging their responsibilities in efficiently managing the entity's economic resources, information imbalance between the agent and the owner may cause pressure among managers. While providing invaluable information to the investors, as explained in the agency theory, owners' pressure maximises the risk of fraud reporting among managers (Kia et al., 2019).

In addition to the agency theory, Cressey's model, which was originally developed in 1953, was also employed by many researchers (Kagias et al., 2021; Sabatian & Hutabarat, 2020; Soepriyanto et al., 2021; Surjaatmaja, 2018) to further understand factors contributing to fraud reporting. Hence, this study extends the literature on the fraud triangle theory to determine factors causing fraudulent financial reporting in the Malaysian context. The fraud triangle theory consists of three fraud elements: pressure, opportunity, and rationalisation (Fajri, 2018).

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Fraud can be caused by various pressures, such as financial stability pressure, external pressure, personal financial needs, and financial targets (Fajri, 2018). Pressure can also be related to an entity's financial difficulties or powerlessness (Soepriyanto et al., 2021). Financial difficulties would generate pressure that causes the management or other employees to disobey laws and regulations (Kagias et al., 2021; Putri & Irwandi, 2016) and commit fraud (Rostami & Rezaei, 2021). Pressure is individuals' motivation to commit fraud due to lifestyle demands (Bhaktiar & Setyorini, 2021), economic demands, and financial and non-financial matters (Fajri, 2018). Fajri (2018) studied 14 companies in the property and real estate sector listed on the Indonesia Stock Exchange from 2010 until 2012; he concluded that pressure to do fraud might arise from financial and non-financial matters, such as lifestyle and economic demands. The study also reported that the variable external pressure, personal financial need, and audit quality would also affect financial statements fraud. These findings were supported by Utama et al. (2018) and Fitri et al. (2019) who reported that financial stability, external pressure, and personal financial need have a significant effect on fraud. Fitri et al. (2019) noted that companies facing higher pressure from financial stability, leverage, and financial targets had a greater possibility of fraud. However, Nguyen et al. (2021), in their report that examined 592 accountants' views, concluded that management pressure does not affect fraud reporting because other parties, such as auditors and tax authorities, would commit the fraudulent act.

Opportunity is another element with a strong relationship with fraud (Demetriades & Owusu-Agyei, 2022). Opportunity refers to the situation or condition that allows people to commit fraud (Ghafoor et al., 2019). Fraud occurs in the absence of loyalty to institutional investors, independence of the board, an effective audit committee, and female directors to provide active monitoring (Ghafoor et al., 2019). Other factors that might also contribute to fraud are lack of controls or management's ability to violate controls allowing the management to commit fraud (Bhaktiar & Setyorini, 2021). Weak internal controls would also provide an advantage to individuals to commit fraud due to ineffective internal control that allows management to provide unreasonable assurance relating to the process (Kagias et al., 2021). This is supported by Soepriyanto et al. (2021), who asserted that fraud exists in entities with weak internal control, weak regulations, and excessive trust or lack of proper authority. Opportunity attracts individuals to commit fraud in entities that fail to implement effective internal control to detect fraud and the inability to assess performance quality (Bhaktiar & Setyorini, 2021).

Finally, the last element is rationalisation. Fajri (2018) stated that rationalisation is closely connected with a person's personality and character, an essential element of fraud, whereby fraudsters typically look for justification for their actions. It is an attitude that allows individuals to justify or understand their illegal acts (Putri & Irwandi, 2016). For example, when an entity is facing pressure because its financial stability is threatened, the management will try to justify the company's financial stability by committing fraud on the financial statements that the entity is seen as capable of managing all its resources properly and getting positive responses from investors (Khamainy et al., 2021). The management would also feel comfortable with the fraudulent activity due to weak internal controls (Kagias et al., 2021).

Other factors such as the absence of effective enforcement and a culture of non-compliance to rules (Nguyen et al., 2021) and unethical and dishonesty behaviour of the management and the board of directors would also prompt the management to rationalise their fraudulence (Khamainy et al., 2021).

