Moss, Supawadee Sukeecheep. "The Impact of Corporate Governance and Earnings Management Practices on Cost of Equity Capital: Evidence from Thai Listed Companies." *ACRN Oxford Journal of Finance and Risk Perspectives 5.1 (2016): 160-182.*

THE IMPACT OF CORPORATE GOVERNANCE AND EARNINGS MANAGEMENT PRACTICES ON COST OF EQUITY CAPITAL: EVIDENCE FROM THAI LISTED COMPANIES

SUPAWADEE SUKEECHEEP MOSS [1]
[1]Accounting School, Business Administration and Information Technology Faculty, Rajamangala University of Technology Suvarnabhumi, THAILAND

Abstract. *The significant impact of recent, and often high-profile, corporate accounting scandals, is often attributed to earnings management and factors surrounding cost of equity capital. Understanding the relationship between these factors is important for both the management of corporations and for the confidence of their investors. The main of objective of this paper is to examine the influence of earnings management and corporate governance on the cost of equity capital in listed companies in Thailand and determine their impact, which could be used to initiate strategies to restore investor confidence. Earnings management in this paper is measured from the absolute value of discretionary accruals that are calculated from five different models. Corporate governance variables in this paper include board interlocking, board independence, board size, CEO-Chair duality, audit committee financial expertise, audit opinion, managerial ownership and institutional shareholders. The CAPM and Industry Adjusted Earnings to Price ratio model are used as a proxy for the cost of equity capital in this paper. To test the influence of these factors, a fixed-effect panel data regression model is applied. The results reveal that companies with higher earnings management, higher proportion of managerial ownership, institutional ownership, CEO-Chair duality and which receive modified audit opinions are likely to have higher cost of equity capital. In contrast, the companies that have higher proportion of board independence, audit committee financial expertise and board interlocking are likely to have lower cost of equity capital.*

Keywords: *board-interlocking, board independence, modified Jones*

Introduction

The cost of capital is the amount that a company pays for the use of its capital. Understanding the association between earnings management, corporate governance and the cost of equity capital is important for the management of companies and its investors. In a contemporary operating corporation, capital suppliers are unable to fully control the spending system of their money and the decision making processes of the company (Ramly & Rashid, 2010). According to agency theory, conflicts of interest between shareholders and managers occur when managers exercise operating roles that do not align with the objective of maximising the shareholders' wealth. Of even more concern, dispersed shareholders are not able to physically

investigate any self-serving interests of managers (Reverte, 2009). Since shareholders cannot observe managers' efforts and cannot discern real economic performance of the company, moral hazard and adverse selection problems can occur which result in the agency risk problem (Fama & Jensen, 1983). Consequently, the rational investor may require higher returns from their investment in exchange for bearing these agency risks, resulting in higher cost of equity capital.

In contrast, good corporate governance is introduced as a set of mechanisms that aim to improve the effectiveness of the monitoring functions (Bedard *et al.*, 2004b; Cornett *et al.*, 2008; Hashim & Devi, 2008),limit opportunistic behaviour of managers (Klein, 2002a; Park & Shin, 2004; Davidson *et al.*, 2005a) and enhance the quality of information and disclosure (Jans *et al.*, 2007; Jo & Kim, 2007; Hermalin & Weisbach, 2010). These studies assume that corporate governance affects the firm's valuation by constraining the self-serving tendencies of insiders, maximising shareholders' wealth and, therefore, resulting in a lower cost of equity capital. According to Arthur Levitt, former Chairman of the Securities and Exchange Commission, firms with higher quality accounting standards are likely to have higher liquidity and lower cost of equity capital (Levitt, 1997). Similarly Forster (2003), a former member of the Financial Accounting Standards Board, stated that: "*More information always equates to less uncertainty, and it is clear that people pay more for certainty. Less uncertainty results in less risk and a consequent lower premium being demanded. In the context of financial information, the end result is that better disclosure results in a lower cost of capital*" (p.1). From these statements, it could be argued that regulators have agreed that a high quality of financial information could lead to the reduction of the cost of capital.

