

## 7. Appendix

### Appendix

#### Research Output 1

Earnings Management and Corporate Governance in Emerging Market  
: Evidence from Thailand

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Abstract

Existing empirical evidence in the US provides a significant role of corporate governance to restrain earnings management. However, this implication may not apply to emerging markets where the level of financial development and ownership structure are unique. Using Thailand as a case study, this paper examines the effectiveness of corporate governance mechanisms to align managers' decision with shareholders' interest in publicly traded firms in Thailand. Our result suggests that earnings quality does not increase after corporate governance reforms. In case of non-financial firms, directors with accounting or financial expertise, the split of chairman and CEO positions and the interaction of family firm and reported ROA can reduce earnings management. Besides, some corporate governance mechanisms stimulate the use of earnings management, leading to an important implication to policy makers to re-consider the corporate governance standards.

Keywords: Corporate Governance; Earnings Management; Earnings quality

## 1. Introduction

Over the past couple of years, the growth rate of Thailand's stock market has been low and its relative size to GDP at 82% is smaller than other countries in the region, e.g. Hong Kong at 1,208%, Singapore at 273%, and Malaysia at 164%. Should this trend remain, Thailand's capital market will stagnate and become marginalized in the region. It is well-accepted that a strong capital market would lessen the impact of economic fluctuations, as well as increase the ability to raise and monitor resources efficiently. This will result in national growth opportunities, and improvements in the standard of living and prosperity. Thus, Thai Capital Market Development Committee highlights the importance of an efficient infrastructure framework in the legal system, regulations, accounting standards, information and corporate governance, as well as an adequate shareholder protection mechanism in their missions for the period of 2009-2013.

Besides, Claessens (2003) notes that the deficiencies in corporate governance endangered the stability of the whole global financial system. Corporate governance has become a mainstream concern since the 1997 financial crisis and efforts have been exerted to promote investor protection and transparency, and enhance capital market development. Closely held corporations (i.e. high concentrated firms or family firms) are more universal, in particular the vast majority of firms in emerging markets (Claessens et al., 2000; Lins, 2000). Agency problem extends from the conflict of interest between managers and shareholders to that between large shareholder and minority shareholders. Prior literature (e.g. Attig et al., 2008; Hail and Leuz, 2006; Laeven and Levine, 2008; Maury and Pajuste, 2005) documents special corporate governance features when the majority shareholder presents. Bennedsen and Wolfenzon (2000) suggest more relevance of large owners to governance in illiquid ownership setting. However, most of existing studies (e.g. Levine, 2008; Maury and Pajuste, 2005; Faccio et al., 2001; Bennedsen and Wolfenzon, 2000) drew the conclusion from developed economies where their stock markets are liquid. It is, thus, of interest to examine the role of corporate governance in emerging market, where is typically illiquid and information asymmetric.

In Thailand, the process of corporate governance reform began with the promotion of audit committees within firms. The Stock Exchange of Thailand (SET) issued the Code of Best Practice for Directors of Listed Companies in 1997. The listed companies had to form audit committees no later than December 1999. The Securities and Exchange Commission (SEC) further required at least two independent directors, an internal audit department, and a remuneration committee existed in all firms. The Thai Principles of good corporate governance were then introduced in 2002 and revised in 2006 based on the OECD principles and the World Bank's recommendation. The Code recommended that audit committees should consist of at least three independent members and at least one member must have knowledge, understanding or experience in accounting or finance. All listed firms must disclose how they have implemented the recommendations of the code in both the annual registration statements (Form 56-1) and annual reports.

Corporate financial reports provide information of corporate financial strength and performance to a wide range of users. Earnings- the most important item in the financial reports- attract investors' interest as they reflect the company's economic health. Although earnings are monitored by external auditors, the audit committee, board of directors, and financial analysts; many studies report that earnings are proactively managed to exceed a specified earnings threshold (DeGeorge et al., 1999), or to avoid a decrease in earnings (Burgstahler and Dichev, 1997, Charoenwong and Jiraporn, 2009). Incentives to misrepresent firm performance may arise from the conflict of interest between insiders and outsiders. It is therefore of interest to examine the effectiveness of Thai corporate governance mechanisms on earnings quality (i.e. earnings management). This issue is particularly important in the context of closely held firms where the collusion with the dominant shareholder is possibly high.

This study aims to investigate earnings management behavior of Thai firms, taking into account the unique corporate governance characteristics of firms listed on SET. It is well-documented in the literature that ownership structure in Thai firms is concentrated, resulting in two distinct shareholders: majority and minority shareholders. Majority shareholders have a greater opportunity to maximize their benefits by expropriating the minority shareholders.

The ownership concentration and control may discourage transparency and reliability of financial disclosure. This important ownership structure may impact the way in which earnings are reported differently. Encouraged by the Sarbanes-Oxley Act and OECD framework, SET intends to improve board independence and strengthen the audit committee to enhance transparency in corporate activities and the reliability of published accounting information. Knowing the factors that affect earnings management is helpful for investors to predict variation in earnings figures.

The investigation of earnings management in emerging markets will contribute to the literature which limits the sample to the US or other developed countries. The Federation of Accounting Profession intends to fully assign Thai Accounting Standards (TAS) with the international Financial Reporting Standards (IFRS). SET requires large listed firms in SET50 to implement 27 standards of IFRS from 2011 onward and the other 3 standards will be implemented from 2012 onward. The rest (7 standards) are not currently assigned an implementation year. Understanding earnings management in the context of Thailand in the period prior to full implementation of IFRS represents a natural laboratory to make international comparison to the existing studies in the countries which fully apply IFRS. The analysis of earnings management and corporate governance allows us to measure the efficacy of the code of best practice for directors. This will result in important implications to market policy makers in enhancing transparency and investor protection mechanisms. The study period spanning from 2002 to 2011 provides us an opportunity to further investigate the efficacy of the principles of good corporate governance on earnings management before and after the revision in 2006. Besides, ownership structure in Asia is generally different from that in the US which is the sample in most of the existing literature. The difference may impact the extent of earnings management, offering us better understanding on earnings management and corporate governance

Our main result is that earnings quality remains a doubt to investors even after the corporate governance reforms. We further test the effect of individual corporate governance mechanisms to restrain earnings management. While we find the strong effectiveness of directors with accounting or financial expertise, the split of chairman and CEO positions and

the interaction of family firm and reported ROA in non-financial firms; these corporate governance mechanisms do not beneficial impact on earnings management in financial firms. Board size and independent directors play important role on earnings management in financial firms, rather. Besides, some corporate governance mechanisms stimulate the use of earnings management, thus yielding an important implication to policy makers to the acceptable corporate governance standards.

The remainder of this paper is organized as follows. Section 2 summarizes the literature review and develop tested hypothesis. Section 3 describes the data sample. Section 4 describes the research methodology. Finally, Section 5 presents empirical results and Section 6 concludes.

## 2. Literature review and hypothesis development

Earnings management has long attracted the public interest and academic research effort since Healy (1985) documents that accruals can be used to manipulate managers' bonus income. A number of studies have been conducted on earnings management in the context of developed economies over the past two decades. Mckee (2005) points that in order to achieve predictable financial results, earnings management is reasonable and legal management decision. Earnings management is not an illegal activity to manipulate financial reports that do not reflect the firm's actual economic outcome. More recent research focuses on corporate executives' intent to manipulate earnings to affect stock prices or meet analyst forecasts, as well as determine the factors influencing earnings management at the country-level, such as Leuz et al. (2003) and Bhattacharya et al., (2003). Also, there are several studies that examine the use of earnings management. For example, Burgstahler and Dichev (1997) and Degeorge et al. (1999) documented the use of accounting discretion in the US firms to avoid reporting small losses. The central messages are the importance of investor protection and the relationship between earnings opacity and cost of equity. Investor protection reduces the insiders' incentives to mask firm performance.

The issues in the existing studies are discussed in various themes, for example the presence of earnings management (Matsunaga and Park, 2001, Othman and Zeghal, 2006), the magnitude of earnings management (Bauwhede and Wilekens, 2003, Charoenwong and Jiraporn, 2009), the restraints on earnings management (Van Caneghem, 2002, Wasley and Wu, 2006, Givoly et al., 2010), the incentives to manage earnings (Sevin and Schroeder, 2005, Darrough and Rangan, 2005, Spear, 2007), and the market impact of earnings management (Dechow et al., 1996, Sloan, 1996, Beneish, 1997). When managerial incentives rely on a firm's financial performance, there may be a potential agency problem to shareholders and may result in financial fraud, for example Enron, Worldcom and Parmalat. Subsequent to accounting fraud, many market regulators have increased corporate governance requirements to enhance the reliability of financial reports (Beasley, 1996, Abbott et al., 2000).

Cornett et al. (2008) concluded that well-designed corporate governance practices can limit earnings management. Other studies also provide evidence of the impact of corporate governance on earnings management. For example, Klien (2002) and Peasnell et al. (2000) report the lower discretionary accruals is associated with the appointment of independent directors. Using the absolute value of discretionary accruals, Warfield et al. (1995) find the relationship between accruals and managerial ownership. Higher director ownership may both align their interest with shareholders and encourage the use of discretionary accrual. Employing nine Asian countries' corporate governance indexes taken from Credit Lyonnais Security Asia (CLSA), Shen and Chihi (2007) conclude that firms with good corporate governance tend to conduct less earnings management. Interestingly, firms in stronger anti-director right countries exhibit stronger earnings smoothing.

However, Bergstresser and Philippon (2006) report inconsistent relationship between accruals and corporate governance index. Thoopsamut and Jaikengkit (2009) focus on the impact of the audit committee on quarterly earnings managements of listed firms in SET during 2005 and 2006. Only the tenure of audit committee members significantly affects earnings management. Charoenwong and Jiraporn (2009) compare the level of earnings management between Singaporean and Thai firms in the period of 1975-2003. Weak

evidence of earnings management appears in Singaporean non-financial firms and Thai financial firms.

Government linked firms manage their earnings to sustain recent performance, while non-government linked firms are likely to manage their earnings to report zero or positive profits. Likewise, several studies report the association between ownership type and earnings quality, such as Beatty et al. (2002), Ball and Shivakumar (2005), Ching et al. (2006), Chang (2008), chen et al. (2008), Guthrie and Sokolowsky (2010), and Givoly et al. (2010)). Empirical evidence of family ownership is ambiguous. Wang (2006) finds that high family ownership firms have high quality earnings as long as their ownership is not greater than 67% in the US firms, whereas Fan and Wong (2002) report more informative earnings in firms with less ownership concentration in East Asian countries.

Many studies focus on the audit monitoring mechanism and earnings management, such as Bauwhede et al. (2003), Bedard et al. (2004), Bradbury et al. (2004) and Yang and Krishnan (2005). The audit firm size (big 4 or non-big 4 audit firm) is typically used as a proxy of quality auditors. Big 4 auditors are more likely to conservative and control the use of discretionary accruals. Besides, accounting or financial expertise of directors would increase the efficiency of financial reporting process. Bedard et al. (2004) and Xie et al. (2003) document smaller discretionary accruals in the firms with directors having financial background.

All in all, the tested hypotheses with regard to corporate governance practices and earnings management are explained below.

H1: The effectiveness of small board can enhance monitoring and lead to less usage of discretionary accruals.

H2: The firm with big 4 audit firm has lower discretionary accruals.

H3: The more the non-executive directors, the lower the use of discretionary accruals.

H4: The more the financial expert on board, the lower the discretionary accruals.

H5: The split of CEO and chairman positions can lower the use of discretionary accruals.

H6: Firms with controlling shareholders or family firms are more incentive to use discretionary accruals.

### 3. Data:

The sample we consider consists of both financial and non-financial companies listed on the Stock Exchange of Thailand (SET) over the period 2002 to 2011. The firms under rehabilitation are excluded because their financial data are incomplete or their financial reports are unavailable. The sample will be divided into two sub-samples- 2002 to 2005 and 2006 to 2011 due to the corporate governance reform in 2006. Further, the samples also are divided into non-financial firms and financial firms due to different regulatory regimes between non-financial and financial firms. Corporate governance data are manually collected from Form 56-1 (annual registration statement). The source of accounting and financial data is Datastream.

In total, there are 4,667 firm-year observations of which 1,856 observations and 2,811 observations are classified into pre- and post-corporate governance reform periods, respectively. Approximate 70% of the full sample is non-financial firms. The sample covers 340 non-financial firms and 136 financial firms.