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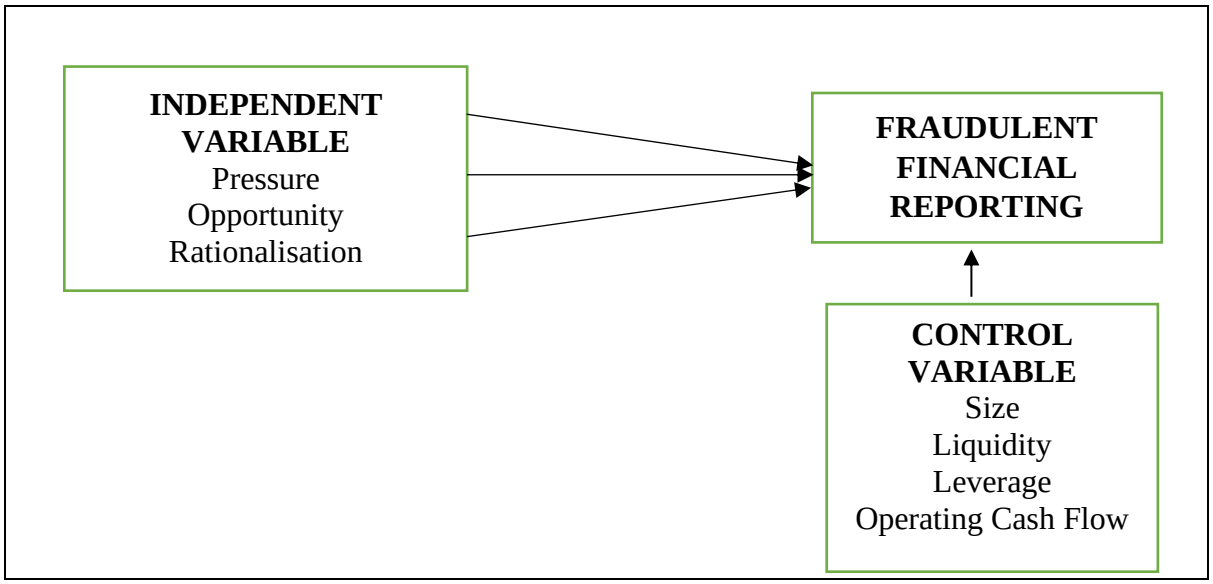
Conceptual Framework and Hypotheses Development

The conceptual framework developed for this study with reference to the fraud triangle theory describes the relationship between the three elements of fraud and fraudulent financial reporting.



Based on the conceptual framework, the following hypotheses will be tested.

H1: Pressure has a significant relationship with fraudulent financial reporting
H2: Opportunity has a significant relationship with fraudulent financial reporting
H3: Rationalisation has a significant relationship with fraudulent financial reporting
For the purpose of this study, the size of the firm, liquidity, leverage, and operating cash flows have been identified as the control variables.

Pressure and Fraudulent Financial Reporting

In the framework, the pressure element of the fraud triangle theory, which is proxied by return on asset (ROA), is seen as a factor that would pressure managements or individuals to commit fraudulent reporting (Sabatian & Hutabarat, 2020). ROA is the profitability ratio that measures the company's ability to achieve targeted profits with existing assets (financial target). A higher percentage of ROA suggests better management or handling of the entity's assets in generating income. In contrast, the lower percentage of ROA indicates ineffective handling of assets in the production of income. Furthermore, managers would be pressured to do fraudulent reporting to obtain high profits and increase the value of the entity from the perspective of investors, creditors, and the public. Surjaatmaja (2018) revealed that pressure measured by ROA significantly affects fraudulent reporting. The finding is also supported by Demetriades and Owusu-Agyei (2022), who asserted that pressure is proven to contribute to fraudulent financial reporting.