Therefore, this paper aims to investigate the influence of earnings management and corporate governance on the cost of equity capital and whether earnings management and corporate governance increases/decreases the cost of equity capital in Thai listed companies.

Literature Review

Cost of equity capital and E*arnings management*

Theoretical research on earnings management suggests that greater earnings management increases the cost of equity because the investors "price protect" themselves against potential losses from trading with the inappropriate accounting practices of managers. The effect of earnings management on the cost of equity capital is a matter of considerable interest and important to the financial reporting community. This is because the use of financial reporting by an investor to evaluate the stock price and the firm's performance creates an incentive for the manager to manipulate or manage the company's earnings with the view of influencing the short-term stock price (Strobl, 2013). As such, earnings management practices of management leads to less reliable financial reporting, which increases the information asymmetry between management and investors, resulting in higher cost of equity capital.

Kim and Sohn (2013) examine the influence of real earnings management on the cost of equity capital using data from US firms from 1987 to 2011 as a sample. They find that the extent of earnings management through the real activities manipulation is positively associated with the cost of equity capital. They also suggest that real earnings management activities decrease the information quality of earnings used by the investor, therefore, a higher risk premium is required to compensate these activities.

Botosan *et al.* (2004) argue that precise information mitigates information asymmetry, thereby reducing the cost of equity capital. Botosan *et al.* (2004) examine the relationship between public and private information precision and the cost of equity capital. Their key

finding is an inverse relationship between public information precision and the cost of equity capital. However, they also find a positive relationship between private information precision and the cost of equity capital (Botosan *et al.*, 2004; Williams, 2004). Li (2005) examine the preciseness of eye-catching public information that investors receive regarding the expected rate of aggregate dividend growth and the effects of the stock market return. His results show that high, precise information results in a decrease of risk premiums and stock return volatility. Furthermore, he suggests that the company should provide more precise information to reduce the cost of equity capital.

Contrary to information precision, information asymmetry is found to increase the cost of equity capital. Armstrong *et al.* (2011) investigate the relationship between information asymmetry and the cost of capital. In their study, they also investigate the conditions that influence this relationship. Their evidence suggests that when markets are imperfect, information asymmetry is positively associated with the cost of capital, and there is no association between information asymmetry and the cost of capital when markets are perfectly competitive. Even though Gray *et al.* (2009) posit that information risk is a systematic risk factor that is priced by the capital market, they find in their study of Australian firms an insignificant relationship between information asymmetry arising from managerial reporting discretion and the cost of equity. They postulate that, in this case, the requirement that the public domain receive high quality information in a non-selective disclosure and timely manner lessened most asymmetry from the information on expected cash flows during the study period. Therefore, in developing countries such as Thailand, where non-selective disclosure of high quality information in a timely manner to the public domain may not be as strictly enforced, a positive relationship between information asymmetry and the cost of equity may exist.

Kasznik (2004) argue that a company's accounting restatement creates investor's uncertainty about management credibility, competence, and overall concerns about the quality of earnings. Accordingly, Hribar and Jenkins (2004) examine the influences of accounting restatement on a company's cost of equity capital. Their results show that accounting restatement is negatively associated with expected future earnings and is positively associated with the cost of equity capital. They also find that accounting restatements initiated by the auditor leads to the largest increase in the cost of capital.

In order to investigate the cost of equity capital when earnings management has occurred, Bhattacharya *et al.* (2003) measure the cost of equity by using two proxies: dividend yield and the international capital asset pricing model. The earning opacity is estimated from three dimensions of reported accounting earnings: earnings aggressiveness, loss avoidance, and earnings smoothing. They analyse the financial statement of the companies from 34 countries including Thailand in the period 1984-1998 to explore whether earnings management affects the cost of equity and the trading behaviour of investors. Their results reveal that higher overall earnings opacity increases the cost of equity capital and also decreases trading in the stock market by investors.

