



# PROCEEDINGS OF 5<sup>th</sup> MILTC 2023

MITRANS INTERNATIONAL  
LOGISTICS AND TRANSPORT  
CONFERENCE

20<sup>th</sup> DECEMBER 2023  
DEWAN SIVIK, PETALING JAYA CITY COUNCIL

## “TRANSPORT AND LOGISTICS IN EDUCATION FOR COMMUNITY”

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# **PROCEEDINGS OF 2023 MITRANS INTERNATIONAL LOGISTICS AND TRANSPORT CONFERENCE (MILTC2023)**

## **Organised by:**

Malaysia Institute of Transport (MITRANS)

## **Co-Organised by:**

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## PREFACE

The MITRANS International Logistics & Transport Conference (MILTC) has been an annual event since its inception in 2016. The fifth edition, MILTC2023, took place on 20<sup>th</sup> December 2023, at the Dewan Sivik, Petaling Jaya City Council, Selangor. The conference was organized in collaboration with several partners, including Majlis Bandaraya Petaling Jaya (MBPJ), Research Nexus in Transport and Logistics, ReNeu UiTM; Trisakti Institute of Transport and Logistics (ITL) from Indonesia; and the Chartered Institute of Transport Malaysia (CILTM) Selangor Section.

MILTC2023 featured two distinguished keynote speakers from academia and industry who shared their knowledge and experiences on the first day of the event. These speakers delivered insightful presentations that enriched the conference.

The conference received a total of 43 papers, which were selected for oral presentations during the two-day event. Authors from both industries and academia from Malaysia and Indonesia contributed to the conference by presenting their research findings, innovations, and technological advancements in the field of Transportation, Logistics, and Supply Chain.

The abstracts of all papers, along with a selection of full papers, are included in the conference proceedings. This publication aims to disseminate knowledge and contribute to the advancement of the field of Transport, Logistics, and Supply Chain within education while serving the community.

The organizing committee would like to express their sincere gratitude to the keynote speakers, secretariats from both MITRANS and MBPJ Learning City team (including academics, support staff, and students), the reviewers, and especially the authors and participants who made MILTC2023 a memorable event. The committee also acknowledges the support of the top management of MITRANS and UiTM in making the conference possible.

It is the committee's sincere hope that the Proceedings book will serve as a valuable resource for the advancement of knowledge in the field of Transport, Logistics, and Supply Chain.

### **Chief Editor**

**Associate Professor Ts. Dr. S Sarifah Radiah Shariff**

Deputy Director

Malaysia Institute of Transport (MITRANS)

Universiti Teknologi MARA (UiTM)

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## MESSAGE FROM THE ADVISOR OF MILTC 2023




Assalamu'alaikum warahmatullahi wabarakatuh, Peace Be Upon You.

Dear Distinguished Guests and Conference Participants,

We sincerely congratulate the success of the 5th MITRANS' International Logistics and Transport Conference 2023 (MILTC2023) to the Malaysia Institute of Transport (MITRANS), Universiti Teknologi MARA (UiTM), and conference committee members. Emerging technological advances are having a huge influence on supply chain management, logistics, and even transportation sustainability. The logistics industry benefits the most from its broad usage of manual methods and vast amount of data to retain. As a result, adding new technologies such as artificial and augmented intelligence, advanced analytics, and automation appears to be fashionable, original, and intriguing.

In keeping with our conference subject, "Transport and Logistics in Education for Community", we are aware that technology is advancing at a rapid pace, resulting in new solutions and innovations. Industries that specialize in these sectors would have to adapt to the new expectations and standards or risk falling behind. bear in mind, however, that new business models and industry participants have also had a key role in contributing to the challenges, so bear in mind that it is not only new technology that will influence these sectors in the future.



I would like to express my heartfelt appreciation to all participation and partnerships in making this event a success. Not to mention our four distinguished keynote speakers: Yang Berbahagia Prof Ir. Dr. Ahmad Kamil Arshad, Director of Institut Kejuruteraan Infrastruktur dan Pengurusan Mampan (IIESM), UiTM Shah Alam and Tuan Tpr. Lee Lih Shyan (Pengarah Perancangan Pembangunan of Petaling Jaya Council (MBPJ)).

