

## DETECTION OF FRAUD INDICATIONS IN FINANCIAL STATEMENTS USING FINANCIAL SHENANIGANS

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### ABSTRACT

*This study aims to empirically test the detection of indications of financial statement fraud based on financial shenanigans. Financial shenanigans are proxied by the growth in days' sales outstanding, cash flow from operating divided by net income, and accounts receivable divided by sales. Indication of financial statement fraud is proxied by the F-Score model. This research was conducted at oil and gas companies in Indonesia and Malaysia. Hypothesis testing used multiple linear regression analysis. The test was carried out in three steps, namely testing on Indonesia and Malaysia, Indonesia, and Malaysia. The results of this study found evidence that the growth of the days' sales outstanding is significant to the indication of financial statement fraud in Malaysia. Another result is that the growth in a collection period, cash flow from operating divided by net income, and accounts receivable divided by sales is not significant if tested separately for Indonesia and Malaysia and Indonesia.*

*Keyword: Financial Shenanigans, F-score Model, Financial Report Fraud Detection, Indonesia and Malaysia.*

### 1. INTRODUCTION

The phenomenon of fraud in the Asia-Pacific region is quite large. One survey conducted by the Association of Certified Fraud Examiners (ACFE) issued a special report for the Asia-Pacific region. In 2018 financial statement fraud had an incidence rate of 13% with a loss of \$ 700,000 (ACFE, 2018) and has increased in 2020 by a percentage of 14% with a very large loss of \$ 3,000,000 (ACFE, 2020b). The method used to combat financial reporting fraud that is often used in the Asia-Pacific region is by external auditing financial statements (ACFE, 2018, 2020b). This indicates that there is a serious problem in detecting indications of fraudulent financial reporting by external auditors. Having problems with auditors will directly affect monitoring and investment policies undertaken by investors.

The detection commonly used is Beneish M-Score (Beneish, 1999; Tarjo and Herawati, 2015; Repousis, 2016), F-Score (Dechow et al., 2011, 2013), Z-Score (Mavengere, 2015) and financial ratios (Persons, 1995; Spathis, 2002; Spathis, Doumpos and Zopounidis, 2002; Kaminski, Wetzel and Guan, 2004). Some studies also use fraud theory such as fraud triangle (Pras Maulida, 2016), fraud diamond (Omukaga, 2020), and fraud pentagon (Setiawati and Baningrum, 2018). Here are some examples of how to detect indications of financial statement fraud that are often used so that the same method will never work to combat financial statement fraud. There needs to be a different approach to carry out a more effective and efficient detection. Zhou and Kapoor (2011), suggest the use of detection using the financial shenanigans approach

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that is applied using data mining with the regression method, because it is considered effective and efficient. Some studies also take advantage of detection based on financial shenanigans such as (Goel, 2013) which utilizes the ratio of earnings quality, income quality, Beneish M-Score, and discretionary accruals based on financial shenanigans to detect indications of fraudulent financial statements. There is also research being done Mohammed *et al.* (2015), who conducted a survey based on 7 techniques in financial shenanigans. Even (Buljubasic and Halilbegovic, 2017; Hasan *et al.*, 2017) found three financial shenanigans techniques no.1, 2, and 3 in the Beneish M-Score.

This study will follow up on previous research by directly using the existing red flag financial shenanigans. In financial shenanigans, there is a section discussing the earning manipulation shenanigans no.1. The detection based on earning manipulation shenanigans no.1 was chosen because it is a technique often used by management (Mohammed, Salih, and Inguva, 2015). This research will proxied the existing red flag with a ratio so that it can be used to perform data mining with a regression approach.

Earning manipulation shenanigans itself is one part of financial shenanigans (Schilit, 2010, 2018). Earning manipulation shenanigans No.1 or it could be called revenue recognition immediately discusses techniques for how country management may recognize income. This happened because of tremendous pressure from investors on the stock exchange (Schilit, 2010, 2018). Management can take advantage of this technique to boost revenue and profit in one step (Schilit, 2010, 2018).

