FINANCIAL STATEMENT FRAUD: DETECTING FINANCIAL STATEMENT MANIPULATION IN MALAYSIAN PUBLIC LISTED COMPANIES USING BENEISH M-SCORE MODEL

By

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ABSTRAK

Kajian ini berusaha untuk menaksir kebolehgunaan Model Beneish M-Score dalam mengesan penyelewengan penyata kewangan daripada perspektif Malaysia. Selain itu, kajian ini juga berusaha untuk mengenalpasti maklumat dalam penyata kewangan yang dapat memberi petunjuk syarikat yang terlibat dalam penyelewengan dan mengenalpasti hubungan antara pembolehubah-pembolehubah dalam Model Beneish M-Score. Kajian ini menggunakan beberapa kaedah analisa bagi mendapatkan kesimpulan. Pertama, kajian ini menggunakan Model Beneish M-Score yang terdiri daripada lapan (8) pembolehubah; DSRI, GMI, AQI, SGI, DEPI, SGAI dan TATA. Melalui pembolehubah-pembolehubah ini, kajian akan memperolehi indeks M-Score dan berdasarkan indeks ini, kajian boleh menyimpulkan bahawa jika M-Score > -2.22, syarikat akan diklasifikasikan sebagai pemanipulasi dan jika M-Score < -2.22, syarikat akan diklasifikasikan sebagai bukan pemanipulasi. Kedua, kajian ini menggunakan analisa Mann-Whitney U untuk mengenalpasti maklumat dalam penyata kewangan yang dapat memberi petunjuk syarikat yang terlibat dalam penyelewengan. Ketiga, kajian ini menggunakan analisa Granger Causality untuk mengkaji hubungan antara pembolehubah-pembolehubah. Berdasarkan analisa, Model Beneish berjaya mengesan 28 syarikat daripada 33 syarikat yang memanipulasi penyata kewangan dengan kadar kejayaan sebanyak 84.8%. Selanjutnya, dalam kelapan-lapan (8) pembolehubah ini, pihak berkepentingan boleh menumpukan pada tiga (3) pembolehubah yang mempunyai perbezaan ketara secara statistik antara syarikat pemanipulasi dan bukan pemanipulasi. Ia adalah DSRI, GMI dan SGAI. Akhir sekali, pihak yang berkepentingan perlu mengetahui bahawa terdapat empat (4) pembolehubah yang boleh mempengaruhi lima (5) pembolehubah yang lain. Ia adalah

GMI penyebab Granger DEPI, SGI penyebab Granger DSRI dan GMI, LVGI penyebab Granger SGAI dan SGAI penyebab Granger SGI. Model Beneish M-Score dapat membantu menganalisa sama ada terdapat manipulasi dalam penyata kewangan sesebuah syarikat dan membantu membuat keputusan yang tepat. Walaubagaimanapun, ia bukanlah suatu jaminan bahawa Model ini boleh mengesan penyelewengan, tetapi boleh dijadikan sebagai cetusan punca atau bendera merah dalam mengesan penyelewengan. Tidak ada jaminan bahawa analisa akan 100% tepat. Selain daripada itu, bagi mendapat keputusan yang tepat, pihak berkepentingan juga perlu mengambil berat mengenai isu tadbir urus korporat.

Kata Kunci: Penipuan, Penyelewengan, Penyata Kewangan, Penyelewengan Penyata Kewangan, Segitiga Penyelewengan, Manipulasi Pendapatan, Model Beneish M-Score.

ABSTRACT

This study attempts to assess the applicability of Beneish M-Score Model in detecting financial statement fraud from Malaysian perspective. Furthermore, the study also attempts to identify which financial statement information that may indicate the company engaged in fraud and to examine the relationship amongst variables in Beneish M-Score Model. The study uses several analysis methods to arrive at the conclusion. First, the study uses Beneish M-Score Model which consists of eight (8) variables; DSRI, GMI, AQI, SGI, DEPI, SGAI and TATA. From these variables, the study will derive to M-Score index. Based on the M-Score index, the study may conclude the Dependent Variables; if M-Score > -2.22 the companies will be classified as manipulators and if M-Score < -2.22 the companies will be classified as non-manipulators. Second, the study uses Mann-Whitney U Test to identify which financial statement information may indicate the company engaged in fraud. Third, the study uses Granger Causality Test to examine the relationship amongst the variables. From the analysis, Beneish Model has successfully detected 28 companies out of 33 companies that manipulated their financial statements with successful rate of 84.8%. Furthermore, among the eight (8) variables, stakeholders may focus on three (3) variables that have statistically significant differences between manipulator and non-manipulator companies. There are Days' Sales in Receivables Index (DSRI), Gross Margin Index (GMI) and Selling, General and Administration Expenses Index (SGAI). Last but not least, stakeholders need to know there are four (4) variables may give cause and effect to or will influence the other five (5) variables. There are; GMI Granger Cause DEPI, SGI Granger Cause DSRI and GMI, LVGI Granger Cause SGAI and SGAI Granger Cause SGI. Beneish M-Score Model may assist

stakeholders to analyse whether there were manipulations in the financial statement of a company and help them to make wise decision. However, it is not the holy grail of fraud detection, but may trigger the red flag of fraud. There is no assurance that the analysis will be 100% accurate. To become wise decision maker, stakeholders also need to be concerned on the corporate governance issues.

Keywords: Fraud, Financial Statements, Financial Statement Fraud, Fraud Triangle, Earnings Manipulation, Beneish M-Score Model.

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Thank you.

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LIST OF ABBREVIATIONS

ACFE	Association of Certified Fraud Examiners
MASB	Malaysian Accounting Standard Board
ACE Market	Access, Certainty, Efficiency Market
PN17	Practice Note 17
GN3	Guidance Note 3
PwC	PriceWaterhouse Coopers
KPMG	Klynveld Peat Marwick Goerdeler
DSRI	Days' Sales in Receivables Index
GMI	Gross Margin Index
AQI	Assets Quality Index
SGI	Sales Growth Index
SGAI	Selling, General and Administration Expenses Index
DEPI	Depreciation Index
LVGI	Leverage Index
TATA	Total Accruals to Total Assets

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Past few decades, corporate scandals have made thousands of peoples lose their money and jobs. World famous corporate scandals such as Waste Management Scandal in 1998, explosion of Enron Scandal in 2001, WorldCom and Tyco Scandals in 2002, HealthSouth and Freddie Mac Scandal in 2003, American Insurance Group in 2005 and etc. have changed the corporate landscape in dealing with fraud and governance practices by the introduction of Sarbanes-Oxley Act 2002 (U.S. Securities and Exchange Commission, 2002).

Malaysia is no exception. There were several famous corporate scandals which after the occurrence have improved the Malaysian corporate governance practices such as Repco Holdings Berhad in 1997, Renong Berhad in 1999, Transmile Group Berhad in 2005, Scan Associates Berhad in 2006, Megan Media Holdings Berhad in 2007, Kenmark Industrial Co. Berhad in 2009 and many more (Zayed Zulkifli, 2014).

According to Nelson (2012), the implication of fraudulent financial statement will become a catastrophic risk in order to gain stakeholders' confidence over the financial information. According to the Global Economic Crime Survey 2016 Report conducted by PwC Global stated that financial losses from financial

statement fraud could be stiff. In their recent crime survey, respondents that suffered in loss between USD0.1 million and USD1 million are about 22%. Furthermore, there are about 14% of respondents experienced more than USD1 million in losses, and only 1% of respondents reported losses in excess of USD100 million (PwC Global, 2016). Meanwhile, in Malaysia, the same report of Global Economic Crime Survey 2016 was produced by PwC Malaysia stated that for losses more than USD0.1 million, there are about 30% of Malaysian organizations being reported as fraud victim. However, for losses more than USD1 million, there are about 13% which is higher compared to the Global percentage (PwC Malaysia, 2016). The result of the survey shows that there is a significant cost involved in fraud (PwC Global, 2016).

Further result on the Global Economic Crime Survey 2016 Report found that these financial losses do not take into consideration factors that can have a sustained, long-term impact on a business but which are difficult to estimate, such as damage of reputation, employee motivation and morale, share price impact and relationships with regulators (PwC Malaysia, 2016).

Most Malaysian companies that have experienced fraud suffered losses in terms of employee morale, with 68% indicating that the occurrence of fraud had an impact on employee morale. Nearly half felt negative effects on their brand's reputation, and more than a quarter felt that it had a significant impact on share price. It would appear that companies in Malaysia are aware of the damage that fraud can inflict (PwC Malaysia, 2016).

These scandals have raised lots of questions on the capability of companies' auditor especially internal auditors in detecting financial statement fraud. Whether the auditors are incompetent or the fraudsters are too smart to cover up their scheme. In a survey conducted by Deloitte Ireland (2012), 51% of the internal audit functions consider themselves under-resourced to respond effectively to fraud risk within their organization. Under-resourced may not only in terms of a number of staff but also in terms of skills needed in the areas such as investigation, investigative interview, interrogation, evidence handling and etc. Currently, even the number of staff apparently increasing, there are still gaps in training and capability skills needed for internal auditors (Deloitte Ireland, 2012).

Since the impact of fraud is catastrophic, detecting financial statement fraud becomes crucial to safeguard the integrity and reliability of financial statements were presented to the users (Radziah et. al, 2013). There are several studies conducted to assess the effectiveness of financial ratios in detecting manipulations in financial statements such as Altman (1968), Persons (1995), Beneish (1999) and etc. (Altman, 1968; Radziah et. al, 2013; Beneish, 1999). Based on the study conducted by Beneish (1999), the results suggest there is a logical affiliation between the manipulation probability and several variables in the financial statement. These evidence are consistent with the practicality of accounting data in detecting manipulation and assessing the trustworthiness of reported earnings (Beneish, 1999).

Investors often used simple financial ratios such as current ratio, quick ratio, Altman Z-Score to predict bankruptcy of companies and etc. (Somayyeh, 2015).

However, there were no studies been conducted on how to detect earnings manipulation in the financial statements. Later, Beneish (1999) has come out with specific formula and equation on detecting earnings manipulation in the financial statement. The model is called Beneish M-Score Model. This study will focus on elaborating and explaining Beneish Model as a detecting tool for financial statement fraud.

A study conducted by Kuar, Sharma and Khanna (2014) had revealed that 32.14% from a sample of 28 companies have been involved in earning management in telco sector. Meanwhile, 31.18% from a sample of 93 companies in retail sector has been involved in earnings management based on the study of Indian firms (Kudakwashe, 2015). Another study was conducted on Enron by Warshavsky (2012) which the model has detected the company as an earnings manipulator with M-Score result of 1.89 which is higher than the pre-determined rule of -2.22 (Kudakwashe, 2015).

Furthermore, in Malaysia, a study has been conducted by Normah Omar et.al (2014) on Megan Media Holdings Berhad and the result of the study was positive that the company has been identified as an earnings manipulator since the M-Score result is higher than -2.22.

From the above-mentioned studies, it shows that Beneish Model is capable of helps investors and auditors in detecting financial statement manipulations or fraud. According to Pavel, T. and Encontro, M. (2012), four years prior to the declaration of bankruptcy on Enron, its shareholders lost about USD74 billion,

almost USD40-45 billion may perhaps be traced back to fraud which may be avoided if the Beneish Model were used earlier. Based on the study conducted by Muntari Mahama (2015) on Enron, Beneish Model has detected earnings manipulation three (3) times in 1997 with M-Score of -2.064, 1999 with M-Score of -1.323 and 2000 with M-Score of -0.343.

1.2 Problem Statement

Although there are many studies on Beneish Model abroad, however, studies on Beneish Model in Malaysia are still lacking. Most of the studies conducted in the area of fraud detection focused on the Traditional Financial Ratio such as Current Ratio, Gross Margin Ratio and etc. and Altman Z-Score focus on Bankruptcy Prediction (Normah Omar et. al, 2014; Nooraslinda et. al, 2015). Some of the studies used qualitative characteristics to detect fraud such as governance structure, changes of auditors, formation of tax haven companies and resignation of key positions (Fathilatul et. al, 2013; Izyan Ismail et. al, 2015; Rohana Othman et. al, 2015; Normah Omar & Salwa Zolkaflil, 2015; Nurul Fitri et. al, 2015).