### 4. Research methodology

We will firstly examine the description of our sample in terms of firm characteristics, firm performance and corporate governance. These firm characteristics are finance and accounting variables including firm age, market value, debt to asset and market to book value. Firm performance is measured in terms of both reported ROA (EBIT/total assets) and unmanaged ROA (EBIT/total assets – discretionary accruals/total assets). All variables of firm characteristics and firm performance are winsorized at 1% to exclude the extreme values. Corporate governance includes board structure (i.e. board size, fraction of independent directors, fraction of directors with financial expertise and dummy variable if split of chairman and CEO), ownership structure (i.e. director ownership, largest family ownership, dummy variable if largest shareholder on board, dummy variable if multiple large shareholders and dummy variable if family firms, audit committee size) and independent auditor (i.e. dummy variable if big 4 auditor).

In order to overview the earnings quality, income smoothing is firstly examined. Following Ball et al. (2000), Lang et al. (2003) and Machuge and Teitel (2009), earnings quality can be measured by the variability of earnings and the ratio of the variability of earnings to cash flows from operations. Higher (lower) such the variability of earnings and the ratio implies higher (lower) earnings quality. The variability of earnings and cash flows from operations is the residuals from a regression of the absolute value of change in asset-scaled earnings and cash flows from operation on control variables including firm size, leverage, growth in revenue. Also, we will investigate whether the earning quality improves after the Principles of Corporate Governance was implemented. It is expected that differences in the change in earnings quality measure between pre and post the principles will be significant.

Empirical evidence records that insiders are more likely to manage discretionary accruals than total discretionary accruals (Guay et al., 1996; Kothari et al., 2005, Jaggi and Tsui, 2007). The discretionary accruals that managers decide to use can affect the informativeness of financial reports. Following previous studies, this study will use the absolute value of discretionary accruals as a measure of earnings management. Earnings management itself can be measured by many proxies. The reliability of findings depends on the ability of the measurement of earnings management to accurately capture earnings management activity. Our study will address four proxies for earnings management on earnings basis and select the proxy that generates highest adjusted R-square to further analyse its link with corporate governance. However, generally, these proxies yield the consistent results. The total accruals for each firm in each period are calculated as follows: Total accrual (ACCR) is defined as the difference between net income before extraordinary items and net cash flows from operating activities. The coefficients obtained from the above equations are applied to the current observations to further estimate non-discretionary accruals (NDACCR): All variables are standardized by the total assets in the beginning year.

5) Jones (1991)

$$ACCR_{it} = \beta_0 + \beta_1 \Delta REV_{it} + \beta_2 PPE_{it} + \varepsilon_{it} \quad (1)$$

$$NDACCR_{it} = b_0 + b_1 \Delta REV_{it} + b_2 PPE_{it} \quad (2)$$

Where  $ACCR_{it}$  is total accruals of firm  $i$  year  $t$ .  $NDACCR_{it}$  is non-discretionary accruals of firm  $i$  year  $t$ .  $\Delta REV_{it}$  is change in revenue of firm  $i$  from year  $t-1$  to year  $t$ .  $PPE_{it}$  is gross property, plant and equipment of firm  $i$  year  $t$ .

6) Dechow et al. (1995)

$$ACCR_{it} = \beta_0 + \beta_1(\Delta REV_{it} - \Delta REC_{it}) + \beta_2 PPE_{it} + \varepsilon_{it} \quad (3)$$

$$NDACCR_{it} = b_0 + b_1(\Delta REV_{it} - \Delta REC_{it}) + b_2 PPE_{it} \quad (4)$$

Where  $ACCR_{it}$  is total accruals of firm  $i$  year  $t$ .  $NDACCR_{it}$  is non-discretionary accruals of firm  $i$  year  $t$ .  $\Delta REV_{it}$  is change in revenue of firm  $i$  from year  $t-1$  to year  $t$ .  $\Delta REC_{it}$  is change in net account receivables of firm  $i$  year  $t$ .  $PPE_{it}$  is gross property, plant and equipment of firm  $i$  year  $t$ .

7) Kasznik (1999)

$$ACCR_{it} = \beta_0 + \beta_1(\Delta REV_{it} - \Delta REC_{it}) + \beta_2 PPE_{it} + \beta_3 \Delta CFO_{it} + \varepsilon_{it} \quad (5)$$

$$NDACCR_{it} = b_0 + b_1(\Delta REV_{it} - \Delta REC_{it}) + b_2 PPE_{it} + b_3 \Delta CFO_{it} \quad (6)$$

Where  $ACCR_{it}$  is total accruals of firm  $i$  year  $t$ .  $NDACCR_{it}$  is non-discretionary accruals of firm  $i$  year  $t$ .  $\Delta REV_{it}$  is change in revenue of firm  $i$  from year  $t-1$  to year  $t$ .  $\Delta REC_{it}$  is change in net account receivables of firm  $i$  year  $t$ .  $PPE_{it}$  is gross property, plant and equipment of firm  $i$  year  $t$ .  $\Delta CFO_{it}$  is change in cash flow from operation of firm  $i$  from year  $t-1$  to year  $t$ .

8) Xie (2001)

$$ACCR_{it} = \beta_0 + \beta_1 [1/TA_{it}] + \beta_2 \Delta REV_{it} + \beta_3 PPE_{it} + \varepsilon_{it} \quad (7)$$

$$NDACCR_{it} = b_0 + b_1 [1/TA_{it}] + b_2 \Delta REV_{it} + b_3 PPE_{it} \quad (8)$$

Where  $TA_{it}$  is total asset of firm  $i$  year  $t$ .  $ACCR_{it}$  is total accruals of firm  $i$  year  $t$ .  $NDACCR_{it}$  is non-discretionary accruals of firm  $i$  year  $t$ .  $\Delta REV_{it}$  is change in revenue of firm  $i$  from year  $t-1$  to year  $t$ .  $PPE_{it}$  is gross property, plant and equipment of firm  $i$  year  $t$ .

Discretionary current accrual (DACCR) is estimated as of following.

$$DACCR_{it} = ACCR_{it} - NDACCR_{it} \quad (9)$$

Where  $DACCR_{it}$  is discretionary accruals of firm  $i$  year  $t$ .  $ACCR_{it}$  is total accruals of firm  $i$  year  $t$ .  $NDACCR_{it}$  is non-discretionary accruals of firm  $i$  year  $t$ .

We, then, compute correlation of earnings management measurements and their determinants.

Finally, we will relate earnings management and corporate governance mechanisms by using both univariate and multivariate tests. The panel data analysis is in the following form:

$$\begin{aligned}
 ABDACCR_{it} = & \alpha_0 + \alpha_1 LNMV_{it} + \alpha_2 DTA_{it} + \alpha_3 ROA_{it} + \alpha_4 LNBSIZE_{it} \\
 & + \alpha_5 DAUDIT_{BIG4_{it}} + \alpha_6 PTNED_{it} + \alpha_7 PTFINEXPERT_{it} + \alpha_8 SPLIT_{it} \\
 & + \alpha_9 DFAMFIRM_{it} + \alpha_{10} (DFAMFIRM_{it} * ROA_{it}) \\
 & + \alpha_{11} (DFAMFIRM_{it} * PTFINEXPERT_{it})
 \end{aligned} \tag{10}$$

Where  $ABDACCR_{it}$  is absolute discretionary accruals of firm  $i$  year  $t$ .  $LNMV_{it}$  is the natural log of market value of firm  $i$  year  $t$ .  $DTA_{it}$  is debt to asset of firm  $i$  year  $t$ .  $ROA_{it}$  is return on assets of firm  $i$  year  $t$ .  $LNBSIZE_{it}$  is the natural log of board size of firm  $i$  year  $t$ .  $DAUDIT_{BIG4_{it}}$  is dummy variable equal 1 if the independent auditor is one of the big four audit firms of firm  $i$  year  $t$ .  $PTNED_{it}$  is the proportion of non-executive directors of firm  $i$  year  $t$ .  $PTFINEXPERT_{it}$  is the proportion of financial experts on board of firm  $i$  year  $t$ .  $SPLIT_{it}$  is dummy variable equal 1 if the roles of chair man and CEO are separated in firm  $i$  year  $t$ , and 0 otherwise.  $DFAMFIRM_{it}$  is dummy variable equal 1 is the largest family shareholder holds at least 25% and is on the board., and 0 otherwise.

## 5. Analysis

Table 1 shows descriptive statistics of firm characteristics, firm performance and corporate governance in Panel A, B and C, respectively. On average, firm age is about 12 years and their market value is approximately 13,000 million baht with debt to assets at approximately 0.26 and market to book value about 1.3. Firm size of non-financial firms significantly grows from about 10,000 million baht in pre-CG period to 14,000 million baht in post-CG period. Firm leverage (i.e. debt to assets) of both non-financial firms and financial firms significantly decreases from about 0.30 in pre-CG period to 0.24 in post-CG period.

With regard to firm performance, non-financial firms report ROA at approximately 10% on average, while financial firms report about 7%. The unmanaged ROA tends to have similar pattern for all proxies of discretionary accruals. Non-financial firms have unmanaged ROA about 13%, whereas financial firms have unmanaged ROA only about 5%. ROA of non-

financial firms is in downward trend as their ROA significantly drop from 12% in pre-CG period to 9% in post-CG period. Likewise, the reported ROA of financial firms decreases from 9% in pre-CG period to 5.5% in post-CG period. However, the unmanaged ROA in both period are not significant different.

For corporate governance practice, board of directors in Thai listed firms contains approximately 11 directors on average. Generally, Thai listed firms split the positions of chairman and CEO (74%) for both non-financial and financial firms. The split is more common in the Post-CG period than and significantly different from that in the pre-CG period for non-financial firm. Moreover, after implementing the Principles of Corporate Governance, both non-financial and financial firms have significantly more independent directors and more directors with accounting and financial background. Shares held by directors are approximately 20% on average. The largest family owns about 36% for non-financial firms and 41% for financial firms. Shareholdings of the largest shareholder significantly increase in case of non-financial firms. Further, the largest shareholder typically has a representative on board (89% for non-financial firms and 78% for financial firms). The shareholders with greater than 25% ownership are more common in non-financial firms and their presence significantly rises after the corporate governance reform (59% in pre-CG period and 65% in post-CG period). Family firms, which is defined as a firm that the shareholder with greater 25% ownership involves the management as a board of director, exist more in non-financial firms (64%) than financial firms (44%) and their existence significantly increases from 60% in the pre-CG period to 65% in the post-CG period. Committee size is about 3 for both non-financial and financial firms. Additionally, financial firms hire more big4-audit firms than non-financial firms do.

#### Earnings quality

Previous literature suggests earnings quality can be measured by the degree to which insiders smooth earnings or reduce the variability of reported earnings, such as Ball et al. (2000), Lang et al. (2003a, 2003b) and Machuga and Teitel (2009). In this study, we use two proxies to capture earning quality: the variability of earnings and the ratio of the

variability of earnings to cash flows from operations. The higher (lower) variability of reported earnings and the ratio of earnings to cash flows from operation indicate the higher (lower) earnings quality.

Table 2 presents the results of income smoothing measures of earnings quality. Earnings quality measures of non-financial firms are more likely to indicate better earnings quality those of financial firms. The variability of net income is approximately 0.0014 for non-financial firms and 0.0012 for financial firms. Likewise, the ratios of variability of net income to cash flows from operation are 0.0374 and 0.0352 for non-financial firms and financial firms, respectively.

Surprisingly, both groups of firms decrease the variability of change in net income and the ratio of change in net income to change in cash flows from operation from the pre- to post-CG periods. The variability and ratio are significantly different between two sub-periods, indicating diminishing earnings quality. It is, thus, important to further investigate the earnings management phenomenon and the factors affecting earnings management in details.

#### Earnings management

As several measurements are developed to capture earnings management practice, this study uses four models to identify discretionary accruals from total accruals. Average values of total accruals and discretionary accruals are shown in Table 3.

Total accruals and discretionary accruals are all negative and significant difference between pre- and post-CG periods for non-financial firms. This is similar to previous studies, for example Chayavoradech and Srijunpetch (2008) and Machuga and Teitel (2009). On the contrary, the direction of total accruals and discretionary accruals by all measurements goes up for financial firms and differences between pre- and post- CG reform are significant. Concerning only the magnitude of discretionary accruals, discretionary accruals range about 3-4%. The size of discretionary accruals is significantly lower after the corporate governance reform for financial firms.

## Earnings management and corporate governance

This section provides the tests of relationship between earnings management and corporate governance mechanisms. Earnings management is measured by the absolute value of discretionary accruals from four models. As the regressions of all proxies of earning management are qualitatively similar, this paper will display the results generated by Jones (1991)'s model only. We firstly examine the correlation matrix of absolute value of discretionary accruals, firm characteristics, firm performance and corporate governance in the full sample analysis. The correlation matrix is shown in Table 4 Panel A for non-financial firms and Panel B for financial firms. Then, we will do regression of the absolute value of discretionary accruals and hypothesized explanatory variables in equation 10. The results of regression are reported in Table 5.