Chen *et al.* (2011) investigate the effect of the audit quality on earnings management and the cost of equity of both state-owned enterprises (SOEs) and non-state-owned enterprises (NSOEs) in China. In their study, both the industry method (Gebhardt *et al.*, 2001) and the PEG ratio method (Easton, 2004) are used as proxies for the cost of equity capital, and the audit firm's size is used as a proxy for audit quality. Using 244 listed firms on the Shanghai and Shenzhen Stock Exchanges over the period 2001-2006, Chen *et al.* (2011) show that reduced earnings management, attributable to the quality of the auditor, is associated with reducing the cost of equity. They also find that the high audit quality employed in NOSEs has a greater decrement in the cost of equity capital than the high audit quality employed in SOEs.

Additionally, Kim and Sohn (2013) examine the influence of real earnings management on the cost of equity capital using data from US firms from 1987 to 2011. They find that the extent of earnings management through the real activities manipulation is positively associated with the cost of equity capital. They also suggest that real earnings management activities decrease the information quality of earnings used by the investor, therefore, the higher risk premium is required to compensate these activities.

Cost of equity capital and Corporate Governance

The supporting view on the effectiveness of corporate governance towards the cost of equity is provided in several theoretical studies (Cheng *et al.*, 2006; Becker-Blease & Irani, 2008; Huang *et al.*, 2009; Reverte, 2009; Upadhyay & Sriram, 2011; Dao *et al.*, 2012; Mazzotta & Veltri, 2012; Armstrong *et al.*, 2013). For example, Armstrong *et al.* (2011) indicate that when equity markets are imperfectly competitive, the information asymmetry increases the company's cost of capital. Cheng *et al.* (2006) examine the association between strong shareholder rights regimes as a proxy for good CG and the cost of equity capital in US firms. They find that firms with stronger shareholder rights regimes are significantly associated with a lower cost of equity capital. However, the study of Huang *et al.* (2009) further argues that, in firms with a high concentration of managerial ownership, strong shareholder rights are less important because these managerial ownerships' self-interests may act as a substitute for shareholders' rights. Their study finds that a high concentration of managerial ownership of the firm reduces the degree of the agency problem and lowers the cost of equity capital. Becker-Blease and Irani (2008) investigate whether CG affected adverse selection costs in seasoned equity offerings during 1996-2001. Their results show that board independence, audit committee size and managerial ownership are positively associated with a firm's abnormal stock returns. These results suggest that a perception of investors is that some particular governance systems are better able to align shareholder and manager incentives, improving the firm's access to the capital market.

Research Methodology

Estimation of Discretionary Accruals

The accruals component of earnings contains the accounting estimates based on forecasts which is easier to manage than cash flows (Larcker & Richardson, 2004). A number of previous papers have used discretionary accruals to examine whether earnings have been manipulated by managers. Since managers are more likely to use their discretion to manage earnings over short-term rather than long-term accruals (Dechow *et al.*, 1995; Teoh *et al.*, 1998), the Jones (1991) model is the most popular one used to capture short-term non-discretionary accruals. However, a fundamental problem with the Jones model is the use of change in revenues as entirely non-discretionary accruals.

Dechow *et al.* (1995) emphasize that, if earnings are managed through discretionary accruals revenues, then the Jones model will consider revenues as entirely non-discretionary. However, managers can exercise their discretion to manage earnings by shifting revenue from the future to the current period (through an increase in accounts receivables). So, the change in revenue ($\Delta REV_{i,t}$) would be endogenous to the model. To control this endogeneity bias, Dechow *et al.* (1995) modify the Jones model by assuming that all changes in credit sales in the event period result from earnings management. The reason behind the Modified Jones model is that earnings are not difficult to manage through credit sales compared to cash collections. Therefore, in the Dechow *et al.* (1995) study, they examine five models that are

used for estimating discretionary accruals; including the Healy (1984) model, the DeAngelo (1988) model, the Jones (1991) model, the Modified Jones model and the industry model. They find that among these five models, the Modified Jones model is the most powerful model for detecting earnings management (Dechow *et al.*, 1995; Ahmad-Zaluki *et al.*, 2011). Therefore, the models used to examine non-discretionary accruals in this study are based on the Modified Jones model.

