

The Relationship between Information Asymmetry and Real Earnings Management: The Role of CEO Duality in Thailand*

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ABSTRACT

This research aims to explore the association between information asymmetry and real earnings management (REM) through sales activities and the effect of CEO-chairman duality on that association in the the Stock Exchange of Thailand (SET) during the period of 2001 to 2015. Longitudinal data on CEO and chairman names were manually collected from the SET Market Analysis and Reporting Tool (SETSMART) and the firms' annual reports. The multiple regression was utilized to analysis the relationship between the CEO duality, information asymmetry, and sales-driven REM, derived from Roychowdhury (2006). The findings reveal that information asymmetry increases sales-driven REM of the Thai listed companies. In the firms without information asymmetry problems, the CEO duality leads to sales-driven REM. However, when information environment is opaque, the CEO duality mitigates sales activity manipulation. Overall, this research provides useful insights into the capital market and the regulators that the CEO-chairman leadership structure corresponding with the firms' information climates promotes earnings quality.

Keywords: Real Earnings Management, Sales Activity Manipulations, CEO Duality, Information Asymmetry

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ความสัมพันธ์ระหว่างความไม่เท่าเทียมกันของข้อมูล และการตกแต่งกำไรที่แท้จริงผ่านกิจกรรมการขาย : บทบาทของการควบตำแหน่งของผู้บริหารในประเทศไทย

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บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์ เพื่อศึกษาความสัมพันธ์ระหว่างความไม่เท่าเทียมกันของข้อมูลและการตกแต่งกำไรที่แท้จริงผ่านกิจกรรมการขาย และผลกระทบของการควบตำแหน่งประธานกรรมการบริษัทของผู้บริหารต่อความสัมพันธ์ดังกล่าวของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทยระหว่างปี พ.ศ. 2544–2558 งานวิจัยเก็บข้อมูลภาคตัดขวางทางยาวของรายชื่อผู้บริหารและประธานกรรมการบริษัท จากระบบข้อมูลตลาดหลักทรัพย์แห่งประเทศไทยและรายงานประจำปีของแต่ละบริษัท และใช้สมการถดถอยเชิงพหุในการวิเคราะห์ความสัมพันธ์ระหว่างการควบตำแหน่งของผู้บริหาร ความไม่เท่าเทียมกันของข้อมูล และการตกแต่งกำไรผ่านกิจกรรมการขาย ซึ่งใช้ตัวแบบจาก Roychowdhury (2006) ผลการวิจัยพบว่า ความไม่เท่าเทียมกันของข้อมูลจะเพิ่มการตกแต่งกำไรของบริษัทผ่านกิจกรรมการขาย ในกิจการที่ไม่มีปัญหาความไม่เท่าเทียมกันของข้อมูล พบว่า การควบตำแหน่งของผู้บริหารนำไปสู่การตกแต่งกำไรผ่านกิจกรรมการขายเช่นกัน อย่างไรก็ตาม เมื่อสภาพแวดล้อมของข้อมูลภายในกิจการเข้าถึงได้ยาก การควบตำแหน่งของผู้บริหารจะช่วยลดการตกแต่งกำไรผ่านกิจกรรมการขาย งานวิจัยนี้ให้ความรู้ความเข้าใจที่เป็นประโยชน์ต่อตลาดทุนและหน่วยงานกำกับดูแลที่เกี่ยวข้อง กล่าวคือ โครงสร้างตำแหน่งผู้บริหารและประธานกรรมการบริษัทที่สอดคล้องกับสภาพแวดล้อมเชิงข้อมูลของบริษัท จะช่วยส่งเสริมคุณภาพของกำไร

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1. INTRODUCTION

Earnings management which is isolated from accounting issues and can be carried out under Generally Accepted Accounting Principles (GAAP) deals with adjustment of real activities. Activity-based earnings management (hereafter real earnings management: REM) is the planned managerial strategy to meet the earnings targets. Earnings manipulations by boosting sales volume can increase the firms' reported revenues and market shares, meanwhile cutting discretionary expenses and making overproductions aim to decrease overall expenditures and cash outflows. Sales-driven REM includes cutting sales price and relaxing credit terms to pull future revenues for the current recognition. The customers likely anticipate such the sales strategy in the future periods as well. The sales manipulations result in the accounting earnings that are inconsistent with the firms' cash flows, therefore future earnings are sacrificed and overall cash inflows are reduced (Gunny, 2010; Roychowdhury, 2006). Managers or CEOs in the high information asymmetry firms possibly engage sales-driven REM because the uninformed investors fail to assess the true financial positions of the firms.

The analytical research on Dye (1988) and Trueman & Titman (1988) suggest that information asymmetry between managers and shareholders is the fundamental factors for earnings management. Extant literature provides the empirical evidence that asymmetric information leads to manage the accrual-based earnings (Richardson, 2000). In turn, manipulated accounting earnings increase information divergence and costs of capital in the firms (Kim & Sohn, 2013; Cormier, Houle, & Ledoux, 2013; Abad, Cutillas-Gomariz, Sánchez-Ballesta, & Yagüe, 2016). The evidence on the impacts of information asymmetry on real earnings management through sales activities is unclear and the CEO-chairman leadership structure on those impacts are disappear. This research aims to investigate whether information asymmetry increases sales-driven REM and how the CEOs serving as chairman in a single firm affect the association between information asymmetry and sales-driven REM of Thai listed companies.