From Table 3 Panel A, variables that have significant correlation with earnings management in case of non-financial firms are firm performance (reported ROA), firm size (market value of equity), firm leverage (total debt to total assets) and some corporate governance variables including board size, fraction of independent directors on board, the split of chairman and CEO and the number of audit committee. However, the number of auditor committee has significantly high correlation with board size as well. In case of financial firms, the common variables that show significant correlation with earnings management are reported earnings and fraction of independent directors on board. Besides, firm age, market to book value of equity dummy if family firm and dummy if multiple large shareholders also present significant correlation with earnings management. Nevertheless, dummy if multiple large shareholder has high correlation with fraction of independent directors as well.

Taking into account the multivariate analysis, the regression between earnings management and tentative explanatory variables is further examined. In case of non-financial firms, the factors that have significantly positive relationship with earnings management are firm leverage for all periods, reported ROA for pre-CG period, board size for full sample and post-CG period, the fraction of independent directors on board for full sample and post-CG period and the interaction of dummy if family firm and fraction of directors with accounting

or financial expertise. Nevertheless, some corporate governance mechanisms- the fraction of directors with accounting or financial expertise, dummy if splitting chairman and CEO positions and the interaction of dummy if family firm and reported ROA, can reduce the use of earnings management in line with the tested hypothesis. In case of financial firms, reported ROA, dummy if family firm and the interaction of dummy if family firm and the fraction of directors with accounting or financial expertise are positively related with earnings management. The effective corporate governance mechanisms to restrict earnings management are board size and the fraction of independent directors, In sum, some corporate governance mechanisms have an impact on earnings management as expected. Additionally, corporate governance mechanisms do not consistently reduce the use of earnings management in sub-samples and sub-period.

## 6. Conclusion

This paper examines earnings management in publicly traded companies in Thailand as a case of emerging markets. The sample covers both non-financial firms and financial firms in the period of 2002-2011 and two sub-periods (2002-2005 and 2006-2011) according to the implementation year of Principles of Corporate Governance in 2006. The sub-periods allow us to examine the impact of corporate governance on earnings management.

Using various measures of earnings management, the study suggests that income smoothing can be found even after the implementation of Principles of Corporate Governance in both non-financial firms and financial firms. Further empirical evidence can both support and cast doubt on the beneficial impact of some corporate governance mechanisms on earnings management. Some corporate governance mechanisms plays role in earnings management in either non-financial firms or financial firms. Specifically, the fraction of directors with accounting or financial expertise, the split of chairman and CEO positions and the interaction of family firm and reported ROA are effective mechanisms to reduce earnings management in case of non-financial firms; whereas board size and independent directors can restrict the use of earnings management in case of financial firms.

Table 1 Descriptive statistics on firm characteristics, firm performance and corporate governance variables

This table reports summary statistics of firm characteristics, firm performance and corporate governance. The sample covers both non-financial and financial Thai listed firms between 2002 and 2011 in the full sample. Pre-CG sub-period covers the sample between 2002 and 2005 and represents the pre-implementation of Principles of Corporate Governance. Post-CG sub-period covers the sample between 2002 and 2005 and represents the post-implementation of Principles of Corporate Governance. Firm characteristics variables include firm age (the number of years from incorporation year to the financial report year), market value (market value of equity in million baht), debt to asset (total debt divided by total assets), and market to book value (market value of equity divided by book value of equity). Firm performance variables include reported ROA and unmanaged ROA (reported ROA - discretionary accruals), in which the discretionary accruals are measured by four models: Jones (1991), Dechow et al. (1995), Kasznik (1999) and Xie (2001). Corporate governance variables include board size (the number of directors on board), fraction of independent directors (the proportion of independent directors on board), fraction of directors with financial expertise (the proportion of directors with accounting or financial background on board), split of chairman and CEO (dummy variable equal to 1 if the positions of chairman and CEO are held by different person, and 0 otherwise.), director ownership (direct and indirect shareholdings of directors and their spouses), largest family ownership (direct and indirect shareholdings of the largest shareholder), dummy if largest shareholder on board (dummy variable equal to 1 if the largest shareholder is a director on board, and 0 otherwise.), dummy if multiple large shareholders (dummy variable equal to 1 if the firm has many shareholders with greater than 25% ownership, and 0 otherwise.), dummy if family firms (dummy variable equal to 1 if the largest shareholder has greater than 25% ownership and is one of the directors), audit committee size (the number of audit committee) and dummy if big 4 auditor (dummy variable equal to 1 if the audit firm is one of the big 4 audit firms, and 0 otherwise.)

	Non-financial				Financial			
	Full	Pre CG	Post CG	t-diff	Full	Pre CG	Post CG	t-diff
<b>A. Firm characteristics</b>								
Firm age	12.8194	11.1798	13.7082	-8.9	11.6143	10.881	11.9619	-1.89
Market value	12693.2	10259.36	14018.07	-1.98	12529.4	10667.44	13427.42	-1.23
Debt to asset	0.2595	0.2984	0.2358	5.78	0.2622	0.2878	0.2471	2.11
Market to book value	1.34	1.5688	1.2148	1.21	1.2843	1.3967	1.224	1.48
<b>B. Firm performance</b>								
Reported ROA	0.1036	0.1207	0.094	2.54	0.0676	0.09	0.0552	2.98
<b>Unmanaged ROA</b>								
Jones (1991)	0.1283	0.1361	0.124	1.15	0.0539	0.0654	0.0475	1.28
Dechow et al. (1995)	0.1284	0.1362	0.124	1.15	0.0569	0.0678	0.0509	1.01
Kasznik (1999)	0.1286	0.1364	0.1243	1.13	0.0583	0.0696	0.052	1.03
Xie (2001)	0.1284	0.1362	0.124	1.16	0.0538	0.0653	0.0475	1.3
<b>C. Corporate governance variables</b>								
Board size	10.7686	11.0124	10.6389	2.98	10.2245	9.4919	10.4165	-3.08
Fraction of independent directors	0.3708	0.3168	0.3992	-15.31	0.4046	0.3462	0.4193	-6.24
Fraction of directors with financial expertise	0.2672	0.1105	0.3492	-32.17	0.4065	0.0852	0.4886	-24.84
Split of chairman and CEO	0.7441	0.6962	0.7691	-4.07	0.7423	0.7193	0.7479	-0.61
Director ownership	20.6204	20.7327	20.5609	0.19	19.4152	16.4096	20.2079	-0.57
Largest family ownership	36.6574	35.1444	37.4733	-2.58	29.716	28.4075	30.4277	-1.13
Dummy if largest shareholder on board	0.8928	0.8919	0.8933	-0.1	0.7785	0.8253	0.753	2.21
Dummy if multiple large shareholders	0.6293	0.5893	0.6509	-3.02	0.5431	0.5415	0.5439	-0.06
Dummy if family firms	0.6353	0.6075	0.6503	-2.11	0.4446	0.4498	0.4418	0.2
Audit committee size	2.3942	2.5994	2.2855	7.56	2.0885	2.3065	2.0316	2.36
Dummy if big 4 auditor	0.5499	0.6127	0.5198	4.54	0.6224	0.6296	0.6207	0.17

Table 2 Income smoothing

This table reports the results of assessing income smoothing measures of earnings quality: variability of cash flows from operations and net income. The sample covers both non-financial and financial Thai listed firms between 2002 and 2011 in the full sample. Pre-CG sub-period covers the sample between 2002 and 2005 and represents the pre-implementation of Principles of Corporate Governance. Post-CG sub-period covers the sample between 2006 and 2011 and represents the post-implementation of Principles of Corporate Governance. \* represents the significant difference between Pre CG and Post CG periods at 95% confidence level.

	Non-financial			Financial			
	Full	Pre CG	Post CG	Full	Pre CG	Post CG	
Variability of change in CFO	0.00460	0.00462	0.00458	0.0058	0.0061	0.0057	
Variability of change in NI	0.00140	0.00151	0.00134	0.0012	0.0015	0.0011	*
Ratio of change in NI/change in CFO	0.03740	0.03890	0.03660	* 0.0352	0.0388	0.0326	*

Table 3 Earnings management measurements

This table reports mean statistics of total accruals, discretionary accruals and absolute value of discretionary accruals. The sample covers both non-financial and financial Thai listed firms between 2002 and 2011 in the full sample. Pre-CG sub-period covers the sample between 2002 and 2005 and represents the pre-implementation of Principles of Corporate Governance. Post-CG sub-period covers the sample between 2006 and 2011 and represents the post-implementation of Principles of Corporate Governance. Total accruals are defined as earnings before interest and tax minus cash flows from operations. Discretionary accruals are measured by four models: Jones (1990), Dechow et al. (1995), Kasznik (1999) and Xie (2001).

	Non-financial				Financial			
	Full	Pre CG	Post CG	t-diff	Full	Pre CG	Post CG	t-diff
Total accruals	-0.025	-0.0158	-0.0303	3.92	0.0051	0.0187	-0.0028	2.62
Discretionary accruals								
Jones (1991)	-0.0246	-0.0155	-0.0298	8.3	0.0202	0.0344	0.0121	7.17
Dechow et al. (1995)	-0.0246	-0.0155	-0.0297	9.42	0.0237	0.0429	0.013	8.84
Kasznik (1999)	-0.025	-0.0162	-0.0299	7.71	0.0223	0.0413	0.0119	6.97
Xie (2001)	-0.0246	-0.0155	-0.0298	8.15	0.0202	0.0344	0.0121	7.04
Absolute discretionary accruals								
Jones (1991)	0.0409	0.0416	0.0406	0.96	0.0332	0.0451	0.0264	8.2
Dechow et al. (1995)	0.0361	0.037	0.0356	1.39	0.0341	0.0495	0.0257	8.81
Kasznik (1999)	0.0428	0.0411	0.0437	-1.27	0.0432	0.0499	0.0395	3.23
Xie (2001)	0.0413	0.042	0.0408	1.08	0.0328	0.0448	0.026	7.84

Table 4 Correlation

This table presents the correlation matrix of discretionary accruals, firm characteristics, firm performance and corporate governance for non-financial firms and financial firms in Panel A and B, respectively. The sample covers both non-financial and financial Thai listed firms between 2002 and 2011 in the full sample. Pre-CG sub-period covers the sample between 2002 and 2005 and represents the pre-implementation of Principles of Corporate Governance. Post-CG sub-period covers the sample between 2002 and 2005 and represents the post-implementation of Principles of Corporate Governance. Total accruals are defined as earnings before interest and tax minus cash flows from operations. Discretionary accruals are measured by Jones (1991)'s model. Firm characteristics variables include firm age (the number of years from incorporation year to the financial report year), market value (market value of equity in million baht), debt to asset (total debt divided by total assets), and market to book value (market value of equity divided by book value of equity). Firm performance variables include reported ROA. Corporate governance variables include board size (the number of directors on board), fraction of directors with financial expertise (the proportion of directors with accounting or financial background on board), split of chairman and CEO (dummy variable equal to 1 if the positions of chairman and CEO are held by different person, and 0 otherwise.), director ownership (direct and indirect shareholdings of directors and their spouses), largest family ownership (direct and indirect shareholdings of the largest shareholder), dummy if largest shareholder on board (dummy variable equal to 1 if the largest shareholder is a director on board, and 0 otherwise.), dummy if multiple large shareholders (dummy variable equal to 1 if the firm has many shareholders with greater than 25% ownership, and 0 otherwise.), dummy if family firms (dummy variable equal to 1 if the largest shareholder has greater than 25% ownership and is one of the directors), audit committee size (the number of audit committee) and dummy if big 4 auditor (dummy variable equal to 1 if the audit firm is one of the big 4 audit firms, and 0 otherwise.)

