

EARNINGS MANAGEMENT AND SEASONED EQUITY OFFERINGS IN AN EMERGING MARKET: EVIDENCE FROM THAILAND*

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Abstract

This research examines whether there was a difference of earnings management between the year of seasoned equity offerings (SEOs) and non-SEOs in Thailand during the period 2000 to 2015, and which factors drove earnings management in SEO firms. The famous Modified Jones model, and Yoon and Miller's (2002) model (YM model) are applied to capture earnings management via discretionary accruals, whereas Roychowdhury's (2006) model is used to measure the earnings manipulation through real activities. Based on 242 SEO firms, the results show that earnings management in the year of SEOs is significantly different from the year of non-SEOs when the models of discretionary accruals are applied. With regard to determinants, operating cash flow and time lag are two factors related to earnings management in both the discretionary accrual and real activities models, whereas the other factors (namely firm size and offer size) are relevant depending on the models applied. Nevertheless, SEOs and issuing methods show no role in driving earnings management in Thailand. Therefore, investors would be advised to put more attentions in the other factors rather than SEOs when the firms have signal of earnings management.

Keywords: market-based accounting, earnings management, discretionary accruals, real activities manipulation, seasoned equity offerings

บทคัดย่อ

งานวิจัยนี้ได้ทำการศึกษาถึงความแตกต่างของการจัดการกำไรในปีที่กิจการมีการออกหุ้นเพิ่มทุนกับปีที่ไม่ได้ออกหุ้นเพิ่มทุน โดยใช้กรณีศึกษาในตลาดหลักทรัพย์แห่งประเทศไทย ช่วงระหว่างปีพ.ศ.2543-2558 และทำการศึกษาว่าปัจจัยใดทำให้เกิดการจัดการกำไรของบริษัทที่มีการออกหุ้นเพิ่มทุน แบบจำลอง Modified Jones และแบบจำลองของ Yoon and Miller (2002) ถูกนำมาใช้ในการวัดการจัดการกำไรผ่านรายการคงค้าง ส่วนแบบจำลองของ Roychowdhury (2006) ถูกนำมาใช้วัดการจัดการกำไรผ่านรายการธุรกิจ ผลการศึกษาจากกลุ่มตัวอย่างบริษัทจดทะเบียนในตลาดหลักทรัพย์ฯ 242 บริษัท พบว่า มีการตกแต่งกำไรผ่านรายการคงค้างในปีที่มีการออกหุ้นเพิ่มทุนแตกต่างอย่างมีนัยสำคัญจากปีที่ไม่มีการออกหุ้นเพิ่มทุน ส่วนปัจจัยที่ส่งผลต่อการจัดการกำไรนั้น ผลการศึกษาพบว่า กระแสเงินสดจากกิจกรรมดำเนินงานและระยะห่างระหว่างการออกหุ้นเพิ่มทุนเป็นปัจจัยที่มีผลต่อการจัดการกำไรผ่านรายการคงค้างและผ่านรายการธุรกิจ ในขณะที่การออกหุ้นเพิ่มทุนและวิธีออกหุ้นเพิ่มทุน ไม่มีผลต่อการตกแต่งกำไร นอกจากนี้ ผลของขนาดกิจการและขนาดการออกหุ้นเพิ่มทุนต่อการตกแต่งกำไรนั้นแตกต่างกัน ขึ้นอยู่กับวิธีการวัดการตกแต่งกำไร ดังนั้น นักลงทุนควรให้ความสำคัญในปัจจัยตัวอื่นๆ หากต้องการวิเคราะห์ถึงสัญญาณบ่งชี้ของการจัดการกำไรในประเทศไทย

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Introduction

Previous literature (e.g. Intintoli & Kahle, 2010; Rangan, 1998; Teoh, Welch, & Wong, 1998) indicates that drops in stock prices after the issuing of a seasoned equity offering (SEO, hereafter) cause companies to undervalue. Thus, a SEO should be the perfect solution when managers think their firms are overvalued, reverting prices back to previous levels. Early researches show that SEO firms conduct earnings management in order to overvaluation prior to the issuing of new shares (e.g. Shu & Chiang, 2014). In emerging markets, Thailand in particular, Lerskullawat (2012) points out that there was a substantial increase in the number of firms applying equity financing after 1998 and that firms underperform during the post SEOs period. Therefore, there would be earnings management around the years of those SEOs in Thailand.