Schilit (2010, 2018), recommends three ratios that can detect indications of fraudulent financial statements in financial shenanigans. The three ratios are the growth in Days' Sales Outstanding, cash flow from operating divided by net income, and accounts receivable divided by sales.

Some studies also disagree with which ratio recommendations are from (Schilit, 2010, 2018). (Carpenter, Durtschi, and Gaynor, 2011; Gorczynska, 2011) disagree with the growth ratio of the billing period because it is considered not an important ratio for the company and as long as the method is used correctly there will be no fraud. Gaol and Indriani (2019), also disagree with the ratio of cash flow from operating divided by net income because they cannot find evidence in their research. As well as with (Spathis, 2002; Kirkos *et al.*, 2007; Somayyeh, 2015) disagree with the ratio of accounts receivable divided by sales as a detection tool.

On the other hand, some researchers also agree with the recommendation from (Schilit, 2010, 2018), as (Grove and Basilico, 2011; Goel, 2013) agree that cash flow from operating divided by net income can be used as a detection tool. Other than that, (Dalnial *et al.*, 2014a, 2014b; Kanapickienė and Grundienė, 2015), agree with the ratio of accounts receivable divided by sales. The growth in days' sales outstanding is a renewal of the ratio that has existed and has not been found to prove its correctness because the ratio is usually ignored.

The first hypothesis of this study is the growth in days' sales outstanding can detect indications of fraudulent financial statements because (Schilit, 2010, 2018) finds a red flag on the speed of the billing period. If the speed of the collection period is faster than the previous period or quarter then the management is trying to speed up revenue by force in an unjustified way, this is a bad thing for the company. So that using this ratio can see the redflag.

The second hypothesis is that the ratio of cash flow from operating divided by net income can detect indications of financial statement fraud. Schilit (2010), confirms that a red flag occurs when there is a large gap between cash flow from operating and net income. This indicates that management is manipulating net income to increase rapidly but does not see what will result from the policy so that cash flow

from operating lag behind net income. This ratio usage is expected to detect indications of fraudulent financial statements.

The third hypothesis is that the ratio of accounts receivable divided by sales can detect indications of fraudulent financial statements. Because when management forces collection of long-term receivables, it will accelerate the speed of the receivables but instead cause sales to lag behind the receivables, this is a redflag (Schilit, 2010). By using this ratio, investors and auditors can estimate the speed and oddity of accounts receivable and sales.

Gap research in this study is the direct use of red flag ratios in immediate financial shenanigans which is still rarely done. Several studies that have been conducted have not focused directly on every red flag in financial shenanigans. Also the use of the growth ratio of the billing period as a detection tool was rarely found before. And there is still some debate about the appropriateness of these ratios. This study also compares financial shenanigans between Indonesia and Malaysia which is more effective and appropriate.

Methods with a quantitative approach were used in this study. Multiple linear regression analysis was used to answer the hypothesis. SPSS 23 as a statistical tool was used in this study. Financial shenanigans were proxied by the ratio of the growth in days' sales outstanding (Schilit, 2010, 2018), cash flow from operating divided by net income (Schilit, 2010; Grove and Basilico, 2011; Goel, 2013), and the ratio of accounts receivable divided by sales (Schilit, 2010; Dalnial et al., 2014a, 2014b; Kanapickienė and Grundienė, 2015). The indication of financial report fraud was proxied by the F-Score (Dechow et al., 2011). This research was conducted at oil and gas companies which are one of the sub-sectors of the mining industry. Mining companies themselves suffered the biggest losses due to fraud (ACFE, 2020a), Indonesia, and Malaysia were chosen because they are part of the Asia-Pacific region. Also in Indonesia, there were 29 cases (number 3 being the largest) and Malaysia with 14

cases (number 6) therefore it was suitable to be the object of research. This research also conducted gradual testing starting from Indonesia, and Malaysia, Indonesia and Malaysia separately.