Both CEOs and chairman play a significant role in corporate success. Typically, the CEOs are a top decision-maker on strategic, operating, and organizational process, whereas the chairman is responsible for protecting the shareholders' interests including monitoring the CEOs. There is substantial debate over how a single person holding both the CEO and chairman positions affects earnings management. On the one hand, the dual CEO-chairman might use his power and control to exploit the resources and engage in the financial reporting process, thereby increasing financial failures, bankruptcy, and accruals based earnings management (Daily & Dalton, 1994; Davidson, Jiraporn, Kim, & Nemeč, 2004; Miko & Kamardin, 2016; Muslim Har Sani, Hafiz Majdi Abdul, & Fekri Ali Mohammed, 2012; Sarkar, Sarkar, & Sen, 2008). On the other hand, the dual CEO-chairman works as a good steward and the dual leadership promotes unity of command and speed of decision-making. It mitigates agency costs to control behavior of non-CEO chairman and information costs transferred among both roles (Brickley, Coles, & Jarrell, 1997), thus lowering accruals-based earnings management, financial aggressiveness, and performance (Halioui, Neifar, & Abdelaziz, 2016; Jermias & Gani, 2014; Veprauskaitė & Adams, 2013).

The context of Thailand is appeal to investigate the relationship among the CEO duality, information asymmetry, and real earnings management because the Thai capital market, compared to the U.S. developed markets, is relatively young and less informationally efficient, thus worsening information asymmetry and adverse selection problems (Prommin, Jumreornvong, Jiraporn, & Tong, 2016). The across-country evidence on Enomoto, Kimura, & Yamaguchi (2015) show that the real activity manipulation level of the Thai listed firms is in the third rank among the emerging countries (after Mexico and Chile, respectively). Moreover, Jira & Siriyama Kanthi (2010) report the evidence of a quarter of the Thai listed firms with the CEO duality¹ and find that the CEO duality deteriorates firm value due to less board monitoring effectiveness. Family group ownership concentration and political connection characterized the Thai business inevitably heighten information asymmetry, therefore the CEO duality of the firms in this market might alleviate or aggravate occurrence on sales-driven REM.

The organization of this research is as follows: Section 1 is the introduction. Section 2 describes background literature and hypothesis development. Section 3 discusses the research methodology while section 4 presents the research findings. The concluding remarks are provided in Section 5.

2. LITERATURE REVIEW AND HYPOTHESES

2.1 Real Earnings Management and Information Asymmetry

Earnings management appears as the manager uses their judgment to choose the accounting policies or estimates for the transaction recognition (hereafter accrual-based earnings management) or restructure the actual activities which result in the accounting transactions (hereafter activity-based or real earnings management). Both forms of earnings management can bias the reported earnings, however only real earnings management alters the firms' cash flows due to change in the underlying transactions². For real earnings management, the earnings targets can be achieved by altering the actual operational activities, such as providing excess cash discounts, relaxing sales credit, reducing R & D expenditures, and making overproduction³ (Roychowdhury, 2006). Real activity manipulation is separated from accounting issues, therefore it can be implemented under General Accepted Accounting Principles (GAAP). According to the survey in Graham, Harvey, & Rajgopal (2005), the U.S. CEOs extensively use real earnings management.

¹ The proportions of Thai listed firms with the CEO duality are far from those in the U.S. (78% of the listed companies) as reported by Jermias & Gani (2014).

² Accrual-based earnings management which includes changes in the depreciation policies of the fixed assets or the provisions of doubtful accounts does not affect the underlying transactions and the firms' cash flows.

³ Under real earnings management, altering the timing or structuring of the transactions or activities encompasses operating activities (e.g. sales manipulations, discretionary expenditure manipulations, and over/underproduction), investing activities (e.g. purchases/sales of long-term assets, R&D expenditure manipulations), and financing activities (e.g. stock option issuances, stock repurchase, hedges and debt-equity swaps, and securitizations) (Sellami, 2015).

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Dye (1988) and Trueman & Titman (1988) suggests that information asymmetry between the managers and the shareholders is the significant condition for the introduction of earnings management. Two factors generating earnings management are the inability of the managers to communicate all private information, and the shareholders to realize the managers' all compensation plans. Information asymmetry refers to inequalities of the information held by market participants which directly affect the decision making on investment (Dai, Kong, & Wang, 2013). According to agency theory, the managers or CEOs possess the private information about the firms including current and future earnings streams which the potential shareholders do not have. The CEOs can exploit the information advantages to shift wealth from the shareholders to themselves by manipulation of sales revenues to meet the earnings targets.