Many studies in both developed and emerging markets (e.g. Heron & Lie, 2004; Islam, Ali, & Ahmad, 2011; Rao & Dandale, 2008; Teoh et al., 1998) show that the higher overvaluation of firms, the more rising in earnings management and this is followed by the issuing of new shares. Also, the earnings management is normally measured through discretionary accrual, or accrual-based approach. However, some studies (e.g. Hansen & Crutchley, 1990; Heron & Lie, 2004) provide the contrast evidence that there are no necessary for the firms to manipulate their earnings prior to the SEOs. Hence, the results in this area remain mixing with different conclusions. Nevertheless, Gunny (2010) mentions another approach to capture the earnings management known as real activities manipulation (REM, hereafter). This is done by attempting to generate higher revenue (increase the operating cash flow) and the cost of productions (to get lower cost per unit) or reducing unnecessary expenses.

Since Thailand is fulfilled the area of popularity of SEOs and neglect studies on such area, this study focuses on both approaches of earnings management – discretionary accrual and REM. Although there are some works done in Thailand (e.g. Kunsing, 2013; Limsuthiwanpum & Chaimankong, 2015; Prangthawat, 2000; Tuntana, 2011), their calculations of earnings management remain with accrual-based approach and shorter study period. In addition, expanding the determinants of earnings management in Thailand would close the gap to focus whether the SEOs drive earnings management. The sample is collected from a long length study period from 2000 to 2015 and estimated to find out whether the SEO years have a difference of earnings management to the non-SEO years. If there is a difference, there would be a possibility that SEOs would influence the companies to manipulate their earnings. The results reveal that only the accrual-based measurement could make the difference between the SEO years. Nevertheless, SEOs play no role to drive the earnings management in Thailand.

Aims

The objectives of this paper are first to examine whether earnings management in the year of SEO announcements is significantly different to the year of non-SEO announcements, and second, which factors lead firms to choose earnings management. The paper contributes to the investigations into the times when earnings management is conducted, focusing on a specific event, the SEOs. Subsequently, investors will be able to realise when SEO announcements are made that companies' performance relates to non-fundamental values.

Moreover, related institutions (such as the Securities Exchange Commission; SEC hereafter) will be able to consider these implications in order to monitor SEO firms in more details with regard to earnings management.

Literature Review

Several studies show that SEO firms intend to manage their earnings prior to the issuing of new shares (e.g. Rangan, 1998; Shivakumar, 2000; Shu & Chiang, 2014; Teoh et al., 1998) as their performance needs to be strong when investors are informed about the issuing. Rao and Dandale (2008) suggest that companies intend to manage their earnings prior to SEOs, particularly by rights issuing. Some other studies support this evidence; for instance, Shu and Chiang (2014), Teoh et al. (1998) and Yongtae and Myung Seok (2005). They all discuss the fact that SEO firms attempt to raise their offer prices by managing their financial performance. However, some literature proposes that there is no evidence of upward earnings management prior to the SEOs, mainly when the rights issuing method is employed (e.g. Hansen & Crutchley, 1990; Heron & Lie, 2004). This leads to inconclusive findings in this area. In Thailand, the results from Prangthawat (2002) show that earnings management explains firms' underperformance (measured by stock returns) around the SEOs. Moreover, to measure earnings management, Gunny (2010) proposes two approaches of earnings management; namely, discretionary accrual and REM. Earnings management can be examined using several models, with no particular model considered to be the best^{*}.