Modified Jones Model (1995)

A vast amount of literature estimates discretionary accruals using the Jones (1991) model. The model attempts to control the effects of change in the firm's economic circumstances in estimating a firm's nondiscretionary accruals. However, Dechow *et al.* (1995) found weaknesses in the original Jones (1991) model. According to them, the original Jones model is unable to capture the impact of sales-based manipulation because accounts receivables should not be considered as non-discretionary accruals. Thus, they proposed a modification to the original Jones model which came to be known as the Modified Jones model. The non-discretionary accruals based on the Modified Jones model are computed from the equation as follows:

$$NDA_{i,t} = \alpha 1\left(\frac{1}{A_{i,t-1}}\right) + \alpha 2\left(\frac{\Delta REV_{i,t} - \Delta AR_{i,t}}{A_{i,t-1}}\right) + \alpha 3\left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) \quad \text{(Eq. 1)}$$

Where:

$NDA_{i,t}$	=	non-discretionary accruals for firm *i*, year *t*
$A_{i,t-1}$	=	lagged assets of firm *i*, year *t*
$\Delta REV_{i,t}$	=	change in revenues of firm *i*, year *t*
$\Delta AR_{i,t}$	=	change in accounts receivable of firm *i*, year *t*
$PPE_{i,t}$	=	property, plant and equipment of firm *i*, year *t*
α1, α2, α3	=	firm-specific parameters

Performance Matched Discretionary Accruals Model (2005)

This study also tests for earnings management by employing an extended version of the Modified Jones model used by Kothari *et al.* (2005), which is called Performance Matched Discretionary Accruals Model, as the alternative model. This model is calculated by placing ROA into the Modified Jones model. Similar to Kothari *et al.* (2005), this study applies both return on assets of the current year (ROA_t) and lagged return on assets (ROA_{t-1}) into the Modified Jones model. To avoid potential problems related with changing a tax rate in Thailand, ROA is estimated by using earnings before interest and tax expense divided by total assets. This estimation is similar to Bedard *et al.* (2004a), Jones *et al.* (2008) and Kothari *et al.* (2005).

Performance Matched Discretionary Accruals Model (current ROA)

$$NDA_{i,t} = \alpha 1\left(\frac{1}{A_{i,t-1}}\right) + \alpha 2\left(\frac{\Delta REV_{i,t} - \Delta AR_{i,t}}{A_{i,t-1}}\right) + \alpha 3\left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) + \alpha 4\left(ROA_{i,t}\right) \quad \text{(Eq. 2)}$$

Where:

$NDA_{i,t}$	=	non-discretionary accruals for firm *i*, year *t*
$A_{i,t-1}$	=	lagged assets of firm *i*, year *t*
$\Delta REV_{i,t}$	=	change in revenues of firm *i*, year *t*
$\Delta AR_{i,t}$	=	change in accounts receivable of firm *i*, year *t*
$PPE_{i,t}$	=	property, plant and equipment of firm *i*, year *t*
ROA	=	return on assets of firm *i*, year *t*
α1, α2, α3, α4	=	firm-specific parameters

Performance Matched Discretionary Accruals Model (Lagged ROA)

$$NDA_{i,t} = \alpha 1\left(\frac{1}{A_{i,t-1}}\right) + \alpha 2\left(\frac{\Delta REV_{i,t} - \Delta AR_{i,t}}{A_{i,t-1}}\right) + \alpha 3\left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) + \alpha 4\left(ROA_{i,t-1}\right) \quad \text{(Eq. 3)}$$

Where:

$NDA_{i,t}$	=	non-discretionary for firm *i*, year *t*
$A_{i,t-1}$	=	lagged assets of firm *i*, year *t*
$\Delta REV_{i,t}$	=	change in revenues of firm *i*, year *t*
$\Delta AR_{i,t}$	=	change in accounts receivable of firm *i*, year *t*
$PPE_{i,t}$	=	property, plant and equipment of firm *i*, year *t*
ROA_{t-1}	=	lagged return on assets of firm *i*, year *t*
α1, α2, α3, α4	=	firm-specific parameters

