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EARNINGS MANIPULATION BENCHMARK FOR NON-FINANCIAL LISTED COMPANIES IN VIETNAMESE STOCK MARKET

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ABSTRACT

The paper examines earnings management detection using the Beneish M-score benchmark model on a sample of 468 non-financial Vietnamese companies listed on the Hochiminh Stock Exchange (HOSE) and Hanoi Stock Exchange (HNX) during 2013-2014. The results show that 40 % of non-financial Vietnamese-listed companies were involved in earnings management, and the sampled observations do fit the Beneish M-score model. This study suggests that the M-score model is a useful technique to use to detect the earnings manipulation behaviors of companies in Vietnam. The M-score model is also a reliable tool for investors to make when making decisions and verifying the reliability of accounting information found in financial reports.

JEL: M41, G32

KEYWORDS: Earnings Management, Detecting, M-Score Model, Non-Financial Vietnamese Listed Companies

INTRODUCTION

Earnings management (EM) has gained the attention of academics, regulators, and practitioners worldwide. Researchers examine EM from different points of view. For example, Healey & Whalen (1999) indicate that earnings management happens when managers use judgment when preparing financial reporting and structure the transactions to change the financial reports to either mislead stakeholders about the underlying economic performance of their company or to influence contractual outcomes that depend on reported accounting numbers. Schipper (1989) defines earnings management as intervention in the external financial reporting process that is motivated by self-interest. Other authors, including Park and Park (2004), have distinguished earning manipulation within GAAP and manipulated earnings outside GAAP, which means that EM is not simply fraud in all the cases.

The world has witnessed many serious financial scandals such as Enron (2001), Worldcom (2002), and Tyco (2002) etc. They have badly affected users' reliance on and faith in the financial information published in markets. Before making investment decisions, information users need to read financial statements carefully and any suspect signals. The major such concerns are how to detect earnings management, how to select a reliable tool or a benchmark for accurate and early evaluation.

As the process of developing tools for detecting EM has progressed, the Beneish M-score model has been applied on different listed companies to detect the existence of income manipulation and particularly in the U.S, Italy, and India (Beneish, 1999; Paolone & Magazzino, 2014; Kaur, Sharma & Khanna, 2014).

Indeed, there are interrelations between the Balance Sheet, the Income Statement and the Statement of Cash Flows so that fraud can always show up by examining certain numbers. Based on a ratio analysis, M-score was built, and many researchers now believe that M-score is a suitable tool to detect accounting fraud and/or to support auditors (Beneish et al., 2013; Warshavsky, 2012). The Beneish model and related empirical studies on it have proven its reliability in calculating the probability of the existence accounting fraud in a company (Paolone & Magazzino, 2014).

In Vietnam, still a very young stock market, changes in disclosed profits before and after auditing, such as for Thép Việt Ý, Vinaconex...as well as the existence of financial scandals, such as for Bông Bạch Tuyết, Dược Viễn Đông, have raised concerns about the quality of the financial information being gathered and overall earnings management. However, not many researchers have focused on EM in general and in using the M-score benchmark in particular. Nguyen & Nguyen (2014) used the M-score with a sample of only 30 companies in 2012 to predict materiality errors. Nguyen & Nguyen (2016) tested M-score only on HoSE in 2014. Due to the limitations in these previous researches, this study enlarges the sample size to address the entire Vietnamese stock market, both the HoSE and HNX stock markets, in 2014. A second goal of this study is applying the Beneish M-score model and examining whether this model can produce a reliable template for Vietnamese-listed companies that some differences in their financial structures as well as their accounting rules. Based on those objectives, three research questions asked here are 'Research Question 1: Is there any acceptable limit/threshold to use for precise earnings management?', 'Research Question 2: Is it possible to identify manipulated financial statements?', and 'Research Question 3: What are the consequences of manipulated statements that are created outside of accepted accounting rules/standards?'

The remainder of this paper proceeds as follows. Section 2 discusses the prior research related to earnings management and the M-score model. Section 3 lays out the research methodology, the M-score model, and the date of the research process. Section 4 presents the statistical results for eleven different industries and discusses the results. Finally, research conclusions, comments, and future directions are offered in Section 5.

