

## **Too big to cheat? An empirical study of the impact of firm size on earnings management in Vietnam**

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**Abstract:** Earning management has been an ongoing problem throughout the world nowadays. Determinants of earning management and their impacts are still a controversial topic. This study therefore aims to measure the impact of firm size and sale growth volatility on the manipulation among corporations in Vietnam. Firm size is evidenced positively related to the misstatements, the larger the size is, the greater motivation they have with the earnings. Sale growth volatility, which has not been widely used before, is significantly associated with the earning management. Firms with unstable sales appear to engage in earning manipulation.

**Keywords:** earnings management, firm size, Vietnamese listed firms.

**JED:** G32, G35, M41.

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### **1. Introduction**

The most important factor that impacts on the transparency of capital markets is the reliable of financial information. The reliable of accounting

information has been mentioned as financial reporting quality, which is emphasized on earnings management. Schipper (1989) and Healy & Wahlen (1999) has denoted that earnings management is a technique that firms manipulated their financial statements in order to disclose the financial position and performance based on the perspective of senior managers. Recent empirical literature has been broadened the causes of earnings management and the consequences of this behaviour to a number of stakeholders (Dechow et al., 2012). Therefore, Erickson et al., (2006) addressed on the motivations and inherent reasons which provoke firms to conduct this behaviour. Understanding this issue is a necessary for all stakeholders to prevent the future occurrences. Earnings management has been taken into consideration into two areas accrual – based earning management (AEM) and real earning management (REM) by previous scholars (Enomoto et al., 2015). Accrual based earning management is conducted through discretion in accounting systems by changing the accounting methods or estimations when disclosing transactions in the financial statements. Real earning management derived from normal operational practices, which are incentive by managers' intent to mislead financial statements to meet special earnings targets. Graham et al. (2005) have shown evidence that CFOs manipulated financial statement through declining the research and development (R&D) expenses; cutting-off advertising and maintenance costs; or postpone a new project.

This article takes into account on accrual-based earning management and determinants of earnings management that is carried out by listed firms in Vietnam Stock Exchange. Studying the causes of earnings management contributes significant implications for regulators, investors, creditors, analysts and academics (Kothari et al., 2005). Sun & Rath (2009) has showed the empirical evidence of earnings management in Australia through examining nine industries. The empirical results indicated that size and return on assets were the dominant factors influenced on earnings management. Charfeddine & Omri (2013) have addressed on six elements, which have significantly impacted on earnings management such as indebtedness, size of company, firm performance, roles of chair board, managerial propriety, and dividend pay-out) in the Tunisian companies. Atu et al. (2016) has explored the significant relationship between the corporate

governance variables such as board size, type of audit firm and earnings management. Moreover, the relationships between firm size, ROA and earnings management are represented. Thus, the authors have suggested several important recommendations for both internal and external users. Orellana et al. (2017) detected that companies in Spain manipulated financial statements due to days of receivable ratio, total accruals to total assets ratio, sales growth and leverage variables. Saona&Muro (2018) has investigated the determinants of earnings management based on firm- and country- level of Latin American companies to solve the issues of endogeneity and heterogeneity ones. According to the firm-level variables, dividend pay-outs and ownership structure have been shown as factors that impact on the earnings manipulation. Whereas based on the country-level variables, the inefficient financial markets create more room for firms to manipulate their financial statements.

This article contributes to the literature on earnings management by presenting evidence on earnings management based on accrual-based measure. The focus is on the impact of firm size and sale growth volatility on the manipulation. The impact of firm size has been a controversial topic for decades whereas the later's has not been mentioned frequently in the literature.

This study is structured as follows. After the introduction, this paper has focused on research hypotheses. In the third section, the research methodology is represented, and in the fourth, the results of the empirical study are illustrated. Finally, the conclusions and implications are discussed.

## **2. Research hypotheses**

There has been a debate about the impact of firm size on earning management (Kouki et al, 2011). The proponents of the first viewpoint argue that there is a negative relationship between firm size and earning manipulation (Gul et al.2009, Kim et al. 2003, Xieet al. 2003). The larger the firm size, the stronger the internal control and higher qualified auditors that allow the company to control these manipulation more effectively. In other words, small firms with less experienced auditor and less strictly internal control seems to experience higher possibility of misstatements.