Based on the above findings, the following hypothesis is developed:

H1: Pressure has a significant relationship with fraudulent financial reporting

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Opportunity and Fraudulent Financial Reporting

The second element of the fraud triangle theory, namely opportunity, is measured by ineffective monitoring (Sabatian & Hutabarat, 2020). Ineffective monitoring is a condition of entities having less supervision from outside directors that would attract management or individuals to commit fraud. By having more outside directors' supervision, entities would have effective monitoring to reduce the chances of management or individuals doing fraudulent reporting. Ineffective monitoring is represented by fewer outside directors on the board (BDOUT). Research findings by Demetriades and Owusu-Agyei (2022), Rohmatin et al. (2021), and Aulia (2018) showed that ineffective monitoring resulted in falsified financial statements. However, Rengganis et al. (2019) and Noble (2019) found that ineffective monitoring from independent directors has a negative relationship with fraudulent financial reporting. These findings supported the studies of Diansari and Wijaya (2019) and Aulia (2018) that effective monitoring does not have a positive effect on fraudulent financial reporting.

Based on the above arguments, the second hypothesis was developed for this study as follows:

H2: Opportunity has a significant relationship with fraudulent financial reporting

Rationalisation and Fraudulent Financial Reporting

The third element of the framework of this study is rationalisation, which will be examined whether it has a significant relationship with fraudulent reports. Following Yulistyawati et al. (2019), rationalisation is proxied by the total accruals to total assets (TATA). Based on the study, the management can use the ratio to detect fraud. Red flags for this ratio are raised if the degree of accruals as part of the total assets increases (Sabau (Popa) et al., 2021). Furthermore, Sabatian and Hutabarat (2020) asserted that TATA reflects the manipulation of financial information because the accrual concept allows the recording of transactions despite no cash flows and permits managers to make discretionary accounting choices to alter earnings (Sabau (Popa) et al., 2021). The findings by Bhaktiar and Setyorini (2021) showed that rationalisation proxied by TATA has a positive effect on fraudulent financial reporting. Based on the above findings, the following relationship is developed:

H3: Rationalisation has a significant relationship with fraudulent financial reporting

Research Methodology

Sampling Selection and Data Collection Procedure

The selected sample for this study is the public listed companies in Bursa Malaysia, the Malaysian Stock Exchange, for a five-year period from 2016 to 2020. This study excluded banks and other financial institutions from the sample, as they are different in terms of financial reporting rules applied and the unique nature of such industry. Similarly, companies with missing data and outliers were also not considered. Since all companies must have a complete set of data for each year, the final sample consisted of 1670 firm-year observations from 334 non-financial companies listed in Bursa Malaysia.

Using a quantitative approach, secondary data for this study were gathered from three main sources. Firstly, the Thomson Reuters Eikon database was the main database used to collect most of the financial data required in relation to the independent, dependent, and control

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variables of this study. Secondly, since the earlier database could not capture data on depreciation, this study used Datastream to collect such data, which became part of the M-score calculation of the Beneish model, to represent the likelihood of fraudulent financial reporting. Finally, data on corporate governance, i.e., the number of outside directors on the board, were manually collected from the annual report of the selected companies.

Variable Measurement

The dependent variable of this study is fraudulent financial reporting (FFR). In order to answer the first objective of this study, the M-score of the Beneish model is used to measure the degree of potential fraudulent companies. The model was developed by Beneish (1999) to distinguish between earnings manipulators (fraudulent companies) and non-manipulators (non-fraudulent companies). This model has also been proven to be reliable and capable of detecting the likelihood of FFR, as evidenced by findings from Girau et al. (2019), Kamal et al. (2016), and Shakouri et al. (2021). As summarised in Table 1 below, this model utilises eight financial ratios obtained from financial statements to detect FFR.