LITERATURE REVIEW

Earnings is a key indicator of the ongoing performance of a company. The positive image of a company depends on the indexes disclosed in financial statements, so its managers will have the key incentives to manage earnings. Earnings management has two main types, namely, real earnings management and accrual management. Roychowdhury (2006) mentions real earnings management achieved by cutting back on advertising fees, research and development expenditures, handling essential equipment maintenance, accelerating sales, and delaying maintenance…However, managers prefer to manage earnings via accruals (shifting the recognition of transactions between precise periods…) because these have no direct cash flow consequences; thus, it is difficult to observe and detect them directly.

A number of models have been developed to investigate the existence of earning management, and they range from the simple to the complex. They can be aggregated accruals, such as with the Jones model (Jones, 1991), the Modified Jones model (Dechow et al., 1995), the earnings distribution model (Burgstahler & Dichev, 1997; Chen et al., 2010), the specific - accrual Models (McNichols & Wilson, 1998) or using certain benchmarks, such as the M-score Model (Beneish, 1999; Beneish, Lee & Nichols, 2013).

In this research, the popularity of the M-score model is discussed while reviewing the previous literature. Table 1 presents some of the important M-score - related studies and their findings, as they relate to the effectiveness of M-score in the accounting field. Beneish (1999) realized the importance of financial ratios in forensic accounting and is considered the pioneer who created the between-ratio benchmark for investigating EM. In a study of 74 company samples for 10 years (1982-1992), Beneish (1999) designed a mathematical model that can discriminate manipulation reports from non-manipulation ones. When his M-

score model was first applied, it could detect about half of the companies who were involved in earnings manipulation. Since then, the model and its power have been proven and used by researchers worldwide.

Table 1: Summary of Important Prior Researches

Authors	Country	Objects	Conclusion	Sample
M-Score for a Number of Companies				
Beneish (1999)	US	Design a model that can discover manipulation of earnings or earnings management.	The model concludes half of the companies involved earnings manipulation prior to public discovery.	1982-1992, 74 firms
Paolone & Magazzino (2014)	Italy	Study the risk of manipulating earnings among several major industrial sectors	A half of the analyzed companies have a low probability of manipulating income	1.809 firm - year observation between 2005-2012
Kaur, Sharma & Khama (2014)	India	Using both M-score and Modified Jones (1995) to understand EM in different sectors of the economy	Number of EM detections is higher by using the Beneish M-score	332 companies with data from 2011 - 2013
Nwoye el al. (2013)	Nigeria	Answer the question whether M-score could strengthen Auditors' likelihood in detecting manipulations	The model could improve the effectiveness of Auditors in detecting fraud	First five most capitalized manufacturing companies in Nigeria for the years (2002-2006: confirmatory test purposes) and (2006-2010).
Franceschetti & Koschtial (2013).	Italy	M-score could be used to investigate earnings manipulations between bankrupt and non-bankrupt small and medium-sized enterprises.	The bankrupt group reported 1.6 times more red flags than the non-bankrupt one.	30 bankrupt and 30 non-bankrupt Small and medium-sized enterprises (2009-2011).
M-Score for High Profile Cases				
Mahama (2015)	Enron (US)	Altman's Z-score & Beneish M-score were used to determine how early investors, regulators and other stakeholders could detect the financial distress of the company	Both models showed that Enron was engaged in earnings manipulation since 1997.	Reports of Enron filed with the US SEC from 1996 to 2000
Omar et al. (2014)	Malaysia	Discuss a case of Malaysian company and analyze how the fraud was committed and detected.	The company manipulated its financial statements	MMHB case, 2005 to 2007
M-Score and Other Models, Extended M-Score				
Dechow el al. (2011)	US	Both financial and non- financial variables are considered while building Z-score model (based on M-score model)	The Z-Score provide another measurement to discretionary accruals for detecting "low -quality" earnings firms.	2,190 SEC Accounting and Auditing Enforcement Releases (AAERs) issued between 1982 and 2005
Marinakis (2011)	UK	Additional variables: audit fee to total asset index…, effective tax rate, directors remuneration to sales were considered while using M-score model in detecting EM	The improvement of the model could enhance the ability in detecting potential manipulators, with smaller error rates than the 8-variable Beneish (1999) Model	185 companies between 1994-2006 from Company Reporting (p.210)
Aris et al. (2013)	Malaysia	Analyzing the usage, process and application of Benford's Law and Beneish Model in detecting accounting fraud	Both models appear to have its own benefit in detecting and preventing fraud	Comparison between M-score model and Benford's Law

This table refers to related researches that used M-score as a tool for detecting earnings management.