However, there is argument about the positive interaction between these two variables (Moses, 1987, Nelson et al. 2002, Myers and Skinner, 2000 and Attig et al. 2008). Large firm is under greater pressure when income is not as expected or gets more benefits than small firms if showing positive outcomes. The manager of the large firms, therefore, is under greater pressure. They know that the market participants rely on the bottom line of the financial statement to evaluate the management performance (Burgstahler and Dichev, 1997, Degeorge et al. 1999). They believe that the participants prefer higher EPS or income smoothness thus there is a higher possibility of manipulation in large firm.

Based on the findings of previous studies, the hypothesis is designed as followed:

$H_1$ : There is a significant relationship between firm size and earning management.

As for volatility of sale growth, although this variable has not been frequently employed in prior works, there have been evidences on the relation of this variable with earning management (Hribar and Nichols, 2007, Attig et al. 2008, Bergstresser and Phillipon, 2005). High volatility of sales is associated with high earning management, creates a positive relationship between volatility of sale and earning management (Bergstresser and Phillipon, 2005). In other words, earning smoothing is less likely when the sale is stable (Brigham and Daves, 2012). The second hypothesis is as follow:

$H_2$ : There is a positive relationship between sale growth volatility and earning management. The more unstable the sale is, the higher possibility of financial information misstatement.

### **3. Data and methodology**

The research employs yearly data of all companies listed on the Vietnam stock exchange during 2009-2017. This paper aims to measure the influence of each determinant on the earning management decision.

#### ***3.1 Earning management variable***

There are two measure of earning management: accrual – based earning management (AEM) and real earning management (REM). AEM employs

accounting estimations and measures to obscure the true performance without any direct impact on the cash flow while the REM directly influence the cash flow through operational activities (Enomoto et al., 2015; Roychowdhury, 2006; Sun, Lan, & Liu, 2014). Due to data availability, the AEM technique is employed in this study.

The article follows the modified Jones model (1991) to estimate the proportion of discretionary accrual of the total one. There are three steps as follows:

First, this study has estimated OLS coefficients  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$  using the model:

$$\frac{TACC_{it}}{TA_{it-1}} = \beta_0 \left( \frac{1}{TA_{it-1}} \right) + \beta_1 \left( \frac{\Delta Rev_{it}}{TA_{it-1}} \right) + \beta_2 \left( \frac{PPE}{TA_{it-1}} \right) + \varepsilon_{it}$$

where

$TA_{it-1}$ : total assets of company i at time t-1;

$TACC_{it}$ : total accruals in year t. It is computed as:  $TACC_{it} = (\Delta CA_{it} - \Delta Cash_{it}) - (\Delta CL_{it} - \Delta STD_{it}) - Dep_{it}$ . CA denotes current cash; Cash denotes cash; CL stands for current liability; STD indicates current portion of long-term term and Dep indicates depreciation;

$\Delta Rev_{it}$ : revenue changes;

$PPE$ : Gross property, plant and equipment.

Second, the article calculates the non-discretionary accruals (NDAC) using the following equation and the estimated coefficients above:

$$NDAC_{it} = \hat{\beta}_0 \left( \frac{1}{TA_{it-1}} \right) + \hat{\beta}_1 \left( \frac{\Delta Rev_{it} - \Delta Rec_{it}}{TA_{it-1}} \right) + \hat{\beta}_2 \left( \frac{PPE}{TA_{it-1}} \right)$$

Because revenues are non-discretionary, if earning is manipulated through discretionary revenues, the difference between the total accruals and the non-discretionary accruals will represent the discretionary accruals (DAC). DAC will represent earning management.

$$DAC_{it} = \left( \frac{TACC_{it}}{TA_{it-1}} \right) - NDAC_{it}$$

### 3.2. Explanatory variables

Firm-level variables are included in the study to illustrate what is the most influential factor to earnings management. We follow Dechow (1994),