These methods are the common methods used by fund managers, retail investors, creditors and other stakeholders. However, these methods focus only on the financial performance and the health of analyzed companies. They will not give any indication if there is manipulation in the financial statements.

Manipulation of financial statement is a serious offense. It is being classified as a white-collar crime. By reporting the manipulated financial statement, the companies have the intention to deceive the regulators and to mislead other

stakeholders to investor doing business with the companies (Universal Class, 2017). In Malaysia, public listed companies are required to submit a quarterly financial report and annual financial report. According to Bursa Listing Requirements by Bursa Malaysia and Securities Commission Act 1993 by Securities Commission Malaysia, any false or misleading of material information with the intention to deceive will be charged under the law i.e. an ex-director of Linear Corporation Bhd has been charged by Securities Commission Malaysia for authorizing the furnishing of a false statement to Bursa Malaysia (Securities Commission Malaysia, 2015).

When there is an intention to deceive, fraudsters will try to find, first, the pressure or motivation or the purpose to commit the fraud. Second, the fraudsters will find the right time or opportunity to commit the fraud and, third, the fraudsters will rationalize or justify their act of fraud. These steps are known as Fraud Triangle (Cressey, 1951).

Furthermore, in 2004, there was a study that introduced another new element in Fraud Triangle known as Fraud Diamond by Wolfe and Hermanson. They introduced an element of capability in the Fraud Diamond to complement the other three elements. According to Wolfe and Hermanson (2004), fraudulent actions may not happen without the right person with the right capabilities especially when it involved multimillion fraud. The capability will recognize the opportunity as an open doorway. Meanwhile, incentive and rationalization will lead to the fraud actions.

Beneish Model is the best tool to use to analyze any manipulation of financial statements based on the study by Pavel, T. and Encontro, M. (2012) and Warshavsky (2012) on Enron. However, the used of Beneish Model in Malaysia are still lacking since there were only seven (7) studies found focused on Beneish Model in Malaysia.

Investment community in Malaysia especially retail investors and other stakeholders were not fully aware the use of Beneish Model since there was not much coverage on this subject. Beneish Model may help retail investors and other stakeholders to detect whether companies manipulate or not manipulate their financial statements to show a good performance to attract investors.

1.3 Research Objectives

The study attempts to achieve the following objectives:

1) To assess the applicability of Beneish M-Score Model in detecting financial statement fraud from Malaysian perspective;
2) To identify financial statement information that may indicate or differentiate fraud and non-fraud companies; and
3) To examine the relationship amongst variables in Beneish Model.

1.4 Research Questions

From the problem statement discussed, it led to several research questions:

1) How Beneish M-Score Model may assist as a tool in detecting financial statement fraud;

2) Which financial statements information may help investors and auditors to detect fraud; and
3) How Beneish M-Score Model variables interdependent to each other and how it may affect the analysis result.

1.5 Significance of the study

During the process of research, the study noticed that there was lack of comprehensive studies or analyses been conducted on Malaysian Public Listed Companies using Beneish Model. Thus, there were not much information can be gathered from the previous studies.

This study will conduct a comprehensive analysis that will fill the gap existed. The study involves 33 public listed companies in various industries with 10 years financial data to see the trend of earnings manipulation in their financial statements.

Purposes of the study would help stakeholders i.e. decision makers, investment community and regulators to have more ideas on how to assess the health, stability and future growth of companies based on their financial statements. Furthermore, with this study, stakeholders may detect any misstatement or earnings manipulation conducted by companies' management.

The study also would benefit for future research on financial statement fraud in Malaysia especially when the research involves Public Listed Companies (PLCs).

1.6 Scope and Limitations of the Study

The scope of the study will be on the financial statements of 33 companies listed in Bursa Malaysia. These companies are problematic which 17 out of 33 companies listed as PN17, 10 companies were proven committed fraud and the remaining six (6) listed as GN3 companies. Refer to **Table 1** in Appendix Section for a list of the 33 companies. Companies listed under PN17 and GN3 are often companies having financial distress and there are high possibilities of bankruptcy.

Since the study applying the quantitative method using secondary data, the study will face several limitations:

a) Lack of reliability on the analysis results because there are lot of qualitative factors may affect the performance of companies such as management of companies, companies' philosophy and directions, external economic factors, fiscal and monetary policy etc.;
b) Formula given may not cater the analysis and need some adjustments that will affect the outcome of analysis;
c) Result of the analysis is based on the pre-determined rules which may sometimes not applicable or unreasonable;
d) M-Score Model is a probabilistic model. Thus, there is no assurance that the analysis will be 100% accurate;
e) Lack of the ability to identify patterns in fraudulent companies when the companies may have properly concealed the fraud activities;
f) Making conclusions or judgments on the analysis may sometimes lead to errors which will be discussed in Chapter three (3);
g) Limited studies on the Beneish Model especially on Malaysia perspective;

h) The analysis result may not give significant impact if compared to the total population of public listed companies due to small samples.

i) Proven fraud companies were selected from the year 2005 onwards due to differences in financial statement presentation for year prior 2005.

1.7 Organization of the Thesis

The study is organized in five (5) chapters; Chapter one (1) – Introduction, Chapter two (2) – Literature Review, Chapter three (3) – Methodology, Chapter four (4) – Results / Findings and Chapter five (5) – Conclusion / Recommendations.

Chapter one (1) consist of; first, introduction on the background of the study. Second, the problem statement rose from the study. Third, the research objectives for the study. Fourth, the research questions derived from the research objectives. Fifth, the significance of the study resulted from the analysis and sixth, the scope and limitation involved in the study conducted.

Chapter two (2) is divided into four (4) sub-topics. The first topic will explain the financial statement usage and users. Definition of fraud, types of fraud and fraud triangle will be explained in second topic. In third topic, the study will explain on the financial statement fraud and types of fraud often committed by fraudsters. Finally, in the fourth topic, the study will explain the usage of Beneish Model as an analysis tool for fraud detection.

Chapter three (3) will elaborate on the research methodology. In this chapter, the study will start with research framework and design. Subsequently, the study will further discuss on the data collection process.

Chapter four (4) will be the results/findings of the analysis. In this chapter, the study will be discussing the result of analysis conducted on the 33 companies using Beneish model.

Finally, chapter five (5) will conclude and give recommendations on the study results discussed in chapter four (4).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The purpose of this chapter is to review previous literature or studies in the area of financial statement fraud detection. This chapter is organized into three (3) sub-chapter; introduction of the financial statement, elaboration on types of fraud and further explanation on financial statement fraud.

2.2 Financial Statement

According to Malaysian Accounting Standard Board, the objective of financial statement reporting is to provide financial information regarding the financial position of the reporting companies. The financial statement is useful in decision-making process for potential and existing investors, banks and other creditors involve in equities investment, debt instruments financing, bank financing, trade financing and etc. (Malaysian Accounting Standard Board, 2011).

In Malaysia, financial statement shall comply with the approved accounting standards, i.e. Malaysian Financial Reporting Standards (MFRS) by MASB. Furthermore, approved company auditors shall audit the financial statement and the statement shall be lodged to the Companies Commissioner of Malaysia on annual basis (Companies Act, 2016).

The objective of financial statements audit is to give reasonable assurance about the financial statements which are free from material misstatements, whether due to fraud or error, thus, allowing auditors to express opinion on whether the financial statements are prepared, in all material respects, in accordance with an applicable financial reporting framework (International Standard on Auditing, 2010).

However, being outgoing auditors, there are several risks involved. Firstly is the audit risk which may arise from an inappropriate audit opinion by the auditor the when the financial statements are substantially misstated. Secondly is detection risk which may arise during audit review performed by auditors. Auditors may not detect misstatements that happens and may perhaps substantial, either independently or when combined with other misstatements (American Institute of Certified Public Accountants, 2002).

2.3 Fraud

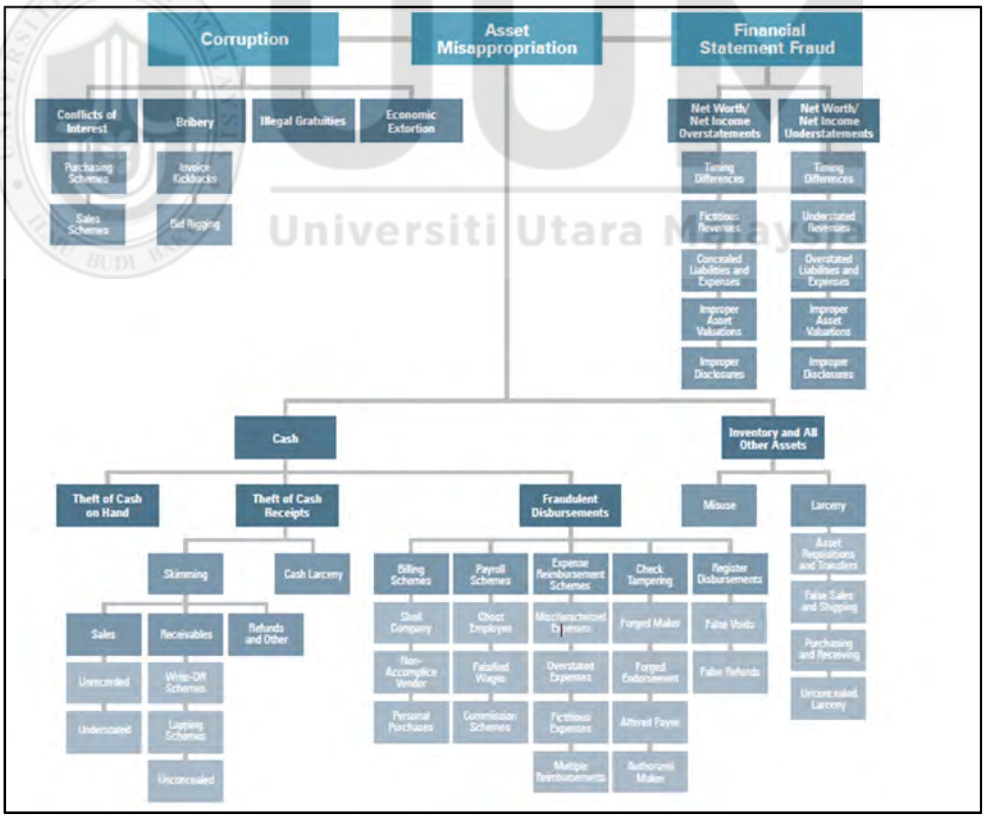
Fraud can be defined as any illegal act characterized by deceit, concealment, or violation of trust (The Institute of Internal Auditors, 2009). Another fraud definition is defined by Association of Certified Fraud Examiners, the USA as the deliberate misrepresentation of the financial circumstance of enterprises, by purposefully misstating or ignoring amounts disclose in the financial statements with the intention to deceive the users (Normah et al., 2014).

Fraud can be classified into Three (3) broad classifications (Association of Certified Fraud Examiners, 2016) as shown in Figure 1:

a) Corruption which can be further expanding into four (4) categories; conflict of interest, bribery, illegal gratuities and economic extortion. Fraudsters usually used their position of power to influence others in business transactions or decision-making process for their own interest.

b) Asset Misappropriation is the broadest fraud categories, which can be expanded into cash, inventory and all other assets. Fraudsters tend to steals or misuses the property or resources of the employer.

c) Financial Statement Fraud focused on overstatements and understatements of net income, assets and liabilities. Management of companies intentionally misstated or omitted of material information in the companies' financial statement, which will mislead investors and other stakeholders.