Furthermore, we hope that this platform helped to the development of a strong synergy between academics and business. Last but not least, the conference would not be possible without the papers submitted by authors, thus we appreciate their efforts and participation in the MILTC2023. Finally, on behalf of the organizing committee, I really hope that this one day conference will be fruitful and engaging for all of you, motivating you to continue doing high-quality research.

Thank you

**Professor Ts. Dr. Norazah Abd Rahman**  
Deputy Vice-Chancellor (Research & Innovation)  
Universiti Teknologi MARA (UiTM)

## MESSAGE FROM THE CHAIRPERSON OF MILTC 2023



Assalamualaikum Warahmatullahi Wabarakatuh  
and Good Day.

As the conference chairperson and on behalf of Malaysia Institute of Transport (MITRANS), Universiti Teknologi Mara (UiTM), I would like to extend a warm appreciation to all speakers, co-organizers, and participants of the 5th MITRANS International Logistics and Transport Conference.

We would like to offer our heartfelt appreciation to all of the attendees who have responded positively to this conference. For this conference, we got 43 papers (from both international and local participants, from academics as well as industry).

MILTC 2023 is an MITRANS project to encourage research findings sharing among players in the transportation, logistics, and halal supply chain through oral presentations and publications. The goals are to foster research in these disciplines and to allow the sharing of new ideas. It comprises plenary sessions, keynote speeches, and oral presentations on various themes.

We think that everyone attending this conference shares the goal of researching and comprehending current and cutting-edge topics in order to remain at the forefront of knowledge. As a result, we really hope that the knowledge gathered from this conference will serve as a springboard for further investigation into the possibility of new research agendas for the benefit of humanity. Thus, it delivers high-quality scientific information as well as essential networking opportunities for scholars from across the world.

Finally, we'd want to take this occasion to thank all MILTC 2023 committee members for their time and effort. MILTC 2023 would not be a reality without their endless effort and hard work. Many thanks also to the co-organizer, UiTM management, and everyone else who helped make this conference a success.

Finally, we wish you a successful career ahead. Thank you.

**Associate Professor Madya Ts. Dr. S Sarifah Radiah Shariff**  
Chairperson Of MILTC 2023,  
Malaysia Institute of Transport (MITRANS) Universiti Teknologi MARA (UiTM)



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## FINANCIAL STATEMENT FRAUD DETECTION IN PUBLIC LISTED COMPANIES

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### Abstract

#### Purpose

The study aims to detect financial statement fraud in 220 companies listed in Bursa Malaysia.

#### Findings

The results indicate around 45% of the companies in the sample manipulated their financial statements. Financial stability is the only proxy affecting the presence of financial statement fraud.

#### Practical implications

Findings from this research can help auditors identify early warning signals of fraud in financial statements. Bursa Malaysia can use the information to encourage Malaysian publicly listed companies to enhance anti-fraud policies.

#### Originality/value

Quantitative method using Beneish model that is part of fraud triangle theory applied to the research framework. Factors included are financial stability, leverage, financial target, number of audit committees, and auditor changes.

**Keywords:** financial statement fraud, Beneish model, fraud triangle.

#### Introduction

Accounting fraud has become a significant concern in recent years, and fraudulent financial statements have been identified as the most costly. According to a report by the ACFE in 2020, companies lose an average of 5% of their income annually due to fraud. Malaysia is the third most investigated country for fraudulent activity, with a high prevalence of fraud cases that have resulted in negative consequences. The increasing cases of fraud in Malaysia are driven by workplace pressure, opportunities for profit, and rationalization. The government of Malaysia has taken initiatives to combat fraud, but unfortunately, fraudulent financial reporting cases continue to rise.