Dechow and Dichev (2002), Hribar and Nichos (2007) using three variables: operating cycle, firm size and debt level. We add sale volatility, sale growth volatility, cash flow volatility as suggested by Attig (2008), Chaney et al. (2011) and Hribar and Nichos (2007) to control for possible biased results if no operating volatility variables are employed; sale growth following Gopalan and Jayaraman (2012) to account for differences in growth opportunities. A ratio of total cash flow to total assets is used to represent the relationship between operating cash flow and discretionary accruals (Defond and Jiambalvo (1994), Peasnell et al. (2000)). Profitability index ROA is added in our model to control for firm performance (Kothari (2001), Kasnik (1999) and Dechow et al. (1995).

Table 1: Variables definition and measurement

Variables	Measurement
<b>Dependent variables</b>	
Discretionary accruals (DAC)	As explained above
<b>Independent variables</b>	
Operating cycle (LOC)	Number of days receivables plus the number of days inventory. Days receivables is computed as 360 divided by the ratio of average receivables to sales. Days inventory is similarly defined as 360 divided by the ratio of average inventory to cost of goods sold. Operating cycle is defined as log of the sum of days. (Chaney)
Firm size (SIZE)	Natural logarithm of total asset instead of natural logarithm of market capitalization as in other papers.
Debt level (GEAR)	Gearing number in the balance sheet is calculated as the ratio of total debt to total equity
Sale volatility (SDSALE)	Standard deviation of ratio between sales and lagged total assets
Sale growth volatility (SDSALEGROWTH)	Standard deviation of sale growth (scaled by lagged total assets). It is measured by change in sales (sales year t less sales year t-1) scaled by

	total assets from the previous period.
Sale growth (SALEGROWTH)	The percentage of sales growth rate
Cash flow volatility (CFVOL)	Standard deviation of ratio between cash flow and lagged total assets
ROA	EBIT/lagged total assets

Source: Author, 2020.

### 3.3 Methodology:

This paper applies panel data analysis to measure the influence of each determinant on earning management decision.

$$\begin{aligned}
 DAC_{it} = & \beta_0 + \beta_1 LOC + \beta_2 SIZE + \beta_3 GEAR + \beta_4 SDSALE \\
 & + \beta_5 SDSALEGROWTH + \beta_6 SALEGROWTH + \beta_7 CFVOL \\
 & + \beta_8 ROA
 \end{aligned}$$

where DAC and the other variables are defined in the table above.

## 4. Empirical results

### 4.1 Main results

As can be seen, Table 2 illustrates the sample by year identify. Table 3 describes descriptive statistics of the data.

Table 2: Sample distribution

#### Tabulation of year

year	Freq.	Percen	Cum.
		t	
2009	424	11.11	11.11
2010	424	11.11	22.22
2011	424	11.11	33.33
2012	424	11.11	44.44
2013	424	11.11	55.56
2014	424	11.11	66.67
2015	424	11.11	77.78
2016	424	11.11	88.89
2017	424	11.11	100.00

Table 3: Descriptive statistics

Variable	Obs	Mean	Std.Dev.	Min	Max
unit_idn	3816	212.5	122.414	1	424
year	3816	2013	2.582	2009	2017
LOC	3206	3.915	1.082	-4.109	14.153
sg	3072	1.269	37.548	-6.088	2038.04
sdsale	2694	.386	.949	0	27.868
sdsalegrowth	2693	.359	.52	0	14.423
sdcfvol	2694	.051	.075	0	1.521
size	3511	19.345	1.309	14.067	24.179
gear	3413	.937	1.29	0	9.954
DACC	877	-.049	.467	-2.793	5.92
insider1	3816	.241	.427	0	1
roa	1883	.071	.126	-.698	1.921

