THE METHOD OF BEHAVIOUR DETECTION ON MORAL HAZARD IN FINANCIAL STATEMENT

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Abstract

The purpose of this study is to detect fraud or moral hazard on the financial statements that prepared by the company. This research uses financial ratio analysis to detect financial fraud and moral hazard. Fundamental contribution of this study is on the detection of fraud in the financial statements in accordance with GAAP, so investors and external parties able to find any intentional distortion of financial statements of the company. In addition, the condition of this deviation can also be traced in relation to its influence on the financial performance of the company, and those who benefited from the fraud. In particular the contribution of research is to provide information on the occurrence of fraudulent financial reporting that occurred in several companies in Indonesia. This research provides empirical evidence on the effectiveness of financial ratio analysis to detect fraudulent financial reporting. In addition, the calculation of financial ratios is expected to be early detection of potential fraudulent financial reporting in any form. This study uses financial statement ratio analysis to detect financial fraud. The results showed of 23 financial ratios are used, only two liquidity ratios (current ratio) and profitability (ROE) which can be used to help determine that a company is likely to carry out fraud in the financial statements..

Keywords: Fraud financial, Financial statement, Financial ratio

Abstrak

Tujuan penelitian ini adalah mendeteksi adanya fraud atau morald hazard atas laporan keuangan yang disusun oleh perusahaan dengan menggunakan analisis rasio keuangan perusahaan. Kontribusi mendasar dari penelitian ini adalah pada pendeteksian fraud dalam laporan keuangan sesuai dengan PSAK, sehingga investor dan pihak eksternal mampu mengetahui adanya penyimpangan yang disengaja atas laporan keuangan perusahaan. Selain itu, kondisi penyimpangan ini juga dapat ditelusuri dalam kaitannya dengan pengaruhnya atas kinerja keuangan perusahaan, dan pihak-pihak yang diuntungkan dengan fraud tersebut. Secara khusus kontribusi penelitian adalah memberikan informasi mengenai terjadinya kecurangan pelaporan keuangan yang terjadi di beberapa perusahaan di Indonesia. Memberikan bukti secara empiris mengenai efektivitas analisis rasio keuangan untuk mendeteksi kecurangan pelaporan keuangan. Selain itu perhitungan rasio keuangan diharapkan dapat menjadi deteksi awal potensi terjadinya kecurangan pelaporan keuangan dalam bentuk apapun. Penelitian ini menggunakan analisis rasio laporan keuangan untuk mendeteksi fraud finansial. Hasil penelitian menunjukkan dari 23 rasio keuangan yang digunakan, hanya 2 rasio yaitu likuiditas (current ratio) dan profitabilitas (ROE) yang dapat digunakan untuk membantu menentukan bahwa suatu perusahaan terindikasi melakukan fraud dalam laporan keuangannya.

Kata kunci: *Fraud financial,* Laporan keuangan, Rasio keuangan.

1. Research Background

Complicated and complex system is applied in order to protect and avoid illegal m anipulation practice which normally done for the wealth of certain party without considering others (Skousen and Twedt, 2009). Although the system has been done, there are still parties who manipulate financial statement, including in Indonesia. However, many companies have not really paid attention on this issue.

Fraud in financial statement is an important social and economic problem. The national commission in *Fraudulent Financial Report in* United States of America has released the report in 1987. After that, fraud in financial statement becomes an important issue in society, especially for those who work as accountants. The developed issue is related to the level of fraud might happen, the possible ways to detect as early as possible, and the possible actions to decrease the possible fraud in financial statement (Cox and Weirich, 2002).

Fraud is defined by Bologna *et al*., (1993 : 3) as criminally fraud intended to give financial benefits to the parties who did manipulation. In this case, criminality shows that the fraud is a serious offense, dangerous and has negative impacts in the form of huge loss for the deceived parties. It surely gives benefits to those who do manipulation.

The study done by *Association of Certified Fraud Examiner* (ACFE) shows that companies experience 6% loss of the gross profit. In United States of America, the recorded annual cost of fraud reaches $400,000,000 per year (Reinstein and Weirich, 1999). The policy and internal control from the company are not enough to avoid fraud. In fact, the Committee of Sponsoring Organizing of the Treadway Commission (COSO) found in one of the studies that 72% fraud cases in financial statements involved top management or CEO (Cox and Weirich, 2002). This is possible due to the absent of commissioner councils and independent audit committee.