Detecting financial statement fraud is challenging as it often remains hidden from the public, accountants, and regulators, emphasizing the need for effective detection methods. The Beneish model is proposed as a tool, especially for public listed companies, to detect financial statement fraud using readily available annual report data. Despite efforts, financial statement fraud cases in Malaysia are increasing, posing risks to the country's reputation and



foreign investment, resulting in substantial investor losses. Key factors contributing to financial statement fraud include pressure, opportunities, and rationalization, emphasizing the need for improved fraud detection. Increasing awareness and understanding of financial statement fraud among society and the government are vital to achieving the goal of reducing fraud and benefiting companies, society, and the government in Malaysia.

The objective of this study includes identifying the presence of fraud on the annual report of public listed companies in Malaysia using the Beneish model. This study offers valuable insights for detecting financial fraud, benefiting companies, investors, analysts, regulators, and researchers. It creates greater awareness among society and the government, fostering caution regarding financial statement fraud. This study can also be shared through media platforms to educate the public and prevent fraud in financial reports.

## **Literature Review**

### ***Beneish Model***

The Beneish Model is a mathematical model that uses financial measures and ratios to predict the occurrence of financial fraud or a firm's proclivity to manipulate results (Gabrielli & Medioli, 2019). An M-score of less than -2.22 indicates that a company does not manipulate the financial statements in the accounting period. While an M-score greater than -2.22 signals that the company will likely be a manipulator (Gabrielli & Medioli, 2019; Herath & Albarqi, 2017; Sanad & Al-Sartawi, March 2021).

### ***Financial statement fraud Factors (Triangle Theory)***

Triangle theory describes a method for identifying factors that led to fraud, which are stated in three dimensions: pressure to achieve targets, opportunity to commit fraud, and rationalization of the fraudster. These three factors are present when there is fraud in an organization; thus, that organization's focus should be on removing or reducing the potential for fraud from the start by concentrating more on detecting fraud and prevention techniques (Cressey, 1953).

#### ***Pressure***

For most people, pressure creates a motive before committing a crime (e.g., money problems, gambling debts, alcohol or drug addiction, overwhelming medical bills, and greed). Many scholars agree with this statement (Soepriyanto et al., May 2021; Awalluddin et al., 2022; Rahmawati & Kassim, 2020; Sujeewa et al., 2018; Sánchez-Aguayo, 2022; Pramana et al., 2019; Omar et al., 2017; Soepriyanto et al., May 2021). The pressure level indicates how motivated a person is in a position of power to commit fraud (Nakashima, November 2017; Bakri et al., 2017). Thus, it can be concluded that pressure can arise for any employee at every level of the company for various reasons and can happen to anyone.

#### ***Opportunity***

Opportunity is the potential to conduct fraud undetected (Omar et al., 2017; Bakri et al., 2017). Pramana et al., (2019), Hashim et al., (2020), and Soepriyanto et al., (May 2021) stated that the causes of opportunity are poor control, lack of discipline, a shortage of access to information, a lack of an audit system, and boredom. Awalluddin et al. (2022) said that the

culprit would not behave stupidly to carry out fraud activity if there was an excellent opportunity since a considered opportunity is also defined as a method to escape without exposure.

### **Rationalization**

Rationalization describes how willing a person in a position of power is to let oneself conduct socially accepted and widely accepted manipulation due to their attitude or ethical standards. This statement is supported by a vast number of academics (Nakashima, November 2017; Sánchez-Aguayo, 2022; Pramana et al., 2019; Bakri et al., 2017; Hashim et al., 2020; Soepriyanto et al., May 2021). The type of mentality that is thought to lead to financial report misstatements implies company's culture allows workers to commit fraud since they assume the behaviour is normal (Bakri et al., 2017).