Cash flow Modified Jones Model (2000)

The Cash flow Modified Jones model was first proposed by Kasznik (1999). In his paper, he investigates the relationship between volunary disclosure and earnings management. Kasznik (1999) includes change in operating cash flows as an explanatory variable in the Modified Jones model which was originally developed by Dechow *et al.* (1995). Kasznik's reason for including the change in cash flow from operations is based on evidence from Dechow (1994) that CFO is negatively correlated with total accruals. Furthermore, Jeter and Shivakumar (1999) introduce variables to control for changes in cash flows over time. They suggest that this extension of the Jones model is shown to be well specified for all cash flow levels and to exhibit more power than the conventional Jones model in detecting earnings management. Therefore, this study also tests for earnings management by employing an extended version of the modifiled Jones model introduced by Kasznik (1999) and used in Shuto (2007); Huang *et al.* (2013); Kubota *et al.* (2010); Osma and Noguer (2007); Sun and Rath (2009); and Teshima and Shuto (2008) who include the change in CFO as an additional explanatory variable. The model is expressed as follows:

$$NDA_{i,t} = \alpha 1\left(\frac{1}{A_{i,t-1}}\right) + \alpha 2\left(\frac{\Delta REV_{i,t} - \Delta AR_{i,t}}{A_{i,t-1}}\right) + \alpha 3\left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) + +\alpha 4\left(\frac{\Delta CFO_{i,t}}{A_{i,t-1}}\right) \quad \text{(Eq. 4)}$$

Where:

$NDA_{i,t}$	=	non-discretionary accruals for firm *i*, year *t*
$A_{i,t-1}$	=	lagged assets of firm *i*, year *t*
$\Delta REV_{i,t}$	=	change in revenues of firm *i*, year *t*
$\Delta AR_{i,t}$	=	change in accounts receivable of firm *i*, year *t*
$PPE_{i,t}$	=	property, plant and equipment of firm *i*, year *t*
ΔCFO_{t-1}	=	change in cash flow from operation of firm *i*, year *t*
α1, α2, α3, α4	=	firm-specific parameters

Modified Jones Model with Cash Flows and Book to Market (2004)

The Modified Jones model with book to market and cash flows was first used to estimate the discretionary accruals (unexpected accruals or abnormal accruals) component by Larcker and Richardson (2004). For this approach, book to market ratio (BTM) and CFO are incorporated into the Modified Jones model to reduce measurement error related to discretionary accruals. Larcker and Richardson (2004) indicate that BTM controls expected growth in operation. They point out that phases of growth in the life cycle of a firm are likely to be associated with investment in inventory and other assets. In this situation, observation of an inventory increase may not necessarily indicate any opportunistic behaviour on the part of management. Therefore, if BTM is left uncontrolled, the Modified Jones model will classify such increases

as discretionary accruals because, under normal circumstances, growing firms have large accruals. In addition, CFO controls the current operating performance. Dechow *et al.* (1995) find that discretionary accruals are likely to be mis-specified for companies with extreme levels of performance.

Larcker and Richardson (2004) remark that their model is more advanced than the Modified Jones model in the following ways: its powers of explanation are superior, it provides identification of accruals that are unexpected and less constant than other earnings' components, discretionary accruals related to lower earnings and lower stock returns in future periods can be identified, and the estimation of discretionary accruals allows for the detection of earnings management pinpointed in enforcement actions taken by the SEC. Hence, the other measurement of discretionary accruals used in this study is based on equation (5) as shown below:

$$NDA_{i,t} = \alpha 1\left(\frac{1}{A_{i,t-1}}\right) + \alpha 2\left(\frac{\Delta REV_{i,t} - \Delta AR_{i,t}}{A_{i,t-1}}\right) + \alpha 3\left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) + +\alpha 4\left(\frac{CFO_{i,t}}{A_{i,t-1}}\right) + \alpha 5\left(BTM_{i,t}\right) \quad \text{(Eq. 5)}$$

Where:

$NDA_{i,t}$	=	non-discretionary accruals for firm *i*, year *t*
$A_{i,t-1}$	=	lagged assets of firm *i*, year *t*
$\Delta REV_{i,t}$	=	change in revenues of firm *i*, year *t*
$\Delta AR_{i,t}$	=	change in accounts receivable of firm *i*, year *t*
$PPE_{i,t}$	=	property, plant and equipment of firm *i*, year *t*
$CFO_{i,t}$	=	cash flow from operation of firm *i*, year *t*
$BTM_{i,t}$	=	book to market ratio of firm *i*, year *t*
α1, α2, α3, α4, α5	=	firm-specific parameters

Measurement of Discretionary Accruals

As it can be seen above, the starting point for the measurement of discretionary accruals is total accruals. Since total accruals comprises normal accruals (expected accruals) and abnormal accruals (discretionary accruals or unexpected accruals), discretionary accruals ($DA_{i,t}$) as a proxy for earnings management is calculated as:

$$DA_{i,t} = \frac{ToACC_{i,t}}{A_{i,t-1}} - NDA_{i,t} \quad \text{(Eq. 6)}$$

Where:

$DA_{i,t}$	=	discretionary accruals of firm *i*, year *t*
$ToACC_{i,t}$	=	total current accruals of firm *i*, year *t*
$A_{i,t-1}$	=	lagged assets of firm *i*, year *t*
$NDA_{i,t}$	=	non-discretionary accruals

It is important also to note that there is a difference in this study from prior studies. This difference is the use of net PPE instead of gross PPE. Similar to the studies by Chen *et al.* (2005); Jaggi *et al.* (2009); Saleh and Ahmed (2005) and Lee *et al.* (2007), the data on gross PPE is not available in the SETSMART and SETINFO databases. As a result, the net PPE is used in this study.

OLS linear regressions are used to estimate the firm specific parameters in each fiscal year for each industry. This estimation allows firm specific parameters to vary over time and by industries. Similar to prior studies, industry portfolios are comprised of at least 10 companies (Ahmad-Zaluki *et al.*, 2011). It is important to note that the company specific parameters α1, α2, α3 are estimated from the original Jones model.

Measurement of Cost of Equity Capital

This section discusses techniques used for estimating the COE for this study. This study uses three different models: CAPM and Industry Adjusted Earning to Price Ratio to estimate the COE for Thai listed companies during 2003-2010.

Capital Asset Pricing Model (CAPM)

The concept of the CAPM was initially developed by Sharpe (1964), Lintner (1965) and Black (1972), resulting in a Nobel Prize for Sharpe in 1990 (Fama & French, 2004). The main idea of CAPM is to explain the expected return by a market beta (β) or by systematic risk. The CAPM is used to measure risk and the relationship between expected return and risk. The assumption was that expected return should have a positive relationship with market beta. However, in the late 1970s, this concept of CAPM has been questioned and disputed by a number of empirical studies. These studies indicate that market beta alone is not sufficient to explain expected return, and expected return is unrelated to market beta (Basu, 1977; Banz, 1981; Rosenberg *et al.*, 1985; Bhandari, 1988). Fama and French (1992) and (1993) therefore extended the CAPM by adding two risk factors: size and book-to-market equity ratio. However, Fama and French (1996) and Elton (1999) find that using the Fama-French model to estimate the expected return is not better than using the CAPM. Similarly, King (2009) uses the CAPM and the Fama-French model to estimate the cost of equity for banks in six countries during 1990-2009. They find that the results from both models are similar.