## C. Non-financial firms

	Abdacc	rroa	fage	mv	td_ta	mtbv	bsize	ptned	ptfnexp	split	pt_diown	pt_famown1	ddr_fam1	dum_mls	no_aud
rroa	0.03777														
fage	-0.00957	-0.0341													
mv	0.04617	0.06791	0.00977												
td_ta	0.09098	-0.11221	-0.08764	0.03556											
mtbv	-0.03016	0.04224	-0.00085	0.03323	-0.01698										
bsize	0.05091	0.02204	0.28419	0.15237	-0.03902	0.03111									
ptned	0.11991	-0.0185	0.01366	0.11121	-0.03552	-0.05123	-0.2237								
ptfnexp	0.00131	-0.03334	0.0687	-0.00081	-0.0039	0.00914	-0.1842	0.20992							
split	-0.04624	0.00393	0.0403	0.0894	-0.04065	0.00025	0.10456	0.005	0.04997						
pt_diown	-0.006	0.08508	-0.14792	-0.14212	-0.0647	0.02174	-0.18798	-0.01995	-0.02414	-0.13775					
pt_famown1	0.03945	0.09687	-0.06505	0.01394	0.02695	0.00907	-0.11271	0.04888	0.05231	-0.03561	0.38668				
ddr_fam1	-0.00167	0.07763	-0.00697	0.01513	0.05427	0.04954	0.01533	-0.02827	-0.01162	-0.08355	0.27757	0.34132			
dum_mls	-0.01362	-0.04883	-0.04082	-0.2332	-0.08257	-0.0179	-0.15178	0.03813	0.02639	-0.00879	0.20619	-0.09913	-0.00189		
no_aud	-0.04864	-0.00871	0.00551	-0.06281	-0.04089	-0.02519	0.6911	-0.04706	-0.19045	-0.05694	0.07467	0.00932	-0.00777	0.07934	
daudit_big4	0.01165	0.08836	0.06522	0.02448	0.00524	0.02047	0.11411	0.00714	0.02006	0.07661	-0.2055	-0.1257	-0.05744	-0.24176	-0.09978

## D. Financial firms

	Abdacc1	rroa	fage	mv	td_ta	mtbv	bsize	ptned	ptfnexp	split	pt_dlow	pt_famown1	ddr_fam1	dum_mls	no_aud
rroa	0.2542														
fage	-0.09996	-0.20745													
mv	0.02119	-0.04061	0.45331												
td_ta	0.01337	0.08337	-0.19446	-0.13132											
mtbv	0.14178	0.61189	-0.03029	0.12528	-0.08268										
bsize	-0.06184	0.08669	0.27188	0.26647	-0.28404	0.03802									
ptned	-0.1205	-0.00604	0.13524	0.08388	-0.12129	0.00245	-0.05134								
ptfnexp	-0.04587	-0.06441	0.15671	0.10166	-0.16145	0.00612	0.00757	0.19596							
split	-0.04947	-0.02478	0.02384	0.12891	0.00275	0.03315	0.19455	-0.03545	0.0909						
pt_dlow	0.02461	-0.00508	-0.0307	-0.03358	0.00221	-0.01615	-0.01951	-0.01233	0.01888	0.0125					
pt_famown1	-0.0301	0.02129	-0.20899	-0.00923	-0.13121	0.01774	-0.12237	-0.0075	-0.03834	0.07454	0.11452				
ddr_fam1	0.11214	0.17071	-0.3061	-0.06187	-0.08569	0.08733	0.07321	0.00892	-0.16962	-0.55060	0.07769	0.26844			
dum_mls	0.08991	0.00707	-0.01035	-0.19713	-0.01405	0.01355	-0.18219	-0.05712	-0.13259	0.00395	0.06451	0.06161	-0.01336		
no_aud	-0.0006	-0.08911	-0.07757	0.07937	-0.01402	0.02543	0.12852	-0.09162	-0.1093	-0.15436	-0.05528	-0.12473	0.00662	0.1615	
daudit_big4	-0.00992	0.02234	0.06359	0.12119	0.03753	0.14255	0.13115	-0.03549	0.14858	0.03981	0.02392	-0.12247	-0.10075	-0.18299	-0.0633

Table 5 Determinants of earnings management measures

This table reports the regression results of discretionary accruals and explanatory variables. The sample covers both non-financial and financial Thai listed firms between 2002 and 2011 in the full sample. Pre-CG sub-period covers the sample between 2002 and 2005 and represents the pre-implementation of Principles of Corporate Governance. Post-CG sub-period covers the sample between 2006 and 2011 and represents the post-implementation of Principles of Corporate Governance. Discretionary accruals are measured by Jones (1991)'s model. Explanatory variables include *lnmv* (natural logarithm of market value of equity in million baht), *dta* (total debt divided by total assets), *rroa* (EBIT divided by total assets), *lnbsize* (natural logarithm of the number of directors on board), *daudit\_big4* (dummy variable equal to 1 if the audit firm is one of the big 4 audit firms, and 0 otherwise.), *ptned* (the proportion of independent directors on board), *ptfinexpert* (the proportion of directors with accounting or financial background on board), *split* (dummy variable equal to 1 if the positions of chairman and CEO are held by different person, and 0 otherwise.) and *dfamfirm* (dummy variable equal to 1 if the largest shareholder has greater than 25% ownership and is one of the directors), *audit committee size* (the number of audit committee)

	Non-financial			Financial		
	Full	Pre CG	Post CG	Full	Pre CG	Post CG
intercept	0.0105 (1.56)	0.0215 (1.31)	0.0032 (0.42)	0.0694 (4.26)	0.0930 (1.41)	0.0401 (2.63)
lnmv	0.0004 (0.79)	0.0005 (0.61)	0.0003 (0.57)	0.0000 (0.05)	-0.0041 (-1.33)	0.0007 (0.80)
dta	0.0115 (4.26)	0.0168 (3.51)	0.0085 (2.55)	-0.0039 (-0.61)	-0.0162 (-0.72)	0.0006 (0.11)
rroa	0.0008 (0.10)	0.0472 (2.59)	-0.0189 (-1.88)	0.0818 (3.83)	0.0707 (1.40)	0.0574 (2.56)
lnbsize	0.0079 (3.07)	-0.0000 (0.00)	0.0121 (4.04)	-0.0158 (-2.29)	-0.0025 (-0.10)	-0.0099 (-2.54)
daudit_big4	0.0008 (0.60)	0.0034 (1.34)	-0.0008 (-0.52)	0.0007 (0.25)	0.0010 (0.13)	-0.0009 (-0.35)
ptned	0.0240 (6.32)	0.0178 (1.16)	0.0244 (6.43)	-0.0230 (-2.55)	-0.0094 (-0.19)	-0.0215 (-2.80)
ptfinexpert	-0.0098 (-2.43)	0.0003 (0.02)	-0.0089 (-1.99)	-0.0023 (-0.40)	-0.0749 (-1.86)	0.0103 (1.82)
split	-0.0027 (-2.01)	-0.0013 (-0.53)	-0.0031 (-2.01)	0.0007 (0.22)	-0.0126 (-1.38)	0.0037 (1.31)
dfamfirm	0.0003 (0.12)	0.0044 (1.19)	0.0008 (0.28)	0.0008 (2.16)	0.0085 (2.78)	0.0023 (2.45)
dfamfirm * rroa	-0.0230 (-2.17)	-0.0825 (-3.79)	0.0007 (0.06)	0.0135 (0.43)	0.0291 (0.44)	0.0045 (0.13)
dfamfirm * ptfinexpert	0.0124 (2.50)	0.0200 (1.22)	0.0090 (1.56)	0.0012 (0.14)	0.1330 (2.02)	0.0055 (0.64)
f-test	8.58 <.0001	3.61 <.0001	7.88 <.0001	3.7 <.0001	1.74 0.079	3.18 0.0005
adj r square	0.039	0.0414	0.0517	0.0777	0.0849	0.0834

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## Research Output 2

Insider Trading, Earnings Management and Corporate Governance in Emerging Market  
: Evidence from Thailand

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Abstract

Earnings- one of important items in financial report- are typically used to portray the economic health of the firm and are closely monitored by many related bodies including board of directors, external auditor and market regulators. Earnings are also linked with executives' compensation and their employment, so executives have incentives to manage earnings by using the flexibility permitted under accounting standards to avoid negative earnings growth as well as to convey the signal about the firm future opportunities. Earnings management is reasonable and legal decision making. Using empirical evidence in Thailand from 2002-2010, this study examines earnings management practice and investigates its relationship with insider trading and the impact of corporate governance. With regard to the size of earnings management, insider buying in conjunction with higher ROA is more likely to have larger earnings management in financial firms, whereas insider trading does not have an effect in non-financial firms. However, corporate governance practices can have an impact on restricting size earnings management. The case in point is the interaction of non-executives and big 4 auditors for financial firms, but the split of chairman and CEO for non-financial firms. With regard to the sign of earnings management, abnormal insider selling relates with upward earnings adjustment only in non-financial firms. The only corporate governance practices associated with earnings adjustment are NED and the involvement of family shareholders on board for financial firms, but the financial experts on board for non-financial firms. Further, positive excess returns of hedge portfolio in abnormal insider buying and high/low earnings manage can indicate the possibility for insiders to exploit informational advantage. These findings can suggest the contributions to accounting professional body on the accuracy of earnings disclosures, to market regulators on information asymmetry and the implementation of corporate governance, as well as to investors on stock selection.

Keywords: Insider Trading; Information asymmetry; Corporate Governance; Earnings Management; Earnings quality

## 1. Introduction

Existing literature documents a number of possible objectives for insiders to manage reported earnings, for example to avoid losses (Burgstahler and Dichev, 1997), to meet analyst forecast (Degeorge et al., 1999), to increase stock prices (Dechow et al., 1995), to maximize compensation (Healy, 1985), and to achieve debt covenant (DeFond and Jiambalvo, 1994). Beneish and Vargus (2002) suggest earnings quality can be assessed by informative insider trading. Likewise, Ke et al. (2002) report that insider trade can indicate earnings quality. Jaggi and Tsui (2007) highlight that earnings quality decrease, no matters the motivation of earnings management is.

This study examines whether earnings management is associated with insider trading and the mediating effect of corporate governance practice including corporate board characteristics, auditors, and the involvement of family on board in firms listed in the Stock Exchange of Thailand where business and institutional environments, especially board structure and ownership structure, differ from Western industrialized countries. Board and ownership structures in firms with family management and control are expected to dilute board independence, resulting in board's monitoring ineffectiveness (Jaggi and Tsui, 2007).

It has been documented the lack of transparency and reliability in financial information disclosures in emerging market economy countries. The unique ownership characteristics and corporate governance practice have an influence over this lack of transparency and reliability. Family members on corporate board and top management are common in firms with majority shareholders. Furthermore, the law enforcement is generally weak to protect minority shareholders, thus high expropriation risk to minority shareholders. The other important institution is Accounting professional body to ensure the quality of financial information disclosure. Switching to International Accounting Standards (IAS) from the national standards can help international investors compare the firms listed on other stock exchanges that applied IAS.

Encouraged by the Western trend, Thailand initiates principles of corporate governance to strengthen the firm listing requirement to promote greater responsibility and accountability board. The cases in point for the recommendations in the principles are audit committee, an increase of independent directors, the split of chairman and CEO and the financial expertise of directors. The principles also discuss good practices for insider trading in securities in their own firms. Directors are prohibited to engage in trading based on non-publicly material information. Thai Federation of Accounting Professions works on fully alignment of Thai Accounting Standards (TAS) with International Financial Reporting Standards (IFRS). Charoenwong and Jiraporn (2009) highlight a pressure on Thailand to fully adopt International Accounting Standards (IAS) after the 1997 Asian financial crisis. The other vehicles to enhance accountability are the adoption of U.S. reporting practices and the requirements of stock exchange listing. However, the conversion effect varies among industries and firms. Besides, IAS provides more accounting policy choices and offers greater professional judgment. As the regulations on insider trading and earnings management are weak, the implementation of these regulations is probably weak also.

The analysis in our study shows a negative association between insider buying and the size of discretionary accruals in financial firms; however its interaction with high ROA introduces bigger size of discretionary accruals. The interaction of non-executive directors and big4 auditors is effectively in restricting earnings management in financial firms. For non-financial firms, insider trading does not relate to earnings management and only the split of chairman and CEO is effective in monitoring the managerial behavior of earnings management. When taking into account the sign of discretionary accruals, insider trading does not affect the upward/downward adjustment on discretionary accruals in financial firms, whereas abnormal insider selling is related to upward adjustment on discretionary accruals in non-financial firms. The higher NED and the existing family member on board in financial firms are associated with the downward adjustment of discretionary accrual, but only the higher financial expert on board in non-financial firms. Furthermore, hedge portfolios that use

earnings management as the proxy for information asymmetries can offer positive excess returns in case of insider buying in both non-financial and financial firms.