The results of this study are expected to predict indications of fraudulent financial statements, especially by using the growth in days' sales outstanding (Schilit, 2010, 2018). The research contribution is becoming additional literature for the research which uses financial shenanigans and detection. Also this study would provide empirical evidence as well as detection recommendations to investors and especially to external and internal auditors. And finally, this research is expected to open up research opportunities for future researchers.

## 2. LITERATURE REVIEW AND HYPOTHESIS

### Fraud Triangle

The pressure factor mentioned in the fraud triangle is a major factor in the occurrence of fraudulent financial statements in this study. Pressure from outside made management commit fraud. With this pressure, management was forced to commit fraud on several accounts such as receivables which were used to boost revenue.

Accounts receivable is the main actor in detection using financial shenanigans. Starting from the speed of collection of accounts receivable, boosting net income to damage cash flow from operating which causes receivables to be faster than sales. Only by utilizing receivables management can make investors happy and the company profits high. Apart from accounts receivable, management can also use net income to commit fraud.

### Financial Shenanigans

Immediate income recognition is one of the techniques of the seven subsections in financial shenanigans. Immediate income recognition consists of several other techniques. The techniques involved in revenue recognition are recording revenue before completing any obligations,

recording revenue long before the contract is completed, recording revenue before the buyer's final acceptance of the product, and recording revenue when the buyer's payment remains uncertain or unnecessary. All ratios used in this study are included in the technique of recording income long before the contract is completed (Schilit, 2010, 2018).

### **Hypothesis Development Growth Ratio in Days' Sales Outstanding and Indication of Financial Statement Fraud**

Accounts receivable collection speed depends on how the policy is taken by management or it could also depend on how long the buyer will pay the receivables. The problem is when management is under pressure from investors who always target high profits, so that management enforces collateral to collect it quickly.

The unreasonable speed of collection created suspicion for investors. So investors have to check whether the company's profit is correct or not. One way of looking at it is that investors pay attention to the collection period. If the speed of each period or quarter is getting faster, this indicates that management is collecting accounts receivable quickly. This is a red flag (Schilit, 2010, 2018). By looking at the growth ratio of the billing period, investors can find out whether there is a problem or not in the company's financial statements. From these arguments, the first hypothesis of this study is:

H1: The Growth Ratio in Days' Sales Outstanding has a Significant Effect on Indications of Financial Statement Fraud

### **The Ratio of Cash flow from operating to Nett Income and Indications of Financial Statement Fraud**

Management is also under pressure when it comes to reporting stable profits. Problems arise when the company is unstable. So that management takes advantage of various ways to increase company profits to remain stable. Management may manipulate net income to keep it stable.

Schilit (2010), already said that this manipulation of net income would leave an imprint on cash flow from operating. Because manipulation of net income will cause a gap between cash flow from operating and net income, the company has indicated a red flag that the company has committed fraud. By using the ratio of cash flow from operating divided by net income, investors can see the oddities in cash flow and net income.

Several other studies have proven that cash flow from operating divided by net income has a significant effect on indications of fraudulent financial statements (Grove and Basilico, 2011; Goel, 2013). With these supporting arguments and research, the second hypothesis in this study is:

H2: The ratio of cash flow from operating to net income has a significant effect on indications of financial statement fraud

### **Accounts Receivables to Sales Ratio and Indications of Fraudulent Financial Statements**

The build-up of long-term accounts and bad debts are highly discouraged by investors. Due to the uncertainty, these receivables are collectible. With this accumulation of accounts receivable, management is also pressed to collect the accumulated receivables (Schilit, 2010).

The problem arises when the collection is as random as possible on long-term receivables that should have been billed for more than one period but were charged prematurely. This will cause problems with accounts receivable speed being faster than sales. (Schilit, 2010) explains that red flag occurs when accounts receivable are faster than sales.