Empirical evidence on Richardson (2000) indicates that information asymmetry increases the U.S. firms' earnings management through accruals items around a season equity offering. LaFond & Watts (2008) further suggest that information asymmetry between the insiders and outside investors generates accounting conservatism in the U.S. financial statements. Lasdi (2013) provides the evidence on the positive effect of asymmetric information on accrual and real earnings management in Indonesian manufacturing firms during the global financial crisis. Kraft, Lee, & Lopatta (2014) conclude that senior officers (i.e., CEOs, CFOs, and COOs) use accrual-based earnings management to meet the management earnings forecasts before selling or buying their own shares when they have private information. Recently, Gao, Gao, & Wang (2017) report the evidence that high levels of real earnings manipulation are pertained to the Chinese listed firms with higher leverage, lower governance intervention and corporate governance.

This study expects the positive association between information asymmetry and real earnings management (REM) through sales activities to the Thai capital market. The first hypothesis is that:

H1: information asymmetry is positively associated with sales-driven REM

2.2 CEO Duality

When the CEOs are responsible for chair of the board in the same time and firm, the firms' legitimate authority is centralized. Under organizational theory, CEO-chairman duality increases use of discretion and formally structural power and hence influencing most strategic decision-making process in the firm (Firstenberg & Malkiel, 1994). Under stewardship theory, the CEOs will perform at the best interests of the shareholders without the exploitation and board structure should support the effective use of power and authority. Thus, the CEO duality provides unity of command and speed of decision-making that are essential under uncertainty environment (Boyd, 1995). The CEO duality structure likely reduces agency costs, increases the information flows between the CEOs and chairperson (Brickley, Coles, & Jarrell, 1997), and improves responsiveness to external stakeholders and accountability of decision making involved with corporate activities (C. Hambrick & Finkelstein, 1987).

Extant literature provides the evidence on the benefits of the CEO duality structure. For example, Halioui, Neifar, & Abdelaziz (2016) report that the CEO duality reduces earnings management and financial aggressiveness to the NASDAQ 100 index. Jermias & Gani (2014) and Veprauskaitė & Adams (2013) using the firms in S&P500 and UK, respectively reveal the evidences that the firms with the CEO duality increase the use of power on board and have poorer financial performance than the firms without the CEO duality. Lewellyn & Fainshmidt (2017) argue that structural power by the CEO duality does not solely determine CEO power since there are other sources of CEO power into power bundles such as voting, expert, or information power.

On the other hand, the literature based on the agency theory provides the evidence on the drawbacks of the CEO duality generating accruals-based earnings management. For instance, Sarkar, Sarkar, & Sen (2008) find the evidence that the CEO duality encourages the discretionary accruals manipulations in the India economy which the family-owned corporations dominate industrial landscape. Muslim Har Sani, Hafiz Majdi Abdul, & Fekri Ali Mohammed (2012) suggest that discretionary accruals increase with the CEO duality in the post-transformation periods of the initiatives of the Government Linked Companies (GLC) in Malaysia. In Nigeria that governance mechanism is weak, Miko & Kamardin (2016) conclude that the non-CEO duality mitigates the discretionary accruals manipulations. According to agency theory, the CEOs attempt to maximize their utilities on the shareholders' behalf. Agency problems occur as the interests are disparate and the CEOs have more information about the firm than the shareholders have. The completed power in the hands of a single person is a double-edged sword that can deteriorate future firm value and corporate governance by lessening independent oversight to the firms' boards. The dual CEOs might favor managerial strategies of cutting sales price or expanding credit terms to boost revenues in a current period. This leads to decrease in future firm value due to overall reduced cash inflows (Roychowdhury, 2006).

In this study, the CEO duality is used as a moderator to the association between information asymmetry and sales-driven REM. The CEO duality might strengthen or weaken that relationship, thus filling the gap of real earnings management literature. Dai, Kong, & Wang (2013) indicate that mutual fund ownership weakens the positive impact of information asymmetry on accrual earnings management in the Chinese capital market. Wang (2017) suggests that in Taiwanese firms both earnings management and information asymmetry increase with foreign investment that managerial ownership can mitigate earnings management and information asymmetry in the firms. This study do not predict the direction of the CEO duality on the relationship between information asymmetry and sales-driven REM and the second hypothesis is that:

H2: the CEO duality affects the positive association between information asymmetry and sales-driven REM.

3. RESEARCH METHODOLOGY

3.1 Sample and Data

The sample constitutes listed firms in the Stock Exchange of Thailand (SET) during the periods of 2001–2015. Firms in the financial industry (i.e. banking, finance and securities, and insurance sectors) are eliminated due to different financial reporting requirements and accounting rules of either the Bank of Thailand or the Department of Insurance for the financial firms. The CEO and chairperson names of the sampled firms were gleaned by hand from the annual reports while financial and accounting data were retrieved from the SET Market Analysis and Reporting Tool (SETSMART).

3.2 Variable Measurement

3.2.1 Real Earnings Management Through Sales Activities

Sales activity manipulations refer to the acceleration of the faster sales timing by increasing the price discounts or giving more lenient credit terms for customers to meet the firms' certain earnings targets. This strategy boosts the current sales volumes by pulling sales from the next period. Real earnings management based on operational activities is classified into three patterns, i.e. sales, discretionary expense, and production manipulations. This study emphasizes on the sales manipulation for two reasons. First, the manipulation of discretionary expenditures such as cutting R&D, advertising, and SG&A in form of cash not only upwards earnings but also can help firms report higher cash flows from operation. Thus, both earnings and cash flows unlikely mislead financial users. Unlike, boosted sales and overproduction⁴ create impression on earnings, but they are detrimental for the firms' cash flows (Kothari, Mizik, & Roychowdhury, 2016). Moreover, the production manipulation should better applicable to manufacturing firms with inventories (Järvinen & Myllymäki, 2016). In this study, the sample includes the firms in service, trading, and manufacturing sectors.