Furthermore, it is also interesting to establish which factors determine earnings management. Firm size and leverage are two determinants which have been frequently examined and included in estimations, by, amongst others, Dayanandan and Sra (2016), Rangan (1998) and Yoon and Miller (2002). The evidence reports inconclusively that firm size and leverage relate to earnings management. Cash flow from operations is subsequently stated to be another link with earnings management, since SEO firms with low cash flow tend to manipulate their earnings to raise net income (e.g. Rangan, 1998; Yoon & Miller, 2002). Moreover, when there is the risk that their level of debts may lead to a financial distress situation, the level of debt in firms would be another factor driving the high possibility of earnings management in SEO firms (for instance, Bassiouny, Soliman, & Ragab, 2016; Rangan, 1998; Yoon & Miller, 2002). The final additional determinants are offer size and the time lag between the previous issuing and the month in which the SEO is made. Yoon and Miller (2002) believe that earnings management relates positively with offer size, whereas a shorter time lag would provide a greater chance for firms to manipulate their earnings.

As a result of the literature review, two research questions are put forward: (1) is there any difference in earnings management between the year of SEOs and non-SEOs, based on both discretionary accrual and REM; and (2) which factors determine any earnings management? These questions would fulfil the gaps in the literature, which confirm our previously stated motivations for this study, namely (1) the lack of studies in this

* There are five models for earnings management via accruals. For further details of these five models, see Dechow, Sloan and Sweeney (1995). For REM measurement, there are two main models, those of Roychowdhury (2006) and Cohen, Dey and Lys (2008).

area in Thailand, particularly of REM; (2) the fact that SEO firms seem to be overvalued; and (3) the inconclusive results, which remain. To illustrate more in these motivations, the previous literature (e.g. Corwin, 2003; Intintoli & Kahle, 2010; Lerskullawat, 2012; Rangan, 1998;) shows evidence that stock prices react negatively to SEOs, whereas it is found that earnings management is conducted during periods of overvaluation (Shu & Chang, 2014; Yongtae & Myung Seok, 2005). Moreover, the evidence of Islam et al. (2011) confirms that earnings management is carried out when SEO firms underperform in the long-run. Nevertheless, some studies (such as Hansen & Crutchley, 1990; Heron & Lie, 2004) provide a rational evidence that earnings management would happen to the SEO firms with a particular case: for instance, offering of primary shares (IPOs). Thus, these are slightly inconclusive whether earnings management remains in the SEO periods. With the issuing of new equities with rights, the univariate test is brought into the methodology in order to estimate the significant difference between the normal period and the period of the SEOs.

In addition, this study sheds more light on the determinants of earnings management in Thailand. Earlier studies (for example, Boudiche, 2013; Dayanandan & Sra, 2016; Loughran & Ritter, 1995; Rangan, 1998; Yongtae & Myung Seok, 2005; Yoon & Miller, 2002) demonstrate several factors that play key roles in earnings management.

Data and Methodology

Data collection

In Thailand, SEOs are issued by two main methods: rights issuing and private placements. Thus, the SEO samples in this study are defined by these two issuing methods and were obtained from Thomson Reuters, together with the financial statements of listed companies on the Stock Exchange of Thailand (SET, hereafter). The other fundamental data, for instance the financial ratios, were also collected from Thomson Reuters (DataStream). The initial sample of 1,093 SEOs is taken from the period 2000 to 2015 and consists of 467 which issue rights and 626 private placements. In order to avoid any overlapping, only the first SEO of each firm was selected. Moreover, the sample excludes (1) financial firms, due to their different financial statement structure and (2) unavailable information. This brings the final sample to 242 SEO firms, with 115 rights issuing ones, 123 private placements and four firms that issue rights and placements at the same time. In addition, the entire sample examined in this study is winsorised to one percent in each variable. Clarifications of the final sample is shown in Table 1.

Table 1: Description of final sample during the period 2000 to 2015

The table gives a description of the final sample of 242 firms used in this study from between 2000 and 2015. XR stands for rights issuing; PP refers to private placement; and XR+PP represents the firms that issue new shares with rights and private placement at the same time.