Even if some authors suggest that caution should be exercised when using the CAPM to calculate the cost of capital, a recent study by Da *et al.* (2012) indicate that there is little direct evidence to support an avoidance of CAPM to estimate the cost of capital. Their findings confirm the view that the CAPM provides a reasonable estimate of a project's cost of capital. Furthermore, Welch (2008) finds that 75 per cent of finance professors recommend using the CAPM for corporate capital budgeting purposes; 10 per cent recommend the Fama-French model; 5 per cent recommend an APT model. A survey of 392 chief financial officers by Graham and Harvey (2001) shows that 73.5 per cent of respondents reported that they always or nearly always use the CAPM, thus indicating that estimating equity capital costs through CAPM is the most popular method. In other words, the CAPM continues to be the most commonly used method among academics, researchers, practitioners for estimating the COE (Ashton, 1995; KielholzÃ, 2000; Graham & Harvey, 2001; Jagannathan & Meier, 2002; Harris *et al.*, 2003; Welch, 2008). Therefore, in this study, the CAPM is used to estimate the COE. The equation for CAPM is shown as follows:

$$CAPM_{i,t} = Rf_t + \beta_{i,t} \times (Rm_t - Rf_t) \qquad \text{(Eq. 7)}$$

Where:

$CAPM_{i,t}$	= cost of equity capital calculated from Capital Asset Pricing model
Rf_t	= risk free rate on the 91-day Thai Government Treasury bill
$\beta_{i,t}$	= beta of stock *i*, year *t*, using "Market model" to estimate the slope coefficient by regressing company's stock return against the market's return.
Rm_t	= market rate of return
Or (Rm_t - Rf_t)	= risk premium

Industry Adjusted Earnings to Price Ratio

Following Francis *et al.* (2005) and Gray *et al.* (2009), this study also uses industry-adjusted earnings to price ratio *(IndEP)* as a proxy for the COE. Francis *et al.* (2005) view the price-earnings ratio as an inverse indicator of the COE. In their study, they examine the relationship between accruals quality and industry-adjusted earnings-price ratios as a proxy for the COE. Similar to their studies, to estimate industry-adjusted earnings to price ratio, this study first calculated the median E/P ratio for all firms with only positive earnings in year *t* in each of the seven main industry groups of the stock exchange of Thailand. The industry adjusted earnings to price ratio *(IndEP)* is calculated from the firms' earnings to price ratio less the median E/P ratio of all firms within the same industry in year *t*. The equation of the industry adjusted earnings to price ratio is as follows:

$$INDEP_{i,t} = EP\ ratio_{i,t} - Med\ EP\ ratio_t \quad \text{(Eq. 8)}$$

Where:

$INDEP_{i,t}$ = cost of equity capital based on Industry adjusted E/P ratio

$EP\ ratio_{i,t}$ = earnings to price ratio of firm *i*, year *t*

$Med\ EP\ ratio_{i,t}$ = median earnings to price ratio of all firms within the same industry in year *t*

Research Findings

Descriptive Statistics

Table 1 reports the descriptive statistics for related variables. Firstly, COE variables are estimated from the Capital Asset Pricing model *(CAPM)* and Industry Adjusted Earnings to Price Ratio model *(INDUSEP).* Secondly, earnings management variables are estimated from the Modified Jones model (|EMMJ|), Performance Matched discretionary accruals model (|EMPMt| and |EMPMt-1|), Cash Flow Modified Jones model (|EMCF|) and Modified Jones model with cash flows and book to market (|EMCFBM|). Thirdly, CG variables: board interlocking, board independence, board size, audit committee expertise, managerial ownership and institutional ownerships, are used in this study. Lastly, the control variables are also included in this study to minimise specification bias.

Descriptive statistics in Table 1 show that, on average, the COE in Thailand during 2003-2010 estimated from the CAPM and INDUSEP is 16.5 per cent and 7.6 per cent respectively. Since market beta is 1, it is expected that average BETA of a large sample of the firms to be similar to that of the market beta. However, this table shows that on average, BETA is 0.566, which is far below 1. This may be because 5 per cent of the highest value of beta is winsorized and financial companies groups are excluded in this study. As well, this table shows that, on average, risk fee rate and market return are 2.4 per cent and 19.4 per cent, respectively. The level of earnings management (|EMMJ|, |EMPMt|, |EMPMt-1|, |EMCF| and |EMCFBM|) estimated from four different models consistently has an average between 8 per cent to 10 per cent. The descriptive statistics for board interlocking (BINT), board independence (BIND) and board size variables (BSIZE) demonstrate the following: (1). On average, Thai listed companies have 10 directors on the board, (2).

