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Good Governance among Malaysian Government-Linked Companies: Detecting Earnings Manipulation through Beniesh M-Score and Ratio Analyses

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This study proposes a prediction tool that can detect aggressive earnings management and is premised on data covering 70 GLCs from 2013 to 2015. We investigate whether a combination of traditional and cash flow ratios can detect earnings manipulation. Earnings manipulation is measured via the Beneish M-Score model. Results indicate that profitability ratios are significantly related to earnings manipulation. Therefore, GLCs may manipulate profit indicators to assure good performance. The Beneish M-Score model can be used as a screening tool to detect earnings manipulation among GLCs. Such a tool, in turn, can ensure good governance, protect the interest of stakeholders and sustain public trust.

Key words: *Government-Linked Companies (GLCs), Earnings Manipulation, Earnings Management, Ratio Analysis, Beneish M-Score Model.*

Introduction

Individual investors and stakeholders are looking at how the government handles financially distressed government-linked companies (GLCs). The impact of government ownership on a firm's operations has been broadly discussed in the extant literature. GLCs generate market and industry averages even before share issues of privatisation (Feng, Sun and Tong, 2004). Investors believe that GLCs can confront any challenge and upgrade their organisational structures to maintain the balance and soundness of the economy. Moreover, government

intervention may also serve as an observational tool that can help improve a company's operations, especially in terms of financial aspect.

GLC can be defined in two ways based on the proportion of government-owned corporate equity. Firstly, a company is classified as GLC if the government owns over 50% of its effective controlling interest. Secondly, GLC can be any corporate business entity, in which the government is a shareholder, regardless of the percentage of its holdings. Hamid (2008) defined a Malaysian GLC as a company in which the government owns over 20% of its total shares. According to Mohd Saleh, Kundari and Alwi (2011), the performance of Malaysian GLCs have attracted interested parties, especially the economy sectors including 'rakyat' (citizens). Such an attraction roots from the fundamental role of GLCs in the country's economic development. At present, publicly listed GLCs represent one-third of the FTSE Kuala Lumpur Composite Index (KLCI) Composite Index.

According to Har Sani Mohamad, Majdi Abdul Rashid, and Mohammed Shawtari (2012), GLCs have recently undergone scrutiny because the government is concerned about their performance in the private sector and the role they play in the Malaysian economy. Malaysian GLCs have been a subject of criticism from many observers. They have been condemned for being excessively risk averse and for lacking adequate entrepreneurial drive. Some GLC investments have been accused of being politically and not commercially motivated, and Malaysian companies, including GLCs, are constantly being linked to financial irregularities. According to Hasnan, Abdul Rahman and Mahenthiran (2013), fraudulent financial reporting is significantly and positively related to financial distress in Malaysia.

Although GLCs are protected by the government, they are expected to engage in earnings management. They are the main providers of core strategic utilities and services in Malaysia, including water and sewerage, electricity, banking and finance and public transport. Therefore, their earnings management practices must be examined. Similar to other public companies, GLCs aim to augment their profit whilst serving the community. However, with substantial assurance and support from the government, their management may not prioritise the reduction of production cost.

Moreover, GLCs lack corporate governance because the management do not receive incentives for improving performance. They also do not occupy financial positions because the government protects their role as fund providers. Based on such information, the earnings management of GLCs is different from that practiced in other Malaysian companies. Hence, the main objective of the present study is to analyse whether traditional and cash flow ratio analysis can detect the earnings manipulation of Malaysian GLCs.

Using the Beneish M-Score model, the present study reveals the effectiveness of financial statement analysis in detecting the earnings management of GLCs. It will serve as a reference for further research on financial distress and earnings management in other industries and comparisons between GLCs and non-GLCs.

The following sections present the literature review, hypotheses development, research design and data analyses, results, conclusion, contribution and recommendations for future research.

Literature Review

Earnings management is the employment of accounting methods to deliver financial reports, which present an excessively positive perspective of an organisation's business activities and financial position. Bursa Malaysia mitigated the earnings management among publicly listed companies in 2011. They issued strict requirements for all public companies, including GLCs, that intend to be listed in the main market. These companies are now required to adhere to its profit conditions. Firstly, they ought to have continuous profit of over RM20 million after taxes within three to five full financial years. Secondly, they must have a minimum profit of RM6 million after taxes in the latest full financial year (Bursa Malaysia, 2013). This new regulation aimed to motivate publicly listed GLCs to remain profitable and maintain their market performance.