The ratio of accounts receivable divided by sales has also received approval from several studies which found evidence that the ratio of accounts receivable divided by sales has a significant effect on indications of fraudulent financial statements (Dalnial *et al.*, 2014a, 2014b; Kanapickienė and Grundienė, 2015). With these supporting

arguments and research, the second hypothesis in this study is: H3 : Accounts Receivables to Sales Ratio has a significant effect on indications of financial statement fraud:

H3: Accounts Receivables to Sales Ratio has a significant effect on indications of financial statement fraud

### 3. METHODS

This study used a sample of the financial statements of oil and gas companies in Indonesia and Malaysia. The sample collection technique used purposive sampling with the criteria (1) the company was directly involved in mining upstream or downstream oil and gas, (2) provided financial reports during the study period, (3) provided the required ratio data. Financial shenanigans are proxied by three ratios, namely the ratio of the growth in days' sales outstanding (Schilit, 2010, 2018), cash flow from operating divided by net income (Schilit, 2010; Grove and Basilico, 2011; Goel, 2013), and the ratio of accounts receivable divided by sales (Schilit, 2010; Dalnial et al., 2014a, 2014b; Kanapickienė and Grundienė, 2015). The indication of financial report fraud was proxied by the F-Score (Dechow et al., 2011). This study would be divided into three discussion segments, namely the detection of indications of report fraud (1) Indonesia and Malaysia, (2) Indonesia, and (3) Malaysia. Multiple linear analyses was used to answer the hypothesis which was operated using SPSS 23. The model proposed to answer the hypothesis was:

$$F_{it} = \beta_0 + \beta_1 DSOG + \beta_2 CFFONI + \beta_3 ARSAL$$

Where F was the value of the F-Score, DSOG was the growth in days' sales outstanding, CFFONI was cash flow from operating divided by net income, and ARSAL was accounts receivable divided by sales.

#### Variable Measurement

##### F-Score

The dependent variable in this study is an indication of financial report fraud which is proxied by the F-Score (Dechow et al.,

2011). F-Score is the sum of accrual quality and financial performance. To calculate the F-Score is as follows:

F-Score = Accrual Quality + Financial Performance

$$AccrualQuality = \frac{WC + NCO + FIN}{AverageTotalAsset}$$

Financial Performance = Change in Receivable + Change in Cashsales + Change in Earnings.

##### DSOG

DSOG is based on (Schilit, 2010: 51; 2018). This ratio is used to see how many days it takes for the receivables to be collected. The formula used is as follows:

$$DSOG = \frac{DSO_t - DSO_{t-1}}{DSO_{t-1}}$$

$$DSO = \frac{Endingreceivables}{Revenue} \times 365$$

##### CFFONI

CFFONI is based on (Grove and Basilico, 2011; Goel, 2013; Schilit, 2010:53). This ratio is used to see the growth between operating cash flow and net income. The formula used is as follows:

$$CFFONI = CFFO / NI$$

##### ARSAL

ARSAL is based on (Dalnial et al., 2014a, 2014b; Kanapickienė and Grundienė, 2015; Schilit, 2010: 54; 2018). This ratio is used to see the speed between accounts receivable and sales. The formula used is as follows: ARSAL = Accounts Receivable / Sales

### 4. RESULT AND DISCUSSION

The research sample used was 110 samples. The company chosen is a mining company that focuses on drilling upstream and downstream oil and gas. The total population of companies that drill upstream and downstream oil and gas is 17 companies. Furthermore, adjustments and eliminations were made according to the predetermined criteria so that 11 companies were selected, consisting of 7

Figure 1. **Research Sample**

Oil and gas company population	Total
Population	17
Purposive Sampling	11
Indonesia (10 years)	70
Malaysia (10 years)	40
	110

Source: Processed Data, 2020

Figure 2. **Descriptive Statistics**

Variable	Sample	Min	Max	Mean	SD
DSOG	110	-3,1789	25,7457	0,1972	2,5332
CFFONI	110	-11,3048	5,0182	0,9974	1,9386
ARSAL	110	-0,2977	1,9280	0,3881	0,4402
F-SCORE	110	-4,7743	8,9427	1,2909	1,7531

Source: Processed Data, 2020

companies in Indonesia and 4 in Malaysia. Look at Figure 1.