Our findings can make contributions to regulators and investors in Thai listed firms and firms in other emerging market economies whose institutional environment are similar to Thai listed firms. First, abnormal insider buying in conjunction with higher ROA relates to bigger size of discretionary accruals. To enhance the quality of reported earnings, strong guidelines and regulations should be developed and strictly implemented to control insider buying in financial firms. Second, the higher proportion of NED surprisingly relates to the increase of earnings management, instead of monitoring effectiveness of corporate board on controlling earnings management in non-financial firms and is not associated with earnings management financial firms. This suggests the regulators' effort to improve NED's role and to evaluate the procedures for appointment of NED to ensure his/her independence. Thirdly, firm characteristics, such as higher firm leverage in non-financial firms and higher reported ROA in financial firms, are positively associated with the size of discretionary accruals. This may suggest awareness on earnings management for outside investors in this kind of firms. Finally, hedge portfolios, i.e. long firms with abnormal insider buying and high discretionary accruals size and short firms with abnormal insider selling and low discretionary accruals size, can offer positive excess returns. This indication of information asymmetry and the possibility for insiders to exploit informational advantage is probably of concern to accounting professional body and market regulators on the accuracy of earnings disclosures.

The remainder of this paper is organized as follows. Section 2 summarizes the literature review and develop tested hypothesis. Section 3 describes the data sample. Section 4 describes the research methodology. Finally, Section 5 presents empirical results and Section 6 concludes.

## 2. Literature review and hypothesis development

### *Earnings management and insider trading*

Many studies suggest that insider trading can convey private information about a firm's prospects to the market. The cases in point generally explain this phenomenon with signaling theory, (Kabir and Vermaelen (1996), Garfinkel (1997), Bettis et al. (2000), Fredereich et al. (2002), Hauser et al. (2003), Darrough and Rangan (2005), Barron et al. (2005), Louis and White (2007), and Prentice and Donelson (2010)). Empirical evidence documents the association between earnings management and insider trading. The likelihood that a firm's accruals are of high or low quality can be reflected by the contemporaneous insider trading (Beneish and Vargus, 2002). In other words, insider trading is informative about earnings quality.

Claessens et al. (2000) document that stock exchanges in Southeast Asian countries do not have strict regulations on both insider trading and earnings management and the implementation of these regulations is weak also. Jaggi and Tsui (2007) document that insider trading is common even in Hong Kong where is known as one of the largest financial centers. The executives who engaged in earnings management may focus on short-term interest as their compensation is based on the reported earnings, so they engage in opportunistic earnings management. When insiders intend to buy (sell) their shares in the public market, they may manage earnings to a worse (better) performance to send a negative (positive) signal to the market and motivate outside investors to sell (buy) shares of their firms. Insiders can maximize profit accordingly.

On one hand, the downward adjustment for reported earnings is not realized gains at the time of insider buying. Gains from insider buying can be realized when those shares will be sold. Insider buying may be motivated by such other factors as market opportunities and individual needs. On the other hand, abnormal insider buying in conjunction with higher reported earnings may be suspicious to be illegal to the regulators. Downward adjustment of reported earnings is expected accordingly. Sawicki and Shrestha (2008) support insiders managing earnings downward when buying and managing earnings upward when selling.

Value firms (high book to market value) are more likely to manage their earnings upward relative to growth firms (low book to market value). Tang et al. (2013) further investigate the endogenous relationship between abnormal insider trading and accrual abuse and examine whether corporate governance affects this relationship. They suggest that insiders take advantage on abnormal accruals to time their trading as well as manipulate accruals to mislead the market prior to their trading in Taiwan Stock Exchange.

H1: Insider buying (selling) is negatively (positively) related to earnings management in that year.

#### *Earnings management and corporate governance*

Earlier studies usually focus on the impact of corporate governance on firm performance and financial disclosures, for example Grace et al. (1995) and Chen and Jaggi (2000). In recent, earnings management has drawn public attention due to a number of accounting scandals, for example Worldcom, Enron and Tyco. Leuz et al. (2003) compare earnings management across 31 countries and report that earnings management is lower in countries with strong investor protection. Also, Bhattacharya et al. (2003) find that earnings aggressiveness, loss avoidance and earnings smoothing have a relationship with uninformative or opaque earnings.

Conflicting incentives to report lower/higher earnings arise in case of economic benefits to regulators for regulated firms, while the incentives may be negatively linked to the extent of regulatory oversight for financial institutions. Morgan (2002) documents that banks look like black boxes, resulting in the taken risk is difficult to observe from outsiders. Further, Shen and Chih (2005) claim that banking system in illiquidity problem is exposed to the risk of widespread bank runs. Thus, to main confidence in banks, banks have incentive to prevent positive earnings and to be in line with regulations, such as non-performing loan ratio, capital adequacy ratio and liquidity ratio. Earnings management is also important to manager's skill. Charoenwong and Jiraporn (2009) report significant evidence of earnings

management to report zero or positive profits in Thai financial institutions and non-financial institutions between 1975 and 2003.

Recently, several studies investigate the relationship between earnings management and corporate governance practice in the firm-level. The important role of corporate governance is to ensure financial reporting compliance with Generally Accepted Accounting Principles (GAAP) and to maintain the financial reporting credibility. Prior studies find the role of corporate governance to a reduction of earnings management level, for example Beasley (1996), Klein (2002), Park and Shin (2004) Peasnel et al. (2005), Kim and Yi (2006) and Chen et al. (2007).

Various proxies of corporate governance are used to link with earnings management, for instance board composition, external auditor and ownership. GAAP requires firms to use accruals; however management can control the timing of accrual expenditure (Xie et al., 2003). Board of directors has to monitor and control these discretionary accruals. It is expected that board composition of non-executive directors will be a factor of better monitoring effectiveness (Vafeas, 2000). Xei et al. (2003) confirm that a large board with more independent directors can prevent earnings management. However, existing evidence highlights that non-executive directors may not act as good monitors if they have other directorship that compete for their time or if they have limited time to devote to company (Luan and Tang, 2007; Peasnell et al., 2005; Tosi et al., 2003). Besides, companies with controlling shareholder typically have less independent decision-making, since the controlling shareholder can access to information and control decision activities of board of directors. Management is more independent in control over decision making if shareholding is scattered. Thus, family involvement on board may lead to higher earnings management (Varma et al., 2009).

Another important board characteristic is CEO duality. If CEO holds a position of chairperson, monitoring ability of the board is less. Abdul et al. (2005) claim that the companies with CEO duality perform worse than their competitors. Nevertheless, some existing research papers do not find significant relationship between CEO duality and

earnings management, such as Bugshan (2005), Cornet et al. (2006), Rahman and Ali (2007) and Meca and Ballesta (2009).

Prior research also shows an effect of auditor and financial expert on controlling earnings management by constraining opportunistic earnings management behaviour. For example, Balsam et al. (2003), Siregar and Utama (2008) and Teoh and Wong (1993) point that the Big 4 auditors have greater independence from the clients. Discretionary accruals in companies audited by Big 4 firms have less discretionary accruals than others. Financial expertise is the other important qualification that is associated with lower levels of earnings management.

Many studies investigate earnings management in different aspects in the context of Thai firms. For example, Silapaporn (2005) indicates that earnings management is widely used in both private and public firms from 2001 to 2005. The low growth firms with free cash flow tend to use discretionary accruals that may deteriorates shareholder's wealth. Chomchan (2007) finds that board of directors, audit committee and chairman characteristics have effect on earnings management measured by total accruals in Thai listed firms between 2003 and 2005. Thoopsamut and Jaikengkit (2009) suggest average tenure of audit committee can affect the quality of financial reports in Thai listed firms in 2005-2006. Tangjitprom (2013) supports the role of corporate governance to reduce negative earnings management, leading to increase firm value.

H2: The appointment of Big4 external auditor is negatively related to earnings management

H3: The proportion of non-executive directors is negatively related to earnings management

H4: The proportion of financial expert is negatively related to earnings management

H5: The split of chairman and CEO is negatively related to earnings management

H6: The involvement of family shareholders on board is negatively related to earnings management

### 3. Data:

Our sample includes all firms listed in the Stock Exchange of Thailand and engaged in insider trading from 2002 to 2010. The starting year is 2002 as it was the year the Principles of Corporate Governance was initiated and most of corporate governance variables are available. For the analysis of the whole paper, the sample is further divided into non-financial firms and financial firms due to different regulatory regimes between non-financial and financial firms. Corporate governance data are manually collected from Form 56-1, i.e. annual registration statement. The raw data relating to corporate executive trading data in SEC Form 59-2 was provided by the Thai Securities and Exchange Commission (SEC) for year 2002-2004 and manually collected from SEC website for year 2005-2010. A number of filtering rules are applied to ensure that the sample of insider trades is not confounded by exogenous corporate events and poor data characteristics. First, transaction includes equity transactions in publicly traded only. Second, we omit all transactions that are related to warrant and option exercise. Finally, they must have accounting and financial data. The source of accounting and financial data is Datastream.

Table 1 reports the distribution of financial firms and non-financial firm. Our sample covers 324 firms: 65 financial firms and 269 non-financial firms. The proportion of financial firms with insider trading is about 20% on average. Over sample period, the number of firms with insider trading is the highest in 2007- a year before global financial crisis. There are 1,324 firm-year observations in total.

### 4. Research methodology

To evaluate the relationship between earnings management and insider trading, abnormal insider buying and selling are classified according to the median of scaled insider buying and selling in each year for all firms. Following Jaggi and Tsui, normal insider trading can be a result of many factors other than earnings management. Net Shares Traded (NST) is computed for each firm and then abnormal insider buying and selling is identified based on the median of NST buy and sell.

$$NST_i = \sum \left( \frac{SharesPurchased_i}{SharesOutstanding_i} \right) - \sum \left( \frac{SharesSold_i}{SharesOutstanding_i} \right) \quad (10)$$

Where the shares purchased and sold are number of shares purchased and sold by all insiders over all of the days in year *i*. SharesOutstanding is the number of shares outstanding in year *i*. Two dummy variables of abnormal buying and abnormal selling are generated for each firm-year by its yearly insider transaction. Abnormal buying is the firm that has NST greater than zero and the median of all buying firms in year *i*. Likewise, abnormal selling is the firm that has NST less than zero and the median of all selling firms in year *i*.

Guay et al. (1996) and Kothari et al. (2005) point that non-current discretionary accruals (i.e. normal accruals) is difficult to manage in the short run. Executives tend to manage current discretionary accruals which are more affected by firm growth. The current discretionary accruals are computed as a proxy for earnings management. The total accruals (ACCR) for each firm in each period are defined as the difference between net income before extraordinary items and net cash flows from operating activities. Four different models are estimated from the current observations to further estimate non-discretionary accruals (NDACCR) as of following equations. All variables are standardized by the total assets in the beginning year. The model with highest adjusted r-square will be selected for the analysis.

1.) Jones (1991)

$$ACCR_{it} = \beta_0 + \beta_1 \Delta REV_{it} + \beta_2 PPE_{it} + \varepsilon_{it} \quad (1)$$

$$NDACCR_{it} = b_0 + b_1 \Delta REV_{it} + b_2 PPE_{it} \quad (2)$$

Where  $ACCR_{it}$  is total accruals of firm *i* year *t*.  $NDACCR_{it}$  is non-discretionary accruals of firm *i* year *t*.  $\Delta REV_{it}$  is change in revenue of firm *i* from year *t*-1 to year *t*.  $PPE_{it}$  is gross property, plant and equipment of firm *i* year *t*.

2.) Dechow et al. (1995)

$$ACCR_{it} = \beta_0 + \beta_1 (\Delta REV_{it} - \Delta REC_{it}) + \beta_2 PPE_{it} + \varepsilon_{it} \quad (3)$$

$$NDACCR_{it} = b_0 + b_1(\Delta REV_{it} - \Delta REC_{it}) + b_2 PPE_{it} \quad (4)$$

Where  $ACCR_{it}$  is total accruals of firm  $i$  year  $t$ .  $NDACCR_{it}$  is non-discretionary accruals of firm  $i$  year  $t$ .  $\Delta REV_{it}$  is change in revenue of firm  $i$  from year  $t-1$  to year  $t$ .  $\Delta REC_{it}$  is change in net account receivables of firm  $i$  year  $t$ .  $PPE_{it}$  is gross property, plant and equipment of firm  $i$  year  $t$ .

3.) Kasznik (1999)

$$ACCR_{it} = \beta_0 + \beta_1(\Delta REV_{it} - \Delta REC_{it}) + \beta_2 PPE_{it} + \beta_3 \Delta CFO_{it} + \varepsilon_{it} \quad (5)$$

$$NDACCR_{it} = b_0 + b_1(\Delta REV_{it} - \Delta REC_{it}) + b_2 PPE_{it} + b_3 \Delta CFO_{it} \quad (6)$$

Where  $ACCR_{it}$  is total accruals of firm  $i$  year  $t$ .  $NDACCR_{it}$  is non-discretionary accruals of firm  $i$  year  $t$ .  $\Delta REV_{it}$  is change in revenue of firm  $i$  from year  $t-1$  to year  $t$ .  $\Delta REC_{it}$  is change in net account receivables of firm  $i$  year  $t$ .  $PPE_{it}$  is gross property, plant and equipment of firm  $i$  year  $t$ .  $\Delta CFO_{it}$  is change in cash flow from operation of firm  $i$  from year  $t-1$  to year  $t$ .