Issuing Methods	Years									
	2000	2001	2002	2003	2004	2005	2006	2007	2008	
XR	11	9	2	3	7	8	8	9	10	
PP	4	8	3	18	13	8	6	5	8	
XR+PP	1	-	-	-	-	1	-	-	1	
Total	16	17	5	21	20	17	14	14	19	

Issuing Methods (cont'd)	Years (cont'd)							
	2009	2010	2011	2012	2013	2014	2015	Total
XR	3	5	7	5	17	4	7	115
PP	6	4	6	14	11	4	5	123
XR+PP	-	-	-	-	1	-	-	4
Total	9	9	13	19	29	8	12	242

Methodology

Accrual earnings management is first examined by using the Modified Jones model of Dechow et al. (1995) and second by the model of Yoon and Miller (2002) (YM model, hereafter). Firstly, the total accruals (TA_{it}) of firm i in year t measured from equation 1 is from Modified Jones model and equation 2 is the total accrual from YM model:

$$TA_{it} = \frac{\Delta CA_{it} - \Delta CL_{it} - \Delta Cash_{it} + \Delta STD_{it} - Dep_{it}}{A_{it-1}} \dots\dots\dots (1)$$

$$TA_{it} = NI_{it} - CFO_{it} \dots\dots\dots (2)$$

; where ΔCA_{it} is change in current assets, ΔCL_{it} is change in current liabilities, $\Delta Cash_{it}$ is change in cash and cash equivalents, ΔSTD_{it} is change in debt included in current liabilities* and Dep_{it} is depreciation and amortisation expenses. All variables are scaled by total assets at $t-1$ in order to control heteroscedasticity problem and they are for firm i at period t . NI_{it} is the net income of firm i at period t . CFO_{it} is the cash flow from operation of firm i at period t .

* In Dechow et al. (1995), this variable is obtained from COMPUSTAT item 34. In this study, whose data is taken from Thomson Reuters, it is calculated via the sum of notes payable, short-term debt, current portfolio of long-term debt and capital lease.

** This variable is calculated based on Thomson Reuters data as the difference between total operating expenses and noncash items. The noncash items include depreciation, amortisation and deferred tax, amongst others.

Using Modified Jones model, equation 3 is initially estimated, where a_1 , a_2 , and a_3 is OLS estimates of α_1 , α_2 , and α_3 in equation 4. The discretionary accrual (DAP_{it}) is then measured from equation 4.

$$TA_{it} = a_1 \left(\frac{1}{A_{it-1}} \right) + a_2(\Delta REV_{it}) + a_3(PPE_{it}) + \varepsilon_{it} \dots\dots\dots (3)$$

$$DAP_{it} = TA_{it} - \left[a_1 \left(\frac{1}{A_{it-1}} \right) + a_2(\Delta REV_{it} - \Delta REC_{it}) + a_3(PPE_{it}) \right] \dots\dots\dots (4)$$

; where TA_{it} is total accruals of firm i in year t and measured by equation 1, A_{it-1} is total assets at year $t-1$, ΔREV_{it} is change in revenues in year t and year $t-1$, ΔREC_{it} is change in net receivables in year t and year $t-1$, PPE_{it} is gross property, plant and equipment (GPPE) in year t . All variables are for firm i in year t and scaled by total assets at $t-1$ in order to control heteroscedasticity problem.

Similarly, when the YM model is applied as another accrual-based measurement, equation 5 is estimated where β_0 , β_1 , β_2 and β_3 is OLS estimates of b_0 , b_1 , b_2 , b_3 in equation 6. The discretionary accrual (DA_{it}) is then measured from equation 6.

$$TA_{it} = \beta_0 + \beta_1(\Delta REV_{it} - \Delta REC_{it}) + \beta_2(\Delta EXP_{it} - \Delta PAY_{it}) + \beta_3(NCASH_{it-1} \times GPPEGRW_{it}) + \varepsilon_{it} \dots\dots (5)$$

$$DA_{it} = TA_{it} - [\beta_0 + \beta_1(\Delta REV_{it} - \Delta REC_{it}) + \beta_2(\Delta EXP_{it} - \Delta PAY_{it}) + \beta_3(NCASH_{it-1} \times GPPEGRW_{it})] \dots\dots\dots (6)$$

Note that all variables in equations 5 and 6 are for firm i in year t and scaled by total assets at the beginning of the SEO period in all variables. The explanations of these variables are based on Yoon and Miller (2002), where: TA_{it} is total accruals measured by equation 2, DA_{it} = Discretionary accruals, ΔREV_{it} = Changes in net sales revenue, ΔREC_{it} = Changes in receivables, ΔEXP_{it} = Changes in operating expenses, excluding noncash expenses**, ΔPAY_{it} = Changes in payables, $NCASH_{it-1}$ = Previous period noncash expenses such as depreciation, $GPPEGRW_{it}$ = Rate of growth in GPPE.

