DETECTION OF FRAUDULENT FINANCIAL REPORTING USING RATIO ANALYSIS

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ABSTRACT

The main objective of this analysis was to examine the uses of financial ratios as a tool for detecting fraud in financial reporting. This study examines the annual reports of companies that have been reprimanded by the Securities Commission from 2000 to 2009 for submitting false or misleading information. Ratio-analysis was performed to see if fraudulent financial reporting were predictable or not. The ratios of leverage, profitability, efficiency, and liquidity with have been tested. This study uses trend analysis to figure out changes of more than 10% which may indicate the possibility of financial mismanagement as a change in the ratio of more than 10% annually can be seen as a sign of financial mismanagement. In conclusion, the findings show that signs of fraudulent financial reporting can be detected much earlier.

1.0 Introduction

Preparing a fraudulent financial report is a form of fraud that has a negative impact to the business, resulting in investors' mistrust, harm to reputation, and could be fined because it is a fraud under a Securities Commission Act 1993 (Ernst & Young, 2009). Fraudulent financial reporting is a concern for external auditors due to the potential for failure to identify financial reporting irregularities while at the same time undermining the reputation of external auditors due to public dissatisfaction. Fraudulent financial reporting usually takes the form of falsification of financial statements for the benefit of the business (Nia, 2015). The occurrence of fraudulent financial report can cause other forms of disruptions that can destroy the company, among which are disruption to business relationships, employee morale, long term firm reputation and branding (Price Water Coopers, 2003).

Mohamad Kamal, Md Salleh, and Ahmad, (2016) in his study shows that 82% of public listed companies prosecuted for false financial reporting by Securities Commission Malaysia were identified for manipulation of earnings and deception in financial statements during the fraud year before a public announcement. It is therefore very important to identify methods that can detect fraud and variance in the financial statements. If this trend of analysis is successful in detecting manipulation in the financial statements, it will be beneficial to the management of the company. They may use the method to verify whether the company's financial statements contain any deviations prior to being submitted to Bursa Malaysia in order to avoid potential future penalties or reactions.

The financial statement debacle, considered to be one of the most serious corporate issues, presents a major challenge to the positive growth and security of today's business climate. In Malaysia, prominent cases of fraud involving NasionCom Holdings Bhd, Megan Media Holdings Bhd and, Transmile Group Bhd have become a hallmark of financial statement fraud. All of these businesses were sued under Section 122 of the Securities Industry Act 1983 and the Securities Exchange Act 1993. The Securities Commission is qualified to investigate and to prosecute companies which do not comply with the laws and regulations on trade in Malaysia.

The famous Malaysian fraudulent financial reporting cases reported on the website of the Malaysian Securities Commission included the following companies: Megan Media Holdings Bhd., Mems Technology Berhad, Transmile Group Bhd., Axis Incorporation Berhad, Multi-Code Electronic Industries (M) Berhad, Mems Holdings Bhd, Polymate Holdings

Berhad and Silver Bird Berhad. Fraudulent reports of companies that resulted in a total misstatement worth billions of dollars (Mohamad Kamal, Md Salleh, & Ahmad, 2016). As a result, increased scams imply a strong need for research to find effective methods for detecting potential fraud within a company (Dalnial et al., 2014). The use of financial ratios is one way of detecting fraud in financial statements.

Previous studies by Zainudin and Hashim (2016) and Widyanti and Nuryatno (2018) have shown that financial leverage, asset composition, profitability and capital gains are significant predictors of financial fraud reports. A Malaysian case study by Azlina Rahim, Anita Jamil, and Zarinah Abdul Rasit (2004) using four accounting ratios (liquidity, profitability, gearing, and earnings per share) supported the value of the accounting ratios as a substantive tool. They looked at the use of accounting ratios as a prediction of the failure of 31 companies in the trading and services sector on the Main Board of Bursa Malaysia. The study found that all four ratios were capable of predicting the failure of companies in the commercial and service industries in Malaysia.

Accordingly, this study examines companies that were reprimanded by the Securities Commission from 2000 to 2009 for providing false or misleading information. The objectives of this study are (1) to examine the financial ratios used in the analysis of financial statements, (2) to examine whether financial ratios are capable of detecting false financial reporting.