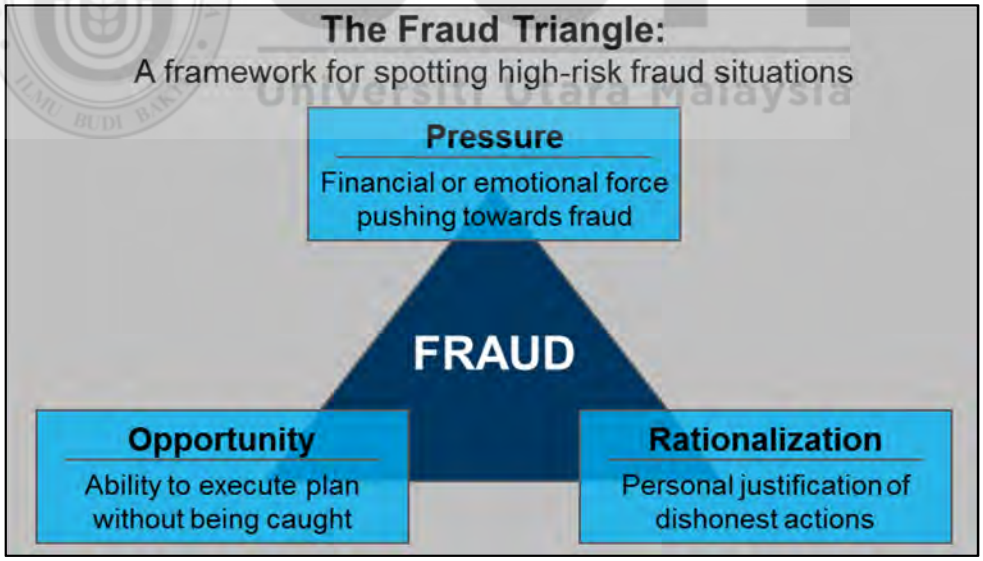


Source: Report to the Nations on Occupational Fraud and Abuse, 2016 Global Fraud Study, ACFE

Figure 1: The Fraud Tree

According to the ACFE Report analysis on 2,410 fraud cases in 114 countries (January 2014 – October 2015), assets misappropriation contributed more than 2,012 (83.5%) cases, the highest percentage of fraud cases. However, it contributed only USD0.125 million which is the smallest median loss. Meanwhile, financial statement fraud contributed less than 231 (9.6%) cases but causing the highest median loss of USD0.975 million. Corruption cases stand in the middle with 853 (35.4%) cases and a median loss of USD0.2 million (Association of Certified Fraud Examiners, 2016).

Criminologist, Donald Cressey (1951) has developed a theory, which explains why people commit fraud. It is called Fraud Triangle (Albrecht, 2014). According to Cressey, three (3) factors must be presented at the same time in order for a person to commit fraud (Donald R. Cressey & Patterson Smith, 1953).



Source: Brumell Group, consulting firm specialized in fraud and investigation.

Figure 2: The Fraud Triangle by Donald Cressey

a) Pressure: Also known as motivation, causes or incentive may derive from anything. Some fraudsters committed fraud simply because of greed.

However, most of the time, the motivation of fraud comes from significant financial difficulty.

b) Opportunity is the ability to commit fraud due to internal control system weaknesses. The ineffective internal control system will increase the risk of failure to detect fraud.

c) Rationalization is about reconciling the fraud actions with the generally accepted ideas of decency and trust.

According to Dorminey et al. (2010), the derivation of the fraud triangle theory was from Edwin Sutherland in 1939. The term white-collar crime was introduced by Edwin Sutherland which Cressey was his former students (Abdullahi & Mansor, 2015).

However, in December 2004, Wolfe and Hermanson (2004) conducted further study on the Fraud Triangle Theory. Both of them have expanded the Fraud Triangle Theory by introduced the fourth elements of fraud and called it Fraud Diamond Theory as shown in Figure 3. Based on their argument, to commit fraud it is not enough to have incentive together with an opportunity and a rationalization only. Another element which is capability should be existed to complement the fraud action. Capability means that the fraudster must have power of authorization and skills to commit fraud (Abdullahi & Mansor, 2015).

Source: Fraud Triangle Theory and Fraud Diamond Theory. Understanding the Convergent and Divergent for Future Research. Wolfe & Hermanson (2004).

Figure 3: The Fraud Diamond by Wolfe & Hermanson

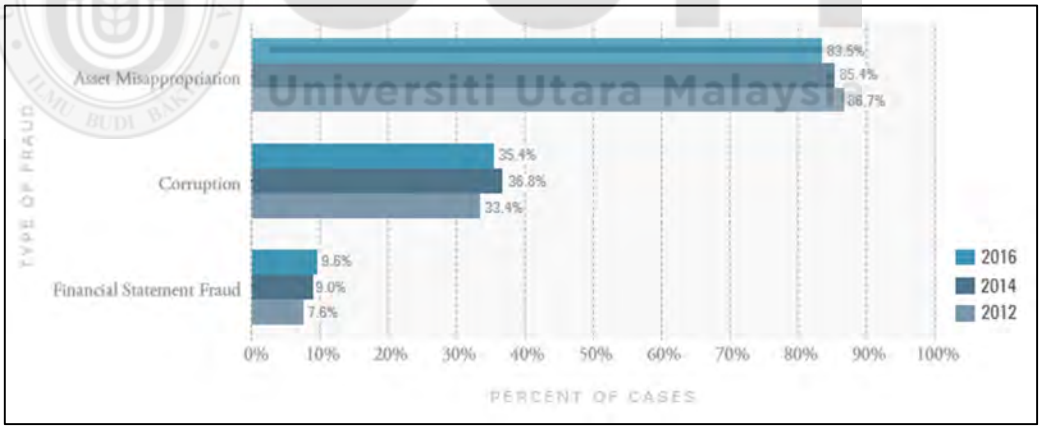
Wolfe and Hermanson (2004) viewed that opportunity will open the door to fraud. Meanwhile, motivation and rationalization lead toward the door. Yet, without capability, a person incapable to identify the door of opportunity and take advantage of it (Abdullahi & Mansor, 2015). According to Wolfe and Hermanson (2004), people with capabilities can be profiled in several characteristics; Power, Familiarization, Ego and Confidence, Persuasive Personality, Consistent and Effective Liar and Good Stress Management.

People with position of power or familiar with certain functions may have the capability to create or exploit an opportunity for fraud. These people also may use their power and knowledge to influence or to exploit the internal control weaknesses. Based on the study by Beasley et al. in 1999, they found that Chief Executive Officers were caught up more than 70% on financial statement fraud cases. The statistic shows that Chief Executive Officers have the capabilities to influence and continuously committing fraud due to insufficient internal controls. They believe that their deceitful acts will not be discovered since they have the

ability to lie consistently. Furthermore, force may be used on others to collude or conceal the fraud. So, in the end, they have no worries even though pledging and dealing with fraud can be extremely stressful since they can control all possible leakages (Wolfe & Hermanson, 2004).

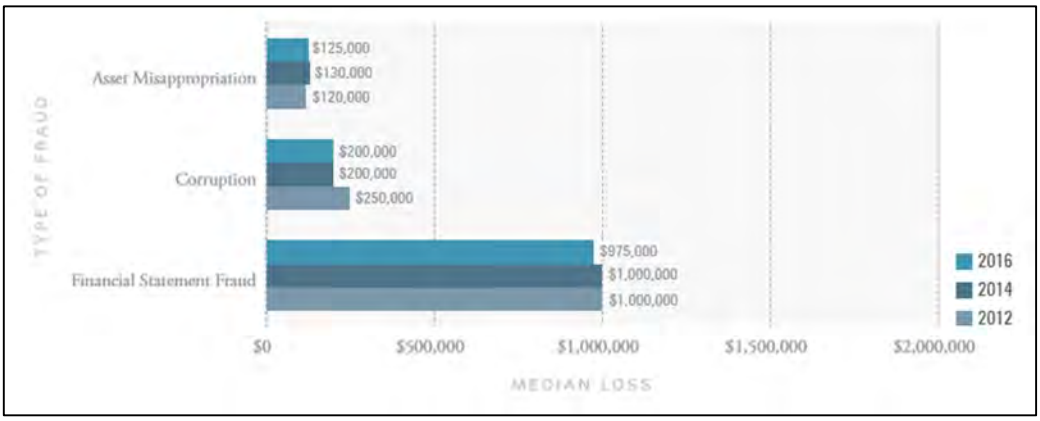
2.4 Financial Statement Fraud

Financial statement fraud made the largest median loss of USD0.975 million even though the percentage of financial statement fraud cases is only 9.6%. At second place is corruption with 83.5% of total fraud cases and a median loss of USD0.2 million. Assets Misappropriation contributed a median loss of USD0.125 million with 34.5% of total fraud cases (Association of Certified Fraud Examiners, 2016). Figure 4 and Figure 5 illustrate the above statements.



Source: Report to The Nations On Occupational Fraud and Abuse, Global Fraud Study 2016, Association of Certified Fraud Examiners.

Figure 4: Fraud Categories by Frequency



Source: Report to The Nations On Occupational Fraud and Abuse, Global Fraud Study 2016, Association of Certified Fraud Examiners.

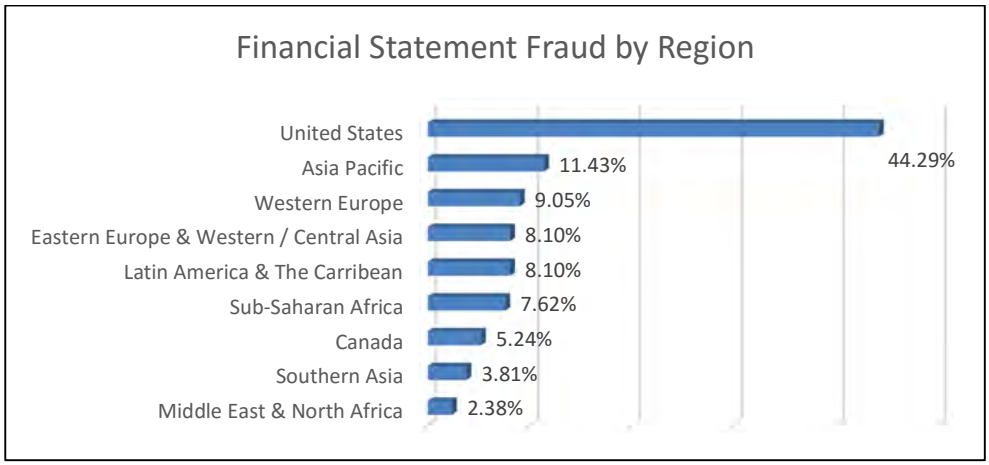
Figure 5: Fraud Categories by Median Loss

Table 2 and Figure 6 show that the United States records the highest number of Financial Statement Fraud cases among regions. Meanwhile, Southern Asia is the second lowest in terms of a number of cases involving Financial Statement Fraud.

Table 2: Financial Statement Fraud by Region

No.	Region	Status	Financial Statement Fraud Cases
1.	United States	Developed	93
2.	Asia Pacific	Developing	24
3.	Western Europe	Developed	19
4.	Latin America & The Caribbean	Developing	17
5.	Eastern Europe & Western / Central Asia	Developed	17
6.	Sub-Saharan Africa	Developing	16
7.	Canada	Developed	11
8.	Southern Asia	Developing	8
9.	The Middle East & North Africa	Developing	5
TOTAL			**210**

Source: Report to the Nations on Occupational Fraud and Abuse, Global Fraud Study 2016, Association of Certified Fraud Examiners.



Source: Report to The Nations On Occupational Fraud and Abuse, Global Fraud Study 2016, Association of Certified Fraud Examiners.

Figure 6: Financial Statement Fraud by Region

Furthermore, the study has classified the region based on the country classification either developed or developing countries. There are four (4) regions are classified as developed countries; United States, Western Europe, Eastern Europe and Western / Central Asia and Canada. The other five (5) regions are classified as developing countries (UN/DESA, 2017).