For REM, Roychowdhury's (2006) model is applied to estimate the normal level of cash flow from operations (equation 7), production costs* (equation 8) and discretionary expenses (equation 9). The deviations from normal levels are indicated as abnormal ones.

$$\frac{CFO_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{it-1}} \right) + \beta_1 \left(\frac{S_{it}}{A_{it-1}} \right) + \beta_2 \left(\frac{\Delta S_{it}}{A_{it-1}} \right) + \varepsilon_{it} \dots\dots\dots (7)$$

$$\frac{PROD_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{it-1}} \right) + \beta_1 \left(\frac{S_{it}}{A_{it-1}} \right) + \beta_2 \left(\frac{\Delta S_{it}}{A_{it-1}} \right) + \beta_3 \left(\frac{\Delta S_{it-1}}{A_{it-1}} \right) + \varepsilon_{it} \dots\dots (8)$$

$$\frac{COGS_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{it-1}} \right) + \beta_1 \left(\frac{S_{it}}{A_{it-1}} \right) + \varepsilon_t \dots\dots\dots (8.1)$$

$$\frac{\Delta INV_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{it-1}} \right) + \beta_1 \left(\frac{\Delta S_{it}}{A_{it-1}} \right) + \beta_2 \left(\frac{\Delta S_{it-1}}{A_{it-1}} \right) + \varepsilon_{it} \dots\dots\dots (8.2)$$

$$\frac{DISEXP_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{it-1}} \right) + \beta_1 \left(\frac{S_{it-1}}{A_{it-1}} \right) + \varepsilon_{it} \dots\dots\dots (9)$$

* In Roychowdhury (2006), production costs define as cost of goods sold (COGS) plus changes in inventory (ΔINV). The normal level of COGS and inventory growth are estimated from equation 8.1 and 8.2, respectively.

** Roychowdhury (2006) defines the abnormal values in these three variables (namely, cash flow from operations, production costs and discretionary expenses) by calculating the actual values minus the normal values.

$$REM_{it} = \frac{|CFO_{it} + PROD_{it} + DISEXP_{it}|}{A_{it-1}} \dots \dots \dots (10)$$

; where: CFO_{it} = Cash flow from operations of firm i at time t , A_{it-1} = Total assets of firm i at year $t-1$, S_{it} = Sales of firm i during period t , whereas $\Delta S_{it} = S_{it} - S_{it-1}$, $PROD_{it}$ = Production costs calculated via $COGS_{it} + \Delta INV_{it}$ in equations 8.1 and 8.2, and $DISEXP_{it}$ = Discretionary expenses of firm i in period t . The REM is then quantified by the summation of the abnormal cash flow from operations, abnormal production costs and abnormal discretionary expenses in absolute terms**, presented in equation 10.

To test whether there is the difference of earnings management level during the SEO year from the other years, equation 11 is then estimated as follows:

$$Y_{it} = \hat{a}_1 + \hat{b}_1 SEO_{it} + e_{it} \dots \dots \dots (11)$$

; where Y_{it} is a measurement of earnings management from Modified Jones model (DAPit), YM model (DAit) and Roychowdhury (2006)'s model (REMit), SEO_{it} is dummy variable which equal to one if the observation is in the year of the SEO, and zero otherwise. The significance of \hat{b}_1 indicates that the level of earnings management in the year of the SEO is different from the year without SEOs.