Table 1: Financial Ratios Used in Beneish Model

Financial Ratio	Formula
Days' sale in receivable index (DSRI)	$(Receivable_t/Sales_t)/(Receivable_{t-1}/Sales_{t-1})$
Gross margin index (GMI)	$[(Sales_{t-1}-COGS_{t-1})/Sales_{t-1}]/[(Sales_t-COGS_t)/Sales_t]$
Asset quality index (AQI)	$[1-(Current\ Asset_t+PPE_t / Total\ Asset_t)]/ [1- (Current\ Asset_{t-1} +PPE_{t-1} / Total\ Asset_{t-1})]$
Sales growth index (SGI)	$Sales_t /Sales_{t-1}$
Depreciation index (DEPI)	$[Depreciation_{t-1}/Depreciation_{t-1}+PPE_{t-1}]/ [Depreciation_t / Depreciation_t +PPE_t]$
Sales, general, and administrative expenses index (SGAI)	$[SGA\ Expenses_t /Sales_t]/[SGA\ Expenses_{t-1} /Sales_{t-1}]$
Total accruals to total assets (TATA)	$[(Current\ Assets_t–Cash_t–Current\ Liabilities_t– Current\ Maturities\ of\ Long\ Term\ Debt_t–Income\ Tax\ payable_t – Depreciation\ and\ Amortisation_t)/Total\ Assets_t]$
Leverage index (LEVI)	$(Long\ Term\ Debts_t+Current\ Liabilities_t/Total\ Asset_t) / (Long\ Term\ Debts_{t-1}+Current\ Liabilities_{t-1}/Total\ Asset_{t-1})$

Source: (Beneish, 1999)

In order to determine M-score, the eight ratios or variables of the Beneish Model above were calculated using the following formula:

$$M\text{-}Score = -4.84 + 0.92*DSRI + 0.528*GMI +0.404*AQI + 0.892*SGI + 0.115*DEPI– 0.172*SGAI +4.679*TATA – 0.327*LVGI$$

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The M-score derived from the Beneish model indicates the level of probability of earnings manipulation and FFR. The most popular threshold or indicator used by prior studies to determine potential fraudsters is the M-score of −2.22 or above (Girau et al., 2019; Kamal et al., 2016; Kukreja et al., 2020; Maniatis, 2021; Omar et al., 2014). Therefore, an M-score of less than −2.22 implied that the companies are likely to be non-manipulators.

Next, to answer the second objective of this study, a dichotomous variable was created for the dependent variable based on the M-score calculated above. The independent variables of this study are proxy variables for Fraud Triangle Elements, namely Pressure, Opportunity, and Rationalisation. This study also controls four other variables that might affect the likelihood of fraudulent financial reporting (Arifin & Prasetyo, 2018; Dalnial et al., 2014), which are firm size (SIZE), firm liquidity (LIQ), firm leverage (LEV) and operating cash flow (OCF). Table 2 summarises the measurements for the independent, dependent, and control variables of this study.

Table 2: Variable Measurement

Variable	Measurement and Sources
Fraudulent Financial Reporting (FFR)	The dichotomous variable is coded 1 for the fraudulent companies and 0 for the non-fraudulent companies (Girau et al., 2019; Soepriyanto, Tjokroaminoto, et al., 2021)
Pressure (financial target proxied by ROA)	Return on Asset (ROA) = profit after taxes / total assets (Demetriades & Owusu-Agyei, 2022; Fitri et al., 2019; Yulianti et al., 2019)
Opportunity (ineffective monitoring by BDOUT)	Board Outside Directors (BDOUT) = The percentage of outside or independent non-executive directors (Khoufi & Khoufi, 2018; Md Nasir et al., 2019; Nakashima & Ziebart, 2019)
Rationalisation (proxied by TATA)	Total Accruals to Total Assets (TATA) = [(Current $Assets_t$–$Cash_t$–Current $Liabilities_t$– Current Maturities of Long Term $Debt_t$–Income Tax $payable_t$ – Depreciation and $Amortisation_t$)/Total $Assets_t$] (Sari, 2016; Yulistyawati et al., 2019)
Firm size (SIZE)	Natural log of Total Assets (Asogwa et al., 2020; Hasanuddin et al., 2021; Khoufi & Khoufi, 2018)
Firm Liquidity (LIQ)	The Ratio of Current Assets to Current Liabilities (Hasnan et al., 2021; Nugrahanti et al., 2020)
Firm Leverage (LEV)	The Ratio of Debt to Total Assets (Al-Sartawi & Sanad, 2019; Hasnan et al., 2021; Md Nasir et al., 2019)
Operating Cash Flow (OCF)	Cash flow from operation (Sakti et al., 2020)