Based on the data presented by ACFE (2016), financial statement fraud in developed countries is higher than in developing countries. The study shows that more than 60% of financial statement fraud happened in developed countries (ACFE Report to the Nations, 2016).

Financial statement fraud is a corporate level fraud since it's a collaborated effort to make a company's financial statement looks beautiful and attractive to attract more investors. The main motivation of the fraud is greed among the executives of the company in terms of investment return, executive incentives, the expectation of stakeholders and loopholes in accounting rules. Stakeholders'

expectations in developed countries are higher than stakeholders' expectation in developing countries due to a different level of education and economy needs (Albrecht, 2005).

According to KPMG (2006), financial statement fraud has a wider interpretation that can be categorized into five categories (Raziah et. al, 2010):

1) Fraudulent Financial Statement reporting is the most common financial statement fraud schemes, which involves earnings management/manipulation. Earnings of companies may be manipulated by overstatement or understatement of assets, liabilities, expenses, and revenue;
2) Assets misappropriation such as larceny, procurement, and payroll scheme, misused of company's assets and etc.;
3) Avoidance or incurrence of expenditures and liabilities for inappropriate purposes which includes corporate and government inducement, tax evasion and other indecorous disbursement schemes;
4) Fraudulent revenues such as inflating customer invoices and fictitious customers; and
5) Other misconducts i.e. conflict of interest, insider trading, trade secrets theft etc.

Management of public listed companies has a strong desire to report handsome bottom-line to attract more investors. This will allow the share price goes higher and benefit them as well as company's shareholder (Howard M. Schilit & Jeremy Perler, 2010). Furthermore, management of companies may justify the high remuneration received as their effort to maintain the impressive performance.

In order to maintain the impressive performance, management tends to use methods to mislead stakeholders that the business performance superior the fundamental economic reality (Howard M. Schilit & Jeremy Perler, 2010). A study has shown the management of companies has used their positions, prior experience and regulatory loopholes to commit fraud (Fathilatul et al., 2013).

The most common financial statement fraud scheme used by management is earnings manipulation. There are seven (7) earnings manipulation methods (Howard M. Schilit & Jeremy Perler, 2010):

1) Recording Revenue Too Soon;
2) Recording Bogus or Fictitious Revenue;
3) Boosting Income Using One-Time or Unsustainable Activities;
4) Shifting Current Expenses to a Later Period;
5) Employing Other Techniques to Hide Expenses or Losses;
6) Shifting Current Income to a Later Period; and
7) Shifting Future Expenses to an Earlier Period.

Earnings manipulation is about inflating current or future period earnings. This method may include future earnings into a current period or exclude from current period to include into a later period. In some cases, management of companies creates fictitious revenue or recognizes revenue too soon to inflate current earnings (Howard M. Schilit & Jeremy Perler, 2010).

For example, in Malaysia, the famous Transmile Group Berhad has been found materially inflated or overstated their revenues and profit in the company's

audited annual accounts for 2004 and 2005, and for 2006 unaudited annual accounts. Because of these overstatements, Transmile Group Berhad has been posted a high profit for 2004, 2005 and 2006 instead of losses. Once these overstatements been revealed, the share price of Transmile Group Berhad dropped by 42.86% from RM14.00 to RM8.00. Investors suffered a tremendous loss in this situation (Nik Rosnah et. al, 2012).

Concerns from investors, regulators and auditors have risen on the financial statement fraud detection especially in earnings manipulation. Previous researchers have come out with several tools and analysis to detect financial statement fraud. However, it is not the holy grail of fraud detection but may trigger the red flag of fraud. In this study, we will focus on Beneish Model as a tool to detect financial statement fraud. Compare to other analysis models, Beneish M-Score Model is much easier in terms of its application but more comprehensive analysis compared to traditional ratio analysis. The following are the advantages of Beneish M-Score Model (Noraslinda et al., 2013):

1) Deliberate variables associated with both the detection and inducements for fraud;
2) Users may evaluate diverse aspects of companies' performance concurrently instead of in separation;
3) Investigative power for fraud;
4) Beneish M-Score Model is widely accepted and often used by corporations, retail and institutional investors, academicians etc.; and
5) Cost and time effective as it requires at least two years data.

Based on an article published by Financial Times (2012), Beneish M-Score Model has successfully identified doubtful companies' earnings. A stock screening website, Stockopedia, has analyzed 2,300 companies in the United Kingdom using Beneish M-Score Model and correctly predicted problems at SuperGroup.

Beneish M-Score Model also is a compatible analysis tool for auditors to conduct an analytical review on their clients' financial statement before the commencement of audit fieldwork.

CHAPTER THREE

DATA AND EMPIRICAL METHOD

3.1 Introduction

In this chapter, the study will discuss the research methodology adopted. This chapter begins with the discussion on data and sample description, research framework, the elaboration of Beneish Model, the research design, and the data collection. Chapter three will provide a comprehensive explanation of the detailed phases used in the study.

3.2 Data and Sample Description

The study used the secondary sources of data which are the audited financial statements published in the annual report of companies for the period of 10 years. The audited financial statements were downloaded from Bursa Malaysia website. The data extracted from the statement of financial position, statement of comprehensive income and statement of cash flows of companies.

The sampling method used in the study is based on the total populations of listed companies in Bursa Malaysia for the year 2016; 904 companies (Bursa Malaysia, 2016). Samples of the study selected from the list of PN17 Companies; 17 problematic companies listed in Main Market, GN3 Companies; six (6) problematic companies listed in ACE Market and 10 companies that proven committed fraud based on news, reports of regulators; Bursa Malaysia, Securities

Commission of Malaysia and Bank Negara and etc. based on article written by Zayed Zulkifli (2014). Total samples selected as at September 2016 is 33 companies as listed in **Table 1** in Appendix Section.

3.3 Beneish M-Score Result

To identify whether the companies manipulate or not their financial statement, it will be influenced by the result of the analysis. The analysis is called Beneish M-Score Model.

Beneish M-Score Model consists of eight (8) variables that will be discussed in details in this chapter. From these variables, the study will derive to M-Score analysis result. Based on the M-Score result, the study may conclude the Dependent Variables; if M-Score > -2.22 the companies will be classified as manipulators and if M-Score < -2.22 the companies will be classified as non-manipulators (Beneish, 1999).

In the original study of Beneish Model, the eight (8) variables formed, a Model called M-Score and used the following formula (Nwoye et. al, 2013; Muntari Mahama, 2015):

M = -4.840 + (0.920*DSRI) + (0.528*GMI) + (0.0404*AQI) + (0.892*SGI) + (0.115*DEPI) – (0.172*SGAI) + (4.679*TATA) – (0.327*LVGI)

M > -2.22 indicates that the companies are manipulators.

According to a study conducted by Tarjo and Nurul Herawati (2015), three (3) variables have no statistically significant effect on the financial statement fraud

detection. There are Days' Sales in Receivables Index (DSRI), Assets Quality Index (AQI) and Leverage Index (LEVI).

The other five (5) variables; Gross Margin Index (GMI), Depreciation Index (DEPI), Selling, General and Administration Expenses Index (SGAI), Sales Growth Index (SGI) and Total Accruals to Total Assets (TATA) were capable to detect financial statement fraud (Tarjo & Nurul Herawati, 2015).

According to Beneish (1999), when using M-Score in analyzing the financial data, there are possibilities of making classification errors. There are two (2) types of errors:

1) **Type One (1) error**

   Type One (1) error classifies a company as a non-manipulator when actually the company manipulates its financial statements.

2) **Type Two (2) error**

   Type Two (2) error classifies a company as a manipulator when actually the company does not manipulate its financial statements.

According to Beneish (1999), most researchers committed type one (1) error more frequently compared to type two (2) error. Since these errors may affect the accuracy of the classification, researchers must take extra efforts when conducting the analysis by examining closely on each variable rules (Nwoye et al., 2013).

3.4 Dependent Variable – Manipulator / Non-manipulator

In recent years, there were significant increases in corporate fraud and financial statements / earning manipulation (Muntari Mahama, 2015). Big scandals involved giant and well-known companies have raised significant concerns from investors (Kassem & Higson, 2012). Because of these matters, earnings manipulation has become a phenomenon (Christianto & Budiharta, 2014). Company's managers to mislead investors on company's performance in terms of financial and operations (Beneish, 1999) may define earnings manipulation as a violation of accounting standards.

This study will identify whether the selected samples of companies manipulate or not manipulate their financial statements. They will be classified as Manipulator or Non-manipulator companies based on the result of the analysis.

3.5 Independent Variables – Beneish M-Score Model

Beneish M-Score Model developed in 1997 by Professor Messod Daniel Beneish from Kelley School of Business, Indiana University may be used as a tool to detect financial statement fraud. A study conducted by Beneish (1999) has suggested there is a systematic relationship between the probability of manipulation and variables in the financial statement.

According to Beneish and Nichols (2005), M-Score model is used to rank firms according to the likelihood that they have manipulated earnings. The model detects the possible manipulation consequences on the financial statement, but also inducements for earnings manipulation (Beneish & Nichols, 2005). In

developing M-Score model, there are eight (8) financial variables, which will give two (2) different signals (Dennis McLeavey, 2014):

3.5.1 Manipulation Signals

3.5.1.1 Days' Sales in Receivables Index (DSRI)

Days' sales in receivables measure the number of days taken to collect account receivables. Meanwhile, the index measures the numbers of days taken for the year under review compared to the number of days taken for the prior year. If the index is higher than 1.0, it means that the number of days taken in the year of review is longer compared to the prior year. The equation may be best illustrated as (Beneish, 1999):

$$DSRI = (Receivables_T / Sales_T) / (Receivables_{T-1} / Sales_{T-1})$$

An increase in DSRI may cause by changes in credit policy but a significant increase in DSRI may be a red flag of inflated revenue (Beneish, 1999).

3.5.1.2 Assets Quality Index (AQI)

The index measures assets quality of intangible assets or assets other than property, plant, and equipment in non-current assets compared to total assets (Muntari Mahama, 2015). If the index is higher than 1.0, it means that the current year intangible assets is higher compared to the prior year (Warshavsky, 2012). The equation may be best illustrated as (Beneish, 1999):

$$AQI = [1 - (Current\ Assets_T + Property,\ Plant\ \&\ Equipment_T) / Sales_T)] / [1 - (Current\ Assets_{T-1} + Property,\ Plant\ \&\ Equipment_{T-1})]$$

A significant increase in intangible assets may be a red flag of expenses been capitalized to preserve profitability (Grove & Clouse, 2014).

3.5.1.3 Depreciation Index (DEPI)

The index measures the changes in the ratio of depreciation expense in the prior year compared to the current year. If the index is higher than 1.0, it means that the current year depreciation expense is lower compared to the prior year and this will preserve the profitability on the current year (Muntari Mahama, 2015). The formula is as follows (Beneish, 1999):

$$DEPI = [(Depreciation_{T-1} / (Plant, Property \& Equipment_{T-1} + Depreciation_{T-1})] / [(Depreciation_{T} / (Plant, Property \& Equipment_{T} + Depreciation_{T})]$$

It may cause by changes in depreciation rate or changes in the useful life of the assets. The changes may trigger red flag if significantly increase the index.

3.5.1.4 Total Accruals to Total Assets (TATA)

The index measures the degree of cash sales is made and the company cash flows quality (Muntari Mahama, 2015). TATA > 1.0 indicates that total accruals are higher than total assets and this would indicate an earnings manipulation (Prevoo, 2007). According to the studies conducted by Dechow and Dichev (2002), McNichols (2002) and Jones et al. (2008), TATA may have predictive power to detect manipulator or non-manipulator of financial information by examining the changes in working capital or cash flows of the company (Muntari Mahama, 2015). TATA can be best illustrated as (Beneish, 1999):

TATA = [Changes in Current Assets$_T$ – Changes in Cash$_T$ – (Changes in Current Liabilities$_T$ – Changes Current Maturities of Long Term Debts$_T$ – Changes in Income Tax Payable$_T$) – Depreciation and Amortization$_T$] / Total assets$_T$

However, a study by Nwoye et al. (2013) has come out with a different set of formula for TATA. The formula is as follows (Nwoye et. al, 2013):

TATA = (Income from Continuing Operations$_T$ – Cash Flows from Operations$_T$) / Total assets$_T$

The formula is simpler and the result is indifferent compared to Beneish (1999).