Finally, the multiple regression is built based on Yoon and Miller (2002) to test the determinants of earnings management (show in equation 12). The dummy variables of rights issuing methods and the year of the SEO issues are also included in the regression as the independent variables.

$$Y_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 LEV_{it} + \beta_3 CFO_{it} + \beta_4 RCAP_{it} + \beta_5 LAG_{it} + \beta_6 XR_{it} + \beta_7 SEO_{it} + \varepsilon_{it} \dots \dots (12)$$

; where, $SIZE_{it}$ is natural logarithm of the beginning period t of total assets, LEV_{it} is leverage ratio or debt-equity ratio, CFO_{it} is operating cash flow scaled by total assets in year $t-1$, $RCAP_{it}$ is offer size, measured by the level of changes in capital stock increases from the SEOs in percentage terms, LAG_{it} is number of months between the issuing month and the prior fiscal year end, XR_{it} is dummy variable, equal to one if rights issuing is used as the issuing method, and zero otherwise. Y_{it} and SEO_{it} are similar to those indicated in equation 11. The significance of $\hat{\beta}_i$ indicates that such factor(s) determine the level of earnings management.

Results and Discussion

Results from the difference of earnings management in the year of SEOs

With the Modified Jones model, the results confirm that the earnings management in the year with SEOs is significantly different from the year without SEOs in Thailand. The same outcomes are reported in another measurement by using the YM model in discretionary accruals. Both findings are highly significant at the 1% level, with a positive coefficient (see Table 2 – panels A and B). Consequently, SEO firms have differences of earnings management from the non-SEO firms. This is consistent with the previous literature, such as Rangan (1998), Shu and Chiang (2014), Teoh et al. (1998) and Yongtae and Myung Seok (2005). In contrast, the results from the REM model by Roychowdhury (2006) indicate

highly insignificant statistics (see Table 2 – panel C)*. This means that there are no REM among the SEO firms between 2000 and 2015. This is inconsistent with the study by Cohen and Zarowin (2010), who find correspondence between REM and the issuing of SEOs. Furthermore, these REM findings are partly inconsistent with previous studies (e.g. Cohen et al., 2008; Shu & Chiang, 2014; Yongtae & Myung Seok, 2005), although these mostly focus on the accrual scheme. Thus, SEO firms would manipulate their earnings via accrual items rather than REM.

Table 2: Test difference of earnings management in the year of SEOs

The table shows the results of the testing the difference of earnings management in the years with SEOs and without SEOs in Thailand during the period 2000 to 2015. The SEOs are defined by the two popular issuing methods, rights issuing and private placement. The earnings management is captured via two schemes: discretionary accrual and REM. Panel A reveals the results estimated via the Modified Jones model for discretionary accrual. Panel B demonstrates the results estimated via the YM model as another test for discretionary accrual. Panel C shows the results via the model of Roychowdhury (2006) for REM. The regression is examined as: $Y_{it} = \hat{a}_1 + \hat{b}_1 \text{SEO}_{it} + e_{it}$. SEO is dummy variable which equal to one if the observation is in the year of the SEO, and zero otherwise. C is the intercept of the regression, which is \hat{a}_1 . Y_{it} defines the measurement of earnings management, which is done in two ways, namely discretionary accrual and REM.

Explanatory variables	PANEL A: Modified Jones Model		PANEL B: YM model		PANEL C: REM model	
	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
C	-0.01758 ***	0.00377	-0.00146 ***	0.00057	0.00010	0.00131
SEO	0.04051 ***	0.00647	0.02078 ***	0.00532	0.00139	0.00200
Adjusted R ²	0.20190		0.29774		0.63445	

* Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level

Table 3: Determinants of earnings management around SEOs

The table shows the results of the regression for the determinants of earnings management in SEO firms in Thailand between 2000 and 2015. The methodology used in the regression is that of pooled least squares; it is adjusted for heteroscedasticity by using White cross-section standard errors and covariance and is free from multicollinearity. Panel A indicates the outcomes by calculating discretionary accruals by the Modified Jones model, whereas Panel B demonstrates these via the YM model (applied as another test of accrual-based model). Panel C shows these by calculating REM by the model of Roychowdhury (2006). All variables are defined in line with Yoon and Miller (2002). SIZE is defined as the natural logarithm of the beginning period of total assets. LEV is the debt-to-equity ratio. CFO refers to cash flow from operations. RCAP is defined as the offer size, measured by the percentage of change in capital stock increases from the SEO. LAG is the number of months between the issuing month and the last day of the prior fiscal year. XR is the dummy