### Descriptive Statistics

This descriptive statistic contains the minimum, maximum, mean, and standard deviation values. Figure 2, shows that the DSOG value has a minimum value of -3.1789 with a maximum value of 25.7457 and the mean and standard deviation values are 0.1972 and 2.5332, respectively. CFFONI minimum value -11.3048 with a maximum value of 5.0182 and for the mean and standard deviation, respectively 0.9974 and 1.9386. ARSAL minimum value is -0.2977 with a maximum value of 1.9280 and for the mean and standard deviation of 0.3881 and 0.4402, respectively. The minimum F-Score is -4.7743 with a maximum value of 8.9427 and the mean and standard deviation values are 1.2909 and 1.7531, respectively.

### Multiple Linear Regression Analysis

Multiple linear analysis would be tested with a predetermined and tested model starting from Indonesia and Malaysia, Indonesia, and Malaysia respectively. The data are attached as follows:

Figure 3, explains the results of multiple linear regression tests for Indonesia

and Malaysia. It can be seen in the table that all proposed ratios are all rejected. DSOG with a significance value of 0.306, CFFONI with 0.255, and ARSAL with 0.799. All significance is greater than 0.05 meaning that the hypothesis is rejected. This indicates that indications of financial statement fraud cannot be detected using financial shenanigans.

The results of Figure 4, which focus on oil and gas companies in Indonesia are also rejected. The significance of DSOG = 0.490, CFFONI = 0.498, and ARSAL = 0.642. All significance values are greater than 0.05, meaning that all of the hypotheses are rejected for oil and gas companies in Indonesia.

Good results are shown in Figure 5 in Malaysia. These results indicate that Malaysia can use the DSOG ratio to detect indications of fraudulent financial statements. This shows amazing results for this study. The DSOG significance value of  $0.000 < 0.05$  means that the first hypothesis can be accepted.

### Discussion

We finally found a result that is in line with the expectation of this study that the ratio is directly recommended by financial shenanigans (Schilit, 2010, 2018)

Figure 3. **Indonesia and Malaysia**

Variable	t	Sig	Conclusion
DSOG	-1,028	0,306	<b>Rejected</b>
CFFONI	1,143	0,255	<b>Rejected</b>
ARSAL	0,255	0,799	<b>Rejected</b>

Source: Processed Data, 2020

Figure 4. **Indonesia**

Variable	t	Sig	Conclusion
DSOG	-0,695	0,490	<b>Rejected</b>
CFFONI	0,681	0,498	<b>Rejected</b>
ARSAL	0,467	0,642	<b>Rejected</b>

Source: Processed Data, 2020

Figure 5. **Malaysia**

Variable	t	Sig	Conclusion
DSOG	-3,874	0,000	<b>Accepted</b>
CFFONI	-0,202	0,841	<b>Rejected</b>
ARSAL	-0,778	0,441	<b>Rejected</b>

Source: Processed Data, 2020

can be used even though it can only detect indications of fraud in Malaysia.

The first and second test results yielded unsatisfactory results. We've tested all three recommended ratios (Schilit, 2010, 2018) in both countries namely Indonesia and Malaysia and Indonesia separately. All results that have been tested are rejected. These results are by research estimates that rejects all of the research hypotheses such as those (Carpenter, Durtschi, and Gaynor, 2011; Gorczyńska, 2011) who reject the growth ratio in days' sales outstanding, (Gao and Indriani, 2019) who reject the ratio of cash flow from operating divided by net income, and (Spathis, 2002; Kirkos, Spathis, and Manolopoulos, 2007; Somayyeh, 2015) who also reject the use of accounts receivable divided by sales ratio as a detection tool.