4.) Xie (2001)

$$ACCR_{it} = \beta_0 + \beta_1 [1/TA_{it}] + \beta_2 \Delta REV_{it} + \beta_3 PPE_{it} + \varepsilon_{it} \quad (7)$$

$$NDACCR_{it} = b_0 + b_1 [1/TA_{it}] + b_2 \Delta REV_{it} + b_3 PPE_{it} \quad (8)$$

Where  $TA_{it}$  is total asset of firm  $i$  year  $t$ .  $ACCR_{it}$  is total accruals of firm  $i$  year  $t$ .  $NDACCR_{it}$  is non-discretionary accruals of firm  $i$  year  $t$ .  $\Delta REV_{it}$  is change in revenue of firm  $i$  from year  $t-1$  to year  $t$ .  $PPE_{it}$  is gross property, plant and equipment of firm  $i$  year  $t$ .

Discretionary current accrual (DACCR) is estimated as of following.

$$DACCR_{it} = ACCR_{it} - NDACCR_{it} \quad (9)$$

Where  $DACCR_{it}$  is discretionary accruals of firm  $i$  year  $t$ .  $ACCR_{it}$  is total accruals of firm  $i$  year  $t$ .  $NDACCR_{it}$  is non-discretionary accruals of firm  $i$  year  $t$ .

We, then, regress discretionary accruals on abnormal insider buying/selling and corporate governance variables.

$$\begin{aligned}
DACCR = & \beta_0 + \beta_1 \ln mv + \beta_2 td\_ta + \beta_3 rroa + \beta_4 abbuy + \beta_5 absell \\
& + \beta_6 abbroa + \beta_7 absroa + \beta_8 daudit\_big4 + \beta_9 ptned + \beta_{10} nedbig \\
& + \beta_{11} ptfn\ exp + \beta_{12} split + \beta_{13} dfamfirm
\end{aligned} \tag{10}$$

Where DACCR is discretionary accruals of firm  $i$  year  $t$  in level form and absolute form,  $\ln mv$  is natural logarithm of market value of equity in million baht,  $td\_ta$  is total debt divided by total assets,  $rroa$  is reported return on assets,  $abbuy$  is dummy variable equal to 1 if NST is greater than zero and the median of all buying firms and 0 otherwise,  $absell$  is dummy variable equal to 1 if NST is lower than zero and the median of all selling firms and 0 otherwise,  $daudit\_big4$  is dummy variable equal to 1 if the audit firm is one of the big 4 audit firms, and 0 otherwise,  $ptned$  is the proportion of independent directors on board,  $nedbig$  is the interaction terms of  $ptned$  and  $daudit\_big4$ ,  $ptfinexpert$  is the proportion of directors with accounting or financial background on board,  $split$  is dummy variable equal to 1 if the positions of chairman and CEO are held by different person and 0 otherwise, and  $dfamfirm$  is dummy variable equal to 1 if the largest shareholder has greater than 25% ownership and is one of the directors.

Finally, we use Fama-French three factor model to measure insider profit of portfolios by abnormal discretionary and abnormal insider trading.

$$R_{p,t} - R_{f,t} = \alpha_p + \beta_p (R_{m,t} - R_{f,t}) + \delta_p SMB_t + \nu_p HML_t + \varepsilon_t \tag{11}$$

Where  $R_p$  is portfolio return,  $R_f$  is risk free rate.  $R_m$  is market portfolio return,  $SMB$  is Fama and French size factor returns, and  $HML$  is Fama and French market-to-book factor returns.

To estimate equation (10), we classify the firms in our sample into 10 groups by discretionary accruals. The bottom three deciles are defined as low discretionary accruals group and the top three deciles are defined as high discretionary accruals group. Four portfolios are, then, formed by the criteria of abnormal trading and discretionary accruals in non-financial and financial firms separately: abnormal insider buying in high discretionary accruals group, abnormal insider buying in low discretionary accruals group, abnormal insider selling in high discretionary accruals group and abnormal insider selling in low

discretionary accruals group. We run time-series regression for these portfolios to estimate the intercept and factor loading. The justification of asymmetric information is the abnormal returns of hedge portfolio, i.e. buy high earnings quality and sell low earnings quality.

## 5.) Analysis

### *Descriptive statistics on insider trading*

Mean and median of insider transaction characteristics are reported in Table 2. In overview, number of shares traded in case of buy is higher than that in case of sell. However, this pattern is different between financial firms and non-financial firms. The number of shares bought is about four times that of shares sold for financial firms, whereas that of shares bought is about half of that of shares sold for non-financial firms.

In general, transaction price in case of buy is lower than that in case of sell for both financial and non-financial firms. With regard to transaction value, the amount bought is typically higher than the amount sold. Firms that engage in insider buy are smaller than those in insider sell.

Table 3 presents net shares traded and number of firms. The negative sign for NST indicates that the relative number of shares sold is higher than that of shares bought. The majority of insider trades are negative; indicating that relative number of shares sold is higher than that of shares bought. This pattern is similar to the US (Seyhum, 1998; Beneish and Vargus, 2002) and Hong Kong (Jaggi and Tsui, 2007). There are only three years that have positive net shares traded: 2002, 2006 and 2010 for financial firms and 2004-2005 and 2010 for non-financial firms. Interestingly, insider trades are all sells in financial crisis year (2008) and a year prior to the crisis (2007) for both financial and non-financial firms.

### *Descriptive statistics on firm characteristics and corporate governance practice*

Summary statistics of firm characteristics and corporate governance variables are reported in Table 4. With regard to firm performance, we consider both reported ROA and

unmanaged ROA. Reported ROA of non-financial firms is higher than that of financial firms. Both reported ROA and unmanaged ROA are higher when insiders are net buyers than when insiders are net sellers. Firm age is approximately 12 years in our sample. Financial firms are typically bigger than non-financial firms. In general, firm leverage is about 27% and market to book value is about 1.3.

With regard to board characteristics, there are about 11 directors on board. The proportion of non-executive directors in financial firms is about 40% and that in non-financial firms is about 38%. Likewise, the proportion of financial expert on board in financial firms (34%) is slightly higher than that in non-financial firms (28%). The split between chairman and CEO is about 74%. Director ownership is quite high (30%) in financial firms and much higher in case of positive NST (40%) than that in negative NST (16%), whereas directors own approximately 20% in non-financial firms. Both financial and non-financial firms have family shareholdings at least 80% and the involvement of family members on board is common, especially in non-financial firms. Also, there appear multiple shareholders in both types of firms. Majority shareholdings are still pronounced in both financial and non-financial firms at approximately 60%. With regard to auditors, audit committee contains 3 people on average. Financial firms hire more big4 auditors (71%) than non-financial firms do (57%).

#### *Association between insider trading and earnings management*

Both absolute terms of and signed discretionary accruals are used as proxy of earnings management. The absolute terms of discretionary accruals indicate the size of managed earnings. The signed discretionary accruals can indicate the upward adjustment of reported earnings for positive discretionary accruals and the downward adjustment of reported earnings for negative discretionary accruals. We firstly conduct univariate test separately on financial and non-financial firms as well as abnormal insider buying and selling for each proxy of discretionary accruals (Table 5). Then, we run regression test for which discretionary accruals are dependent variables (Table 6).

The results of univariate test show that financial firms with abnormal insider buying and abnormal insider selling do not have significantly difference of absolute discretionary accruals. By contrast, non-financial firms with abnormal insider buying have significantly lower absolute discretionary accruals than those with normal insider buying, no matter the proxy is used. Non-financial firms with abnormal insider selling have higher absolute discretionary accruals than those with normal insider selling. When taking into account the sign of discretionary accruals, firms with abnormal insider buying show significantly higher upward adjustment of discretionary accruals than firms with normal insider buying in case of the proxy is measured by Xie's model only. The rest do not show significant upward/downward adjustment between abnormal insider trading and discretionary accruals.

For absolute discretionary accruals, the proxy of earnings management is Dechow et al. (1995) in case of non-financial firms and Jones (1991) in case of financial firms according to their highest adjusted r-square. For non-financial firms, absolute discretionary accruals are significantly positive related to firm size, firm leverage and the proportion of non-executive directors. Large firms have more flexibility in managing reported earnings. Also, the firms are more likely to make more discretionary accruals when they have high debt. Split of chairman and CEO is the only corporate governance practice that restricts earnings management. Neither insider abnormal buy nor insider abnormal sell has an impact on the size of discretionary accruals in case of non-financial firms. For financial firms, the higher abnormal insider buying reduces the size of discretionary accruals. When abnormal insider buying is interact with high ROA, the size of discretionary accruals increases. This may suggest executives are more likely to manage earnings to increase reported ROA to signal to market so that share price would go up from their buying behavior. With regard to the big4 auditor's role, the size of discretionary accruals tends to be higher in the presence of big4. However, when big4 is appointed in the higher proportion of non-executives; the size of discretionary accruals decreases. With regard to corporate governance practice, split is an important mechanism to decrease the size of discretionary accruals in non-financial

firms, while the appointment of big 4 auditor and non-executives effectively drive the monitoring effect toward earnings management.

For the signed discretionary accruals, the adjustment of reported earnings is positively associated with firm leverage, reported ROA, abnormal insider selling and the proportion of financial expert on board in case of non-financial firms. Supporting H1, executives tend to make upward adjustment to reported earnings to maximize gain on insider selling. However, abnormal insider selling in conjunction with the increase of ROA tends to associate with the downward adjustment to reported earnings. Among corporate governance variables, the proportion of financial experts on board does not increase the effectiveness of restricting earnings management. Interestingly, non-executive directors and the involvement of family on board have downward discretionary accruals, probably to be more conservative or make earnings smooth. In case of financial firms, the signed discretionary accruals are positively associated with reported ROA, but negatively related to firm size and the proportion of financial experts on board. Insider trading does not have a significant role on upward/downward adjustment of reported earnings in case of financial firms.

*Insider exploitation of asymmetric information as characterized by earnings quality measures*

To identify possible insider trading gain and earnings management, we run regression for portfolios formed by the criteria of abnormal trading and discretionary accruals. The intercept and factor loadings from three Fama-French factor model is reported in Table 7. The interest is with Jensen's alphas as a measure of excess returns after controlling for the Fama and French risk factors.

All intercepts in case of abnormal insider buying the high discretionary accruals are higher than in case of abnormal insider buying the low discretionary accruals. We can expect positive excess returns by long the abnormal insider buying the high discretionary accruals portfolio and short the abnormal insider buying the low discretionary accruals portfolio. However, it is not all of the cases that we can expect positive excess returns by long the abnormal insider

selling the low discretionary accruals portfolio and short the abnormal insider selling the high discretionary accruals. However, this is based on the assumption that insider trading gains are positively correlated with his/her firm's exposure to the systematic component of asymmetric information risk.

#### 6.) Conclusion

This study examine whether Thai listed firms report managed earnings to maximize benefits on directors' trading, to rectify the stock price via their trading or to signal to market. Corporate governance practice in Thailand is implemented in the absence of strict compliance. Our sample ranges from 2002 to 2010. The analysis is decomposed to financial firms and non-financial firms for the whole study.

Empirical evidence shows a positive association between insider selling and size of discretionary accruals in case of non-financial firms. It is more likely that positive discretionary accruals are used to indicate higher earnings management when insiders sell their shareholdings to maximize their private gain. Split of chairman and CEO can enhance monitoring effectiveness of corporate board by restricting the size of earnings management. For financial firms, the contemporaneous abnormal insider buying and the conjunction between non-executive directors and big 4 auditor are effective practice to reduce the size of discretionary accruals.

Taking into account the sign of discretionary accruals, only abnormal insider selling shows a monitoring effect on upward adjustment to reported earnings in case of non-financial firms. Abnormal insider trading is not associated with the adjustment of reported earnings in case of financial firms.

Further, we form portfolios by abnormal insider trading and earnings management. Possible excess returns are expected for establishing hedge portfolios that use earnings management as the proxy for information asymmetries exploited by insider buying. It is likely that insiders can exploit information advantage on earnings.