* This study also estimates REM separately in each SEO year. The results (not reported) are mixed and confirm that there are no differences of REM in some SEO years.

variable and is equal to one if firms use rights issuing as the issuing method, and zero otherwise (private placement). SEO is dummy variable, which equal to one if the observation is in the year of the SEO, and zero otherwise. Y is the measurement of earnings management covered in the two schemes, namely discretionary accrual and REM. C is an intercept of the equation, which is β_0 . The regression is estimated as below:

$$Y_{it} = \beta_0 + \beta_1 \text{SIZE}_{it} + \beta_2 \text{LEV}_{it} + \beta_3 \text{CFO}_{it} + \beta_4 \text{RCAP}_{it} + \beta_5 \text{LAG}_{it} + \beta_6 \text{XR}_{it} + \beta_7 \text{SEO}_{it} + \varepsilon_{it}$$

Explanatory Variables	PANEL A: Modified Jones model		PANEL B: YM model		PANEL C: REM model	
	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
C	1.70977	1.70118	6.85802 ***	2.00168	-1.74444 ***	0.35607
SIZE	-0.08304	0.11582	-0.41917 ***	0.12471	0.10147 ***	0.02280
LEV	-0.00014	0.00014	0.00009	0.00007	-0.00001	<0.00000
CFO	<-0.00000 ***	<0.00000	<-0.00000 ***	<0.00000	<-0.00000 ***	<0.00000
RCAP	0.00069 ***	0.00021	<-0.00000	0.00008	-0.00001	0.00007
LAG	-0.14186 **	0.06513	-0.16594 ***	0.05921	0.05969 ***	0.01737
XR	0.32190	0.27590	-0.22312	0.15150	0.05080	0.05936
SEO	-0.44488	0.36510	-0.16632	0.11908	0.04878	0.05258
Adjusted R²	0.10616		0.10659		0.11751	

* Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level

Results from the determinants

The results from discretionary accrual by the Modified Jones model indicate that cash flow from operations and offer size are significant at the 1% level, whereas time lag is significant at 5%; see Table 3 – panel A. This evidence is consistent with previous works; for instance, Bassiouny et al. (2016), Rangan (1998), Subramanyam (1996) and Yoon and Miller (2002). It explains that poor operating cash flow and a high level of offer size with a short issuing time lag lead to the potential for earnings management in SEO firms. Thus, cash flow from operations and time lag relate negatively to earnings management, while a positive relationship is revealed in offer size. However, the other factors, namely firm size, leverage, issuing method and SEO years, are indicated to be highly insignificant (see Table 3 – panel A). Therefore, these factors play no part in the earnings management of SEO firms, and are also slightly inconsistent with previous works, such as Boudiche (2013), Dayanamdan and Sra (2016), Rangan (1998) and Yoon and Miller (2002). Although the findings demonstrate no relationship with earnings management, they are related to earlier studies. In addition, according to Table 3 – panel A, it does not matter which issuing method (rights or private placement) firms use for issuing new shares, they are both not related to drive the earnings management.

By applying the YM model as another measurement of earnings management via discretionary accrual, the outcomes are slightly different. The cash flow from operations and time lag remain the factors driving earnings management in Thai SEO firms, whereas firm size becomes an additional variable that is highly significant at the 1% level (see Table 3 – panel B). These make the results from YM model more consistent with the previous literature, such as Charfeddine, Riahi, and Omri (2013), Dayanandan and Sra (2016), Subramanyam (1996), Rangan (1998) and Yoon and Miller (2002). Hence, the smaller the firm size, operating

cash flow and time lag, the higher the possibility of earnings management. Nevertheless, with both measurements via discretionary accrual models, there is no evidence that issuing methods (whether rights or private placement) and the year of SEOs have any link to earnings management. These report with insignificant results in the variables XR and SEO in Table 3 – panels A and B. Moreover, both discretionary accrual models create a similar Adjusted R^2 , which fits fairly well with the regression. These figures are 0.10616 and 0.10662 for the Modified Jones model and YM model, respectively.