According to Roychowdhury (2006), normal levels of operating cash flows are a linear function of current sales, changes in current sales, and the residuals, as the equation below.

$$\frac{CFO_t}{A_{t-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{t-1}} \right) + \beta_1 \left(\frac{S_t}{A_{t-1}} \right) + \beta_2 \left(\frac{\Delta S_t}{A_{t-1}} \right) + \varepsilon_t$$

⁴ Overproduction can spread the fixed overhead costs and results in total cost per unit declined but holding costs of over-produced stocks that are not recovered in the same period through sales will incur. Given the sales levels, cash flows from operations thus are lower than those of normal production.

Where CFO_t is cash flow from operating activities in year t ; A_{t-1} is total assets at the beginning of year t ; S_t and ΔS_t are net sales and changes in net sales, respectively in year t . The measurement of sales activity manipulation is abnormal operating cash flows which are a result of unusual sales volumes calculated by actual cash flows from operation minus expected operating cash flows from the above equation.

Negative (positive) value of the abnormal operating cash flows suggests upward (downward) earnings management through sales activities. To deal with both positive and negative abnormal cash flows deviating from the predicted levels, this paper uses absolute value of abnormal operating cash flows as a proxy for sales-driven real earnings management (SREM). The higher the absolute value of abnormal operating cash flows, the more the firms manage earnings by sales activities.

3.2.2 Information Asymmetry

Information asymmetry (ASYM) is measured by the annual average of the daily ask-bid spreads scaled by daily closing prices following prior research, e.g. Richardson (2000), Abad, Cutillas-Gomariz, Sánchez-Ballesta, & Yagüe (2016). Generally, stock prices are affected by information divergence between firm insiders (e.g. the management, informed investors) and outsider equity investors. Real earnings management likely occurs in a firm which the management has informational advantages.

3.2.3 CEO Duality

CEO duality (DUAL) represents the unity of power in that the same person concurrently holds the CEO and chair positions (Hermalin & Weisbach, 1998). The DUAL is equal to one if a single individual serving as both CEO and chairman in the company board, and zero otherwise.

3.3 Model and Control Variables

This paper uses the following model of real earnings management by sales activities to hypothesis tests. The control variables in the equation are based on those of prior studies.

$$SREM_{i,t} = \alpha_0 + \alpha_1 ASYM_{i,t} + \alpha_2 DUAL_{i,t} + \alpha_3 ASYM * DUAL_{i,t} + \alpha_4 FSIZE_{i,t} + \alpha_5 ROA_{i,t} + \alpha_6 MTB_{i,t} + \alpha_7 LEV_{i,t} + \text{Year fixed effect} + \epsilon_{i,t}$$

Where $SREM_{i,t}$ is absolute value of abnormal operating cash flows for firm i and year t calculated by actual operating cash flows minus expected operating cash flows. $ASYM_{i,t}$ is the average of the daily ask-bid price spreads scaled by the daily closing prices for firm i in year t . $DUAL_{i,t}$ is coded 1 for firm i in year t if its CEO also serves as a chairman of the board, and 0 otherwise. The control variables include firm size (FSIZE), firm performance (ROA), firm growth (MTB), leverage (LEV), and the year fixed effects following the previous studies (Järvinen & Myllymäki, 2016; Kouaib & Jarboui, 2016; Lee, Li, & Yue, 2006; Luo, Xiang, & Huang, 2017).

$FSIZE_{i,t}$ is measured by the natural logarithm of total assets for firm i at the end of fiscal year t . Firm size can represent the market pressures on achievement of the earnings forecast by the management or analysts, and the political costs charged to the larger firm. $ROA_{i,t}$ is captured by a ratio of net income before interest and tax to the average of last and current year's total assets. Firm performance influences earnings manipulation because the market response to reported earnings is more sensitive for firms with potential performance. $MTB_{i,t}$ is measured by a ratio of firm i 's stock price to its book value per share at the end of fiscal year t . Firm growth represents the pressure to maintain the market's perception on continued growth by avoiding reports of loss and decreased sales. $LEV_{i,t}$ is measured by total debt to total asset ratios for firm i at the end of fiscal year t . Leverages reflect motivation on the debt contracting to improve financial conditions.

Year fixed effect consists of 14 dummy variables (from Y2001 to Y2014) which year 2015 is set as the based year. Y2014 is coded one if firm i is in year 2014, and zero otherwise, Y2013 is coded one if firm i is in year 2013, and zero otherwise, Y2012 is coded one if firm i is in year 2012, and zero otherwise, Y2011 is coded one if firm i is in year 2011, and zero otherwise, Y2010 is coded one if firm i is in year 2010, and zero otherwise, Y2009 is coded one if firm i is in year 2009, and zero otherwise, Y2008 is coded one if firm i is in year 2008, and zero otherwise, Y2007 is coded one if firm i is in year 2007, and zero otherwise, Y2006 is coded one if firm i is in year 2006, and zero otherwise, Y2005 is coded one if firm i is in year 2005, and zero otherwise, Y2004 is coded one if firm i is in year 2004, and zero otherwise, Y2003 is coded one if firm i is in year 2003, and zero otherwise, Y2002 is coded one if firm i is in year 2002, and zero otherwise, and Y2001 is coded one if firm i is in year 2001, and zero otherwise.