3.5.2 Motivation Signals

3.5.2.1 Gross Margin Index (GMI)

The index measures the ratio of the gross profit margin of the prior year compared to the gross profit margin of the year under review. If the index is higher than 1.0, it means that gross profit margin of the year under review shrunk compared to the prior year. The decrease in gross profit margin may be a negative indication about company's future performance (Beneish, 1999). Furthermore, it may also indicate there is a possibility of revenue manipulation (Muntari Mahama, 2015). The equation is as follows (Beneish, 1999):

GMI = [(Sales$_{T-1}$ – Cost Of Goods Sold$_{T-1}$) / Sales$_{T-1}$] / [(Sales$_T$ – Cost Of Goods Sold$_T$) / Sales$_T$]

Most of US corporations involve in earning manipulations on revenues since they need to fulfill the earnings requirement sets by Security and Exchange Commission (Chan et. al, 2004).

3.5.2.2 Sales Growth Index (SGI)

The index measures the growth of sales/revenues in the year under review compared to the prior year. An increased in growth shown by SGI > 1.0 and increase in growth does not necessarily lead to manipulation. However, companies in growth cycle are more likely to commit fraud compared to others (Beneish, 1999). A significant increase in growth may indicate a red flag of earnings manipulations (Muntari Mahama, 2015). The equation is as follows (Beneish, 1999):

SGI	=	$Sales_T$ / $Sales_{T-1}$

Further analysis such as ratio inventory to total assets, ratio receivables to sales etc. should be conducted if there is significant growth in revenues/sales (Callen et. al, 2008).

3.5.2.3 Selling, General and Administration Expenses Index (SGAI)

The index measures the ratio of Selling, General and Administration (SGA) expense over sales for the year under review compared to the prior year (Muntari Mahama, 2015). SGAI > 1.0 indicates that the ratio of SGA to Sales for the year under review is higher compared to the prior year. This may indicate a red flag of fraud and earnings manipulation. Higher SGA will reduce the profitability of companies (Beneish, 1999). The SGA formula is illustrated as (Beneish, 1999):

SGAI	=	(Selling General & Administrative $Expense_T$ / $Sales_T$) / (Selling General & Administrative $Expense_{T-1}$ / $Sales_{T-1}$)

3.5.2.4 Leverage Index (LVGI)

The index measures the ratio of total debts over total equity for the year under review compared to the prior year. LVGI > 1.0 indicates there is an increase of gearing level of a company and will trigger a red flag of earnings manipulation (Muntari Mahama, 2015). The equation is as follows (Beneish, 1999):

$$LVGI = [(\text{Current Liabilities}_T + \text{Total Long Term Debt}_T) / \text{Total Assets}_T] / [(\text{Current Liabilities}_{T-1} + \text{Total Long Term Debt}_{T-1}) / \text{Total Assets}_{T-1}]$$

The ratio portrays the company's risk in a long-term and its capital structure (Abdullah & Ismail, 2008) and may detect incentives in debt covenants for earning manipulation (Beneish, 1999).

3.6 Hypothesis Development

A study conducted by Kuar, Sharma and Khanna (2014) on Indian firms for a sample of 28 Telco companies and 93 retail companies have arrived at the conclusion that the Beneish model had revealed that 32.14% telco companies have been engaged in earning management. Meanwhile, 31.18% retail companies have been involved in earnings management (Kudakwashe, 2015). Another study was conducted on Enron by Warshavsky (2012) which the model has detected the company as an earnings manipulator with M-Score result of 1.89 which is higher than the pre-determined rule of -2.22 (Kudakwashe, 2015).

Furthermore, in Malaysia, a study has been conducted by Normah Omar et.al (2014) on Megan Media Holdings Berhad and the result of the study was positive

that the company has been identified as an earnings manipulator since the M-Score result is higher than -2.22.

Meanwhile, based on the study conducted by Muntari Mahama (2015) on Enron, Beneish Model has detected earnings manipulation three (3) times in 1997 with M-Score of -2.064, 1999 with M-Score of -1.323 and 2000 with M-Score of -0.343.

From the above-mentioned studies, it shows that Beneish Model is capable of helps investors and auditors in detecting financial statement manipulations or fraud. Thus, the study has developed the following hypothesis:

H_1: The Beneish M-Score Model may assist as a tool in detecting financial statement fraud.

According to Howard M. Schilit and Jeremy Perler (2010), management of companies tends to manipulate their financial statements to attract more stakeholders either as investors or borrowers. There are seven (7) earnings manipulation methods as explained in Chapter two (2) and the study will match with Beneish M-Score Model variables. As deliberated in Topic 3.5: Independent Variables, Beneish M-Score Model consist of eight (8) variables. Each of the variables may indicate manipulation in their own area if they satisfied the rules (Beneish, 1999).

3.6.1 Days' Sales in Receivables Index (DSRI) > 1

DSRI > 1 indicates that a number of days taken in the year of review is longer compared to prior year. It may also indicate a possibility of manipulation by inflating revenue/sales (Beneish, 1999). Inflation of revenue may in way of early revenue recognition or fictitious revenue etc. (Howard M. Schilit & Jeremy Perler, 2010). The revenue will be recognized as credit sales which the double entry will be:

- Dr. Receivables

  Cr. Revenue

However, based on a study conducted by Tarjo and Nurul Herawati (2015), DSRI has no significant effect on the financial statement fraud detection. Thus, this study intends to prove that DSRI may help in detecting financial statement fraud. The study has developed the following hypothesis:

H_2: DSRI gives the statistically significant difference between the manipulator and non-manipulator companies.

3.6.2 Gross Margin Index (GMI) > 1

GMI > 1 indicates that the gross profit for the year of review is shrinking compared to prior year. It may also indicate a high possibility of earnings manipulation by early recognition of future direct cost to avoid tax or dividend payment (Howard M. Schilit & Jeremy Perler, 2010). According to Tarjo and Nurul Herawati (2015), GMI has some influences on the earnings manipulation detection in their study. Thus, the study has developed the following hypothesis:

H_3: GMI gives the statistically significant difference between the manipulator and non-manipulator companies.

3.6.3 Assets Quality Index (AQI) > 1

AQI > 1 indicates that intangible assets for the current year are higher than the prior year. It may also indicate the possibility of manipulation by capitalizing expenses to preserve profitability (Grove & Clouse, 2014). However, a study by Tarjo and Nurul Herawati (2015) stated that AQI has no significant effect on the financial statement fraud detection. Thus, this study intends to prove that AQI may help in detecting financial statement fraud. The study has developed the following hypothesis:

H_4: AQI gives the statistically significant difference between the manipulator and non-manipulator companies.

3.6.4 Sales Growth Index (SGI) > 1

SGI > 1 indicates positive growth in companies. It does not indicate manipulation; however, growth companies have the higher possibility of manipulation to shows good performance by early recognition of revenue or fictitious revenue (Beneish, 1999; Howard M. Schilit & Jeremy Perler, 2010). However, Tarjo and Nurul Herawati (2015) excluded SGI from their study since SGI had a negative value. Thus, this study intends to prove that SGI may help in detecting financial statement fraud. The study has developed the following hypothesis:

H_5: SGI gives the statistically significant difference between the manipulator and non-manipulator companies.

3.6.5 Depreciation Index (DEPI) > 1

DEPI > 1 indicates there are possibilities of manipulation by slowly depreciating assets to boost earnings. In other words, earnings manipulation conducted by extending the useful life of assets (Beneish, 1999). According to Tarjo and Nurul Herawati (2015), DEPI has some influences on the earnings manipulation detection in their study. Thus, the study has developed the following hypothesis:

H_6: DEPI gives the statistically significant difference between the manipulator and non-manipulator companies.

3.6.6 Sales, General and Administration Expenses Index (SGAI) > 1

SGAI > 1 indicates there are possibilities of manipulation by shifting future SGA expenses to the current period (Beneish, 1999; Howard M. Schilit & Jeremy Perler, 2010). SGAI has some influences on the earnings manipulation detection in a study by Tarjo and Nurul Herawati (2015). Thus, the study has developed the following hypothesis:

H_7: SGAI gives the statistically significant difference between the manipulator and non-manipulator companies.

3.6.7 Total Accruals to Total Assets (TATA) > 1

TATA > 1 indicates that total accruals are higher than total assets which may lead possibility of earnings manipulation by early recognition of future expenses in accrued accounts (Beneish, 1999; Howard M. Schilit & Jeremy Perler, 2010). Based on a study by Tarjo and Nurul Herawati (2015) showed that TATA can be used as manipulation detection index. Thus, the study has developed the following hypothesis:

H_8: TATA gives the statistically significant difference between the manipulator and non-manipulator companies.

3.6.8 Leverage Index (LVGI) > 1

LVGI > 1 indicates that there is an increase in leverage. It may also indicate incentives in debt covenants for earnings manipulation (Beneish, 1999). However, according to Tarjo and Nurul Herawati (2015), there was no significant effect on the financial statement fraud detection for LVGI. Thus, this study intends to prove that LVGI may help in detecting financial statement fraud. The study has developed the following hypothesis:

H_9: LVGI gives the statistically significant difference between the manipulator and non-manipulator companies.

Each variable result will be consolidated into a formula and arrived at a final decision:

$$M = -4.840 + (0.920*DSRI) + (0.528*GMI) + (0.0404*AQI) + (0.892*SGI) + (0.115*DEPI) – (0.172*SGAI) + (4.679*TATA) – (0.327*LVGI)$$

The final decision will be concluded by using pre-determined rules by Beneish M-Score Model:

a) M-Score > -2.22 = Manipulator

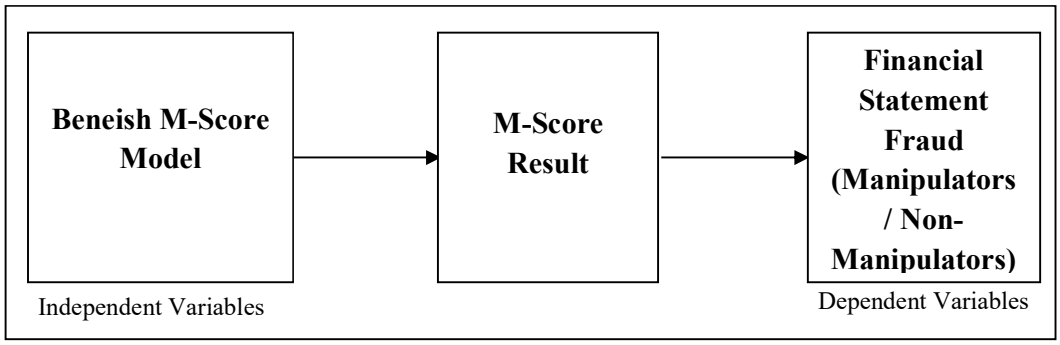
b) M-Score < -2.22 = Non-Manipulator

Furthermore, this study intends to verify the relationship amongst Beneish M-Score Model variables; whether there is variable that may cause or affect other variables in detecting financial statement fraud or earnings manipulation. Unfortunately, there were no previous researchs or studies to support and act as a basis for the analysis. Thus, the study has developed the following hypothesis:

H_{10}: There is causality amongst variables in Beneish M-score Model.

3.7 Research Framework

A research framework has been developed as guidance for this study based on the original study by Beneish (1999). The study will conduct an analysis to prove whether the Beneish M-Score Model may trigger and detect financial statement fraud in Malaysian Public Listed Companies.