In some studies, the M-score model has been extended. Marinakis (2011) and Dechow et al. (2011) inserted additions that included financial and non-financial variables, and others continued to apply the original M-score for EM detection (Kaur, Sharma & Khanna, 2014; Paolone & Magazzino, 2014; Franceschetti & Koschtial, 2013). The M-score could be applied to either a sample of thousands of companies or to a specific high profile case like Enron in the U.S. (Mahama, 2015) or MMHB in Malaysia (Omar el al., 2014). Kaur, Sharma & Khanna (2014), Mahama (2015) used the M-score benchmark in a comparison they made with Modified Jones (1995) and Atman's Z-score.

Table 1 presents the results and the evidence of M-score's reliability in the global context. In India, Kaur, Sharma & Khanna (2014) tested a sample of 332 companies from 2011-2013 and showed that the M-score is better than Modified Jones (Dechow et al., 1995) in detecting income manipulation. Paolone & Magazzino (2014) studied a sample of 1,809 firm-year observations in Italy from 2005 to 2012 and concluded that half of the tested companies had a low probability of earnings manipulation. In another study from the U.S. in the Enron case, Mahama (2015) filed the data during 1996-2000 and found that the warning sign of a serious earnings manipulation could have been detected sooner in early 1997 by using the M-score. In another high-profile case of MMHB in Malaysia using data from 2005–2007, Omar et al. (2014) concluded that the M-score could be used for predicting the signs of financial turmoil earlier. Based on the original M-score, some researchers developed a more powerful tool with additional variables that included both financial variables and non- financial variables (Dechow et al., 2011; Marinakis, 2011).

The Beneish M-score Model is selected as a detection tool for this study due to its simplicity, reliability, and popularity in the EM field. There exists certain interrelationships between the Balance Sheet, Income Statement and Statement of Cash Flows that allow fraud to always pop out when certain numbers do not make sense (Joseph, 2001). Based on ratio analysis, many researchers and/or information users thus believe that M-score is a suitable tool for investigating accounting fraud or supporting auditors (Aris et al., 2013; Nwoye et al., 2013).

DATA AND METHODOLOGY

The M-score model is a mathematical model developed by Beneish. Using 8 variables related to financial ratios, Beneish (1999) developed a powerful tool for distinguishing earnings manipulators and non-earnings manipulators. The model has been widely used by many financial statement academic researchers, articles directed at auditors, certified fraud examiners, and investment professionals (Beneish et al. 2013). The M-score model and its 8 indicators are listed and explained below:

Days' Sales in Receivables Index (DSRI): The Days' sales in receivables index (DSRI) measures the ratio of receivables to sales in year t, compared to the previous year. If the ratio is greater than 1, the percentage of receivables to sales has increased in year t, compared to year t-1. An abnormally large increase in a day's sales in receivables can be the result of revenue inflation. Index expectation is that a large increase in the DSRI is associated with a higher likelihood that revenues/profits are overstated. (Beneish 1999)

Gross Margin Index: The gross margin index (GMI) measures the ratio of the gross margin in year t-1 to the gross margin in year t. If the GMI is greater than 1, that means the gross margin has deteriorated and it is a negative sign about a company's prospects and indicates that managers tend to manipulate revenue. Index expectation is that there is a positive relationship between the GMI and earnings management. (Beneish 1999)

Asset Quality Index: The asset quality index (AQI) measures the ratio of asset quality in year t compared to year t-1. If the AQI is greater than 1, there may be a tendency to avoid expenses by capitalizing and deferring their cost to preserve profitability. Index expectation is there is a positive relationship between the AQI and EM. (Beneish 1999)

Sales Growth Index: The sales growth index (SGI) measures the changes in sales, compared to the sales of the previous year. A SGI of greater than 1 represents an a positive growth in sales. Growth can pressure managers to achieve earnings targets for their job securities, and thus managers may have stronger incentives to manipulate earnings. (Beneish 1999).