4. FINDINGS

4.1 Sample Description

The initial sample excluding firms under the rehabilitation is 6,796 (100.0%) firm-year observations. Further, 717 (10.5%) firm-year observations in the financial industry are eliminated. 828 (12.2%) firm-year observations without names of CEO and chairman are deleted, while unavailable stock prices, financial, and accounting data necessitate the removal of additional 1,638 (24.1%) firm-year observations from the initial set. A final set of 31 (0.5%) firm-year observations with unusual data (the outliers, high leverages, and influences) that are appear inconsistent with the remaining data is taken out, resulting in a sample of 3,582 (52.7%) firm-year observations. The sample description is presented in Table1.

Table 1: The Description of the Sample

The Sample	Firm-Year Observations	
The initial sample (excluding rehabilitation firms)	6,796	(100.0%)
Less: Observations in financial industry	717	(10.5%)
Observations with lack of CEO and chairman data	828	(12.2%)
Observations with unavailable stock price, financial, and accounting data	1,638	(24.1%)
Outlier, influenced, leveraged observations	31	(0.5%)
The final sample	3,582	(52.7%)

4.2 Descriptive Analysis

The histogram in Figure 1 presents dispersion of sales-driven real earnings management (REM) and information asymmetry across 15 years. The left bars reveal the absolute values of abnormal operating cash flows as a measurement of sales-driven REM which cover the range from 0.1127 to 0.1635. During the years 2001–2004, the absolute values of abnormal operating cash flows are higher than those in the remain periods (2005–2015), suggesting that the sampled firms more manipulate sales activities in the initial years of the study. The right bars are the average ask-bid spreads scaled by closing prices which represent information asymmetry and cover the range from 0.0162 to 0.0683. The highest and lowest levels of information asymmetry belong to year 2001 and 2015, respectively.

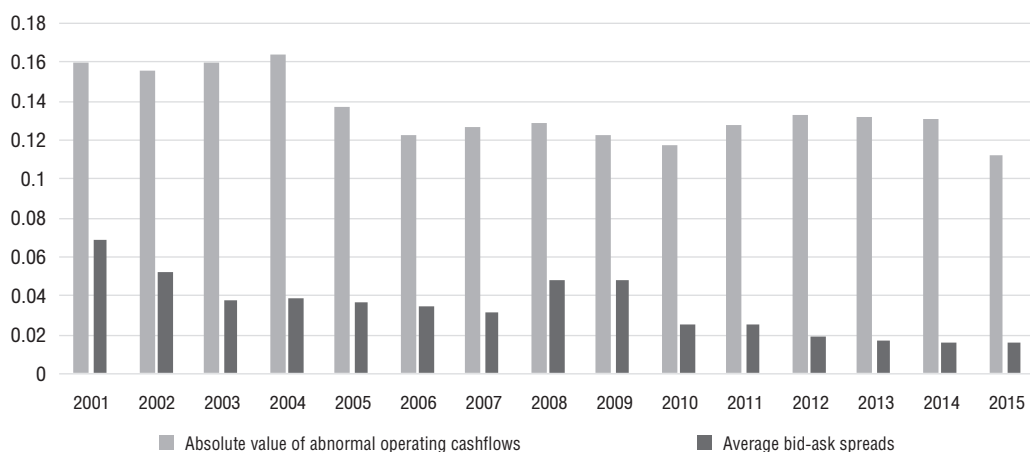


Figure 1: Sales-Driven Real Earnings Management and Information Asymmetry Across the 15 Years

Table 2: Descriptive and Pearson Correlation Coefficient Analysis

Variables	Mean	SD	Q1	Median	Q3	1. SREM	2. ASYM	3. DUAL	4. FSIZE	5. ROA	6. MTB
1. SREM	0.131	0.150	0.043	0.095	0.167						
2. ASYM	0.030	0.053	0.008	0.010	0.026	0.095***					
3. DUAL	0.226	0.419	0.000	0.000	1.000	0.003	-0.055***				
4. FSIZE	15.326	1.615	14.184	15.012	16.165	-0.028**	-0.131***	-0.037**			
5. ROA	0.068	9.280	0.026	0.065	0.108	0.063***	-0.037**	0.020	0.043***		
6. MTB	1.821	2.508	0.740	1.220	2.160	0.075***	-0.087***	0.032*	0.066***	0.196***	
7. LEV	0.114	0.211	0.000	0.040	0.195	-0.020	-0.012	-0.038**	0.376***	-0.041**	0.043***

Variable definitions: SREM is the absolute value of abnormal operating cash flows, ASYM is the annual average of the daily ask-bid spreads scaled by closing prices, DUAL represents CEO duality, FSIZE is firm size, ROA is financial performance, MTB is firm growth, and LEV is financial leverage.