Financial distress may prevent a firm from continuing its business operations and securing the compensations and positions of its managers. In extreme cases, financially distressed firms endure loss of reputation and are subjected to external acquisition (Liberty and Zimmerman, 1986; Gilson, 1989). Thus, a firm under financial distress may attempt to commit earnings management to cover up its failure. The Deloitte Forensic Center (2008) reported that managers of companies under financial distress commit fraud in earnings management to conceal the unfavorable performance; in doing so, they obtain additional liquidity from banks, loan lenders or even from themselves. These companies are likely to utilise inappropriate revenue recognition and manipulation of expenses, liabilities and accounts receivable by not reporting their genuine amounts. Therefore, financial distress may lead to earnings management.

Davidson et al. (1987) defined earnings management as the procedure of making purposeful steps inside the limitations of generally accepted accounting principles (GAAP) to report a desirable level of earnings. The management often use such a strategy to control the organisation's reported earnings by ensuring that the figures in their report are consistent with the pre-decided target.

In order to detect and predict financial failure among publicly listed companies, Hasabullah and Zulkarnain (2009) proposed a method that incorporates ratio to financial analysis of the company's data. Financial analysis does not just help the management in making business decisions and plans, it also prevents managers from making false decisions that can affect their company's future performance.

Most of the previous studies on bankruptcy have applied financial ratios as predictor variables due to their popularity and ability to predict financial failure (Altman, 1968; Beaver, 1966). Other variables include simplicity and relevance to the local environment (Low, Fauzias, and Yatim, 2001; Mohamed, Li, and Sanda, 2001). Idris (2008) evaluated the adequacy of financial ratios as indicators of a company's financial status in Malaysia during the Asian Financial Crisis from 1998 to 2002. The sample covered 66 firms listed under Bursa Malaysia's industrial sector in the main market. Results indicate that, among these firms, 13 were distressed, whereas 53 were healthy.

Furthermore, Rodgers (2011) suggests that cash flow ratios have a significant predictive ability to assess the company's solvency in terms of financial health. Financial success is determined by a company's ability to generate current and future cash flows. Therefore, an entity can only survive if it can produce adequate cash from internal funds. Such cash will be used to cover the company's present obligations, interests and dividends, as well as reinvestment in assets.

Methodology

Hypotheses Development

A company with high liquidity ratios has a high ability to pay due debt. Hence, the present study expects a negative relationship between liquidity ratios (represented by current ratio, quick ratio and operating cash margin) and financial distress. Moreover, companies with high liquidity ratios have substantial liquid assets to settle its obligations.

With the aim of proving that liquidity is a significant variable, Paranowo (2010) used debt service coverage ratio as a proxy for liquidity and employed a sample consisting of publicly listed nonfinancial companies in Indonesia from 2004 to 2008. Mohamed et al. (2001) used the logit model to predict corporate failure in Malaysia using data from the Kuala Lumpur Stock Exchange Companies Annual Handbook. The bankrupt organisations included both companies that seek and did not seek court protection. Their results revealed that corporate failure is negatively related to liquidity ratios. In relation to such information, the current study presents the following hypothesis:

Hypothesis 1: Liquidity ratios can be used to predict earnings management.

Efficiency ratios, also known as asset management or activity ratios, indicate the relationship between an organisation's level of operations and the assets required to support its operating activities. They also demonstrate how viable an organisation is in utilising its assets to produce sales or profit. A high activity ratio shows that an organisation can create substantial sales per unit ringgit. Using efficiency ratios, Rahman, Tan, Hew, and Tan (2004) found that financial indicators, such as capital adequacy, loan management and operation efficiency, are essential to financial health. Therefore, the current study presents the following hypothesis:

Hypothesis 2: Efficiency ratios can be used to predict earnings management.

Profitability ratios indicate how effective an organisation is in utilising available resources. The performance is shown in percentages, where a high rate equals good execution. Hence, profitability is conversely related to distress. However, an organisation's profitability rates are not the only criteria for assessment. Profitability rates only provide data from indicators that highlight the adjustments in operations and financing of more than a few periods, thereby enabling the comparison among other companies from different markets (Helfert, 2001). Thus, the current study presents the following hypothesis:

Hypothesis 3: Profitability ratios can be used to predict earnings management effectively.