Source: The Detection of Earnings Manipulation, Messod D. Beneish (1999)

Figure 7: Research Framework

3.8 Techniques of Data Analysis

In this section, the study highlighted the methods of data analysis. The data collected is not normally distributed. Thus, non-parametric analysis will be used to satisfy the analysis. The study will use several data analysis tools such as Microsoft Excel to conduct Beneish M-Score Model analysis, SPSS Statistics Version 23 and Eviews Student Lite Version to conduct the other analyses stated as follows:

3.8.1 Beneish M-Score Model Analysis

The financial data has been analyzed using Beneish M-Score simulation templates in Microsoft Excel. The template is available from previous researchers with minor changes on the formulas. The details of the formulas have been discussed in the previous chapter.

The result will be auto-generated in the template and verification of the result need to be conducted to ensure the accuracy. Later, the study consolidates all the data result in a worksheet and further analysis takes place.

Each component in Independent Variable for each company been analyzed and commented based on the pre-determined rules discussed in the previous chapter. The study also analyzed the M-Score result for each company compared to the pre-determined rules. Furthermore, the M-Score result which shown the result of manipulators been vetted with some qualitative information to prove that the M-Score model may predict and detect any possibility of fraud. Information such as major restructuring, listed as PN17 and GN3 companies, allegations of fraud to the company's officials and etc.

After satisfy all analysis stages, the study comes up with a conclusion on the applicability of the Beneish M-Score Model in detecting financial statement fraud.

3.8.2 Descriptive Statistics

Descriptive statistics is often used to define the basic structures of data. It summarized the data in a table based on the scale variables and measures of the data (Statistics Solutions, 2017). There are two (2) types of measurement in descriptive statistics:

a) Central tendency measurement

Central tendency measures the average value of the data samples. There are two (2) types of average: Mathematical average, Mean, and Positional average, Median and Mode.

b) Dispersion measurement

Dispersion measures the spread or variation between mean. There are two (2) types of dispersion; Variance and Standard Deviation.

3.8.3 Frequencies Statistics

Frequencies statistics procedure may be presented in a tabular or graphical setup which shows the number of observations within a given interval. The intervals must be mutually exclusive and comprehensive, and the interval size depends on the data being analyzed and the goals of the analyst (Investopedia, 2017). Frequencies statistics analysis has been conducted using the data prepared during the Beneish Model analysis.

3.8.4 Mann-Whitney U Test

Mann-Whitney U test is a non-parametric alternative test to the independent samples t-test that used to compare two (2) sample means are equal or not. Mann-Whitney U test is used when the data is ordinal or when the assumptions of the t-test are not met (Statistics Solutions, 2017).

Mann-Whitney U test commonly used in the field of psychology, healthcare, business and many other disciplines for strategy formulation. Mann-Whitney U test may be used to examine different people preferences and to check whether different location may affect the preferences (Statistics Solutions, 2017).

Mann-Whitney U test result will be based on asymptotic significance 2-tailed known in the symbol of *P* and Z-score result known in the symbol of *Z*. The study will reject the null hypothesis if $P < 0.05$ or Z is less than -1.96 or more than 1.96. The study will use a significance level of 0.05 or 5% of confidence level. Meanwhile, for Z-score, the study will use critical region of -1.96 and

1.96 since the study decided to use 2-tailed hypothesis method (Statistics Solutions, 2017).

3.8.5 Granger Causality Test

Granger Causality test is a statistical test based on the prediction. It is a mathematical formula based on linear regression modeling of stochastic processes. Granger causality developed in 1969 by Professor Clive Granger (Seth, 2007).

The objective of Granger causality test is to investigate the relationship between cause and effect among the variables and to know if there is a particular variable that may cause or affect the other variables (Granger, 1969).

CHAPTER FOUR

RESULT AND DISCUSSION

4.1 Introduction

This chapter outlines the results of data analysis obtained from data collected from the financial statements published by the 33 problematic companies selected for the study; 17 Companies listed as PN17, six (6) Companies listed as GN3 and 10 proven fraud Companies. The purposes of the study are to assess the applicability of Beneish Model in detecting financial statement fraud from a Malaysian perspective, to identify financial statement information that may indicate the company engaged in fraud and to examine the determinants factors that explain the companies detected fraud and to non-fraud.

The result of the data analysis and findings will be explained further in this chapter. In the second section, the study will discuss the descriptive statistics result of each independent variable. Later, in the third section, the study will discuss the findings of Beneish M-Score Model analysis. Furthermore, in forth section, the study will discuss the relationship between manipulators and non-manipulators by using Mann-Whitney U Test analysis. Lastly, in the fifth section, the study will discuss the result of Granger Causality Test analysis. These analyses are conducted in order to investigate whether the results are consistent with hypotheses that developed in Chapter Three.

For convenience, the hypotheses are restated as follows:

H_1: The Beneish M-Score Model may assist as a tool in detecting financial statement fraud.

H_2: DSRI gives the statistically significant difference between the manipulator and non-manipulator companies.

H_3: GMI gives the statistically significant difference between the manipulator and non-manipulator companies.

H_4: AQI gives the statistically significant difference between the manipulator and non-manipulator companies.

H_5: SGI gives the statistically significant difference between the manipulator and non-manipulator companies.

H_6: DEPI gives the statistically significant difference between the manipulator and non-manipulator companies.

H_7: SGAI gives the statistically significant difference between the manipulator and non-manipulator companies.

H_8: TATA gives the statistically significant difference between the manipulator and non-manipulator companies.

H_9: LVGI gives the statistically significant difference between the manipulator and non-manipulator companies.

H_{10}: There is causality amongst variables in Beneish M-score Model.

4.2 Descriptive Statistics

To understand the characteristics of the data, the study conducted a descriptive statistics analysis on the data. Table 3 contains a comparison of the distribution of mean, median, maximum, minimum and standard deviation for manipulators and non-manipulators.

Table 3: Descriptive statistics on manipulators and non-manipulators

Variables	Mean		Median		Maximum		Minimum		Standard Deviation	
	Manipulator	Non-manipulator	Manipulator	Non-manipulator	Manipulator	Non-manipulator	Manipulator	Non-manipulator	Manipulator	Non-manipulator
DSRI[1]	1.2883	0.9407	1.1053	0.8374	5.1147	1.2609	0.7700	0.8075	0.8154	0.1897
GMI[2]	1.7891	-1.0436	1.1022	0.2352	13.2176	0.9256	-15.7228	-6.2983	5.0221	2.9923
AQI[3]	2.0451	0.3854	0.7920	0.4105	19.4697	1.0035	0.0000	0.0000	3.9916	0.4172
SGI[4]	1.2093	1.0296	1.0629	1.0168	2.8678	1.2564	0.8173	0.7735	0.4687	0.1753
DEPI[5]	7.5813	1.0153	1.0592	1.0503	182.0331	1.2170	0.6261	0.8204	34.1905	0.1604
SGAI[6]	7.7436	2.3667	1.3185	1.2662	179.6082	5.2623	0.9041	0.5542	33.6846	2.1237
TATA[7]	-10.2823	-3.4024	-0.1362	-0.2397	0.0545	0.0480	-283.3684	-14.6551	53.5203	6.3512
LVGI[8]	19.4763	4.7928	1.1411	1.2415	512.0203	15.3119	0.7657	1.0544	96.5300	6.1535

[1] Days' Sales in Receivables Index
[2] Gross Margin Index
[3] Assets Quality Index
[4] Sales Growth Index
[5] Depreciation Index
[6] Selling, General and Administration Expenses Index
[7] Total Accruals to Total Assets
[8] Leverage Index

Based on the analysis results, the study shows that mean for manipulators have significantly larger compared to non-manipulators for all variables except for TATA. In this study, TATA result will have an insignificant impact since the index does not detect any manipulation. The results are consistent with the previous study by Prof. Beneish in 1999. The study stated that manipulator companies have higher mean compared to non-manipulator companies (Beneish, 1999). Therefore, based on descriptive statistics, there are significant differences between manipulators and non-manipulators.

4.3 Beneish M-Score Model

Based on the analysis conducted on 33 companies, Beneish Model has successfully detected 28 companies, 84.8%, that manipulated their financial statements. This result is congruence with the study by Tarjo and Nurul Herawati (2015). In their study, Beneish M-Score Model had detected 27 out of 35 committed fraud companies with the success rate of 77.1% (Tarjo & Nurul Herawati, 2015).

Thus, the study may conclude that Beneish M-Score Model may help stakeholders to analyze and predict which companies have manipulated their financial statements. Table 4 shows the result of the analysis.

Table 4: Manipulation detection result on 33 Companies

Manipulation	Companies	%
Not Detected	5	15.2
Detected	28	84.8
Total	**33**	**100.0**

Table 5: Manipulation detected companies based on Market

Board	Companies	%
Main Market	22	78.5
ACE Market	6	21.5
Total	**28**	**100.0**

Based on Table 5, Main Market companies have a higher detection rate of 78.5% compared to ACE Market companies; 21.5%. This is due to larger number of companies listed in Main Market compared to ACE Market. For the year 2016, there were 791 companies listed in Main Market which represents 87.50% of the total market and 113 companies listed in ACE Market.

Table 6: Companies which Beneish Model failed to detect any manipulation

No.	Name of Company	Remarks
1.	Malaysia Pacific Corporation Berhad	PN17
2.	TPC Plus Berhad	PN17
3.	Asiaep Resources Berhad	GN3
4.	CyberTowers Berhad	GN3
5.	Transmile Group Berhad	Proven Fraud

As shown in Table 4 previously, Beneish Model failed to detect any financial statements manipulation in five (5) other companies which represent a failure rate of 15.2%. The study had listed the five (5) companies in Table 6 and noted one (1) of the companies is Transmile Group Berhad which has been proven committed fraud. Thus, it shows that the Beneish M-Score Model is not a holy grail to give assurance of 100% detection (Tarjo & Nurul Herawati, 2015).

Alternatively, stakeholders may look into individual Beneish M-Score Model variable index. Any individual variable index exceeding one (1) should be noted i.e. there are three (3) indexes more than one (1) for Transmile Group Berhad;

SGI: 1.10, SGAI: 5.26 and LVGI: 1.24. This may give some ideas and views before stakeholders make any investment decision (Muntari Mahama, 2015).

Table 7: Frequency of detections on 28 Companies from the highest detection to the lowest detection

No.	Name of Company	Detection Frequency	Detection Year
1.	Iris Corporation Berhad	7	2014, 2013, 2010, 2006, 2005, 2004 & 2003
2.	Axis Incorporation Berhad	5	2010, 2008, 2007, 2006 & 2005
3.	Nakamichi Corporation Berhad	4	2012, 2011, 2009 & 2007
4.	YFG Berhad	4	2014, 2013, 2012 & 2007
5.	LION Diversified Holdings Berhad	4	2015, 2010, 2008 & 2007
6.	Golden Plus Holdings Berhad	4	2007, 2006, 2004 & 2003
7.	WELLI Multi Corporation Berhad	4	2004, 2003, 2002 & 2000
8.	CN Asia Corporation Berhad	3	2013, 2010 & 2007
9.	LFE Corporation Berhad	3	2013, 2011 & 2009
10.	Maxwell International Holdings Berhad	3	2015, 2012 & 2011
11.	Wintoni Group Berhad	3	2014, 2013 & 2008
12.	Scan Associates Berhad	3	2012, 2010 & 2009
13.	Linear Corporation Berhad	3	2007, 2003 & 2002
14.	DIS Technology Holdings Berhad	3	2009, 2007 & 2005
15.	Fountain View Development Berhad	3	2005, 2004 & 2003
16.	Haisan Resources Berhad	2	2013 & 2007
17.	HB Global Limited	2	2012 & 2011
18.	JAVA Berhad	2	2008 & 2007
19.	Kuantan Flour Mills Berhad	2	2014 & 2009
20.	LION Corporation Berhad	2	2009 & 2007
21.	Perwaja Holdings Berhad	2	2009 & 2008
22.	Diversified Gateway Solutions Berhad	2	2014 & 2007
23.	R&A Telecommunication Group Berhad	2	2014 & 2011
24.	Asia Knight Berhad	1	2012
25.	Petrol One Resources Berhad	1	2010
26.	EKA Noodles Berhad	1	2008
27.	Kenmark Industrial Co. (M) Berhad	1	2004
28.	Megan Media Holdings Berhad	1	2004

Furthermore, as shown in Table 7, the study had investigated on the frequency of detections for the 28 companies and noted that the median and mode of detections are 3 times.