Depreciation Index: The depreciation index (DEPI) measures the ratio of the depreciation rate in year t-1 to the depreciation rate in year t. If the DEPI is greater than 1, it represents a declining depreciation rate, and a slower depreciation rate can increase earnings. There is a possibility that a company has adjusted the useful life of PPE upwards or has used a new method for income increase. (Beneish 1999)

Sales, General and Administrative Expenses Index: The sales, general, and administrative expenses index (SGAI) measures the ratio of the SGA expenses to sales in year t compared to the SGA expenses to sales in year t-1. If the SGAI is greater than 1, it represents a disproportionate increase in sales compared to SGA, and it can be an indicator of earnings manipulation. Index expectation is that there is a positive relationship between the SGAI and earnings management. (Beneish 1999)

Leverage Index: The leverage index (LVGI) measures the leverage in year t to the leverage in year t-1. If the LVGI is greater than 1, it represents an increase in leverage and shows the incentives in the debt covenant, which leads to manipulating earnings. Index expectation is that there is a positive relationship between the LVGI and earnings management. (Beneish 1999)

Total Accruals to Total Assets: Total accruals to total assets (TATA) measures the ratio of total accruals to total assets. This method measures the extent to which managers alter earnings by making discretionary accounting choices. Total accruals are computed as the change in working capital (except cash) less depreciation for year t, less changes in income taxes payable and the current portion of long-term debt. Index expectation is that higher positive accrual is positively associated with the likelihood of earnings management. (Beneish 1999)

The actual Beneish M-score model is presented below:

$$M = -4.84 + 0.920 \cdot DSRI + 0.528 \cdot GMI + 0.404 \cdot AQI + 0.892 \cdot SGI + 0.115 \cdot DEPI$$
$$-0.172 \cdot SGAI + 4.679 \cdot TATA - 0.327 \cdot LVGI \quad (1)$$

The Beneish regression model has eight indicators. The M-score will be retrieved based on the above equation, and it shows the manipulation score. If the M-score is greater than the (-2.22) benchmark, then the company should be flagged as an earnings manipulator (Beneish 1999). Table 2 presents a detailed descriptions of all the variables used in the M-score.

Table 2: Variable Descriptions

Variables	Formulas	Descriptions
DSRI	$\left[\frac{Receivables_t}{Sales_t}\right] \Big/ \left[\frac{Receivables_{t-1}}{Sales_{t-1}}\right]$	If there is an abnormal large increase in day's sales in receivables, it can be a result of revenue inflation
GMI	$Gross\ Margin_{t-1} / Gross\ Margin_t$ *Gross margin = (Sales - Cost of goods sold) / Sales*	If GMI > 1, the deterioration of gross margin shows a negative sign about a company's prospect and managers tend to manipulate its revenue.
AQI	$\left[1 - \frac{PPE_t + CA_t}{Total\ Assets_t}\right] \Big/ \left[1 - \frac{PPE_{t-1} + CA_{t-1}}{Total\ Assets_{t-1}}\right]$ PPE: Plant, Property and Equipment/ CA: Current asset	If AQI >1, it may represent the tendency of avoiding expenses by capitalizing and deferring costs to preserve profitability
SGI	$\left[\frac{Sales_t}{Sales_{t-1}}\right]$	If the SGI > 1, it represents a positive growth. Growth can put pressure on managers in maintaining a company's positions, achieving earnings targets…
DEPI	$\left[\frac{Depreciation\ Rate_{t-1}}{Depreciation\ Rate_t}\right]$ *Depreciation rate = Depreciation / (Depreciation + PPE)*	If the DEPI > 1, it represents a declining depreciation rate, slower depreciation rate can increase earnings. There is a possibility of income – increasing manipulation
SGAI	$\left[\frac{SGA_t}{Sales_t}\right] \Big/ \left[\frac{SGA_{t-1}}{Sales_{t-1}}\right]$ SGA: Sales, general, and administrative expense	If the SGAI > 1, it represents a disproportionate increase of sale compared to SGA and it can be an indicator of earnings manipulation
TATA	$\frac{\Delta \text{ Current Asset} - \Delta \text{ Cash} - (\Delta \text{ Current Liabilities} - \Delta \text{ Current maturities of LTD} - \Delta \text{ Income Tax payable}) - \text{Depreciation \& Amortization}_t}{\text{Total Assets}_t}$	The TATA measures the ratio of total accruals to total assets. It measures the extent to which managers alter earnings by making discretionary accounting choices. The total accruals are computed as change in working capital (except cash) less depreciation for year t, less changes in income tax payable and current portion of long –terrn debt.
LVGI	$\left[\frac{Leverage_t}{Leverage_{t-1}}\right]$ Leverage = Debts / Assets	If the LVGI > 1, it represents an increase in leverage and it shows the incentives in debt covenant which lead to manipulate earnings.

sing Beneish (1999), the formulas for 8 indexes in the M-score model are presented in this table. The index description also refers to Nguyen and Nguyen (2016).