When the financial statement has been manipulated, the contained information is no longer valid as the company performance measurement. Fraud can be intentionally happened, which is called moral hazard or unintentionally mistakes in calculation, which is called error. Fraud is usually done intentionally with the purpose to deceive other parties who use that financial statement. For instance, it can be done by deleting some financial notes or creating fictitious transaction evidences. This kind of fraud is an action against PSAK-Pernyataan Standar Akuntasi Keuangan (Financial Accountancy Statement Standard) no 1 concerning the natural delivery, it is stated that "PSAK is for financial statement to be naturally delivered, both the financial performance position and cash flow, so the purpose of the financial statement can be achieved." It shows the importance of this issue to be solved as soon as possible, and also the information delivery on the ways to detect the existence of fraud in financial statement earlier.

Fraud in financial statement makes auditors work harder to improve the ability to detect the potential fraud in financial statement earlier. In Indonesia, only few companies pay closely attention in this issue, it can be seen from the limited number of literatures discussing about fraud in financial statement in Indonesia. In United States of America, this issue has become a great danger for majority of business men. However, quite large number of companies in Indonesia experience *financial distress* and it is possibly caused by fraud. COSO defines fraud in financial statement as the intentional behavior either through actions or omission which gives the material mistakes in financial statement (COSO, 2010).

The symptoms of fraud in financial statement is implicitly noticeable, it is because the evidence shows the fraud often indirectly appeared. The early possible

symptoms are the changing in behavior, the appearance of suspicious documents, and the complaint from creditors, investors or consumers, also the suspicious from the colleagues. That behavior and condition are usually called *red flag*, indicators of the fraud existence.

Karim and Siegel (1998) applied *signal detection theory* on external auditor problem in detecting fraud happened in management. This research examines the relationship between technology in audit, basic level of *fraud* management, the cost of error, auditor experience in *fraud* management, audit procedure and the possible risk happened before and during the implementation of audit. The result of the research shows that the effective of the performance will be maintained as long as the audit technology increases along with the increase in detecting *fraud* earlier. Meanwhile, Owusu *et al.*, (2002) did research to discover the level of effectiveness in detecting fraud out of 56 audit procedure standards applied in *stock and warehousing cycle*, identifying different audit perception in New Zealand concerning audit procedure standards in detecting *fraud*, and investigating the relative effect of four auditors and certain factors relating to the companies.

Different from the research did by Karim and Siegel (1998) and Owusu *et al.*, (2002), this research uses financial ratio to detect the existence of *fraud* in financial statement, just like the research did by Cox and Weirich (2002); Liou (2008) and Kaminski *et al.*, (2004). The ability of financial ratio to detect fraud is still questioned, so this research will compare financial ratio with different kinds of the available financial statements in the companies which experiencing *fraud* and those which are not experiencing *fraud*.

This research formulates several problems, the differences of financial ratio in company financial statement with *fraud* and without *fraud*. Either the differences show that the performance of company without *fraud* is better than with *fraud*.

2. Research Method

The research method used in this research is done in 2 ways; analysis technique with descriptive statistic analysis and causal-inferential statistic. This research uses financial statements data of go-public companies in Indonesia from the year 2005 until 2010. The arranged samples should have the certain criteria which can guarantee the validity of the data. The criteria are:

a. the complete audit financial statements are available during the analysis.

b. The companies did not de-listing during the research period.

c. The companies do not experience merger or acquisition during the research period.

Based on the data obtained, there are 833 samples of company year in BEI – Bursa Efek Indonesia (Indonesia Stock Exchange) in manufacture industry. Furthermore, this research prepares for steps to examine the data. Those steps are:

a. Identify companies who did fraud, based on the independent auditor appraisal, especially for go public companies in BEI (fraud companies list).

b. The financial ratio of fraud companies list (23 ratios) will be analyzed, so the competent financial ratio can be identified consistently and that can show the existence of fraud in that company.

c. Identify companies which are not indicated as fraud (non-fraud companies list).

d. The financial ratio of non-fraud companies list (23 ratios) will be analyzed, so the consistent of financial ratio at point 2 (ratio which can indicate fraud) can be noticeable.

e. Examine the difference of financial ratio between fraud and non-fraud. If the test shows the difference between fraud and non-fraud companies at the same ratio, it can be concluded that the ratio is able to indicate the existence of fraud.

f. Conduct the Logit regression test with dependent and that is the group of fraud and non- fraud, with the financial ratio which is able to indicate fraud. This is implemented to decide the research model which is able to predict the existence of fraud.