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Model and Analysis

For the hypothesis testing, this study used a logistic regression model to identify the influence of fraud triangle elements on the likelihood of fraudulent financial reporting. The model used in this study is as follows:

$$FFR_{it} = \alpha + \beta_1 ROA_{it} + \beta_2 BDOUT_{it} + \beta_3 TATA_{it} + \beta_4 SIZE_{it} + \beta_5 LIQ_{it} + \beta_6 LEV_{it} + \beta_7 OCF_{it} + \varepsilon_{it}$$

Results and Discussion

The first objective of this study is to determine the trend of fraudulent financial reporting in Malaysia for a five-year period from 2016 to 2020. Based on the M-score calculated from the Beneish model, the sample of this study was classified into two, namely fraudulent companies and non-fraudulent companies. Companies with an M-score of −2.22 and above (less negative and positive value) are classified as fraudulent companies, while those with an M-score of less than −2.22 (high negative value) are deemed to be non-fraudulent companies. Table 3 shows the trend among the observed companies for the year 2016 to 2020:

Table 3: Trend of Fraudulent Companies for 2016 to 2020

Classification of Companies	2016	2017	2018	2019	2020	Total
Fraudulent companies	298	292	297	284	288	1459
Non-fraudulent companies	36	42	37	50	46	211
Firm-year observation						1670

The results in Table 3 indicate that the majority of the selected companies for this study are likely to be fraudsters, as proven by the M-score obtained for each company. However, the result shows a stable trend for the five-year period, with a slight rise and fall in the number of fraudulent companies within the 1% to 2% range (Figure 1). Conceptual analysis from Jamil et al. (2021) indirectly supported the trend of fraudulent companies in Table 3 and Figure 1, highlighting the non-satisfactory stage of regulatory compliance in Malaysia in the pre and post COVID-19 pandemic.

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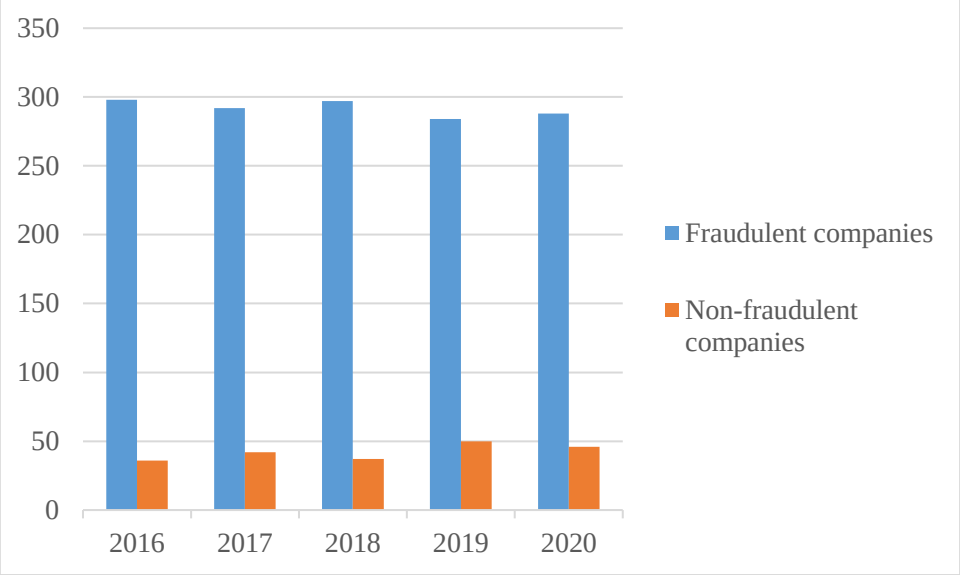