The results of the first and second tests show that in Indonesia and Malaysia there are no fraud problems caused by receivables. Although management is pressured by the stock exchange, management will not choose to manipulate

on the accounts receivable side. Accounts receivable was not chosen because it is an account that is considered frequently seen by investors and audited by auditors. Therefore, the company chooses another way to cheat.

Management also will not manipulate net income. Manipulation of net income is very risky, as it will leave an imprint on operating cash flows (Schilit, 2010). This is very dangerous for management and very easily found by investors and auditors who have a high level of precision. Operating cash flow is a part frequently seen by investors because it is an interesting thing and can see directly the cash inflows that affect the company's operating activities. (Schilit, 2010).

We finally found a bright light while testing in Malaysia separately. We find that DSOG has a significant effect on indications of financial statement fraud. With a significant value that is smaller than 0.05, even 0.001, it shows that DSOG can be used as a detection tool for indications of financial statement fraud. These results

indicate a problem with the policies applied by management in collecting accounts receivable. Exchange pressure has panicked management in Malaysia. Pressure will cause management to deliberately speed up the collection of accounts receivable from its customers. This is wrong and will create problems with the company's financial statements (Schilit, 2010, 2018). In addition to pressure, the factor of limited oil and gas resources in Malaysia has made oil and gas companies commit fraud in their financial reports by accelerating receivables to cover losses for the company and to achieve the target of the stock exchange.

This result is different from our previous test results which found that accounts receivable is not a suitable place to commit fraud. However, the pressure from the stock exchange and limited oil and gas resources make management have to take risks to continue producing pleasant financial reports for investors on the market. So that DSOG is suitable as a detection tool to detect indications of fraud at the speed of collecting accounts receivable.

The results of our third test are in line with the recommendation (Schilit, 2010) that DSOG can detect indications of financial statement fraud. These results provide empirical evidence that the DSOG in financial shenanigans can be used as a detection tool.

This result is also the same as predicted by Schilit (2018). In his latest issue Schilit (2018), he does not write about the ratio of operating cash flow divided by net income and receivables divided by sales but still writes DSOG. This indicates that DSOG is still often used for urgent situations, while other ratios are already known by investors and auditors, therefore the management is no longer using it.

Another result of the third test is that apart from DSOG it cannot be used as a detection tool. This is in line with the results of our first and second testing and other empirical research (Spathis, 2002; Kirkos, Spathis and Manolopoulos, 2007;

Somayyeh, 2015; Gaol and Indriani, 2019). Thus, there is the same problem between Malaysia and Indonesia that CFFONI and ARSAL cannot be used.

## 5. CONCLUSION

This study used three ratios based on the red flag which was presented in financial shenanigans. Furthermore, this research was conducted in Indonesia and Malaysia. By using a sample of 110 oil and gas companies that had passed purposive sampling and adjustment and elimination. Oil and gas companies were chosen because there were various problems caused by fraud. This study conducted a three-step test, by examining the ratios in the two countries, after which Indonesia and Malaysia separately. The results of the first and second tests found that Indonesia and Malaysia chose other ways to manipulate financial statements. They have not chosen accounts receivable and net income because they are easily recognized by investors and auditors. So that DSOG, CFFONI, and ARSAL could not detect indications of fraudulent financial statements even though they conducted direct testing on both countries and Indonesia separately. The third test results show that this study found evidence that DSOG can be used as a tool to detect indications of fraudulent financial statements in Malaysia. This is due to pressures and limited oil and gas resources in Malaysia so that to please the bourse, management accelerates receivables bills so that company profits will increase. The limitation of this study is that the sample used was still small and still focused on oil and gas companies. Also, the detection ratio still used financial shenanigans which discussed the shenanigans manipulation no.1 only and there are still six other techniques that are still included. Finally, the proxy for indications of financial statement fraud uses only one proxy. Suggestions for further can use of the mining sector as a whole so that it can increase the number of research samples as well. Furthermore, add more techniques

in shenanigans manipulation. Financial shenanigans and data mining are highly recommended to continue to be explored to add to the detection tools that have been used so far. Finally, for the proxy indication of financial report fraud, you can add the Beneish M-Score model and simultaneously compare it to the F-Score.