RESULTS OF M-SCORE MODEL TESTING

In this study, the financial statements for the year 2013-2014 were collected from the Vietnamese stock markets (both HNX and HoSE) for a sample of 639 companies. Since several data in 171 of these companies were not available, the test could only be implemented for 468 companies.

By setting up certain complicated calculations in Excel, the huge amount of data could be inserted for the required outputs. The findings show that when using a benchmark of -2.22, 40% of the listed companies

demonstrated a high probability of earnings manipulation while 60% did not. The details of these M-score differences are presented in Table 3.

Table 3: Descriptive Statistics for Eight Variables in M-score Model

INDUSTRY	M-score > -2.22	%		DSRI	GMI	AQI	SGI	DEPI	SGAI	TATA	LVGI	M-score
Agriculture (3 firms)	0	0%	Mean	1.012	- 6.201	0.965	0.854	1.037	1.523	- 0.065	0.974	- 6.799
			Median	1.181	0.850	0.968	1.009	0.952	1.263	- 0.054	1.015	- 2.662
Publisher (17 firms)	0	0%	Mean	0.830	1.023	0.974	1.041	1.232	1.068	- 1.472	1.009	- 2.988
			Median	0.808	1.051	0.990	1.032	0.984	0.992	- 0.759	1.018	- 3.005
Mining (83 firms)	30	36%	Mean	1.860	1.019	0.956	1.412	1.900	1.103	0.979	1.107	- 1.680
			Median	0.922	1.014	0.996	1.102	0.927	0.993	- 0.027	0.977	- 2.568
Manufacture (79 firms)	36	46%	Mean	1.317	0.927	1.048	1.168	3.860	1.101	- 0.017	1.009	- 1.888
			Median	1.004	0.998	1.001	1.069	0.943	1.038	0.017	0.959	- 2.332
Commerce (47 firms)	23	49%	Mean	1.312	1.005	1.002	1.144	1.151	1.218	0.073	0.952	- 1.766
			Median	0.941	0.953	1.004	1.043	0.934	1.005	0.078	0.972	- 2.223
Construction (78 firms)	29	37%	Mean	1.152	0.955	0.972	1.252	14.280	1.078	- 0.040	0.995	- 1.178
			Median	0.901	1.023	0.998	1.088	0.937	1.042	- 0.072	0.999	- 2.668
Real estate (47 firms)	26	55%	Mean	3.194	0.495	1.117	2.452	1.413	1.182	- 0.046	0.966	0.412
			Median	0.750	0.935	1.030	1.463	0.956	0.870	0.016	0.967	- 1.955
Foods & Beverage (36 firms)	14	39%	Mean	1.693	0.968	1.041	1.126	1.260	1.046	- 0.084	1.020	- 1.852
			Median	0982	0.962	1.004	1.077	0.911	1.053	- 0.027	0.996	- 2.527
Services (32 firms)	12	38%	Mean	1.663	1.291	1.214	2.401	4.412	1.004	- 0.454	1.037	- 0.516
			Median	1.035	1.051	0.998	1.183	1.052	0.931	- 0.106	1.005	- 2.496
Transport (24 firms)	8	33%	Mean	2.218	0.829	1.025	1.056	2.078	1.026	- 0.872	0.980	- 1.753
			Median	1.0056	0.986	1.002	1.054	0.961	1.005	- 0.077	0.937	- 2.625
Telecommunication (22 firms)	9	41%	Mean	0.944	1.037	1.058	1.225	6.931	1.095	- 0.266	1.065	- 1.510
			Median	0.869	0.979	1.002	1.112	0.970	0.999	- 0.006	1.025	- 2.504
Total (468 firms)	**187**	**40%**	Mean	1.620	0.898	1.029	1.423	4.508	1.104	0.018	1.018	- 1.440
			Median	0.937	0.991	1.000	1.094	0.945	0.998	- 0.031	0.985	- 2.528

The table shows the descriptive statistics for the eight variables in M-score model based on industry classifications.

Agriculture sector: In the sample, only 3 companies had all M-scores less than – 2.22; therefore, the study could conclude that there was no sign of earnings manipulation.

Publisher sector: In the sample, 17 companies had all M-scores less than – 2.22, these results indicate that the Publisher sector was the same as the Agriculture sector where there was no sign of earnings manipulation

Mining sector: 36 % of the companies had a M-score greater than -2.22, and 64% had a lower than -2.22 score. That means that 36 % of the companies had high probability of EM while the remaining 64 % did not.