Ratio-analysis was conducted in this study to see whether or not fraudulent financial reporting could be predictable. The nine financial ratios used are adapted from Spathis (2002):

Table 1. *Spathis (2002) Nine Financial Ratios*

Key Ratios	Formula	Purpose
Sales to Total Asset Ratio	Sales/Total Assets	Revenues and receivables are the most common accounts that are manipulated when committing financial statements fraud. Increased revenue normally leads to an increase in receivables.
Account Receivable to Sales Ratio	Receivable/Sales	
Net Profit Margin	Net Profit/Sales	These ratios will be used because the profit margins assess the profitability of the company. A high profit margin attracts investors to a company. Management is therefore more likely to misstate the financial statements in order to increase the demand for the company's share capital.
Net Profit to Total Asset Ratio	Net Profit/Total Assets	
Gross Profit to Total Asset Ratio	Gross Profit/Total Assets	
Inventories to Sales Ratio	Inventories/Sales	This is because inventories may be manipulated by management to strengthen the financial position of the company.
Working Capital to Total Asset Ratio	Working Capital/Total Assets	This ratio will be used as companies with relatively low working capital may face liquidity difficulties.
Debt Percentage	Total Liabilities/Total Assets	These ratios will be used because a high debt structure may increase the likelihood of fraud in financial reporting. Once they have been confronted with profitability problems, companies can start borrowing money; thus, increasing their debt.
Debt to Equity Ratio	Total Liabilities/Shareholders' Equity	

2.0 Literature Review

Financial ratios are used by accountants and analysts to predict future financial variables and by researchers for predictive purposes. Financial ratios include the establishment of a relevant financial relationship between the components of the financial statements for further investigation (Barnes, 1987). All the financial ratios study by Spathis (2002) have significant relationships with fraudulent financial statements except for Gross Profit-to-Assets ratio, percentage of Inventory-to-Total Assets. Its means that financial ratios can explain the occurrence of fraudulent financial statement (Mohd Dani, Wan Ismail, & Kamarudin, 2013).

The study by Dalnial et al., (2014) have shown that financial ratios can be a tool for detecting fraudulent financial reports. In his study, total debt to total asset ratio was found to have a significant difference in the mean result which shows a higher leverage for fraudulent firms. The leverage ratio of total debt to total equity is a significant predictor of fraud detection, this ratio indicates that companies with higher debt-to-equity ratios would be a good indicator for fraudulent firms. It also means that companies with high total debt to total equity valuation are more likely to be listed as fraudulent firms (Dalnial et al., 2014; Spathis, 2002).

The negative financial performance is a key motivating factor for fraud (Ozcan, 2016). Ozcan (2016) study indicates that companies with higher liquidity levels are more likely to issue fraudulent financial statements. Izzalqurny, Subroto, & Ghofar, (2019) also stated that liquidity has a negative effect on the risk of financial statements fraud. Profitability does positively affect the risk of fraud in financial statements (Izzalqurny, Subroto, & Ghofar, 2019; Repousis, 2016)). While studies by Zainudin and Hashim (2016); Lisic, et al. (2014); and Dalnial, et al. (2014) stated that profitability ratio has negative affect on fraudulent financial reporting.

3.0 Methodology

The population of this study is the list of companies charged with providing misleading information, which is taken from the SC website (www.sc.com.my) under the enforcement section. There are several enforcement actions taken by the Securities Commission from 2000 to 2009 under the Securities Commission. This study is carried out by compiling secondary data from the Malaysian Stock Exchange Market, Thomson One Banker and the Malaysian Company Commissioner for 26 company samples. The data collected for each selected case study shall be in the form of a financial statement of five years prior to the date of submission of false or misleading information.

According to Rosplock (1997), when detecting inconsistencies in financial reporting, it should depend on the ability and experience of the auditor and financial analyst because the inconsistencies in financial reporting ratios are subjective. He also stated that financial irregularities occur when the company shows a dramatic increase / decrease in the analysis of its ratio trends. These financial irregularities were measured if the company showed any changes that amounted to more than 10% in its trend analysis.