## REFERENCE

- ACFE (2018) 'Report To the Nations 2018 Global Study on Occupational Fraud and Abuse-Asia Pacific Edition', in *Association of Certified Fraud Examiners*.
- ACFE (2020a) '2020 Report to the Nations', *ACFE*, p. 88.
- ACFE (2020b) 'Report To the Nations 2020 Global Study on Occupational Fraud and Abuse-Asia Pacific Edition', in *Association of Certified Fraud Examiners*.
- Beneish, M. D. (1999) 'The Detection of Earnings Manipulation', *Financial Analysts Journal*, 5(June), pp. 24-36.
- Buljubasic, E. and Halilbegovic, S. (2017) 'Detection of Financial Statement Fraud Using Beneish Model', pp. 252-262. DOI: 10.14706/icesos178.
- Carpenter, T. D., Durtschi, C. and Gaynor, L. M. (2011) 'The incremental benefits of a forensic accounting course on skepticism and fraud-related judgments', *Issues in Accounting Education*, 26(1), pp. 1-21. DOI: 10.2308/iace.2011.26.1.1.
- Dalnial, H. et al. (2014a) 'Accountability in Financial Reporting: Detecting Fraudulent Firms', *Procedia - Social and Behavioral Sciences*, 145, pp. 61-69. DOI: 10.1016/j.sbspro.2014.06.011.
- Dalnial, H. et al. (2014b) 'Detecting Fraudulent Financial Reporting through Financial Statement Analysis', *Journal of Advanced Management Science*, 2(1), pp. 17-22. DOI: 10.12720/joams.2.1.17-22.
- Dechow, P. M. et al. (2011) 'Predicting Material Accounting Misstatements', *Contemporary Accounting Research*, 28(1), pp.17-82. DOI:10.1111/j.1911-3846.2010.01041.x.
- Dechow, P. M. et al. (2013) 'Do Financial Ratio Models Help Investors Better Predict and Interpret Significant Corporate Events ? \* By', *Australian Journal of Management*.
- Gaol, R. L. and Indriani, L. R. R. (2019) 'Pengaruh Rasio Arus Kas Terhadap Prediksi Kondisi Financial Distress pada Perusahaan Jasa Sektor Keuangan yang Terdaftar di Bursa Efek Indonesia', *JRAK*, 5(1), pp. 87-110.
- Goel, S. (2013) 'Decoding Gimmicks of Financial Shenanigans in Telecom Sector in India', *Journal of Accounting and Management Information Systems*, 12(1), pp. 118-131.
- Gorczyńska, M. (2011) 'Accounts Receivable Turnover Ratio. The Purpose of Analysis in Terms of Credit Policy Management', *Financial management of firms and financial institutions*, (September), pp. 1-7. Available at: [https://www.ekf.vsb.cz/export/sites/ekf/frpfi/cs/prispevky/prispevky\\_plne\\_verze/Gorczyńska.M.uprav.pdf](https://www.ekf.vsb.cz/export/sites/ekf/frpfi/cs/prispevky/prispevky_plne_verze/Gorczyńska.M.uprav.pdf).
- Grove, H. and Basilico, E. (2011) 'Major Financial Reporting Frauds of the 21st Century: Corporate and Risk Lessons Learned', *Journal of Forensic and Investigative Accounting*, 3(2), pp. 191-226.
- Hasan, M. S. et al. (2017) 'A cross-country study on manipulations in financial statements of listed companies Evidence from Asia', *Journal of Financial Crime*, 24(4), pp. 656-677. DOI: 10.1108/JFC-07-2016-0047.