3. Result and Discussion
3.1. Descriptive Statistics

The further data are arranged by calculating the mean, standard deviation, maximum and minimum value. Outliers are also cleared by using the box plot and manual method with *rule of thumb* 3 times standard deviation. Table 1 shows the process of descriptive data.

Table 1. Descriptive Statistics

Variable	N	Min	Max	Mean	StDev
Current Ratio	794	0.003	20	2.623	3.822
Gross Profit Margin	772	0.003	1.658	0.329	0.236
ROA	664	-0.163	0.985	0.055	0.106
ROE	674	-0.515	0.994	0.103	0.169
Net Profit Margin	664	-0.752	2.292	0.110	0,215
Operating Profit Margin	720	-0.277	0.992	0.136	0.151
Valid N (listwise)	572				

Table 1 shows that there are 572 valid samples to be analyzed, because there are variables with unavailable data for certain years, but are available for other years. In this research, the data remain used and it will be ignored when it is processed using SPSS program. Each variable has different valid data. Total data available is 833 annual company data observation, with cross section and time series (pooling data), however, in general, the valid data is 572. *Current ratio* variable has the largest number of valid data and that is 794 data, followed by *gross profit* (772), *operating profit* (720), ROE (674), ROA (664) and *net profit* (664).

The minimum value of data is – 0.752 and that is *net profit* variable, with the biggest maximum value 2.292. Although the *net profit* range is large, the data of standard deviation is low, so the volatility of *net profit* data is not too high. Different from *current asset* data with the minimum value 0.0003 and maximum value is 20, standard deviation will be pulled to 20 and becomes 3.822. Current asset has the biggest standard deviation, it shows that the volatility of data is wide and is expected to have the better indicator.

The variance of gross profit data has small variance with the minimum value 0.003 and maximum value 1.658. However, the standard deviation value is high (the second highest) with 0.239. It shows that volatility value is high compared to range data. Gross profit variable could be hard to explain the fraud phenomenon using financial ratio. ROA and ROE generally has narrow variance and low standard deviation.

3.2. Normality test

Before the data is being processed with difference tests, the average independent samples of difference tests has to be tested before to determine the normality variable. Normality test uses *Kolmogorov Smirnov* with *Lilliefors Significance Correction* test. Another normality test is Shapiro-Wilk, which is conducted to support the result of *Kolmogorov Smirnov*.

Table 2. Normality Variable Test

Variable	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Current Ratio	0.271	572	0.00	0.509	572	0.00
Gross Profit Margin	0.128	572	0.00	0.915	572	0.00
Operating Profit Margin	0.153	572	0.00	0.840	572	0.00
ROA	0.298	572	0.00	0.531	572	0.00
ROE	0.264	572	0.00	0.643	572	0.00
Net Prof Margin	0.247	572	0.00	0.623	572	0.00

The result of normal test in table 2 shows that the degree of freedom is 575 (valid data), so all research variables are not normal because the significance is below 0.5%, either with *Kolmogorov-Smirnov* test or *Shapiro-Wilk* test. As it is required in parametric test, variables should be normal before they are tested in parametric, therefore, this research can not use parametric model. Furthermore, the variables which are not normal, will not be processed to make them normal, however, this research decides to use non-parametric test model to test the hypothesis.

3.3. Fraud and Non-Fraud Group Clarification

Before the difference test is conducted with Mann-Whitney and non-parametreic Kruskal-Walls, the data is processed based on the fraud and non-fraud groups. Fraud and non-fraud groups are based on the auditor opinion on financial report. Table 3 shows the statistic group based on fraud (0) and non-fraud (1). Table 3 shows that companies which practice fraud are less than those the ones that do not practice fraud (non-fraud).