Table 4: Matrix of correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) DACC	1.000								
(2) LOC	0.026	1.000							
(3) size	0.274	0.185	1.000						
(4) gear	0.048	0.187	0.266	1.000					
(5) sdsale	0.061	-	-0.136	-0.092	1.000				
(6) sdsalegrowth	0.091	0.013	-0.100	-0.075	0.850	1.000			
(7) sg	-	-	0.033	-0.074	0.042	0.020	1.000		
(8) sdcfvol	0.177	0.115	-	-	0.337	0.309	-0.017	1.00	
(9) roalag	0.024	0.053	-0.212	-0.141	-0.004	-0.043	0.137	0.18	1.00
	0.010	-	-0.111	-0.281	-	-	-	0	0
		0.288							

To test the impact of each proposed determinants on the earning management, this paper applies the random effect panel regression

supported by the Hausman test. Clustered standard errors technique is employed to account for heteroskedasticity and autocorrelation. The following variables SIZE, SDSALEGROWTH and SG are statistically significant to earning manipulation in the whole dataset.

Firm size is believed to be positively correlated with the discretionary accruals. In our study, firm size is the natural logarithm of total assets. The larger the firm size, the higher level of earning manipulation. This relationship supports the point of Moses (1987), Nelson et al. (2002), Myers and Skinner (2000) and Attig et al. (2008). Moses (1987) convinced that large firms have greater need for income smoothing compared with small firms. Large firms are under great pressure to fulfil high expectations of financial analysts, stakeholders, investors, media and the public. These firms are under strict supervision of the Governments, they face higher political cost therefore the directors of these firms are prompted to use accounting technique to deal with the earnings. This result differ from those of Gul et al. (2009), Kim et al. (2003) admitting the effectiveness of internal control system of large-sized firms. The authors explain that the internal control system of large firms are better off than the smaller firm to mitigate the manager's behaviours. These large firms are also audited by certified and experienced accountants who can easily detect material misstatements in the financial statements. In favour of the first point of view, positive relationship between the size and the misstatements, our finding suggest that the internal system as well as audit procedure should be designed and be more strict to identify any misstatements.

Table 5: Regression results

DACC	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
LOC	-0.037	0.024	-1.59	0.113	-0.084	0.009	
<b>size</b>	<b>0.120</b>	<b>0.023</b>	<b>5.18</b>	<b>0.000</b>	<b>0.075</b>	<b>0.165</b>	<b>***</b>
gear	-0.022	0.014	-1.50	0.133	-0.050	0.007	
sdsale	-0.038	0.093	-0.41	0.681	-0.221	0.144	
<b>sdsalegrowth</b>	<b>0.219</b>	<b>0.090</b>	<b>2.42</b>	<b>0.015</b>	<b>0.042</b>	<b>0.396</b>	<b>**</b>
<b>sg</b>	<b>-0.125</b>	<b>0.022</b>	<b>-5.79</b>	<b>0.000</b>	<b>-0.167</b>	<b>-0.083</b>	<b>***</b>
sdcfvol	-0.425	0.512	-0.83	0.407	-1.429	0.579	

roa	0.248	0.207	1.20	0.229	-0.157	0.653	
Constant	-2.269	0.455	-4.99	0.000	-3.161	-1.377	***
Mean dependent var		-0.034	SD dependent var			0.420	
Overall r-squared		0.126	Number of obs			691.000	
Chi-square		68.873	Prob > chi2			0.000	
R-squared within		0.067	R-squared between			0.160	

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Regarding to the control variable - sale growth volatility (*SDSALEGROWTH* variable), the coefficient is negative indicating that the more volatile a company's sale is, the higher discretionary accruals the firm has. Stable sales reduce the financial distress for the company (Brigham and Daves, 2012) thus manager has less tendency to manage the earning. In contrast, manipulation of earnings is often employed when the financial and operating conditions of the firm is unwell and unstable, manager is under great pressure to achieve the goals (Dechow (2011), Orellana et al. (2017)). These explanations are also true for the positive coefficient of sale growth (*SG* variable), the higher the growth the greater pressure to maintain that growth thus the less precise information is. This finding coincides with a number of studies such as Hribar and Nichols (2007), Gopalan and Jayaraman (2011).

#### 4.2 Additional regression analysis

This article performs a number of additional regressions to test the impact of each firm-level variable to the discretionary accruals.