Figure 1: Trend of Fraudulent Companies for 2016 to 2020

Meanwhile, Table 4 reported the average M-score value between fraudulent and non-fraudulent companies for each year from 2016 to 2020. The findings from Table 4 justify the high probability of earnings manipulation among the fraudulent companies by violating accounting rules in their financial reporting. This is supported by the large deviation between 72% to 83% for the five-year period from the threshold score of −2.22 for all the average M-score among the fraudulent companies in this study.

Table 4: Average Value Comparison of M-score for 2016 to 2020

Classification of Companies	2016	2017	2018	2019	2020
Fraudulent companies	-0.628	-0.579	-0.458	-0.568	-0.635
Non-fraudulent companies	-2.988	-3.272	-2.929	-3.454	-3.038

The second objective of this study is to examine whether the fraud triangle elements, namely Pressure, Opportunity, and Rationalisation, as proxied by Return on Asset (ROA), ineffective monitoring (BDOUT) and Total Accruals to Total Assets (TATA), have a significant impact on fraudulent financial reporting (FFR) among the listed company in Malaysia. Prior to conducting logistic regression analysis, this study conducted earlier analyses of descriptive, correlation, and collinearity diagnostics. First, using the dichotomous variable of "1" and "0", Table 5 differentiates the descriptive analysis between fraudulent and non-fraudulent companies in terms of mean and standard deviation for all the explanatory and control variables. The standard deviation of all variables for both fraudulent and non-fraudulent companies is smaller than the mean, denoting that the data are less spread out from the mean value. Meanwhile, the findings from Table 5 indicate that except for BDOUT, the mean for the other two independent variables used in this study is higher for fraudulent companies compared to non-fraudulent companies. These results initially support the indicative of fraud triangle elements towards the likelihood of fraudulent financial reporting.

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Table 5: Descriptive Statistic between Fraudulent and Non-Fraudulent Companies

	ROA	BDOUT	TATA	SIZE	LIQ	LEV	OCF
FC							
Mean	0.021	48.7	0.353	20.558	2.356	20.498	0.001
SD	0.08	11.732	0.188	1.509	1.828	14.349	0.094
NFC							
Mean	-0.001	50.779	0.066	21.311	1.619	31.308	0.01
SD	0.089	12.484	0.164	1.967	1.537	18.464	0.072

Note: FC, NFC, and SD denote Fraudulent Companies, Non-fraudulent Companies, and Standard Deviation, respectively

Next, pairwise correlation analysis was conducted to determine the strength and direction of the linear relationship between all the variables used in this study. The analysis in Table 6 shows that FFR is positively correlated with ROA (0.092), TATA (0.458), and LIQ (0.135) variables, all at a significance level of 0.001. In contrast, except for OCF, which is not significantly related, FFR is negatively associated with BDOUT (−0.058; p=0.017), SIZE (−0.157; p=0.000) and LEV (−0.234; p=0.000) variables.

Overall, none of the variables are very highly correlated at a coefficient value above 0.8 or 0.9 (Field, 2018), as the highest coefficient value is only at a medium correlation effect (range of 0.3-0.49), i.e., the coefficient value of −0.491 between LIQ and LEV variables at 1% significant level. The correlation analysis in Table 6 also confirms no serious multicollinearity issue that may affect the logistic regression analysis for this study (Pallant, 2016). In order to further support the results, a collinearity diagnostic was also conducted by examining the value of the Tolerance and Variance Inflation Factor (VIF), as illustrated in Table 7 below.