Manufacture sector: Compared to the M-score threshold, 36 out of these 79 companies (46% of sample) had a M-score greater than – 2.22. Thus, these 46 % of companies had a high probability of earnings manipulation and the remaining 54% did not.

Commerce sector: Based on the M-score results, one group of 23 companies (49%) proved to be involved in earnings management. Another group or 51 % of the 24 companies had no such signs.

Constructions sector: Of the 78 companies, 29 companies (37%) showed the warning sign of earnings manipulation, while the other 63 % had no such evidence.

Real estate sector: Of 47 companies, 26 companies (55%) had a M-score more than – 2.22, showing evidence of high probability of earnings manipulation, while the remaining 45% did not. This sector had the highest percentage of companies involved in earnings management.

Foods - Beverage sector: Of the 36 companies in this sample, 14 companies, accounted for 39%, indicated signs of earning manipulation, as their M-scores were greater than the benchmark. The remaining 61 % did not.

Service sector: Here 12 out of 32 companies were committed to adjusting earnings as the M-score calculations showed that 38% of these companies' M-scores were higher than the threshold. The rest or 62% is not.

Transport sector: In this sample of 24, 16 companies or a 67 % had a M-score less than –2.22, which proved that 67 % of these companies had a low probability and 33 % had a high probability of earnings manipulation.

Telecommunication sector: Of 22 companies, 9 accounted for 41% with an M-score greater than – 2.22. The study concluded that 41 % of these companies had a high probability of earnings manipulation while the remaining 59 % did not.

Besides calculating the M-score for each sector, Table 3 also provides more details about the 8 factors used in the M-score model: DSRI, GMI, AQI, SGI, DEPI, SGAI, TATA, LVGI. For each factor, Mean and Median are shown. Among all the sectors, Real Estate has the highest value index for DSRI at 3.194. The service sector has GMI mean = 1.291 and an AQI mean = 1.214, the highest GMI, and an AQI mean value. SGI = 2.452 is the top mean value of the Real Estate sector compared to other types of businesses. The DEPI is one factor that indicates a big difference whereas the DEPI mean of the Construction sector = 14.280. The Agriculture sector had the highest value with SGAI = 1.523. The mining sector has TATA mean of 0.979 and LVGI at 1.107, the highest value.

Almost all of the values for the 8 variables are distributed around 1, thus when collating with the description in Table 2, we can explain and evaluate in detail the situation of each company. If DSRI, GMI, AQI, SGI, DEPI, SGAI, LVGI values are greater than the benchmark 1, there may be some abnormal changes, and it could be a sign of earnings manipulation. TATA only has a general benchmark of zero, so high level of accruals compared to assets may also be an indicator of earnings manipulation.

CONCLUSION

In this study, the Beneish M-score model proved to be an useful support tool for detecting EM in the Vietnamese stock market. It could discriminate between the high and low probability of EM in the listed companies. Based on the retrieved M-score, the findings in Table 3 show that the Real Estate sector has the highest probability of earnings management practice with a percentage of 55 % compared to the lowest

percentage at 0% in the Agriculture and Publisher sectors. Manufacture, Commerce and Telecommunication constituted the group that is greater than 40 % but less than 50% in terms of high probability of earnings manipulators. The remaining sectors of Mining, Construction, Foods & Beverage, Services and Transport have more than 30% but less than 40% for high probability of producing managed earnings.

These findings show that all sectors (except Agriculture and Publishers) are engaged in earnings management, and the findings raise questions regarding the effectiveness of corporate governance and the protection of investors. However, the analyzed results are consistent with many other researches in the developed countries as well as those in some of the developing ones in terms of the percentages of detected manipulators at around 50% (Beneish, 1999; Mahama, 2015; Nguyen & Nguyen, 2014; Omar et al., 2014; Paolone, F. & Magazzino, 2014). These results also prove that the M-score model can be considered to be fit for use in sample observations in Vietnam because the findings of this study are consistent with auditing disclosure reports in 2014. Therefore, using M-score is be a good mean for detecting EM not only in the developed countries but it also in developing countries like Vietnam.

These results also broaden our understanding of earning management in Vietnam. The M-score model has proven its strong power in detecting EM in the country, and thus, it is a reliable tool for investors to use when making decisions and verifying the reliability of the accounting information in financial reports. It also can help banks and other financial institutions to protect themselves from frauds or uncollectible lending cases. However, there are still certain limitations, and those should be examined in future research. These limitations include enlarging the sample size, providing more details and explanations, or undertaking a cross-country analysis instead of only a nationwide one.

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