Based on the result of the analysis, the study conducted a qualitative review on each company whether there were news or announcement by the company, regulators etc. before, within or after the year of detections. This review may give another view on the relationship between the year of detection to any significant event happened to the companies that may negatively impact stakeholders such as news on civil or criminal action, removal of CEO or member of the Board of Directors, removal of auditor, slips into PN17 or GN3 status, takeovers, delisted from the Bursa or even worst, go bankrupt. Table 8 shows the announcement involving the 28 companies.

Table 8: News or announcement by the company, regulators etc.

No.	Name of Company	News / Announcement
1.	Iris Corporation Berhad	2006 – Investigation started on share manipulation between 2004 – 2005. 2017 – Auditor qualifies Iris FY17 accounts.
2.	Axis Incorporation Berhad	2007 – Suffered substantial asset written-off due to the missing of several official documents and records belong to the company 2011 – Delisted from Bursa Malaysia. 2013 – Charged on false statement relating to the revenue between 2006 – 2008.
3.	Nakamichi Corporation Berhad	2013 – CEO ousted at EGM. 2015 – Slipped into PN17 status. 2017 – Charged for failed to announce annual audited financial statements for FY13 and FY14.
4.	YFG Berhad	2015 - Slipped into PN17 status. 2016 – BODs sanctioned by SC for breaching CMSA 2007 by knowingly authorized the furnishing of false and misleading information. BODs ousted in EGM.
5.	LION Diversified Holdings Berhad	2013 – Slipped into PN17 status.
6.	Golden Plus Holdings Berhad	2009 – Share suspended due to missed the deadline for the release of FY08 audited financial statements. 2014 – Failed to issue audited financial statements for four (4) years, FY10 – FY13. 2016 – Charged with breach of five (5) Bursa Malaysia Main Market Listing Requirement.
7.	WELLI Multi Corporation Berhad	2008 – Charged on misleading of revenue figures in FY05 audited financial statements and quarterly report in FY06. Changed its name to Energreen Corporation Berhad in November 2008.
8.	CN Asia Corporation Berhad	2015 - Slipped into PN17 status and removal of SJ Grant Thornton as the company's auditor.
9.	LFE Corporation Berhad	2010 – The director charged for nine (9) charges involving fraud and misconduct; three (3) charges under Securities Act 1983 for manipulating share price, two (2) charges under Capital Market Services Act 2007 for knowingly permitted the furnishing of false quarterly FY07 financial statements to Bursa Malaysia, four (4) charges for criminal breach of trust under Section 409 of the Penal Code. 2012 - Slipped into PN17 status.
10.	Maxwell International Holdings Berhad	2016 – Investigation on advertisement expenditure by Ferrier Hodgson Monteiro Heng Sdn Bhd. Slipped into PN17 status.
11.	Wintoni Group Berhad	2016 - Slipped into GN3 status. 2017 – Undergoing the process of delisting from Bursa Malaysia and liquidating.

Table 8: News or announcement by the company, regulators etc. (cont.)

No.	Name of Company	News / Announcement
12.	Scan Associates Berhad	2009 – CEO dismissed by Board of Directors due to his involvement in manipulating revenue figures FY05 and FY07 to mislead and defraud the Board of Directors and Shareholders about the performance of the company. 2015 – Slipped into GN3 status.
13.	Linear Corporation Berhad	2012 – Delisted from Bursa Malaysia. 2015 – Ex-director charged for authorizing a false statement to Bursa Malaysia in 2009.
14.	DIS Technology Holdings Berhad	2010 – Announcement on possible misstatement of revenue in FY08 and FY09 due to fraudulent activities. Slipped into GN3 status.
15.	Fountain View Development Berhad	2010 – Ex-director charged for misleading appearance of active trading of shares in FY03 and FY04. Delisted from Bursa Malaysia.
16.	Haisan Resources Berhad	2010 – Slipped into PN17 status. 2016 – Delisted from Bursa Malaysia.
17.	HB Global Limited	2013 – Slipped into PN17 status.
18.	JAVA Berhad	2015 – Default in Term Loan payment. Cessation of timber operations. 2016 – Slipped into PN17 status. 2017 – Delisted from Bursa Malaysia.
19.	Kuantan Flour Mills Berhad	2015 – Slipped into PN17 status. Based on the study analysis from FY06 – FY15, the company only profit in 2008 before dropped by 321% in 2009.
20.	LION Corporation Berhad	2007 – Debt and corporate restructuring exercise. 2013 – Slipped into PN17 status. 2016 – Delisted from Bursa Malaysia.
19.	Kuantan Flour Mills Berhad	2015 – Slipped into PN17 status. Based on the study analysis from FY06 – FY15, the company only profit in 2008 before dropped by 321% in 2009.
20.	LION Corporation Berhad	2007 – Debt and corporate restructuring exercise. 2013 – Slipped into PN17 status. 2016 – Delisted from Bursa Malaysia.
21.	Perwaja Holdings Berhad	2013 – Slipped into PN17 status. 2017 – Delisted from Bursa Malaysia.
22.	Diversified Gateway Solutions Berhad	2016 – Slipped into GN3 status.
23.	R&A Telecommunication Group Berhad	2015 – Slipped into GN3 status.

Table 8: News or announcement by the company, regulators etc. (cont.)

No.	Name of Company	News / Announcement
24.	Asia Knight Berhad	2014 – Slipped into PN17 status.
25.	Petrol One Resources Berhad	2012 – Slipped into PN17 status.
26.	EKA Noodles Berhad	2014 – Corporate restructuring. 2016 – Slipped into PN17 status.
27.	Kenmark Industrial Co. (M) Berhad	2010 – Making false statement to Securities Commission of Malaysia and insider trading. Delisted from Bursa Malaysia.
28.	Megan Media Holdings Berhad	2007 – Ex-financial controller and ex-director were charged with furnishing false revenue figures to Bursa Malaysia for FY06 and quarterly report for the financial period July 2006 until January 2007.

Based on Table 8, the study found out that, for most of the companies, there was subsequent event happened after the year of detection of financial statements manipulation. There were cases happened in the same year of the detection, there were cases happened few years after the detection. However, the detection of manipulation is not absolute.

Beneish M-Score Model detection act as a red flag of financial statement manipulation. Further investigation should be conducted to ensure the accuracy of the detection. However, for the best interest of the stakeholders, it is better to take preventive measures when the Beneish M-Score Model detects any manipulation in the financial statement.

4.4 Mann-Whitney U Test

Furthermore, the study has conducted Mann-Whitney U test to validate the significance among the group of manipulators and non-manipulators. Table 9 below shows the result of the study.

Table 9: The significance among the group of manipulators and non-manipulators

Variable	Status	Mean	Z Score	Asymp. Sig. (2-tailed)
DSRI	Manipulator	1.2883	-1.987	0.047
	Non-manipulator	0.9407		
GMI	Manipulator	1.7891	-2.785	0.005
	Non-manipulator	-1.0436		
AQI	Manipulator	2.0451	-0.813	0.416
	Non-manipulator	0.3854		
SGI	Manipulator	1.2093	-0.813	0.416
	Non-manipulator	1.0296		
DEPI	Manipulator	7.5813	-0.181	0.857
	Non-manipulator	1.0153		
SGAI	Manipulator	7.7436	-2.042	0.041
	Non-manipulator	2.3667		
TATA	Manipulator	-10.2823	0.000	1.000
	Non-manipulator	-3.4024		
LVGI	Manipulator	19.4763	-0.607	0.544
	Non-manipulator	4.7928		

As explained earlier in the descriptive statistics section, mean for manipulator companies have significantly larger compared to non-manipulator companies for all variables except for TATA. Thus, TATA result will have an insignificant impact since Beneish M-Score Model does not detect any manipulation. However, based on Table 9, only three (3) variables have $P < 0.05;$ DSRI: 0.047, GMI: 0.005 and SGAI: 0.041. These variables have statistically significant differences between the manipulator and non-manipulator companies. Furthermore, the *Z*-score result of these three (3) variables was less than the critical region value of -1.96; DSRI: -1.987, GMI: -2.785 and SGAI: -2.042. The

critical region value is based on a significance level of 0.05 and 2-tailed hypothesis method.

The result except for DSRI is consistent with Tarjo and Nurul Herawati (2015) which in their study stated that GMI and SGAI can be applied as a tool to detect manipulation. Furthermore, in a study conducted by Muntari Mahama (2015) on Enron, DSRI can be applied as a tool to detect manipulation since DSRI detected manipulations two (2) years in a row.

4.5 Granger Causality Test

The study also conducted Granger Causality test to investigate the relationship between cause and effect among the variables. The objective of the analysis is to investigate if there is a particular variable that may cause or affect the other variables. The 33 companies tested with a lag value of 3. The result of the analysis is shown in Table 10. Any probability value less than 0.05; $p < 0.05$, will result in X Granger Cause Y.

Table 10: The relationship between cause and effect among variables

Null Hypothesis:	Obs.	F-Statistic	Prob.
DEPI does not Granger Cause AQI	30	0.73590	0.5413
AQI does not Granger Cause DEPI		0.58890	0.6285
DSRI does not Granger Cause AQI	30	2.27119	0.1072
AQI does not Granger Cause DSRI		0.83833	0.4867
GMI does not Granger Cause AQI	30	0.56885	0.6411
AQI does not Granger Cause GMI		0.32338	0.8084
LVGI does not Granger Cause AQI	30	1.17862	0.3396
AQI does not Granger Cause LVGI		2.11707	0.1258
SGAI does not Granger Cause AQI	30	1.24605	0.3160
AQI does not Granger Cause SGAI		0.11472	0.9506
SGI does not Granger Cause AQI	30	0.21745	0.8833
AQI does not Granger Cause SGI		1.57195	0.2233

Table 10: The relationship between cause and effect among variables (cont.)

Null Hypothesis:	Obs.	F-Statistic	Prob.
DSRI does not Granger Cause DEPI	30	1.07114	0.3807
DEPI does not Granger Cause DSRI		0.91108	0.4510
GMI does Granger Cause DEPI	30	6.09252	0.0033
DEPI does not Granger Cause GMI		0.98197	0.4185
LVGI does not Granger Cause DEPI	30	0.86335	0.4742
DEPI does not Granger Cause LVGI		0.25621	0.8561
SGAI does not Granger Cause DEPI	30	0.34368	0.7940
DEPI does not Granger Cause SGAI		0.18572	0.9050
SGI does not Granger Cause DEPI	30	2.22983	0.1119
DEPI does not Granger Cause SGI		1.39711	0.2690
GMI does not Granger Cause DSRI	30	0.35285	0.7875
DSRI does not Granger Cause GMI		1.62125	0.2119
LVGI does not Granger Cause DSRI	30	0.45583	0.7157
DSRI does not Granger Cause LVGI		0.04701	0.9861
SGAI does not Granger Cause DSRI	30	0.54906	0.6538
DSRI does not Granger Cause SGAI		0.64026	0.5968
SGI does Granger Cause DSRI	30	5.86663	0.0040
DSRI does not Granger Cause SGI		0.86824	0.4717
LVGI does not Granger Cause GMI	30	0.54449	0.6568
GMI does not Granger Cause LVGI		0.46224	0.7114
SGAI does not Granger Cause GMI	30	2.18361	0.1174
GMI does not Granger Cause SGAI		0.24939	0.8609
SGI does Granger Cause GMI	30	3.97510	0.0203
GMI does not Granger Cause SGI		0.10354	0.9572
SGAI does not Granger Cause LVGI	30	0.86047	0.4756
LVGI does Granger Cause SGAI		3.61635	0.0284
SGI does not Granger Cause LVGI	30	0.62711	0.6048
LVGI does not Granger Cause SGI		1.19919	0.3322
SGI does not Granger Cause SGAI	30	0.52249	0.6711
SGAI does Granger Cause SGI		3.28808	0.0388

Table 11: Summary of the variables that does Granger Cause the other variables

Null Hypothesis:	Obs.	F-Statistic	Prob.
GMI does Granger Cause DEPI	30	6.09252	0.0033
SGI does Granger Cause DSRI	30	5.86663	0.0040
SGI does Granger Cause GMI	30	3.97510	0.0203
LVGI does Granger Cause SGAI	30	3.61635	0.0284
SGAI does Granger Cause SGI	30	3.28808	0.0388

The study had summarized the analysis in Table 11 and noted only four (4) variables does Granger Cause to the five (5) variables, $P < 0.05$, namely; GMI does Granger Cause DEPI with *P* value of 0.0033, SGI does Granger Cause DSRI with *P* value of 0.0040 and GMI with *P* value of 0.0203, LVGI does Granger Cause SGAI with *P* value of 0.0284, and SGAI does Granger Cause SGI with *P* value of 0.0388. In other words, these four (4) variables may give cause and effect to the other five (5) variables. Furthermore, based on the analysis, the study noted variables that do Granger Cause with the other variables have higher F-Statistics score compared to the variables that do not Granger Cause with other variables.