The data is the observation year data, so there is the possibility that companies practiced fraud in the previous years, however, it can practice non-fraud in the following years and so on. Table 3 indicates that current ratio variable in fraud companies is lower (1.250) than non-fraud companies (2.662). However, gross profit, operating profit, ROA, ROE, and net profit variables show that fraud companies are relatively higher than non-fraud. This finding indicates that fraud companies are better in profitability compared to companies which do not practice fraud.

Table 3. Descriptive Statistics based on Fraud (0) and Non-Fraud Group (1)

Variable	Auditor Opinion	N	Mean	St.Dev	SE Mean
Current Ratio	0	22	1.250	2.222	0.474
	1	772	2.662	3.852	0.139
Gross Profit Margin	0	20	0.332	0.251	0.056
	1	752	0.329	0.236	0.009
Operating Profit Margin	0	10	0.199	0.232	0.073
	1	710	0.136	0.150	0.006
ROA	0	10	0.155	0.167	0.053
	1	654	0.053	0.104	0.004
ROE	0	13	0.293	0.227	0.063
	1	661	0.100	0.166	0.006
Net Prof Margin	0	9	0.172	0.131	0.044
	1	655	0.109	0.215	0.008

3.4. The difference test between two Independent Samples

Furthermore, the difference between fraud and non-fraud groups is tested as independent samples by using non-parametric Mann-Whitney and Kruskal-Wallis test.

Table 4. The difference test of Non-Parametric Mann-Whitney U

The Difference Test *)	Current Ratio	Gross Profit Margin	Operating Profit Margin	ROA	ROE	Net Profit Margin
Mann-Whitney U	4405.5	7380	2696.5	2559.5	2392.5	2148
Z	-3.852	-0.142	-1.307	-1.180	-2.739	-1.399
Sig. (2-tailed)	0.000	0.887	0.191	0.238	0.006	0.162

*) Group 0 for Fraud and 1 for Non-Fraud; Significance 0.01; 0.05 and 0.1.

Table 4 shows the difference test of two independent samples with non-parametric by using Mann-Whitney test. The result shows that there is different significance between fraud and non-fraud groups for *current ratio* variable with Z -3.852 and significance at 1%, and ROE with Z -2.739 and significance at 1%. Based on difference test, the two groups of auditor opinions have certainly difference in *current ratio* and ROE. Refer to Table 3, fraud companies have lower current ratio than non-fraud companies, however, in terms of profitability, fraud groups have higher profitability than non-fraud companies.

Table 5. The difference test of Non-Parametric Kruskal-Wallis

The Difference test*)	Current Ratio	Gross Profit Margin	Operating Profit Margin	ROA	ROE	Net Profit Margin
Chi-Square	14.842	0.020	1.708	1.393	7.501	1.957
Asymp. Sig.	0.000	0.887	0.191	0.238	0.006	0.162

*) Group 0 for Fraud and 1 for Non-Fraud; Significance 0.01; 0.05 and 0.1

Furthermore, this research tries to support the finding of non-parametric difference test of Mann-Whitney by adding Kruskal-Wallis difference test, which has the same capability with Mann-Whitney. The result of difference test of non-parametric Kruskal-Wallis is shown in Table 5. The test result of Kruskal-Wallis shows that the result with Mann-Whitney test is consistent, with two variables current ratio and ROE significantly different between fraud and non-fraud groups. The value of Chi-square current ratio is 14.842 with significance 1% and chi-square ROE 7.501 with significance 1%.

Fraud companies have current ratio 1.250, which is lower than non-fraud companies with current ratio 2.662 and it's proved to be significantly different. Meanwhile, ROE profitability ratio of fraud companies is 0.293, which is higher than non-fraud companies with 0.1 and it's proved to be significant.

3.5. The discussion of Research Result.

Based on the research result, this part will discuss about the result and conclude based on the data and the research findings. This research uses the basic of financial statement and test the hypothesis model by using non-parametric approach. Non-parametric test used after testing the data normality which tends to be not normal. Hypothesis tested are the two hypothesis :

H1 : Financial ratio from companies financial statements with fraud is different from the companies financial ratio without fraud.

H2 : Companies with fraud have liquid ratio performance and lower profitability than companies without fraud.