Table 6: Robustness check

DACC	Industry 2	Industry 3	Industry 5	pooled
LOC	-0.250***	0.021	-0.007	-0.037
size	0.107**	0.038	0.098***	<b>0.120*</b> **
gear	-0.078***	-0.012	0.001	-0.022
sdsale	-0.173	-0.015	0.090	-0.038
sdsalegrowth	0.381***	0.339**	-0.046	<b>0.219*</b>

				*
sg	-0.395***	-0.155**	-	-
			0.163***	<b>0.125*</b>
				**
sdcfvol	-2.636***	-0.074	-0.093	-0.425
roalag	0.434	0.393	0.462	0.248
Constant	-1.029	-0.963	-1.976	-2.269

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Multiple regressions have been carried out to test the impact of firm size and sale growth volatility on discretionary accruals. Due to data restriction, only three industry-level regressions are employed namely industry 2, industry 3, industry 5 in our table above. They present mining, manufacturing and construction sector respectively. Coefficients related to firm size and sale growth volatility of these three regressions share the same sign with the pooled ones. They all signify that there is a higher possibility of earning manipulation in firms having large size and sale growth volatility. An exception is the case of industry 5 (construction sector) with the insignificant of the *sdsalegrowth*. It may result from the seasonal rise and fall of sales in this sector.

## 5. Conclusion

The research examines the impact of firm size and sale growth volatility on earning management decisions using yearly data of Vietnamese corporations during 2009-2017. The following points have been accounted for. Firstly, large firm size appear to engage in more earning manipulation. The motivations arise from great pressure to fulfill expectations of stakeholders and the higher political cost outweighs the advantage of better internal control system. Secondly, high volatility of sales is associated with higher income manipulation. Firms with unstable sales tend to engage in earning manipulation. Last but not least, from policy perspective, regulatory system should focus on firms having large size and more volatile sales to control and detect earning management.

## References:

Attig, N., Chen, R.R., El Ghouli, S., Guedhami, O., Kwok, C.C. and Pittman, J., 2018. Are Insiders Equal? Evidence from Earnings Management in

Closely Held East Asian Firms. *Evidence from Earnings Management in Closely Held East Asian Firms (November 2018)*.

Atu, O.O.K., Atu, F.O., Enegebe, O.P. and Atu, E.C., 2016. Determinants of earnings management in Nigerian quoted companies. *Igbinedion University Journal of Accounting, 1*, pp.118-133.

Brigham, E.F. and Daves, P.R., 2012. *Intermediate financial management*. Nelson Education.

Burgstahler, D. and Dichev, I., 1997. Earnings management to avoid earnings decreases and losses. *Journal of accounting and economics, 24(1)*, pp.99-126.

Chaney, P.K., Faccio, M. and Parsley, D., 2011. The quality of accounting information in politically connected firms. *Journal of accounting and Economics, 51(1-2)*, pp.58-76.

Charfeddine, L., Riahi, R. and Omri, A., 2013. The Determinants of Earnings Management in Developing Countries: A Study in the Tunisian Context. *IUP Journal of Corporate Governance, 12(1)*.

Charfeddine, L., Riahi, R., & Omri, A. (2013). The Determinants of Earnings Management in Developing Countries: A Study in the Tunisian Context. *IUP Journal of Corporate Governance, 12(1)*.

Dechow, P. M., Hutton, A. P., Kim, J. H., & Sloan, R. G. (2012). Detecting earnings management: A new approach. *Journal of accounting research, 50(2)*, 275-334.

Dechow, P.M. and Dichev, I.D., 2002. The quality of accruals and earnings: The role of accrual estimation errors. *The accounting review, 77(s-1)*, pp.35-59.

Dechow, P.M., Sloan, R.G. and Sweeney, A.P., 1995. Detecting earnings management. *Accounting review*, pp.193-225.

DeFond, M.L. and Jiambalvo, J., 1994. Debt covenant violation and manipulation of accruals. *Journal of accounting and economics, 17(1-2)*, pp.145-176.

DeGeorge, F., Patel, J. and Zeckhauser, R., 1999. Earnings management to exceed thresholds. *The Journal of Business, 72(1)*, pp.1-33.