### **Methodology**

#### **Data**

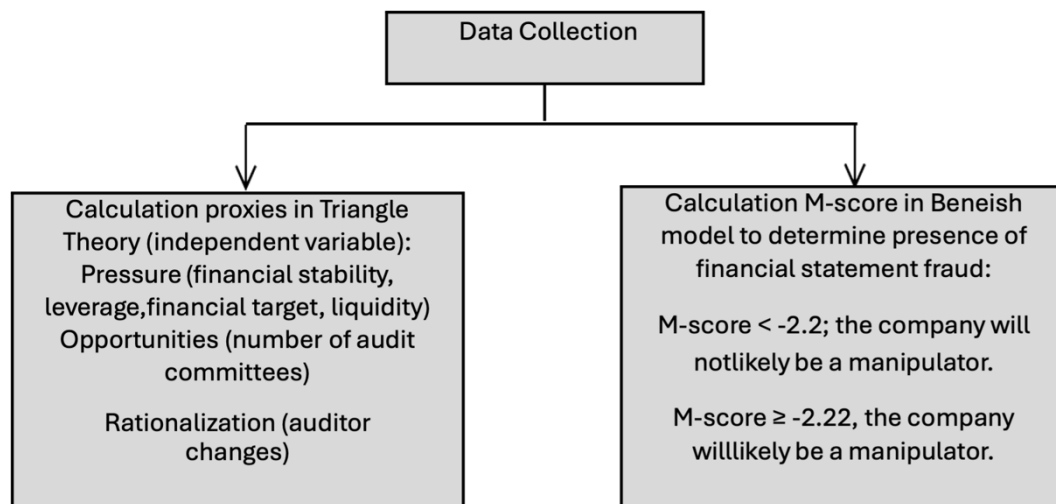
This study uses secondary data collected from the Bursa Malaysia website (<https://www.bursamalaysia.com>), which is freely available. The secondary data extracted on annual reports of publicly listed companies in a few sectors from 2012 to 2022. The secondary data choose five companies randomly by using random generator for each sector (manufacturing, services, agriculture and construction), and the company's name will not be revealed due to ethics. The total of dataset is 220 will be used in this study. The data of concern in the annual report of the company are total assets, total liabilities, income tax paid, current assets, current liabilities, number of independent directors, number of the board of directors, auditor changes, revenue, net receivables, direct costs, property, plant and equipment (PPE), depreciation, administrative costs, total accrual and non-current liabilities. The description of financial term is display in Table 1 respectively:

**Table 1:** Description of Financial Term

Attributes	Description	Data Type
Total assets	Values of all assets owned by the company, in ringgit (RM)	Ratio
Total liabilities	Total debts the company owes, in ringgit (RM)	Ratio
Income tax paid	Income tax payments, in ringgit (RM)	Ratio
Current asset	Asset convert into cash within one year,	Ratio
Current liabilities	Company's short-term financial obligations that are due within one year, in ringgit (RM)	Ratio
Number of independent directors	Number of Independent Commissioners	Ratio
Number of the board of directors	Number of Board of Commissioners	Ratio
Auditor changes	0: Not Changing Auditor 1: Changing Auditor	Nominal

Revenue	Sales, in ringgit (RM)	Ratio
Net Receivables	Total outstanding amount, in ringgit (RM)	Ratio
Direct cost	Cost of goods sold, in ringgit (RM)	Ratio
PPE	Property, plant and equipment, in ringgit (RM)	Ratio
Depreciation	Depreciation of property, plant and equipment, in ringgit (RM)	Ratio
Administrative costs	Sales, general and administrative expenses, in ringgit (RM)	Ratio
Total accrual	Amount owing to subsidiary companies, in ringgit (RM)	Ratio
Non-current liabilities	Long term debt, in ringgit (RM)	Ratio

### Research Methodology Framework



**Figure 1:** Research Methodology Framework

Secondary data from the Bursa website is used in data collection. Next, this study used the data collection to figure out the variable measurement for proxy in the pressure, opportunity and rationalization in the triangle theory which are financial stability, leverage, financial target, liquidity, the number of audit committees and auditor changes. The Beneish's M-score variable measurement must be calculated using collected data to determine whether a company's presence is fraud or vice versa. The independent variables use in this study are financial stability, leverage, financial target, liquidity, number of audit committees and auditor changes. While the binary dependent variable use in this study is the presence of financial statement fraud.