Moving to the measurement of earnings management via REM, this produces similar results to the YM model findings. There are unexpected outcomes since there should be no significant results under REM because the early evidence showed no difference of REM between the years with and without SEOs. Firm size, operating cash flow and offer size are among the factors shown to be highly significant, at the 1% level (see Table 3 – panel C). This means that earnings management could be driven by these three determinants. However, the REM results with regard to determinants demonstrate some different points to the previous reviewed literature (e.g. Cohen & Zarowin, 2010; Dechow, Kothari, & Watt, 1998; Rangan, 1998; Roychowdhury, 2006; Yoon & Miller, 2002). First, the results show a positive relationship of SEOs and REM, instead of a negative sign, as shown when measuring earnings management via the accrual-based models even though there are insignificant results. Nevertheless, the three impacting factors remain the same in both REM and the accrual-based models. This makes it cleared that the larger SEO firms with a large amount of operating cash flow and a longer SEO time lag could manipulate their earnings with the real activities. In other words, according to these findings, small Thai SEO firms would prefer to manage their earnings by using accrual-based items, whereas to some extent larger SEO firms tend to do this via REM. Interestingly, this study reveals no relationship between SEOs and earnings management, following the insignificant value of the variable SEO (see Table 3 – all panels). Therefore, since there is a difference in earnings management (via discretionary accrual) between SEO and non-SEO firms, firm size, cash flow from operations and time lag are the only three factors driving the manipulation of earnings. This is inconsistent with previous research (such as Rangan, 1998; Shu & Chiang, 2014; Teoh et al., 1998; Yongtae & Myung Seok, 2005), which found that earnings management plays an important role in the issuing of new shares.

Conclusion

Several papers (e.g. Heron & Lie, 2004; Jindra, 2000; Rangan, 1998; Shu & Chiang, 2014) claim that due to the overvaluation of firms, equity offering is required in order to bring their values (and prices) back to where they should be. Earnings management is an alternative to dressing up a firm's performance prior to the issuing of shares to investors. Since there is a lack of studies on this area with regard to emerging markets, this study intends to develop the relationship between SEOs and earnings management, as well as their determinants, in Thailand (as an emerging market) during the period 2000 to 2015. With 242 SEO firms, the findings are in line with earlier works, showing that there is a difference in earnings management between the years with SEOs and without SEOs when using accrual-based measurement. However, the statistical numbers confirm that SEO firms are not involved with REM, which is inconsistent with previous studies.

The estimation of determinants, cash flow from operations and time lag in the SEO firms show a strong relationship with earnings management, both accrual-based and real activities-based, whereas firm size and offer size are among the affected factors when earnings management is captured differently. Thus, the findings could be slightly sensitive, especially when different methods of discretionary accrual are applied. Surprisingly, the issuing method (rights issuing, in particular) and the issuance of SEOs have no significant impact on earnings management. In addition, the results from the REM show a contrasting relationship to earlier works. Nevertheless, there are no substantial differences between R^2 and Adjusted R^2 in any of the models used in this study, including the factors affecting earnings management. Therefore, investors should be aware that SEO firms could be performing with distorted values, particularly when earnings are manipulated with accruals, besides the dilution impact. In addition, although large SEO firms in Thailand might seem to display an attractive operating performance, investors should bear in mind that there is a possibility that this attractiveness is artificial. Therefore, related institutions (such as the SEC and the SET) would implicate these findings to develop proper regulations to either control or eliminate earnings management. This could reduce information asymmetry and firm performance would become more transparent before equity financing is used.

This study only focuses on SEO firms listed on the main composite index (SET index). Although it would be preferable to include the MAI* firms in the consideration, in any future works it is advised that they would be considered separately, due to their size and several specific characteristics and regulations. A subsequent issue to include in further studies is that since there are several industries in the SET, an in-depth comparative investigation into each industry would give a particular view of earnings management and SEOs. Lastly, none of the models of earnings management in the two schemes (accrual-based and real activities-based) are considered to be the best with the most recent data; development of a new model of earnings management in emerging markets would provide the necessary information for future studies in this area.

* MAI stands for Market for Alternative Investment and is an alternative index in the SET. MAI firms are generally small and medium sizes companies (SET, 2017).

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