4.0 Results and Discussion

Using the ratio change benchmark, this study defines the change ratio where, if the change ratio is greater than 10%, it will be marked as 1. On the other hand, if less than 10% is marked as 0. These changes were classified into two groups, the early period and the year in which the fraud occurred as stated in the Securities Commission enforcement section. The early period of the study is defined as changes that occur prior to the year of fraud. Whereas, the year in which the fraud was committed refers to the changes that occurred in the last year prior to the year in which the fraud occurred. Refer to Figure 1 below.
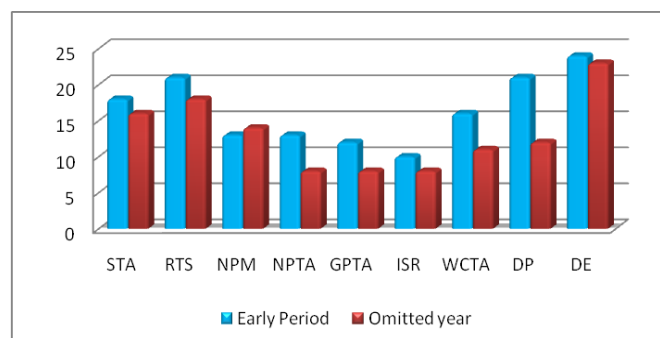

Figure 1. Comparison between the numbers of companies that showed drastic changes in each ratio between the early period and the year(s) omitted.

Figure 1 shows a comparison between the number of companies that have radically changed according to the ratios between the two groups. It has been found that the number of companies in each ratio is slightly the same. In the early year period, however, the trend of change was slightly higher than that of the year(s) that was / were omitted due to changes observed over more than two years. However, the dramatic changes in NPM have been found to be higher for the year of omission than for the early period. The DE ratio shows the highest number of companies in both groups. This indicates that the companies involved tend to increase their debts dramatically in their early business period and also in the fraud year(s). In the meantime, the ISR ratios show the lowest numbers for companies in both groups. The trends which show that the ratios have been manipulated by the companies in both groups are slightly similar.

Table 2. *Changes in Ratios of Companies*

	STA	RTS	NPM	NPTA	GPTA	ISR	WCTA	DP	DE	Total
Ocean	1	0	0	1	1	0	1	1	1	6
Polymate	0	1	0	0	0	1	0	0	1	3
Goh Ban Huat	0	1	1	0	1	1	0	1	1	6
Welli	1	0	0	1	0	1	1	1	1	6
Megan	1	1	0	0	0	0	0	1	1	4
Talam	0	1	0	0	0	1	0	0	1	3
Transmile	1	1	1	1	1	0	1	1	1	8
United U-li	1	0	0	1	1	0	1	1	0	5
Multi-code	1	0	0	0	0	0	0	0	0	1
Mems	1	1	1	1	0	0	0	1	1	6
Oil Corp	0	1	0	0	0	1	1	1	1	5
Satang	1	1	0	0	0	0	0	0	1	3
Pilecon	0	1	1	0	0	0	1	1	1	5
Chase	0	1	1	0	0	0	0	1	1	4
Gen-soil	1	1	1	1	1	1	1	1	1	9
Seal	1	1	1	1	1	1	1	1	1	9
Tat Sang	1	1	0	0	1	1	1	1	1	7
Chin Foh	1	0	0	0	0	0	0	1	1	3
Nasioncom	1	1	1	1	1	0	1	1	1	8
Ganad	1	1	0	0	1	0	1	1	1	6
Wembley	0	1	1	1	0	1	1	0	1	6
Hospitech	1	1	0	0	1	1	0	1	1	6
Omega	1	1	1	1	1	0	1	1	1	8
AKI	1	1	1	1	0	0	1	1	1	7
GP Ocean	1	1	1	1	1	0	1	1	1	8
Idris	0	1	1	1	0	0	1	1	1	6
	18	21	13	13	12	10	16	21	24	

* DE(Debt to equity), DP(Debt percentage), GPTA(Gross profit to total asset ratio), ISR(inventory to sales), NPM(Net profit margin), NPTA(Net profit to total asset ratio), RTS(to sales ratio), STA(Sales to total asset ratio), WCTA(Working capital to total asset ratio).

After the coding was processed, it was found that all 26 companies had more than 10% change in at least one ratio for both groups of categories: the initial period and the year of fraud. Consequently, this shows consistency in the signs leading to fraudulent actions for each company analysed.
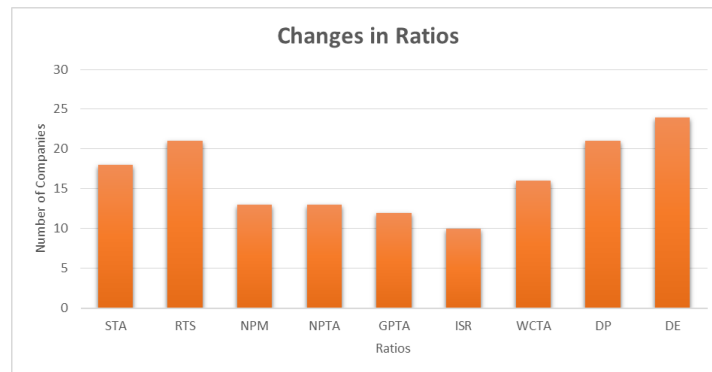