Table 1 Sample distribution

The table reports the number of sample firms over the sample period ranging from 2002 to 2010.

year	No. of firms (13,24 obs)	No. of financial firms (291 obs)		No. of non-financial firms (1,033 obs)	
2002	121	22	18%	99	82%
2003	160	37	23%	123	77%
2004	152	39	26%	113	74%
2005	154	37	24%	117	76%
2006	164	38	23%	126	77%
2007	131	33	25%	98	75%
2008	138	27	20%	111	80%
2009	135	26	19%	109	81%
2010	169	32	19%	137	81%
Number of firms	334	65	19%	269	81%
Number of firm-year	1324	291		1033	

Table 2 Descriptive statistics of insider transactions

The table reports summary statistics of insider transactions in the sample period of 2002-2010. The statistics are mean in the first line and the median in the second line. Tnumber is transaction number of shares traded. Tprice is transaction price. Tvalue is transaction value in baht. MV is market value in thousand baht.

	Purchases			Sales		
	Full	Financial	Non-financial	Full	Financial	Non-financial
Tnumber	1,614,899	5,333,576	507,150	1,206,185	1,224,053	1,200,292
	24,000	50,000	20,000	13,000	18,500	10,750
Tprice	31.72	14.09	36.97	40.94	19.08	48.15
	12.10	7.80	14.60	13.39	13.00	13.50
Tvalue	4,772,812.51	6,775,607.52	4,176,685.33	5,027,772.35	3,523,163.74	5,523,704.79
	304,500.00	376,372.50	282,987.00	265,355.00	288,000.00	260,000.00
MV	23,546,150.27	16,386,586.29	25,698,188.06	52,770,519.76	21,989,970.22	62,921,597.87
	1,946,500.00	3,589,296.25	1,480,488.32	5,428,678.80	5,791,089.04	5,217,746.10

Table 3 Summary statistics of net shares traded by insider trading

The table reports summary statistics of net shares traded by insider trading in the sample period of 2002-2010. The statistics are mean in the first line and the median in the second line.  $NST = \sum(SharesPurchased/SharesOutstanding) - \sum(SharesSold/SharesOutstanding)$  summed over the year. M

	Financial			Non-financial		
	nst	no.of firms	no.of firms	nst	no.of firms	no.of firms
		nst > 0	nst <= 0		nst > 0	nst <= 0
2002	4.58E-03	6	16	-3.73E-04	58	41
	1.40E-05			2.13E-05		
2003	-4.02E-03	4	33	-1.09E-02	49	74
	-2.50E-04			-3.91E-04		
2004	-7.08E-03	11	28	1.12E-03	83	30
	1.40E-04			3.90E-05		
2005	-2.37E-03	7	30	7.12E-05	61	56
	-5.53E-04			-7.79E-06		
2006	1.39E-02	11	27	-6.88E-03	61	65
	3.50E-05			-4.37E-05		
2007	-2.76E-02	-	33	-2.22E-02	-	98
	-1.24E-06			-1.13E-06		
2008	-1.39E-03	-	27	-1.15E-02	-	111
	-2.49E-07			-1.59E-06		
2009	-2.93E-03	1	25	-1.35E-02	5	104
	-2.29E-06			-5.98E-07		
2010	1.70E-03	5	27	6.18E-03	66	71
	-3.90E-06			-5.90E-05		

Table 4 Firm characteristics, firm performance, corporate governance and net shares traded by insider trading

This table reports summary statistics of firm characteristics, firm performance and corporate governance. The sample covers both non-financial and financial Thai listed firms between 2002 and 2010 in the full sample. Firm characteristics variables include firm age (the number of years from incorporation year to the financial report year), market value (market value of equity in million baht), debt to asset (total debt divided by total assets), and market to book value (market value of equity divided by book value of equity). Firm performance variables include reported ROA and unmanaged ROA (reported ROA – discretionary accruals), in which the discretionary accruals are measured by four models: Jones (1991), Dechow et al. (1995), Kasznik (1999) and Xie 2001). Corporate governance variables include board size (the number of directors on board), fraction of independent directors (the proportion of independent directors on board), fraction of directors with financial expertise (the proportion of directors with accounting or financial background on board), split of chairman and CEO (dummy variable equal to 1 if the positions of chairman and CEO are held by different person, and 0 otherwise.), director ownership (direct and indirect shareholdings of directors and their spouses), largest family ownership (direct and indirect shareholdings of the largest shareholder), dummy if largest shareholder on board (dummy variable equal to 1 if the largest shareholder is a director on board, and 0 otherwise.), dummy if multiple large shareholders (dummy variable equal to 1 if the firm has many shareholders with greater than 25% ownership, and 0 otherwise.), dummy if family firms (dummy variable equal to 1 if the largest shareholder has greater than 25% ownership and is one of the directors), audit committee size (the number of audit committee) and dummy if big 4 auditor (dummy variable equal to 1 if the audit firm is one of the big 4 audit firms, and 0 otherwise.)

	Financial			Non-financial		
	all	firms with nst > 0	firms with nst <= 0	all	firms with nst > 0	firms with nst <= 0
<b>A. Firm characteristics</b>						
fage	11.4582	12.3608	10.5939	12.5009	12.8884	12.3412
mv	17006.7983	14030.8967	19857.2101	12728.9486	13670.9919	12306.3954
td_ta	0.2819	0.3019	0.2626	0.2647	0.2520	0.2724
mtbv	1.2200	1.1383	1.2983	1.2906	1.4643	1.2005
<b>B. Firm performance</b>						
rroa	0.0694	0.0786	0.0600	0.0985	0.1110	0.0925
uroa_jones	0.0475	0.0574	0.0374	0.1210	0.1304	0.1165
uroa_dss	0.0494	0.0597	0.0394	0.1217	0.1305	0.1175
uroa_kasz	0.0518	0.0635	0.0404	0.1217	0.1300	0.1177
uroa_xie	0.0475	0.0573	0.0375	0.1212	0.1305	0.1167
<b>C. Corporate governance</b>						
bsize	9.7760	9.6579	9.9487	10.7489	11.1007	10.5933
ptned	0.3927	0.3960	0.3880	0.3732	0.3677	0.3755
ptfnexp	0.3376	0.2774	0.4253	0.2729	0.2657	0.2767
split	0.7283	0.7593	0.6842	0.7526	0.7638	0.7486
pt_diown	30.2466	39.5034	16.1764	19.1679	21.0027	18.2668
pt_famown1	28.1826	29.9816	26.0837	35.4877	37.0292	34.8093
ddr_fam1	0.7738	0.8319	0.7059	0.8831	0.8733	0.8874
dum_mls	0.6109	0.6723	0.5392	0.6122	0.6773	0.5808
dfamfirm	0.4208	0.3950	0.4510	0.6117	0.6013	0.6170
no_aud	2.2383	2.1316	2.3924	2.3743	2.3898	2.3628
daudit_big4	0.7072	0.6636	0.7703	0.5616	0.5838	0.5508

Table 5 Abnormal insider trading and abnormal discretionary accruals

The table reports summary statistics of earnings management measures by abnormal insider trading in the sample period of 2002-2010. The statistics are mean in the first line and the median in the second line. Discretionary accruals are *abaccru\_jones* by Jones (1991), *abaccru\_dss* by Dechow et al. (1995), *abaccru\_kasz* by Kasznik (1999) and *abaccru\_xie* by Xie (2001). *Abbuy* is dummy variable equal to 1 if NST is greater than the median of all buying firm, and 0 otherwise. *Absell* is dummy variable equal to 1 if NST is lower than the median of all selling firm, and 0 otherwise

## C. Absolute form of discretionary accruals

	Financial						Non-financial					
	abbuy=0	abbuy=1	t diff	absell=0	absell=1	t diff	abbuy=0	abbuy=1	t diff	absell=0	absell=1	t diff
<i>abdacc_jones</i>	0.0327	0.0361	-0.8464	0.0347	0.0290	1.5175	0.0414	0.0376	2.7039	0.0405	0.0413	-0.7143
	0.0268	0.0282		0.0282	0.0243		0.0386	0.0338		0.0373	0.0399	
<i>abdacc_dss</i>	0.0344	0.0401	-1.2214	0.0360	0.0332	0.6619	0.0376	0.0343	2.4447	0.0369	0.0373	-0.3458
	0.0291	0.0335		0.0298	0.0292		0.0343	0.0301		0.0327	0.0350	
<i>abdacc_kasz</i>	0.0409	0.0456	-0.8469	0.0418	0.0416	0.0323	0.0435	0.0409	1.7051	0.0422	0.0449	-2.2698
	0.0346	0.0340		0.0346	0.0333		0.0395	0.0349		0.0371	0.0423	
<i>abdacc_xie</i>	0.0324	0.0367	-1.0158	0.0347	0.0283	1.5858	0.0416	0.0375	2.8933	0.0408	0.0411	-0.2394
	0.0276	0.0244		0.0279	0.0253		0.0389	0.0326		0.0374	0.0397	

## D. Level form of discretionary accruals

	Financial						Non-financial					
	abbuy=0	abbuy=1	t diff	absell=0	absell=1	t diff	abbuy=0	abbuy=1	t diff	absell=0	absell=1	t diff
<i>abdacc_jones</i>	0.0201	0.0301	-1.9000	0.0209	0.0263	-1.0800	-0.0226	-0.0218	-0.3600	-0.0225	-0.0225	-0.0200
	0.0189	0.0233		0.0173	0.0229		-0.0279	-0.0249		-0.0267	-0.0286	
<i>abdacc_dss</i>	0.0254	0.0350	-1.6200	0.0258	0.0314	-1.0400	-0.0225	-0.0206	-0.9600	-0.0228	-0.0211	-1.0600
	0.0270	0.0334		0.0263	0.0292		-0.0261	-0.0249		-0.0260	-0.0252	
<i>abdacc_kasz</i>	0.0231	0.0320	-1.1400	0.0230	0.0302	-1.0200	-0.0228	-0.0195	-1.3400	-0.0223	-0.0220	-0.1600
	0.0221	0.0288		0.0224	0.0267		-0.0281	-0.0251		-0.0269	-0.0295	
<i>abdacc_xie</i>	0.0197	0.0315	-2.1700	0.0209	0.0258	-0.9300	-0.0227	-0.0221	-0.2400	-0.0228	-0.0222	-0.3500
	0.0184	0.0212		0.0182	0.0241		-0.0280	-0.0249		-0.0273	-0.0274	

Table 6 Regression results of earnings management, insider trading and corporate governance

This table reports the regression results of earnings management, insider trading and corporate governance. The sample covers both non-financial and financial Thai listed firms between 2002 and 2010. Discretionary accruals are abaccru\_jones by Jones (1991), abaccru\_dss by Dechow et al. (1995), abaccru\_kasz by Kasznik (1999) and abaccru\_xie by Xie (2001). Explanatory variables are lnmv (natural logarithm of market value of equity in million baht), td\_ta (total debt divided by total assets), abt (dummy variable of abnormal insider trading equal to 1 if NST is greater than the median of all buying firm or lower than the median of all selling firms, and 0 otherwise), rroa (EBIT divided by total assets), daudit\_big4 (dummy variable equal to 1 if the audit firm is one of the big 4 audit firms, and 0 otherwise.), ptned (the proportion of independent directors on board), nedbig (the interaction terms of ptned and daudit\_big4), ptfinept (the proportion of directors with accounting or financial background on board), split (dummy variable equal to 1 if the positions of chairman and CEO are held by different person, and 0 otherwise.) and dfamfirm (dummy variable equal to 1 if the largest shareholder has greater than 25% ownership and is one of the directors).