Leverage ratios, also known as solvency ratios, denote the extent to which an organisation's capital is raised using fixed interest borrowings. Malik and Ahmed (2013) evaluated the financial difficulties of Pakistani firms listed on the Karachi Stock Exchange (KSE) from 2003 to 2010, and investigated nonfinancial organisations using the Z-score model. They found that leverage is positively significant to financial distress and that an abnormal state of leverage leads to liquidation (Malik and Ahmed, 2013). Similarly, Keige (1991) found that leverage is an important variable in predicting financial distress. In comparison, Baimwera (2006) used DSC as a proxy to corporate financial distress and found that leverage has no significant effect on financial distress. Therefore, the current study presents the following hypothesis:

Hypothesis 4: Leverage ratios can be used to predict earnings management effectively.

Research Design
Population and Sample

In June 2016, about 300 GLCs were listed in the Bursa Malaysia. The sample of the current study comprises 70 Malaysian GLCs from the industrial product sector. The data were

collected from the annual online financial reports of Bursa Malaysia for three consecutive years: 2013, 2014, and 2015.

Dependent Variable

The dependent variable of the present study is earnings management, which we measured using the Beneish M-Score model. The efficiency of this model has been tested in previous research (Mehta and Bahvani, 2017). Sharma, Khanna and Balakumar (2014), Omar, Mohd Sanusi and Shafie (2014) and Warshavsky (2012) utilised the Beneish M-Score model as proxy for earnings management. Warshavsky (2012), who focused on the Enron case, discovered that the entity manipulated earnings based on an M-Score of 1.89, which was greater than –2.22. Moreover, Omar et al. (2014) found that Megan Media Holdings Berhad manipulated their earnings based on an M-Score that was greater than –2.22.

The M-Score captures discrepancies in financial statements that may have resulted from an actual earnings manipulation or a predisposition to engage in such an activity. The score is composed of eight ratios (Beneish and Nichols, 2005). According to Warshavsky (2012), a high M-Score increases the likelihood that a company would engage in earnings manipulation.

Using an eight-variable model, Ugochukwu, Justina, and Chukwunonso (2015) justified that a company is likely to manipulate its financial records if its M-Score is greater than –2.22. By contrast, an M-Score of less than –2.22 suggests that the company does not manipulate its financial records.

The eight-variable model is given below

M=-4.84 + 0.92* DRSI + 0.528*GMI + 0.404*AQI + 0.892*SGI + 0.115*DEPI – 0.172*4.679*TATA – 0.327*LVGI,

and has the following variables:

DRSI = Days' Sales in Receivable Index is a comparison between day sales in receivable of the current and prior years. It aims to reveal inflated revenue.

GMI = Gross Margin Index. The ratio measures of the gross or current margin is compared with those of the previous year. Thus, an entity is likely to manipulate earnings with poor growth prospect.

AQI = Asset Quality Index. An entity's increase in noncurrent assets, including intangibles or cost deferral but excluding property plant and equipment, is compared with their total assets. An AQI greater than 1 indicates possible earnings manipulation.

SGI = Sales Growth Index is the ratio between the current and the previous sales, which are 2015 versus 2014 sales in this study.

DEPI = Depreciation Index is the ratio between the depreciation rate of the current and the previous year. A low depreciation rate indicates that an entity is revising the useful life upwards or adopting an income-friendly method of depreciation.

SGAI = Sales, General and Administrative Expenses Index is the ratio between the current sales as well as general and administrative expenses with that of the prior year.

LVGI = Leverage Index is the ratio between the total debt and total assets of the current and prior year.

TATA = Total Accruals to Total Assets is the ratio of the extent to which management alters earnings by undertaking discretionary accounting policies.

Independent Variable
Liquidity Ratio

Liquidity ratios measure a company's short-term ability to pay its maturing obligations using their assets (Kieso, Weygandt, and Warfield, 2004). According to Weygandt, Kieso, and Kimmel (1998), among other financial statement users, short-term creditors (e.g., bankers and suppliers) are the most interested parties in assessing liquidity. A firm's liquidity is influenced by the timing of cash inflows and outflows alongside prospects of future business executions (Larson, Wild, and Chiappetta, 2006). Organisations with high liquidity have substantial cash to cover their financial commitments on time. Table 1 shows the proxies of liquidity ratios.