#### ***Triangle Theory Measurement Pressure***

Financial stability is the proxy for pressure. It seeks to identify fraud by companies or financial statement manipulation. Financial stability is the stability and consistency of a company's financial performance over time. Asset Growth (ASGR) uses as measurement for financial stability.

Formula:

$$\text{Asset Growth (AGROW)} = \frac{\text{Total asset}_t - \text{Total asset}_{t-1}}{\text{Total asset}_t}$$

Where;

$\text{Total asset}_t$  = total asset a year

$\text{Total asset}_{t-1}$  = total asset previous year

Leverage is the proxy for pressure. Leverage is the amount of a company's debt or financial liabilities to its equity or assets. Debt Ratio (DR) uses as measurement for leverage.

Formula:

$$\text{Debt Ratio (DR)} = \frac{\text{Total liabilities}_t}{\text{Total asset}_t}$$

Where;

$\text{Total liabilities}_t$  = total liabilities a year

$\text{Total asset}_t$  = total asset a year

Financial target is the proxy for pressure. Financial target is related to the short-term target of the company to make a certain amount of money. Return On Asset (ROA) uses as measurement for financial target.

Formula:

$$\text{Return On Asset (ROA)} = \frac{\text{Earnings after tax}_{t-1}}{\text{Total asset}_t}$$

Where;

$\text{Earnings after tax}_{t-1}$  = net income after tax previous year

$\text{Total asset}_t$  = total asset a year

Liquidity is the proxy for pressure. Liquidity is a company's ability to pay off its current debts. Working Capital to Total Assets (WCTA) uses as measurement for liquidity.

Formula:

**Opportunities**

Number of audit committees is the proxy for opportunities. The audit committee is the unit a company uses to supervise. Commissioners' Independent (CIND) uses as measurement for number of audit committees.

Formula:

$$\text{Commissioners' Independent (CIND)} = \frac{\text{Number of Independent Commissioners}_t}{\text{Number of Board Commissioners}_T}$$

Where;

*Number of Independent Commissioners<sub>t</sub>* = Number of independent commissioners a year

*Number of Board Commissioners<sub>T</sub>* = Number of board commissioners a year

### **Rationalization**

Auditor changes is the proxy for rationalization. Information about the firm revealed by fraud is generally available from the auditor. A dummy variable coded as '1' indicates a change in auditor and coded as '0' indicates no change.

### **Beneish Model Measurement**

$$\text{M-score} = -4.84 + 0.92 \cdot \text{DRARI} + 0.528 \cdot \text{GPMI} + 0.404 \cdot \text{PQI} + 0.892 \cdot \text{RGI} + 0.115 \cdot \text{DPI} - 0.172 \cdot \text{RPAEI} + 4.679 \cdot \text{TATP} - 0.327 \cdot \text{FLI}$$

This formula from (Fitri et.al, 2019) to indicate presence of financial statement fraud by using Beneish M-score. An M-score of less than -2.22 indicates that a company does not manipulate the financial statements in the accounting period. While an M-score greater than -2.22 signals that the company will likely be a manipulator.

## **Results And Discussion**

Table 4.1 indicates that approximately 45 percent of the samples manipulate their financial statements. Out of the 101 companies that committed financial statement fraud, the construction sector had the highest percentage with 31.68% (n=32), followed by the agriculture sector with 26.73% (n=27). Both services and manufacturing sector had 20.79% (n=21).