Notes: *, ** and *** indicate significance at the 0.10, 0.05 and 0.01 levels (2-tailed), respectively; refer to the equation for variable definitions; N = 3,582 for all variables

Table 2 reports descriptive and Pearson correlation coefficient analysis for all variables. The mean and median of SREM, i.e. the absolute value of abnormal operating cash flows, are 0.131 and 0.095, respectively, which are comparable to those of the cross-country sample by Kim, Kim and Zhou (2017). The mean of ASYM is 0.030, suggesting that on average the ask-bid price spreads are a 3% of the closing prices. The mean of DUAL is 0.226, suggesting that 22.6% of the sampled firms have a CEO working for chairman position in the same time and firm.

The average of FSIZE is 15.326, suggesting that the sampled firms' total assets are roughly 4.5 billion baht. The mean and median of ROA are identical at almost 0.07, showing that the sampled firms on average generated net incomes before interest and tax on the order of seven percent from total assets. The 1.821 of MTB mean reveals that on average, the share price of SET-listed firms is nearly double to their book value per share. In other words, Thai stocks are just overpriced unlike in the developed markets that extant literatures report overvaluation of stock price⁵. The average LEV of 0.114 manifests that on average the sampled firms finance about 11.4 percent of their total assets with debts.

In Table 2, this paper also reports the Pearson's correlation coefficients for all variables. The correlation between SREM and ASYM is significant and positive (coe. = 0.095), indicating that information asymmetry induces sales manipulation. A negative and significant correlation between SREM and FSIZE (coe. = -0.028) suggests that small-sized firms tend to engage in sales manipulation. The SREM is positively and significantly correlated to ROA (coe. = 0.063) and MTB (coe. = 0.075), indicating that profitable and growth firms tend to sales manipulation. A negative and significant correlations between ASYM and the variables of DUAL (coe. = -0.055), FSIZE (coe. = -0.131), ROA (coe. = -0.037), and MTB (coe. = -0.087) suggest that firms with the CEO duality, large size, profitability, and growth have less information divergence. A negative and significant correlations between DUAL and the variables of FSIZE (coe. = -0.037) and LEV (coe. = -0.038) indicate that small sized and less leveraged firms have the dual leadership structure. The DUAL is positively and significantly correlated to MTB (coe. = 0.032) implying that growth firms prefer the dual leadership structure.

Moreover, a positive and significant correlations between FSIZE and the variables of ROA (coe. = 0.043), MTB (coe. = 0.066), and LEV (coe. = 0.376) suggest that profitable, growth, and leveraged firms are large. The ROA is positively and significantly correlated to MTB (coe. = 0.196), and negatively and significantly correlated to LEV (coe. = -0.041), indicating that the profitable firms have more growth and less debts. The MTB is positively and significantly correlated to LEV (coe. = 0.043), showing that leveraged firms tend to prosper. The tests (untabulated) reveal that the mean variance inflation factors (VIF) of the predictors are 1.45. All VIF values are below 1.78 which are within the cut-off point of 10, indicating absent of the multicollinearity problems (Montgomery, Peck, & Vining, 2001).

⁵ For instance, the work of Chiu, Teoh, & Tian (2013) reports the evidence on average 3.346 of market-to-book ratio to the U.S. listed firms.

4.3 Regression Analysis

The hypothesis test results are reported in Table 3 with the three models. The OLS regression for testing includes independent variables, firm-specific factors, and 14 dummy variables of the year-fixed effects which are related to sales-driven REM.

Table 3: The Effects of Information Asymmetry and CEO Duality on Real Earnings Management

Independent Variables	Predicted Sign	Coefficients (t-values)		
		(1)	(2)	(3)
Intercept	?	0.127 (4.68)	0.126 (4.63***)	0.121 (4.47***)
ASYM	+	0.265 (5.45***)	0.266 (5.46***)	0.340 (6.58***)
DUAL	+		0.002 (0.28)	0.017 (2.50**)
ASYM*DUAL	+/-			-0.615 (-4.27***)
FSIZE	+/-	-0.002 (-1.13)	-0.002 (-1.12)	-0.002 (-1.04)
ROA	+	0.000 (2.57***)	0.000 (2.56**)	0.001 (2.53**)
MTB	+	0.004 (4.45***)	0.005 (4.45***)	0.005 (4.46***)
LEV	+/-	-0.000 (-0.93)	-0.000 (-0.93)	-0.000 (-0.92)
YEAR FIXED EFFECTS				
Y2001		0.035 (2.03**)	0.035 (2.04**)	0.034 (1.99**)
Y2002		0.034 (2.14**)	0.034 (2.15**)	0.034 (2.09**)
Y2003		0.036 (2.46**)	0.037 (2.46**)	0.036 (2.46**)
Y2004		0.044 (3.20***)	0.044 (3.20***)	0.043 (3.15***)

Table 3: The Effects of Information Asymmetry and CEO Duality on Real Earnings Management (Cont.)