The test of H1 hypothesis shows that different financial ratio between fraud and non-fraud group is the liquid financial ratio (current ratio), and profitability ratio (ROE). This indicates that the existence of fraud depends on the financial ratio. For investors, liquid financial ratio (current ratio) and profitability (ROE) can be used to help in determining whether companies practice fraud in their financial statements or not. For government, the result can be used to indicates the initial time for companies practice fraud. However, this research has not been able to predict fraud before it happens, so many things can be done to prevent from happening.

H_2 hypothesis, which has argument that fraud companies have liquid ratio performance and profitability lower than non-fraud companies, is not proved in this research. Liquidity ratio shows that there is difference between fraud and non-fraud companies, and non-fraud companies have better liquidity compared to fraud companies. Non-parametric statistic test with Mann-Whitney and Kruskal-Wallis also shows the significant result. Besides being able to separate fraud and non-fraud companies, the liquidity ratio also shows that non-fraud companies have higher liquidity than fraud companies.

Profitability ratio shows the opposite result with H_2 hypothesis. Fraud companies have higher profitability compared to non-fraud companies, and it is proved statistically with non-parametric Mann-Whitney and Kruskal-Wallis. It shows that fraud is done in order to increase the profitability, so it directly increase the wealth of the shareholders and compensation management

4. Conclusion

Based on the research result and research hypothesis test, there are several conclusions related to output of the research. The conclusions of the research are :

a. Financial ratio, especially liquidity (current ratio) and profitability (ROE) are capable to be used for separating fraud and non-fraud companies.

b. The liquidity ratio of fraud companies is lower than non-fraud companies, It shows that this ratio can be used by investors, government, regulator, shareholders and companies to indicate the existence of fraud in companies financial statement.

c. The profitability ratio of fraud companies is higher than non-fraud companies. It also shows that this ratio can be used by investors, government, regulator, shareholders and companies to indicate the existence of fraud in financial statement. The result also indicates that fraud is intended to increase the profitability, so it directly increase the wealth of the shareholders and compensation management.

Based on the research output, this research shows that financial ratio (liquidity and profitability) is able to indicate fraud in PSAK companies in Indonesia and is also able to indicate fraud inside companies. Having of fraud and non-fraud groups and also tested them using quantitative analysis, it shows that financial statement, as stated in PSAK, is capable to separate between fraud and non-fraud groups.

This research gives new perceptions and issues in financial management research in relation to fraud, which is done by management for the interest of shareholders. The indication of H2 hypothesis test result shows that shareholders want high profit and management practice fraud with the purpose of higher compensation. This will increase the finance academics and researchers attention about fraud issues in financial statement.

References

Bologna J, Lindquist RJ, Wells. 1993. *The Accountant's Handbook of Fraud and Commercial Crime*. John Wiley & Sons Inc.

COSO. 2010. *Fraudulent Financial Reporting: 1998-2007*. An Analysis of U.S. Public Companies.

Cox R, Weirich T. 2002. The Stock Market Reaction to Fraudulent Financial Reporting. *Managerial Auditing Journal*. 17(7): 374 – 382.

Kaminski KA, Wetzel TA, dan Guan L. 2004. Can Financial Ratios Detect Fraudulent Financial Reporting?. *Managerial Auditing Journal*. 19(1): 15 – 28.

Karim KE, Siegel PH. 1998. A Signal Detection Theory Approach to Analyzing the Efficiency and Effectiveness of Auditing to Detect Management Fraud. *Managerial Auditing Journal*. 13 (6): 367 – 375.

Liou FM. 2008. Fraudulent Financial Reporting Detection and Business Failure Prediction Models: A Comparison. *Managerial Auditing Journal*. 23(7): 650-662.

Owus S, Moyes, Oyelere, dan Hay. 2002. An Empirical Analysis of the Likelihood of Detecting Fraud in New Zealand. *Managerial Auditing Journal*. 17(4): 192 – 204.

Reinstein A, *Weirich* T. 1999. *Accounting Issues at Enron*. The CPA Journal Standards 1999/*2000* Edition. New York: John Wiley & Sons.

Skousen CJ, Twedt BJ. 2009. Fraud Score Analysis in Emerging Markets, Cross Cultural Management. *International Journal*. 16(3): 301 – 316.