Table 6: Pairwise Correlation Analysis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1)	1.000							
(2)	0.092[a]	1.000						
(3)	-0.058[b]	-0.124[a]	1.000					
(4)	0.458[a]	0.081[a]	-0.032	1.000				
(5)	-0.157[a]	0.114[a]	-0.021	-0.376[a]	1.000			
(6)	0.135[a]	0.155[a]	-0.008	0.249[a]	-0.220[a]	1.000		
(7)	-0.234[a]	-0.139[a]	0.010	-0.287[a]	0.441[a]	-0.491[a]	1.000	
(8)	-0.033	0.080[a]	0.023	-0.025	0.012	-0.053[b]	0.015	1.000

Notes: i. (1) Fraudulent Financial Reporting (FFR); (2) Return on Assets (ROA); (3) Board Outside directors (BDOUT); (4) Total Accruals to Total Assets (TATA); (5) Firm Size (SIZE); (6) Firm Liquidity (LIQ); (7) Firm Leverage (LEV); (8) Operating Cash Flow (OCF); ii. Superscripts a and b indicate the significance at 0.01 and 0.05 levels, respectively.

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Table 7: Collinearity Diagnostic (Tolerance and VIF)

Variables	Tolerance	VIF
ROA	0.903	1.107
BDOUT	0.983	1.018
TATA	0.817	1.224
SIZE	0.702	1.425
LIQ	0.737	1.357
LEV	0.627	1.595
OCF	0.987	1.013

From Table 7 above, all variables are found to be within the acceptable range, i.e., the tolerance value should be more than 0.10, and the VIF value should not be above 10. Thus, the results confirm the non-violation of multicollinearity assumptions, and the model is deemed fit for further analysis.

Finally, binary logistic regression analysis was conducted to answer the hypothesis developed for the second objective of this study. Table 8 demonstrates the logistic regression results for the entire sample of 1670 fraudulent (N=1459) and non-fraudulent companies (N=211). Firstly, the goodness of fit test was conducted using the chi-square test of model fit, also known as the omnibus test of model coefficient. Based on Pallant (2016), this test shows an overall indication of whether or not the model used in the study is well-performing in testing the hypothesis developed. The result indicates that the model is fit and highly significant at x^2=471.021, p<0.001. Additionally, the Pseudo R^2 of 0.372 suggests that 37.2% of the variation in the dependent variables (FFR) is explained by the independent and control variables used in this study. Technically, this R^2 value can be interpreted similarly to the R^2 value obtained in the multiple regression analysis (Meyers et al., 2017).

Table 8: Logistic Regression Analysis

	Beta coefficient	SE	P-value
ROA	0.915	1.241	0.461
BDOUT	-0.009	0.008	0.264
TATA	12.170	0.904	0.000***
SIZE	0.103	0.057	0.072*
LIQ	-0.118	0.066	0.073*
LEV	-0.018	0.007	0.009***
OCF	-3.422	1.274	0.007***
Constant	-1.444	1.237	0.243
N		1670	
Pseudo R^2		0.372	
Chi-square (x^2) test of model fit		471.021***	

Note: *, ** and *** denote the significance at 0.10, 0.05 and 0.01 levels, respectively.

Next, with regards to the hypothesis testing, out of the three fraud triangle elements tested in this study, only rationalisation, as proxied by total accruals to total assets (TATA), is positively and significantly affects the likelihood of fraudulent financial reporting (FFR) at 1% significant level (H3 is supported). Despite only one element of the fraud triangle being found to support possible earnings manipulation, the result was consistent with 32 out of 33 studies relating to

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fraud triangle theory, as reviewed by Homer (2020). Furthermore, in line with Kamal et al. (2019), the result indicates the management's attitude or rationalisation towards FFR due to excessive interest in increasing earnings through accruals. The finding also suggests that TATA can be a good proxy of rationalisation, on top of other proxy variables used by similar studies, such as auditor changes (Fitri et al., 2019), audit opinion (Demetriades & Owusu-Agyei, 2022), and audit quality (Fajri, 2018).