Independent Variables	Predicted Sign	Coefficients (t-values)		
		(1)	(2)	(3)
Y2005		0.020 (1.55)	0.020 (1.55)	0.019 (1.49)
Y2006		0.006 (0.47)	0.006 (0.47)	0.006 (0.45)
Y2007		0.011 (0.93)	0.012 (0.94)	0.012 (0.97)
Y2008		0.012 (0.95)	0.012 (0.95)	0.014 (1.11)
Y2009		0.004 (0.31)	0.004 (0.31)	0.006 (0.52)
Y2010		0.002 (0.17)	0.002 (0.17)	0.003 (0.23)
Y2011		0.014 (1.16)	0.014 (1.16)	0.014 (1.17)
Y2012		0.016 (1.39)	0.016 (1.39)	0.016 (1.39)
Y2013		0.017 (1.52)	0.017 (1.52)	0.017 (1.51)
Y2014		0.015 (1.32)	0.015 (1.31)	0.014 (1.30)
Adjusted R ²		0.021	0.020	0.025
F-values		4.95	4.71	5.37
N		3,582	3,582	3,582

Variable definitions: DUAL represents CEO duality, ASYM represents information asymmetry, FSIZE is firm size, ROA is financial performance, MTB is firm growth, and LEV is financial leverage. YEAR FIXED EFFECTS consist of the 14-year dummy variables which Y2014 represent year 2014, Y2013 represent year 2013, Y2012 represent year 2012, Y2011 represent year 2011, Y2010 represent year 2010, Y2009 represent year 2009, Y2008 represent year 2008, Y2007 represent year 2007, Y2006 represent year 2006, Y2005 represent year 2005, Y2004 represent year 2004, Y2003 represent year 2003, Y2002 represent year 2002, and Y2001 represent year 2001. The 14-year dummy variables are equal to one which year 2015 is the based year and set to zero.

Notes: *, ** and *** indicate significance at the 0.10, 0.05 and 0.01 levels (2-tailed), respectively.

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The results show that the regression coefficient for ASYM, is significant and positively associated with SREM for all models ($p < 0.01$), consistent with the H1 that information asymmetry is positively associated with sales-driven REM. Thus, sales activity manipulation increases with the levels of information asymmetry. The regression coefficient for DUAL is insignificant in Model 2 but it is significant and positively associated with SREM in Model 3 ($p < 0.05$), suggesting that sales activity manipulation increases with the CEO duality. According to Model 3, the regression coefficient for ASYM*DUAL is significant and negatively associated with SREM, supporting the H2 that the CEO duality affects the positive association between information asymmetry and sales-driven REM. This suggests that the CEO duality weakens the positive relationship between information asymmetry and sale-driven REM. In other word, when information asymmetry in the firms is high the dual CEOs reduce real earnings management through sales activities. The dual leadership structure is perhaps necessary and beneficial to the emerging market, such as Thailand, which the firms are growing or have an unstable business environment. If agency problems can be kept in check, the informationally asymmetric firms likely induce a focused leadership structure with a single person to increase the firms' responsiveness (Pfeffer & Salancik, 1978), and hence improving earnings quality.

For the firm-specific control variables, the coefficient on ROA is positive and statistically significant for three models consistent with the predictions ($p < 0.01$ for model 1, $p < 0.05$ for model 2 and 3), hence indicating that more profitable firms tend to sales activity manipulation. The coefficient on MTB is positive and statistically significant for all models ($p < 0.01$ for the three models), consistent with the predictions that the firms' high growth opportunities come with managed sales activities. The coefficients on FSIZE and LEV are insignificant thus the firm size and leverage do not affect real earnings management through sales activities.

Controlling for the year-fixed effects, the coefficients on Y2001, Y2002, Y2003, and Y2004 are positive and statistically significant for all models ($p < 0.05$ at least). This suggests that sales activities of year 2001–2004 are more manipulated than those of the 2015 based year. The high levels of the sales manipulations for the four years compared to the based year were likely affected by the 1997 Asian financial crisis which few years after the crisis the firms necessitated financial recovery and a boost in sales revenues. The F-statistics for the model 1–3 which are 4.95, 4.71, and 5.37, respectively are significant ($p < 0.01$), indicating that the regression models is statistically valid. Model 1–3 reports the 0.021, 0.020, and 0.025 of the adjusted R^2 , respectively which mean that the explanatory variables are able to explain the dependent variables by 2.10%, 2.00%, and 2.50%, respectively.

In summary, this paper finds that in the Thai market the CEO duality induces sales-driven REM, therefore separation between CEO and chairman roles mitigate sales manipulation behavior. When the firms' information environment is opaque, the dual CEO less exploits his information advantages to manage sales revenues. The findings reveal the importance of the duality structure which its benefits depend on private information levels in the firms. This paper proposes that regulators could prevent

the firms from real earnings management, sales manipulations, by encouraging the leadership structure corresponding with information climates.

According to OECD principles of corporate governance adopted by the Thai capital market, the section of disclosure and transparency explains that “companies should clearly disclose the different roles and responsibilities of the CEO and/or chair and, where a single person combines both roles, the rationale for this arrangement” (OECD, 2015). This allows Thai firms select their proper leadership structures, supporting this current research’s results which the adopted leadership structure should be based on the firms’ informational situations. When the firms’ the dual leadership structure presents, this research suggests the Securities and Exchange Commission, Thailand (SEC) to introduce the necessary checks and balance for agency conflicts of the CEO duality, such as the mechanism of the external strategic shareholders which could control the power of the dual CEO and alleviate agency problems (Chahine & Tohme, 2009).