Figure 2. Number of companies that have drastically changes in ratios

Figure 2 shows the changes of the ratio and the analysis shows the most common ratio showing signs of financial irregularities are the debt-to-equity ratios, which is roughly 24 out of 26. Furthermore, the inventory-to-sales ratio is the least common, affecting just 10 companies out of 26 businesses. This could be due to the fact that some of these firms do not have an inventory of their operations. Figure 1 shows the number of businesses that have radically changed in each of their ratios.

This indicates that the companies involved tend to increase their debts dramatically in their early business period and also in the fraud year(s). In the meantime, the inventory-to-sale ratios reveal the lowest numbers for companies and the patterns which show that the ratios have been manipulated by the companies are slightly similar. It was found that most of the companies that had been reprimanded by the securities commission were new companies and those that had submitted a proposal to be listed on the Malaysian stock market. Overall, the following can be summarized from the findings:

1. The red flag at the beginning of the fraud can be found in the nine ratios used in this report.
2. Companies who tend to make dramatic changes to their financial ratios early in their business operations will find it difficult to cover losses and costs in the coming years, resulting in more debt and potentially financial dishonest reporting or any illegitimate business action to ensure their continued success.
3. Incorrect red flags in financial management can be found by the Stock Exchange of Malaysia and the Securities Commission in the early days of the company when they submitted their application for a public listing.

4.0 Conclusion

This research examines the effect of financial ratios on fraudulent financial reporting. The companies involved tend to increase their debts dramatically in their early business period and in the fraud year(s) as well. The amount owed to the total assets is acknowledged before it has an impact on fraudulent financial reporting. The profitability of the net profit on the income is accepted in such a way that the profit has an impact on the reporting of counterfeit finance.

The current assets in the total assets is denied until it is no effect on fraudulent financial reporting. The debtor's income is denied until it is has no effect on fraudulent financial reporting. The inventory of the total assets is rejected in such a way that the efficiency ratios does not have any bearing on false financial reporting. Liquidity with working capital is deducted from total assets so that liquidity does not affect false financial reporting.

Based on the analysis, it can be concluded that financial ratios can be used to detect false financial information provided by companies or organizations. In fact, the companies reprimanded by the securities commission have shown a trend of deviation in at least one of the nine ratios used. The financial ratio of all firms are capable of showing the inconsistency of the patterns in the businesses reprimanded by securities commission. Nevertheless, the effects of the financial ratio, together with tools and techniques or instruments, need to be evaluated in order to produce accurate results.

It was also found that the financial ratio and the inconsistency of the financial statement were shown in the previous period. Many businesses have reported irregularities even in the earlier period, i.e. five years prior to the year of fraud charges.

It is suggested that fraudulent financial reporting may be detected even at a much earlier stage if a thorough investigation has been carried out into the submission of each financial statement-related report. The symptom of an overstatement of sales and an increase in debt was shown in the earlier period. The business tends to increase the debts which show that the company has a liquidity problem and may also mean that the companies may also be under pressure to maintain profitability.

Those companies that tend to make dramatic changes to their financial ratios in the early stages of their business operations will find it difficult to cover losses and expenditure in the years to come, which will cause them to spiral into more debt and finally into fraudulent financial reporting or any illegal business act to ensure the survival of their business and the maintenance of their business image. The other factor that has been skewed, which relates to income, is increasing the value of the accounts receivable. Accounts receivable may be used to mask fake income. This study shows that the increase in the sales to total asset ratio is associated with the rise in receivable accounts.

This study provides potential future work that can be used to establish and financial statement review method in the Malaysian scenario. The results obtained will serve as a guide for organizations involved in decision-making on the basis of financial statement research.

This study may serve as a reminder to the securities commission that a thorough investigation should be conducted for each report submitted to the securities commission in relation to the financial statements. The Securities Commission regulators need to carry out a thorough investigation by comparing the information produced in the prospectus with that submitted to Commissioner of Companies Malaysia. This further emphasizes the need for SC to individually investigate the financial statement submitted to the Commissioner of Companies Malaysia by the subsidiary companies. It may indicate a red flag for the practice of fraudulent financial report.

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