With regard to the pressure element, return on assets (ROA) was chosen as a proxy variable for the financial target, one of the components of the pressure element in the fraud triangle. The positive relationship between ROA and FFR denotes that in achieving the company's financial target by effectively utilising assets, the management will attempt to exhibit high profitability or ROA performance in its financial statements. Therefore, there is a higher possibility of fraudulent reporting when the ROA of the company is higher than the actual targeted ratio. Yet, despite a similar positive relationship with FFR, its insignificance contradicts the findings from Noble (2019) and Surjaatmaja (2018), hence rejecting the first hypothesis of this study. On the other hand, the result from Demetriades and Owusu-Agyei (2022) showed a significant negative relationship between both variables, hence providing mixed findings on the impact of ROA on FFR.

Proxied by ineffective monitoring, the opportunity element proved the negative relationship between board outside directors (BDOUT) and FFR. Noble (2019) highlighted the Statement of Auditing Standards (SAS) No. 99 that ineffective monitoring is one of the conditions describing the opportunity to commit fraud. A lesser number of independent or outside directors on the board represents ineffective internal control, particularly in monitoring the company's performance. Nonetheless, the result was insignificant compared to the substantial findings by Rengganis et al. (2019), who discovered that the higher fraud rate was due to a lower percentage of outside directors on the board of the sampled companies. Therefore, H2 is also rejected. One possible justification for the insignificance might be due to the compliance with the minimum requirement of board composition by the revised Malaysian Code of Corporate Governance (MCCG) 2017.

Additionally, as expected, all control variables were found to have a significant impact on the likelihood of fraudulent financial reporting, with LEV and OCF being highly significant at 1% level, whereas SIZE and LIQ were only significant at 10% level.

Conclusion

Despite several advances in governance and the enactment of new rules and regulations to prevent fraud, the number of corporate fraud cases continues to climb around the world. Malaysia is no exception. The Price Waterhouse Coopers reported that fraud occurrences in Malaysia remain high, accounting for almost three-quarters of all economic crime in Malaysia (Price Waterhouse Coopers, 2020). The objectives of this study are twofold; the first objective is to determine the trend of fraudulent financial reporting in Malaysia for a five-year period from 2016 to 2020. Out of 1670 firm-year observations, almost 90% of the sample are fraudulent companies, and the trend is quite stable from one year to another. The analysis covers the number of fraudulent companies compared to the non-fraudulent companies and the M-score calculated from the Beneish model to represent the likelihood of fraudulent financial reporting. A large deviation of the M-score from the threshold of −2.22 proves the high possibility of fraudulent activities conducted among the fraudulent companies in Malaysia. The

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second objective of this study is to determine the impact of fraud triangle elements (pressure, opportunity, and rationalisation) on fraudulent financial reporting in Malaysia. Consistent with the systematic literature review conducted by Homer (2020), the study only found support for the rationalisation element, as proxied by the total accruals to total assets (TATA). The pressure and opportunity elements are not significantly related despite demonstrating a similar predicted relationship with prior studies.

The findings of this study contribute empirically to the existing literature on corporate fraud issues, particularly among developing and emerging countries. Additionally, this study provides valuable insights into various users of annual reports in identifying potential red flags or possible fraudulent reporting activities, mainly through the rationalisation element of the fraud triangle theory. The use of TATA as a proxy variable for rationalisation shall be widely applied on top of other auditor-related proxy variables for such elements.

This study put forward several suggestions for future research. First, this study only uses one proxy for each element of the fraud triangle theory and obtains insignificant findings on the first two elements (i.e., Pressure and Opportunity). Thus, future studies should explore the possibility of other proxy variables, such as asset growth and free cash flow for the pressure variable, sales from foreign operations, or transactions to special parties and independent audit committees for the opportunity variable. Upcoming studies could also consider combining several proxy variables to identify each element instead of using a single proxy variable. Next, since this study uses panel data of listed companies in Malaysia, future studies could incorporate a matched-pair sample by identifying specific fraud cases such as those in the list of PN17 issued by Bursa Malaysia for financially distressed companies. This approach might provide a better indicator of fraudulent financial reporting in Malaysia, leading to more appropriate and efficient solutions to minimise fraud cases.

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