5. CONCLUDING REMARKS

5.1 Conclusion and Discussion

Activity-based real earnings management aiming at achievement of earnings target has become the attractive strategies which are applied by both public and private firms (Khalid, Saif Al, Munther Al, & Serkan, 2017). In the emerging market such as Thailand, information asymmetry is severe as the market is characterized by ownership concentration, political engagement, and weak corporate governance enforcement (e.g. board monitoring). Real earnings management detaching from the GAAP issue is extensively used to align the firms’ interests. Literature argues that the investors in the developed and developing markets, e.g. the U.S., Spain, Brazil, fail to evaluate outcomes of this strategies that damage future cash flows and value of firm (Abad, Cutillas-Gomariz, Sánchez-Ballesta, & Yagüe, 2016; Cupertino, Martinez, & da Costa, 2015; Mellado-Cid, Jory, & Ngo, 2017).

The objectives of this study are to examine the effects of information asymmetry on real earnings management (REM) through sales activities and the CEO duality as a moderator in those effects. The abnormal operating cash flows as a proxy of sales-driven REM are derived from the Roychowdhury (2006)’s model. The average ask-bid spreads are used as the measurement of information asymmetry. This study measures the CEO duality by using an indicator variable and manually collects the CEO and chairman names of Thai listed firms from SET Market Analysis and Reporting Tool (SETSMART) and the firms’ annual reports during the years of 2001–2015.

The findings show that sales-driven REM is positively associated with the ask-bid spread ratio after controlling for firm size, financial performance, growth, leverage and the year-fixed effects. This suggests that the higher the informational divergence between the CEO and uninformed investors, the

more the sales activity manipulation. Furthermore, the study find that sales-driven REM is positively associated with the CEO-chairman duality, suggesting that Thai firms attributable to the CEO duality tend to create sales manipulations. When the CEO duality is interacted with information asymmetry, the results indicate the negatively association between the interaction terms and sales-driven REM. Thus, the CEO duality attenuates the positive impact of information asymmetry on sale-driven REM. In other word, in a firm with high information uncertainty the dual CEOs have more responsiveness and hesitate to damage earnings quality by the manipulation of sales activities. In addition, profitable and growth firms tend to engage sales activity manipulations.

The findings in this study is likely driven by potential factors. For example, when firms' financial condition continues to deteriorate or the overall economy is down, the dual CEOs might reverse sales revenues by increasing sales prices or tightening credit terms which without obvious catch-up by investors during the recovery. Particularly, if upper or lower bounds of bonus plan are binding (Healy, 1985) or executive stock options will be granted (Francis, Hasan, & Li, 2016; McAnally, Srivastava, & Weaver, 2008), sales reversals likely occur. In addition, the CEOs are probably motivated by both implicit, e.g. career concern, and explicit, e.g. earnings-based bonus, compensation contracts to boost sales volume for meeting the earnings target. According to the U.S. executive interview by Graham, Harvey, & Rajgopal (2005) investigating the factors of reported earnings and disclosure decisions, the executives said that "I miss the target, I'm out of a job".

5.2 Contributions

This study contributes to the literature in several ways. Firstly, to the best knowledge it is the first study establishing the association between real earnings management through sales and the CEO duality. The results are compliment to prior evidence which focus on the CEOs' age (Fabrizi & Parbonetti, 2017), executive pay disparities (Park, 2017), and director genders (Luo, Xiang, & Huang, 2017) in determining real earnings management. Also, this study extends those existing studies on the association between the CEO duality and accrual-based earnings management (Miko & Kamardin, 2016; Muslim Har Sani, Hafiz Majdi Abdul, & Fekri Ali Mohammed, 2012; Sarkar, Sarkar, & Sen, 2008; Souhir, Khamoussi, & Fouad Ben, 2016) by providing the impact of the CEO duality on sales manipulations.

Moreover, the findings offer practical insight of the board structure that shapes firms' earnings quality under the context of divergent information (e.g. political involvement, family ownership concentration) into the capital markets and regulations. The combined roles of the CEOs and chairman inhibit the manipulations of sales activities for the short-term goals if the firm have information inequality. If information in the firm is transparent, the CEO duality injures cash flow and earnings quality. The results could caution to the regulated bodies, e.g. the SEC, to promote the listed firms' corporate governance through board leadership and information disclosure.

5.3 Limitation and Future Research

This study is subject to certain caveats. First, the sampled firms are limited to those firms with completed data on CEO and chairman names which discloses in organizational structure. This paper ignores the cases of the same last name of the CEO and chairman which could imply the power and control, hence leaving room for future research. Moreover, both CEO duality and information asymmetry possibly are endogenous variables in which sales activity manipulations might lead to restructure CEO leadership role and increase private information. The results thus should interpret with the caution. Additionally, this paper focus on real earnings management through sales activities, therefore the results might not hold for other operating activities, e.g. production, discretionary expenditure. Future research might deal with the association between the CEO characters and real earnings manipulation by other activities, e.g. investing, financing.

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