## C. Absolute form of discretionary accruals

		Intercept	lnmv	td_ta	rroa	abbuy	absell	abbroa	absroa	daudit_big4	ptned	nedbig	ptfexp	split	dfamfirm	Adj r-square
abaccru_dss	Financial	0.0391 (1.91)	-0.0016 (-0.76)	-0.0066 (-0.46)	0.0928 (2.16)	-0.0057 (-0.49)	0.0016 (0.19)	0.1467 (1.39)	-0.0898 (-0.94)	0.0195 (1.24)	0.0130 (0.50)	-0.0421 (-1.15)	-0.0078 (-0.87)	-0.0091 (-1.52)	0.0041 (0.74)	0.0625
	Non-financial	0.0134 (3.50)	0.0019 (4.28)	0.0115 (4.21)	0.0016 (0.19)	-0.0004 (0.17)	0.0014 (0.84)	-0.0253 (-1.57)	-0.0108 (-0.97)	-0.0003 (-0.09)	0.0201 (4.26)	0.0036 (0.51)	-0.0033 (-1.43)	-0.0031 (-2.27)	0.0018 (1.42)	0.0401
abaccru_jones	Financial	0.0360 (2.12)	-0.0014 (-0.88)	-0.0212 (-1.84)	0.0982 (2.63)	-0.0333 (-3.23)	-0.0052 (-0.67)	0.4331 (4.59)	-0.0261 (-0.30)	0.0312 (2.27)	0.0165 (0.70)	-0.0699 (-2.21)	0.0053 (0.68)	-0.0080 (-1.53)	0.0060 (1.27)	0.2543
	Non-financial	0.0296 (7.43)	0.0008 (1.65)	0.0097 (3.41)	-0.0171 (-1.93)	-0.0038 (-1.53)	-0.0010 (-0.58)	0.0098 (0.58)	0.0099 (0.85)	-0.0011 (-0.38)	0.0124 (2.52)	0.0079 (1.11)	-0.0028 (-1.14)	-0.0023 (-1.62)	0.0025 (1.98)	0.0204
abaccru_kasz	Financial	0.0378 (1.49)	-0.0034 (-1.33)	-0.0144 (-0.81)	0.0223 (0.42)	-0.0251 (-1.77)	-0.0005 (-0.05)	0.3978 (3.04)	0.0620 (0.52)	0.0093 (0.47)	0.0514 (1.58)	-0.0273 (-0.60)	0.0096 (0.86)	-0.0020 (-0.27)	0.0170 (2.49)	0.0800
	Non-financial	0.0256 (5.86)	0.0009 (1.74)	0.0135 (4.35)	0.0129 (1.32)	-0.0010 (-0.35)	0.0031 (1.62)	-0.0025 (-0.13)	-0.0006 (-0.05)	-0.0058 (-1.79)	0.0106 (1.97)	0.0180 (2.29)	0.0001 (0.05)	-0.0006 (-0.37)	0.0019 (1.31)	0.0268
abaccru_xie	Financial	0.0338 (2.00)	-0.0012 (-0.74)	-0.0201 (-1.77)	0.0867 (2.35)	-0.0328 (-3.21)	-0.0036 (-0.47)	0.4245 (4.54)	-0.0251 (-0.30)	0.0287 (2.11)	0.0149 (0.64)	-0.0657 (-2.10)	0.0047 (0.60)	-0.0063 (-1.21)	0.0065 (1.40)	0.2316
	Non-financial	0.0271 (6.76)	0.0011 (2.38)	0.0099 (3.46)	-0.0173 (-1.94)	-0.0034 (-1.39)	-0.0017 (-0.99)	0.0061 (0.36)	0.0156 (1.32)	0.0004 (0.14)	0.0139 (2.82)	0.0040 (0.55)	-0.0028 (-1.16)	-0.0030 (-2.13)	0.0027 (2.08)	0.0225

## D. Level form of discretionary accruals

		Intercept	lnmv	td_ta	rroa	abbyu	absell	abbrca	absroa	daudit_big4	ptned	nedbig	ptfnexp	split	dfamfirm	Adj r-square
abaccru_dss	Financial	0.0294	-0.0039	-0.0029	0.1586	-0.0101	0.0132	0.3739	-0.0366	0.0138	0.0194	-0.0513	0.0052	-0.0027	-0.0049	0.1733
		(1.21)	(-1.66)	(-0.18)	(2.98)	(-0.69)	(1.19)	(2.77)	(-0.30)	(0.70)	(0.58)	(-1.14)	(0.47)	(-0.37)	(-0.73)	
	Non-financial	-0.0188	-0.0010	0.0086	0.0952	0.0014	0.0048	0.0074	-0.0391	-0.0009	-0.0226	-0.0073	0.0088	0.0034	-0.0072	0.0509
		(-3.08)	(-1.36)	(1.98)	(7.01)	(0.36)	(1.79)	(0.29)	(-2.18)	(-0.21)	(-3.01)	(-0.68)	(2.36)	(1.59)	(-3.67)	
abaccru_jones	Financial	0.0595	-0.0064	-0.0001	0.1269	0.0077	0.0154	0.1242	-0.0873	0.0219	0.0305	-0.0703	-0.0200	-0.0039	-0.0038	0.1174
		(2.34)	(-2.49)	(-0.01)	(2.38)	(0.54)	(1.42)	(0.95)	(-0.74)	(1.12)	(0.94)	(-1.55)	(-1.79)	(-0.53)	(-0.56)	
	Non-financial	-0.0066	-0.0014	-0.0003	0.0446	0.0050	0.0032	-0.0164	-0.0114	-0.0014	-0.0256	-0.0041	0.0056	0.0028	-0.0062	0.0277
		(-1.18)	(-2.17)	(-0.06)	(3.56)	(1.44)	(1.31)	(-0.69)	(-0.69)	(-0.34)	(-3.70)	(-0.40)	(1.62)	(1.42)	(-3.44)	
abaccru_kasz	Financial	0.0663	-0.0092	-0.0037	0.1195	-0.0161	0.0124	0.3833	-0.0078	0.0352	0.0351	-0.1018	-0.0106	-0.0026	0.0089	0.0841
		(1.89)	(-2.57)	(-0.15)	(1.62)	(-0.82)	(0.83)	(2.11)	(-0.05)	(1.30)	(0.78)	(-1.62)	(-0.68)	(-0.25)	(0.94)	
	Non-financial	-0.0025	-0.0015	0.0053	0.0125	0.0057	-0.0000	-0.0106	0.0145	-0.0018	-0.0268	-0.0046	0.0018	0.0030	-0.0072	0.0167
		(-0.37)	(-1.84)	(1.08)	(0.81)	(1.34)	(0.00)	(-0.37)	(0.72)	(-0.35)	(-3.17)	(-0.37)	(0.43)	(1.24)	(-3.25)	
abaccru_xie	Financial	0.0333	-0.0043	-0.0071	0.1526	-0.0101	0.0152	0.3715	-0.0306	0.0112	0.0161	-0.0420	0.0055	-0.0012	-0.0044	0.1805
		(1.40)	(-1.91)	(-0.44)	(2.93)	(-0.70)	(1.39)	(2.82)	(-0.26)	(0.58)	(0.49)	(-0.95)	(0.50)	(-0.17)	(-0.66)	
	Non-financial	-0.0108	-0.0021	0.0064	0.0984	0.0012	0.0054	0.0058	-0.0395	-0.0033	-0.0243	-0.0005	0.0096	0.0040	-0.0069	0.0518
		(-1.77)	(-2.96)	(1.46)	(7.23)	(0.30)	(2.02)	(0.22)	(-2.20)	(-0.72)	(-3.23)	(-0.04)	(2.59)	(1.84)	(-3.48)	

Table 7 Insider exploitation of asymmetric information as characterized by earnings management measures

The table reports the regression results of Fama-French three factor model. The sample covers both non-financial and financial Thai listed firms between 2002 and 2010. Discretionary accruals are *abaccru\_jones* by Jones (1991), *abaccru\_dss* by Dechow et al. (1995), *abaccru\_kasz* by Kasznik (1999) and *abaccru\_xie* by Xie (2001). Abnormal buy is firm having NST greater than the median of all buying firm. Abnormal sell is firm having NST lower than the median of all selling firm. High (low) discretionary accruals are firms having discretionary accruals greater (less than) median

## E. Abnormal buy and low discretionary accruals

		Intercept	rm_rf	ret_smb	ret_mtb	adj r-square
abaccru_dss	Financial	0.1908 (2.37)	0.7269 (2.71)	3.8276 (3.35)	0.4648 (0.73)	0.1901
	Non-financial	0.0508 (1.70)	1.1316 (12.26)	1.6488 (3.79)	0.8921 (3.65)	0.2243
abaccru_jones	Financial	0.4083 (7.59)	1.1944 (6.40)	2.5388 (3.34)	1.0169 (2.36)	0.3209
	Non-financial	0.0948 (3.39)	1.0839 (11.57)	2.0900 (4.68)	1.4103 (5.27)	0.2399
abaccru_kasz	Financial	0.3774 (6.78)	1.5168 (7.97)	1.1518 (1.40)	0.6485 (1.34)	0.3401
	Non-financial	0.0741 (2.52)	1.3105 (13.54)	1.8944 (4.45)	0.8937 (3.78)	0.2578
abaccru_xie	Financial	0.4551 (7.87)	1.3446 (6.57)	1.8309 (2.22)	1.0489 (2.40)	0.3161
	Non-financial	0.0942 (3.32)	1.2583 (12.90)	1.8682 (4.05)	1.3092 (4.92)	0.2776

## F. Abnormal buy and high discretionary accruals

		Intercept	rm_rf	ret_smb	ret_mtb	adj r-square
abaccru_dss	Financial	0.3891 (6.79)	1.2068 (8.00)	4.9045 (2.58)	3.9764 (1.93)	0.4190
	Non-financial	0.1192 (5.36)	0.9724 (13.97)	2.8382 (9.07)	1.1639 (6.68)	0.2794
abaccru_jones	Financial	0.4600 (0.71)	0.8569 (4.70)	0.9463 (0.43)	5.3779 (2.34)	0.3087
	Non-financial	0.0951 (3.97)	1.0231 (14.70)	2.5686 (8.08)	0.9024 (5.33)	0.2629
abaccru_kasz	Financial	0.3970 (0.43)	0.2702 (1.11)	5.3625 (1.75)	12.2411 (3.69)	0.3399
	Non-financial	0.1164 (5.20)	0.8644 (13.16)	2.7399 (8.76)	1.1772 (6.74)	0.2642
abaccru_xie	Financial	0.4600 (0.71)	0.8569 (4.70)	0.9463 (0.43)	5.3779 (2.34)	0.3087
	Non-financial	0.0946 (4.02)	0.9327 (13.71)	2.6738 (8.62)	0.9603 (5.67)	0.2442

## G. Abnormal sell and low discretionary accruals

		Intercept	rm_rf	ret_smb	ret_mtb	adj r-square
abaccru_dss	Financial	0.0748 (2.56)	1.4059 (16.96)	1.8669 (3.53)	1.9329 (6.24)	0.4320
	Non-financial	0.0074 (0.51)	0.8739 (23.00)	1.5754 (5.33)	0.4829 (2.55)	0.2594
abaccru_jones	Financial	0.1641 (4.67)	1.4295 (13.79)	4.3076 (6.53)	3.4613 (7.88)	0.4490
	Non-financial	0.0002 (0.01)	0.8560 (23.01)	1.6313 (5.34)	0.3925 (1.95)	0.2505
abaccru_kasz	Financial	0.1339 (5.08)	1.4635 (20.45)	2.4139 (4.74)	2.3208 (7.22)	0.4770
	Non-financial	0.0310 (2.10)	0.8694 (22.29)	1.8612 (6.29)	0.7178 (3.97)	0.2325
abaccru_xie	Financial	0.1481 (4.03)	1.5025 (14.27)	3.8801 (5.71)	3.2948 (7.31)	0.4643
	Non-financial	0.0195 (1.33)	0.8374 (22.10)	1.5204 (4.90)	0.5796 (2.88)	0.2211

## H. Abnormal sell and high discretionary accruals

		Intercept	rm_rf	ret_smb	ret_mtb	adj r-square
abaccru_dss	Financial	0.0334 (1.54)	1.3182 (22.59)	0.3403 (0.60)	1.2422 (2.70)	0.5266
	Non-financial	0.0419 (2.92)	0.7752 (20.71)	2.0019 (6.47)	1.3930 (6.59)	0.2285
abaccru_jones	Financial	0.0368 (2.14)	1.3224 (26.60)	0.0510 (0.13)	0.1671 (0.60)	0.5190
	Non-financial	0.0366 (2.52)	0.7555 (19.89)	1.8157 (6.10)	1.4074 (7.14)	0.2299
abaccru_kasz	Financial	0.0279 (1.45)	1.2676 (22.59)	1.2004 (2.48)	2.0845 (5.48)	0.5763
	Non-financial	0.0026 (0.19)	0.7579 (21.24)	1.6409 (5.21)	1.2155 (5.15)	0.2481
abaccru_xie	Financial	0.0479 (2.82)	1.3008 (26.26)	0.1250 (0.31)	0.0510 (0.19)	0.5018
	Non-financial	0.0136 (0.97)	0.8026 (21.77)	2.0578 (7.14)	1.2918 (6.63)	0.2756

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8. Output (Acknowledge the Thailand Research Fund)

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9. International Journal Publication

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10. Application -

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11. Others e.g. national journal publication, proceeding, international conference, book chapter, patent

The papers are invited to present in Capital Market Research Forum at the Stock Exchange of Thailand on 22<sup>nd</sup> July 2014.