Efficiency Ratio

The efficiency of activity ratio refers to a company's productivity in using assets to generate income or profit. The most common ratios based on accrual data are turnover of asset, receivable and inventory. Cash flow activity ratios measure a company's capacity to use current resources in producing cash inflows. Such ratios help analysts and financial statement users to distinguish cash generation from operating activities, which are free of accrual

accounting distortions which could prompt earnings management (Figelwicz and Zeller, 1991). Table 1 shows the proxies of leverage ratios.

Profitability Ratio

Profitability ratio refers to a company's ability to generate adequate return on invested capital and measures the degree of success (or failure) of a company's operation. The lack of income influences an organisation's liquidity position, as well as its capacity to acquire advances to fund its operations and develop liquidity in the future (Weygandt et al., 1998). Table 1 shows the proxies of profitability ratios.

Leverage Ratio

Leverage ratio is one of several financial measurements that examine how much capital comes in the form of debts and loans, thus playing a crucial role in assessing a company's ability to meet financial obligations. Keige (1991) concludes that leverage ratio is a significant predictor of corporate distress. The following ratios will measure leverage ratios using financial and cash flow data.

Table 1: Summary of financial ratios

Descriptions	Formula	Measurement	Used in prior studies
A. Liquidity ratios - Measure a company's short-term ability to pay maturing obligations by using assets			
Current Ratio (CR)	Current Assets/ Current Liabilities	Measures the overall liquidity position of the organisation	(Gibson, 2013)
Quick Ratio (QR)	(Current Assets - Inventory) / Current Liabilities	Shows the capacity of a firm to utilise its near cash through the effective utilisation of its assets	(Keown, Martin, Petty, and Scott 2003)
Operating Cash Flow Ratio (OCFR)	Cash flow from operations / current liabilities	Tests how much cash was generated over a period of time and then the results will be compared to near-	(Figelwicz and Zeller, 1991; Schmidgall, Geller, and Ilvento, 1993).

Descriptions	Formula	Measurement	Used in prior studies
		term obligations.	
Operating Cash Margin (OCM)	Cash flow from the operations / Net Sales	Expresses the relationship between cash generated from operations and sales	(Ibarra, 2009)
B. Efficiency Ratios - Refer to how productive a company is in using its assets to generate income or profit			
Operating Expense Ratio (OER)	Operating Expenses / Total Revenue	Measures the financial efficiency of the firm	(Kantrovich, 2012)
Fixed Asset Turnover (FAT)	Revenue/ Average Fixed Assets	Measures the efficiency of long-term capital investment	(CFA, 2011)
Cash Return on Fixed Assets (CRFA)	Cash flows from the operations / average total fixed assets.	Identifies the amount of cash generated by using fixed assets in the company	(Ibarra, 2009)
Cash Return on Total Assets (CRTA)	Cash flows from the operations / average total assets	Gauges cash created by from utilisation of assets as a part of the organisation's activities	(Ibarra, 2009)
C. Profitability ratios - Refer to the ability to generate an adequate return on the invested capital			
Return on Assets (ROA)	Net Income / Assets	Indicates the amount of profit earned in respect to the level of investment in total assets	(Fraser and Ormiston, 2004)
Basic Earnings Power (BEP)	Earnings before interest and taxes/ total assets	Quantify the real efficiency of the assets of the firm	(Brigham and Houston, 2009)