**Table 4.1:** Distribution Presence of Financial Statement Fraud Companies Among Sector

<b>Sectors</b>	<b>Fraud Companies</b>	<b>Non-fraud Companies</b>
Manufacturing	21	34
Services	21	34
Agriculture	27	28
Construction	32	23
<b>Total</b>	<b>101</b>	<b>119</b>

**Table 4.2:** Descriptive Statistics: Financial Statement Fraud Companies vs. Non-Financial Statement Fraud Companies

Element of Triangle Theory	Variable	Mean	Standard Deviation	Min	Max	Mean	Standard Deviation	Min	Max
		Financial Statement Fraud Companies (n=101)				Non-Financial Statement Fraud Companies (n=119)			
Pressure	AGROW	0.0589	0.142	-0.605	0.563	0.0183	0.176	-1.38	0.709
	DR	36.0	359.0	0.0002	3610	0.249	0.229	0.0003	1.10
	ROA	0.0786	0.134	0.0011	1.14	0.0724	0.0977	0.0006	0.556
	WCTA	60.5	606.0	-0.852	6087	48.2	524.0	-0.828	5718
Opportunities	CIND	0.505	0.135	0.286	0.909	0.484	0.156	0.013	0.9
Rationalization	AC	0.356	0.481	0	1	0.286	0.454	0	1

The results of this study indicate that companies that are involved in fraudulent activities experience more pressure on financial stability (AGROW = 0.0589), leverage (DR= 36.0), financial target (ROA=0.0786) and liquidity (WCTA = 60.5) in comparison to companies that are not involved in such activities, which experience lower pressure on financial stability (AGROW = 0.0183), leverage (DR= 0.249), financial target (ROA=0.0724) and liquidity pressure (WCTA = 48.2). Thus, the results indicate that companies involved in financial statement fraud face more difficult financial environment compared to companies does not commit fraud. Next, the results show that companies involved in financial statement fraud have a higher average level of supervision by number of audit committees (CIND = 0.505) than companies not involve in financial statement fraud (CIND = 0.484). It can conclude that management of companies that involved in fraudulent activities increases supervision to rebuild trust from stakeholder and demonstrate their commitment to integrity. Next, the companies involved in fraudulent activities indicate a higher frequency of external auditor changes (AC = 0.356) than those that have not been found to involve in fraudulent activities (AC = 0.286). The comprehension of a company's financial position and transactions by auditors is dependent on the utilization of previous audit work papers and documentation. By switching auditors, fraudulent companies can alter the audit record, making it more difficult for auditors to detect errors or fraudulent activity. This suggests that multiple auditors annually may help fraudulent companies hide evidence, as noted by Fitri et al. (2019).

**Table 4.3:** Correlation Matrix

	AGROW	DR	ROA	WCTA	CIND	AC	P.FRAUD
AGROW	1.0						
DR	0.0104	1.0					
ROA	-0.1062	-0.0337	1.0				
WCTA	0.0102	-0.0065	0.0598	1.0			
CIND	-0.1498	-0.0229	0.1805	-0.0779	1.0		
AC	-0.0104	-0.0462	0.1540	0.0343	0.0231	1.0	
P.FRAUD	0.1250	0.0733	0.0269	0.0109	0.070	0.0757	1.0

Table 4.3 shows that all pairs of proxies have weak relationship between each other. All the proxies have a positive weak relationship with the presence of financial statement fraud. Thus, it shows that the proxies are not strongly affected by the presence of financial statement fraud. The study reveals that financial stability is the most significant proxy that affects the occurrence of financial statement fraud, while liquidity has the least impact on it. It can conclude that a pair of proxies tend to increase slightly if they have a positive relationship. On the other hand, if they have a negative relationship, they tend to decrease slightly. However, the correlation between the proxies is not strong because all the relationships are weak. Thus, they are not strongly dependent on each other. In addition, there is no potential for multicollinearity exist in the dataset.

## Conclusion

Detecting financial statement fraud is a challenging issue that often goes unnoticed by the public, accountants, and regulators. Thus, this research revealed that using the Beinish model can detect fraud in financial statements by using annual reports information to achieve the first objective. Companies with fraud receive more pressure and rationalization but less significant opportunities compared to non- fraud companies. The future researcher can collect and analyzing data focus on the construction sector. Increase the sample size of the study since the total of datasets only 220. Use all the supervised classification methods to observe a comparison of the method to detect the presence of financial statement fraud.

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