In addition, the lowest *P* score is 0.0033 for GMI does Granger Cause DEPI with the highest F-Statistics score of 6.09252. This may give an idea that manipulation in depreciation may depend on the level of gross margin index.

Therefore, the study rejects the null hypotheses for these four (4) variables. Furthermore, the study noted that Granger Causality runs only one-way, either in X Granger Cause Y or Y Granger Cause X but not in both ways (Seth, 2007; Granger, 1969).

4.6 Summary

The study focused on the financial statements of 33 companies listed in Bursa Malaysia. These companies were problematic which 17 out of 30 companies were listed as PN17, 10 companies were proven committed fraud and the remaining six (6) were listed as GN3 companies. Companies listed under PN17 and GN3 are companies that having financial distress and high possibilities of bankruptcy.

Based on the analysis conducted on 33 companies, Beneish Model has successfully detected 28 companies, 84.8%, that manipulated their financial statements. Thus, the study may conclude that Beneish M-Score Model may help stakeholders to analyze and predict which companies have manipulated their financial statements. However, the other five (5) companies; 15.2%, Beneish Model failed to detect any financial statements manipulation. One (1) of the companies that Beneish M-Score Model failed to detect any manipulation in financial statements is Transmile Group Berhad which has been proven committed fraud. It shows that the Beneish M-Score Model is not a holy grail to give assurance of 100% detection.

Alternatively, stakeholders may look into individual Beneish M-Score Model variable index. Any individual variable index exceeding one (1) should be noted i.e. there are three (3) indexes more than one (1) for Transmile Group Berhad; SGI: 1.10, SGAI: 5.26 and LVGI: 1.24. This may give some ideas and views before stakeholders make any investment decision.

The study also found out that, for most of the companies, there was subsequent event happened after the year of detection of financial statements manipulation. There were cases happened in the same year of the detection, there were cases happened few years after the detection. However, the detection of manipulation is not absolute.

Furthermore, based on Mann-Whitney U test, only three (3) variables have $P < 0.05;$ DSRI: 0.047, GMI: 0.005 and SGAI: 0.041. These variables have statistically significant differences between the manipulator and non-manipulator companies. These variables also have smaller and significant difference of Z-Score compared to the other variables.

The study also conducted Granger Causality test to investigate the relationship between cause and effect among the variables. The objective of the analysis is to know if there is a particular variable that may cause or affect the other variables. The 33 companies tested with a lag value of 3. Any probability value less than 0.05; $p < 0.05$, will result in X Granger Cause Y. As shown in table 9, only four (4) variables do Granger Cause to the five (5) variables, namely; GMI does Granger Cause DEPI, SGI does Granger Cause DSRI and GMI, LVGI does Granger Cause SGAI, and SGAI does Granger Cause SGI. In other words, these four (4) variables may give cause and effect to the other five (5) variables. Therefore, the study rejects the null hypotheses for these four (4) variables. Furthermore, the study noted that Granger Causality runs only one-way, either in X Granger Cause Y or Y Granger Cause X but not in both ways.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1 Overview of the Study

The purposes of the study are to assess the applicability of Beneish Model in detecting financial statement fraud from a Malaysian perspective, to identify financial statement information that may indicate the company engaged in fraud, and to examine the relationship amongst variables in Beneish Model.

Beneish M-Score Model developed in 1997 by Professor Messod Daniel Beneish from Kelley School of Business, Indiana University may be used as a tool to detect financial statement fraud. A study conducted by Beneish (1999) has suggested that there is a systematic relationship between the probability of manipulation and some financial statement variables. Beneish M-Score Model consists of eight (8) variables; DSRI, GMI, AQI, SGI, DEPI, SGAI and TATA. From these variables, the study will derive to M-Score analysis result. Based on the M-Score result, the study may conclude the Dependent Variables; if M-Score > -2.22 the companies will be classified as manipulators and if M-Score < -2.22 the companies will be classified as non-manipulators (Beneish, 1999).

The study may help stakeholders i.e. decision makers, investment community and regulators to have more ideas on how to assess the health, stability and future growth of companies based on their financial statements. Furthermore, with this

study, stakeholders may detect any misstatement or earnings manipulation conducted by companies' management. The study also would benefit for future research on financial statement fraud in Malaysia especially when the research involves Public Listed Companies (PLCs).

5.2 Conclusion of the Study

Based on the finding in Chapter 4, Beneish M-Score Model can be a good analysis tool since the model has successfully detected 28 companies which represent 84.8% of total samples that manipulated their financial statements and only five (5) companies which represent 15.2% of total samples that Beneish Model failed to detect any financial statements manipulation.

For the other five (5) undetected companies, stakeholders may look into individual Beneish M-Score Model variable index to investigate further on significant increases in certain variables. Any individual variable index exceeding one (1) should be taken into consideration. This may give some ideas and views before stakeholders make any investment or operational decision. It is also a good tool for auditors, forensic accountants and fraud examiners in conducting audit fieldwork or investigation to identify any discrepancy of control or fictitious transactions.

Stakeholders also need to be aware of the announcement made by the company, regulatory body or any pressure group in the industry. Based on the study findings, there is a relationship between Beneish M-Score Model detection and significant events happened to the companies that may negatively impact

stakeholders such as news on civil or criminal action, removal of CEO or member of the Board of Directors, removal of auditor, slips into PN17 or GN3 status, takeovers, delisted from the Bursa or even worst, go bankrupt.

Furthermore, among the eight (8) variables, stakeholders may focus on three (3) variables that have statistically significant differences between the manipulator and non-manipulator companies. There are Days' Sales in Receivables Index (DSRI), Gross Margin Index (GMI) and Selling, General and Administration Expenses Index (SGAI).

Last but not least, stakeholders need to know there are four (4) variables may give cause and effect to or will influence the other five (5) variables. There are:

1) GMI ► DEPI
2) SGI ► DSRI and GMI
3) LVGI ► SGAI
4) SGAI ► SGI

However, these variables only run one-way, either in X ► Y or Y ► X but not in both ways.

Therefore, from the above observations, the study may conclude that Beneish M-Score Model may help stakeholders to detect any misstatement or earnings manipulation conducted by companies' management.

5.3 Limitations

As discussed in Chapter one (1), since the study applied the quantitative method using secondary data, the study faced several limitations:

a) Lack of reliability on the analysis results because there are lot of qualitative factors may affect the performance of companies such as management of companies, companies' philosophy and directions, external economic factors, fiscal and monetary policy etc.;

b) Formula given may not cater the analysis and need some adjustments that will affect the outcome of analysis;

c) Result of the analysis is based on the pre-determined rules which may sometimes not applicable or unreasonable;

d) M-Score Model is a probabilistic model. Thus, there is no assurance that the analysis will be 100% accurate;

e) Lack of the ability to identify patterns in fraudulent companies when the companies may have properly concealed the fraud activities;

f) Making conclusions or judgments on the analysis may sometimes lead to errors which will be discussed in Chapter three (3);

g) Limited studies on the Beneish Model especially on Malaysia perspective;

h) The analysis result may not give significant impact if compared to the total population of public listed companies due to small samples.

i) Proven fraud companies were selected from the year 2005 onwards due to differences in financial statement presentation for year prior 2005.

5.4 Recommendations

Although there are many investment analysis tools in the market, many of them are not available or too expensive for retail investors, Medium size companies etc. Thus, they will have less information to make investment decisions compared to institutional investors, brokerage firms, large corporations etc. Most of the times, they relied on analyst report prepared by the Research Houses or Investment Banks.

Therefore, Beneish M-Score Model may assist to analyze whether there were manipulations in the financial statement of a company. However, it is not the holy grail of fraud detection but may trigger the red flag of fraud. Beneish M-Score Model is a probabilistic model. Thus, there is no assurance that the analysis will be 100% accurate.

Stakeholders may also compliment the analysis with other analysis tools such as Dechow F-Score Model, Ratio Analysis, Altman Z-Score for bankruptcy test etc. to ensure more holistic views on the financial conditions of a company.

Finally, to become wise decision maker, stakeholders also need to be concerned on the corporate governance issues such as:

1) Corporate Structure (Major Shareholder, Substantial Shareholders, Holdings Company etc.);
2) Board of Directors (Experiences, Education Background, Professional Membership etc.);
3) The strength of Audit Committee of Board of Directors;

4) The strength of Internal Control System and Enterprise Risk Management;
5) The strength of Internal Audit team.

The abovementioned issues may help stakeholders to understand the direction and the strength of a company. The success of a company depends on who are the board members and the management team in driving the company towards glory.

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APPENDIX

Table 1: List of Companies listed as PN17, GN3 and Companies Proven Committed Fraud

No.	Name of Company	Remarks
1.	Asia Knight Berhad	PN17
2.	CN Asia Corporation Berhad	PN17
3.	Haisan Resources Berhad	PN17
4.	HB Global Limited	PN17
5.	JAVA Berhad	PN17
6.	Kuantan Flour Mills Berhad	PN17
7.	LFE Corporation Berhad	PN17
8.	LION Corporation Berhad	PN17
9.	Malaysia Pacific Corporation Berhad	PN17
10.	Nakamichi Corporation Berhad	PN17
11.	Perwaja Holdings Berhad	PN17
12.	Petrol One Resources Berhad	PN17
13.	TPC Plus Berhad	PN17
14.	YFG Berhad	PN17
15.	EKA Noodles Berhad	PN17
16.	LION Diversified Holdings Berhad	PN17
17.	Maxwell International Holdings Berhad	PN17
18.	Wintoni Group Berhad	GN3
19.	Asiaep Resources Berhad	GN3
20.	CyberTowers Berhad	GN3
21.	Diversified Gateway Solutions Berhad	GN3
22.	R&A Telecommunication Group Berhad	GN3
23.	Scan Associates Berhad	GN3
24.	Transmile Group Berhad	Proven Fraud
25.	Kenmark Industrial Co. (M) Berhad	Proven Fraud
26.	Megan Media Holdings Berhad	Proven Fraud
27.	Linear Corporation Berhad	Proven Fraud
28.	Golden Plus Holdings Berhad	Proven Fraud
29.	DIS Technology Holdings Berhad	Proven Fraud
30.	WELLI Multi Corporation Berhad	Proven Fraud
31.	Fountain View Development Berhad	Proven Fraud
32.	Iris Corporation Berhad	Proven Fraud
33.	Axis Incorporation Berhad	Proven Fraud

Source: Bursa Malaysia, September 2016 & Zayed Zulkifli, 2014.