Descriptions	Formula	Measurement	Used in prior studies
		subsequent to abstracting out all tax to be paid by the organisation	
Earnings Quality (EQ)	Cash flow from the operations / net income	Measures the ability of the company to collect net income.	(Figelwicz and Zeller, 1991; Schmidgall et al., 1993).
Cash Flow Margin (CFM)	Cash flow from operations / total revenues	Utilise cash flow from operations to demonstrate the rate of cash flow from operation over the aggregate incomes	(Figelwicz and Zeller, 1991; Schmidgall et al., 1993)
D. Leverage ratios – Help assess the ability of a company to meet financial obligations			
Debt to Assets (DTA)	Total Debt / Total Assets	Shows the long-term financial obligations of the company	(Roslan, 2014)
Interest Coverage (IC)	EBIT / Interest	Shows a company's ability to pay interest on its outstanding debt	(Demerjian, 2007)
Cash Flow Interest Coverage (CFIC)	Cash flow from operating activities plus interest expense/interest expense	Looks at reported profits to scheduled amounts following principal payment and tax deductions to learn the accessibility of adequate income for covering installment	(Figelwicz and Zeller, 1991; Schmidgall et al., 1993).
Long-Term Debt Coverage (LTDC)	Cash flow from operating activities /total liabilities	Assesses the solvency level of a company because it	(Bragg, 2002)

Descriptions	Formula	Measurement	Used in prior studies
		illustrates the amount of time that a company would take to repay debts	

Data Analyses
Normality Test

Table 2 shows reasonably normal values of skewness and kurtosis. The skewness values of all items range from –1.084 to .704, whereas the kurtosis values of all items range from –.945 to 1.651. The acceptable range of skewness and kurtosis is ±2.0 (Maiyaki and Mokhtar, 2011; George and Mallery 2010). As shown in Table 2, negative values indicate the skewness of data to the left.

Table 2: Skewness and kurtosis values

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
MSCORE	130	.434	.212	.550	.422
OER	130	.073	.212	-.945	.422
FAT	130	-.547	.212	.512	.422
CRFA	97	-.504	.245	1.651	.485
CRTA	95	-.593	.247	.045	.490
DTA	130	-.436	.212	-.520	.422
IC	115	.704	.226	.105	.447
CFIC	100	-.008	.241	.567	.478
LTDC	97	-.668	.245	.160	.485
CR	130	-.136	.212	-.344	.422
QR	130	-.141	.212	.084	.422
OCF	97	-.668	.245	.160	.485
OCM	97	-.324	.245	-.349	.485
ROA	114	-.835	.226	1.018	.449
BEP	115	-.435	.226	.159	.447
EQ	93	-.069	.250	.461	.495
CFM	97	-.324	.245	-.349	.485

Multicollinearity Test

Table 3 shows the result of the multicollinearity test. This test ensures that independent variables are not strongly related to one another; otherwise the results will be biased. Table 3 indicates that the model is good because almost all the Variance Inflation Factors (VIF) of the independent variables are below 10, whereas all the Tolerance (1/VIF) are above .10 except for CR. Thus, with little sign of multicollinearity, the independent variables of liquidity ratios can predict one another. However, the other three variables do not show any sign of multicollinearity, which means efficiency, profitability and leverage ratios cannot predict one another. Hence, regression analysis can be conducted and the possibility of bias results can be avoided.

Table 3: Multicollinearity test and variance inflation factor (VIF)

	Tolerance	VIF
OER	.769	1.300
CRFA	.283	3.534
CRTA	.375	2.666
DTA	.310	3.229
IC	.341	2.930
CR	.094	10.694
QR	.101	9.919
OCF	.210	4.772
BEP	.373	2.683
EQ	.348	2.875
CFM	.263	3.797

Multiple Regression Analyses

Tables 4 to 7 present the multiple regression analyses of the respective financial ratios and earnings management.

Table 4: Multiple regression analysis for liquidity ratios and earnings management

Independent variables	Unstandardized coefficients		Standardised coefficients		
	B	Std. Error	Beta	t-statistic	*p-value*
Constant	–2.265	.171		–13.271	.000
CR	.973	.785	.347	1.240	.218
QR	–.723	.675	–.299	–1.072	.286
OCF	.004	.245	.003	.016	.987
OCM	.081	.278	.050	.291	.772
R^2	.019				
Adjusted R^2	–.022				
F. Chg.	.470				

a. Dependent Variable: MSCORE

Table 4 indicates that all variables under liquidity ratio do not have significant values of less than .05. The result shows that all p-values are more than .05 (p=.218, p=.286, p=.987 and p=.772). Thus, no sufficient evidence proves that liquidity ratios can be used as a detector of earnings management.