Enomoto, M., Kimura, F., & Yamaguchi, T. (2015). Accrual-based and real earnings management: An international comparison for investor protection. *Journal of Contemporary Accounting & Economics, 11(3)*, 183-198.

- Erickson, M., Hanlon, M., & Maydew, E. L. (2006). Is there a link between executive equity incentives and accounting fraud?. *Journal of accounting research*, 44(1), 113-143.
- Frankel, R.M., Johnson, M.F. and Nelson, K.K., 2002. The relation between auditors' fees for nonaudit services and earnings management. *The accounting review*, 77(s-1), pp.71-105.
- Gopalan, R. and Jayaraman, S., 2012. Private control benefits and earnings management: Evidence from insider controlled firms. *Journal of Accounting Research*, 50(1), pp.117-157.
- Graham, J. R., Harvey, C. R., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. *Journal of accounting and economics*, 40(1-3), 3-73.
- Gul, F.A., Fung, S.Y.K. and Jaggi, B., 2009. Earnings quality: Some evidence on the role of auditor tenure and auditors' industry expertise. *Journal of accounting and Economics*, 47(3), pp.265-287.
- Healy, P. M., & Wahlen, J. M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting horizons*, 13(4), 365-383.
- Hribar, P. and Craig Nichols, D., 2007. The use of unsigned earnings quality measures in tests of earnings management. *Journal of Accounting Research*, 45(5), pp.1017-1053.
- Jiraporn, P., Kim, Y.S. and Mathur, I., 2008. Does corporate diversification exacerbate or mitigate earnings management?: An empirical analysis. *International Review of Financial Analysis*, 17(5), pp.1087-1109.
- Jones, J.J., 1991. Earnings management during import relief investigations. *Journal of accounting research*, 29(2), pp.193-228.
- Kasznik, R., 1999. On the association between voluntary disclosure and earnings management. *Journal of accounting research*, 37(1), pp.57-81.
- Kothari, S. P., Leone, A. J., & Wasley, C. E. (2005). Performance matched discretionary accrual measures. *Journal of accounting and economics*, 39(1), 163-197.
- Kouki, M., Elkhaldi, A., Atri, H. and Souid, S., 2011. Does corporate governance constrain earnings management? Evidence from US firms. *European Journal of Economics, Finance and Administrative Sciences*, 35(2011), pp.58-71.

- Moses, O.D., 1987. Income smoothing and incentives: Empirical tests using accounting changes. *Accounting Review*, pp.358-377.
- Myers, J.N., Myers, L.A. and Skinner, D.J., 2007. Earnings momentum and earnings management. *Journal of Accounting, Auditing & Finance*, 22(2), pp.249-284.
- Peasnell, K.V., Pope, P.F. and Young, S., 2000. Accrual management to meet earnings targets: UK evidence pre-and post-Cadbury. *The British Accounting Review*, 32(4), pp.415-445.
- Ramírez-Orellana, A., Martínez-Romero, M.J. and Mariño-Garrido, T., 2017. Measuring fraud and earnings management by a case of study: Evidence from an international family business. *European Journal of Family Business*, 7(1-2), pp.41-53.
- Roychowdhury, S., 2006. Earnings management through real activities manipulation. *Journal of accounting and economics*, 42(3), pp.335-370.
- Saona, P., &Muro, L. (2018). Firm-and country-level attributes as determinants of earnings management: An analysis for Latin American firms. *Emerging Markets Finance and Trade*, 54(12), 2736-2764.
- Schipper, K. (1989). Earnings management. *Accounting horizons*, 3(4), 91.
- Sun, J., Lan, G. and Liu, G., 2014. Independent audit committee characteristics and real earnings management. *Managerial Auditing Journal*.
- Sun, L., &Rath, S. (2009). An empirical analysis of earnings management in Australia.
- Xie, B., Davidson, W. N. and DaDalt, P. J. (2003), 'Earnings management and corporate governance: the roles of the board and the audit committee', *Journal of Corporate Finance*, Vol. 9, pp. 295–314