- Kaminski, K. A., Wetzel, T. S., and Guan, L. (2004) 'Can financial ratios detect fraudulent financial reporting?', *Managerial Auditing Journal*, 19(1), pp. 15–28. DOI: 10.1108/02686900410509802.
- Kanapickienė, R. and Grundienė, Ž. (2015) 'The Model of Fraud Detection in Financial Statements by Using of Financial Ratios', *Procedia - Social and Behavioral Sciences*, 213, pp. 321–327. DOI: 10.1016/j.sbspro.2015.11.545.
- Kirkos, E., Spathis, C. and Manolopoulos, Y. (2007) 'Data Mining techniques for the detection of fraudulent financial statements', *Expert Systems with Applications*, 32(4), pp. 995–1003. DOI: 10.1016/j.eswa.2006.02.016.
- Mavengere, K. (2015) 'Predicting corporate bankruptcy and earnings manipulation using the Altman Z-score and Beneish M score. The case of a manufacturing firm in Zimbabwe. Author Details: Kudakwashe MAVENGERE-Lupane State University, Department of Accounting and Finance', (10), pp. 8–14.
- Mohammed, R., Salih, L. G. A. and Inguva, S. (2015) 'Evaluating Financial Evidences and Early Detection of Financial Shenanigans -A study on the United Arab Emirates', (April), pp. 0–10.
- Omukaga, K. O. (2020) 'Is the fraud diamond perspective valid in Kenya?', *Journal of Financial Crime*. DOI: 10.1108/JFC-11-2019-0141.
- Persons, O. S. (1995) 'Using financial statement data to identify FFS', *Journal of Applied Business Research*, pp. 38–46.
- Prasmaulida, S. (2016) 'Financial Statement Fraud Detection Using Perspective of Fraud Triangle Adopted By Sas No. 99', *Asia Pacific Fraud Journal*, 1(2), p. 317. DOI: 10.21532/apfj.001.16.01.02.24.
- Repousis, S. (2016) 'Using Beneish model to detect corporate financial statement fraud in Greece', *Journal of Financial Crime*, 23(4), pp. 1063–1073. DOI: 10.1108/JFC-11-2014-0055.
- Schilit, H. M. (2010) *Financial Shenanigans : How to detect accounting gimmicks and fraud in financial reports*, The McGraw-Hill Companies, Inc.
- Schilit, H. M. (2018) *Financial Shenanigans : How to Detect Accounting Gimmicks and Fraud in Financial Reports*, The McGraw-Hill Companies, Inc.
- Setiawati, E. and Baningrum, R. M. (2018) 'Deteksi Fraudulent Financial Reporting Menggunakan Analisis Fraud Pentagon : Studi Kasus Pada Perusahaan Manufaktur Yang Listed Di Bei Tahun 2014-2016', *Riset Akuntansi dan Keuangan Indonesia*, 3(2), pp. 91–106. DOI: 10.23917/reaksi.v3i2.6645.
- Somayyeh, H. N. (2015) 'Financial ratios between fraudulent and non-fraudulent firms: Evidence from Tehran Stock Exchange', *Journal of Accounting and Taxation*, 7(3), pp. 38–44. DOI: 10.5897/JAT2014.0166.
- Spathis, C., Doumpos, M. and Zopounidis, C. (2002) 'Detecting falsified financial statements: a comparative study using multicriteria analysis and multivariate statistical techniques', *European Accounting Review*, 11(3), pp. 509–535. DOI: 10.1080/0963818022000000966.

- Spathis, C. T. (2002) 'Detecting false financial statements using published data: some evidence from Greece', *Managerial Auditing Journal*, 17(4), pp. 179-191. DOI: 10.1108/02686900210424321.
- Zhou, W. and Kapoor, G. (2011) 'Detecting evolutionary financial statement fraud', *Decision Support Systems*. Elsevier B.V., 50(3), pp. 570-575. DOI: 10.1016/j.dss.2010.08.007.
- Tarjo and Herawati, N. (2015) 'Application of Beneish M-Score Models and Data Mining to Detect Financial Fraud', *Procedia - Social and Behavioral Sciences*. Elsevier B.V., 211(September), pp. 924-930. DOI: 10.1016/j.sbspro.2015.11.122.