Table 5: Multiple regression analysis for efficiency ratios and earnings management

Independent variables	Unstandardized coefficients		Standardised coefficients		
	B	Std. Error	Beta	t-statistic	*p-value*
Constant	–1.985	.275		–7.226	.000
OER	–.093	.173	–.059	–.534	.594
FAT	.028	.176	.022	.158	.875
CRFA	.142	.249	.094	.570	.570
CRTA	.171	.246	.094	.694	.489
R^2	.036				
Adjusted R^2	–.010				
F. Chg.	.793				

a. Dependent Variable: MSCORE

Similarly, based on Table 5, all variables under efficiency ratio do not have significant values of less than .05. The limited evidence cannot prove the ability of efficiency ratios to detect earnings management. Thus, neither of the two financial ratios can be used as detectors for earnings management, not even at a minimum level of effectiveness. Hence, H1a and H1b are not supported.

As shown in Table 6, the significant values of ROA and BEP of less than .05 (B=–.509, t=–2.560, p=.012 and B=.472, t=3.039, p=.003) prove that profitability ratios can be used as a detector of earnings management, thereby supporting H1c.

Table 6: Multiple regression analysis for profitability ratios and earnings management

Independent variables	Unstandardized coefficients		Standardised coefficients		
	B	Std. Error	Beta	t-statistic	*p-value*
Constant	–1.916	.294		–6.509	.000
ROA	–.782	.305	–.509	–2.560	.012
BEP	.959	.316	.472	3.039	.003
EQ	–.392	.260	–.252	–1.510	.135
CFM	.144	.207	.089	.695	.489
R^2	.099				
Adjusted R^2	.058				
F. Chg.	2.373				

a. Dependent Variable: MSCORE

However, based on Table 7, DTA has a value of slightly more than .05 (B=.230, t=1.920, p=.058). Thus, leverage ratios cannot effectively detect earnings management, thereby H1d is not accepted.

Table 7: Multiple regression analysis for leverage ratios and earnings management

Independent variables	Unstandardized coefficients		Standardised coefficients		
	B	Std. Error	Beta	t-statistic	*p-value*
Constant	–1.916	.294		–6.509	.000
ROA	–.782	.305	–.509	–2.560	.012
BEP	.959	.316	.472	3.039	.003
EQ	–.392	.260	–.252	–1.510	.135
CFM	.144	.207	.089	.695	.489
R^2	.099				
Adjusted R^2	.058				
F. Chg.	2.373				

a. Dependent Variable: MSCORE

Concluding Comments

Findings indicate that financial ratios can still be used to detect earnings management despite its low level of effectiveness. Healy and Wahlen (1999) claimed that earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports. Earnings management is used to mislead stakeholders about the underlying economic performance of the company or influence contractual outcomes that depend on financial statement reports.

Prospective investors can use financial statement analysis to detect and/or predict whether a company engages in earnings management. Profitability is an important consideration because a company's total revenue does not represent earnings; rather, it can be calculated using financial and cash flow ratios. According to Chambers and Payne (2008), profitability ratios can be used to evaluate the potential profitability of the company alongside other relevant information.

Moreover, leverage ratios are also important in financial statement analysis. Such ratios detect earnings management by revealing the major changes in financial leverage. This leverage is usually undertaken by managers to manipulate earnings and adhere to the terms of their financing agreements. Furthermore, Ibarra (2009) reported that companies are managing earnings to show a favourable situation and to reduce the risk of investing, thereby minimising credit interest rates.

The results of the present study have several implications. Firstly, not all ratios from financial statement analyses can be used as predictors for earnings management among Malaysian GLCs. Only profitability ratios can be effectively applied to predict earnings manipulation and management. Secondly, the results may also be utilised by prospective investors of GLCs. Investors should be wary of the possibility of profits or returns to cover the earnings manipulation in a company.

There present study has several limitations as well. For example, it only includes the financial variables in regression models. Hence, future studies may include prediction models for earnings manipulation using nonfinancial variables. The evolution of research on nonfinancial variables since the early 1990s must also be compared with financial variables that evolved in the mid-sixties. Shumway (2001) and Zhang, Li, Piao, and Zhang (2006) acknowledged that a failure prediction model must include nonfinancial variables. Moreover, the present study only covered data over a short period of time. Mehta and Bahvani (2017) argue that the results of a study employing the Beneish Model variables can 0only be considered accurate if the scope is over five years and if the financial values in the target corporation’s financial statements are substantial.

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