Table 1 Descriptive statistics for all variables

Panel A: Continuous variables

Variables	Mean	Sd Dev.	Min	Max	Lower Quartile (p25)	Median (p50)	Upper Quartile (p75)	Skewness	Kurtosis
capm	0.165	0.168	-1.380	1.062	0.048	0.104	0.229	1.200	7.240
indusep	0.076	0.117	0.000	1.358	0.018	0.042	0.086	4.927	37.065
beta	0.566	0.445	-0.100	1.690	0.210	0.470	0.850	0.694	2.716
riskfeerate	0.024	0.012	0.012	0.047	0.013	0.021	0.033	0.563	1.959
marketreturn	0.194	0.196	-0.087	0.489	0.028	0.164	0.384	0.063	1.676
|emmj|	0.104	0.135	0.000	2.314	0.031	0.068	0.130	6.253	73.400
|empmt|	0.084	0.114	0.000	2.387	0.026	0.056	0.107	7.546	108.155
|empmt1|	0.094	0.127	0.000	2.362	0.028	0.061	0.118	6.908	89.080
|emcf|	0.083	0.091	0.000	2.030	0.028	0.061	0.109	6.294	99.704
|emcfbm|	0.104	0.110	0.000	2.243	0.039	0.081	0.137	5.902	80.096
bint	0.247	0.231	0.000	1.000	0.077	0.200	0.375	1.092	3.926
bind	0.345	0.110	0.000	0.830	0.273	0.333	0.400	0.475	4.395
bsize	10.840	2.819	3.000	25.000	9.000	10.000	12.000	0.917	4.745
acexpert	0.394	0.302	0.000	1.000	0.250	0.333	0.667	0.353	2.315
mngown	0.053	0.137	0.000	0.861	0.000	0.000	0.006	3.178	13.093
inssahare	0.033	0.104	0.000	0.977	0.000	0.001	0.007	5.260	35.780
roa	0.066	0.118	-0.636	0.574	0.020	0.069	0.124	-1.303	12.387
lev	0.415	0.363	0.001	9.693	0.217	0.386	0.563	9.896	199.776
cfo	0.054	0.616	-29.481	8.739	0.002	0.060	0.129	-39.996	1981.566
logasset	14.921	1.379	11.427	20.464	13.941	14.662	15.684	0.787	3.680
mtb	1.718	3.330	0.010	79.530	0.650	1.070	1.890	13.870	260.312
block	0.113	0.182	0.000	0.930	0.000	0.000	0.152	1.814	5.597

Panel B: Dichotomous variables

Variables	All		Sector					
			Ago & Food		Industrials		Services	
	0	1	0	1	0	1	0	1

Ceodual	Frequency	2,053	785	217	99	337	163	468	172
	Percentage	72.34	27.66	68.67	31.33	67.40	32.60	73.13	26.88
Adopin	Frequency	1,886	856	219	91	362	120	457	148
	Percentage	68.78	31.22	70.65	29.35	75.10	24.90	75.54	24.46
Big4	Frequency	1,400	1,266	121	164	262	208	334	263
	Percentage	52.51	47.49	42.46	57.54	55.74	44.26	55.95	44.05
IFRS	Frequency	1,950	1,170	205	123	350	210	425	255
	Percentage	62.50	37.50	62.50	37.50	62.50	37.50	62.50	37.50

Variables		Sector							
		Property & construction		Technology		Resources		Consumer products	
		0	1	0	1	0	1	0	1
Ceodual	Frequency	464	185	226	31	155	22	186	113
	Percentage	71.49	28.51	87.94	12.06	87.57	12.43	62.21	37.79
Adopin	Frequency	399	226	177	77	85	87	187	107
	Percentage	63.84	36.16	69.69	30.31	49.42	50.58	63.61	36.39
Big4	Frequency	336	279	91	157	81	86	175	109
	Percentage	54.63	45.37	36.69	63.31	48.50	51.50	61.62	38.38
IFRS	Frequency	450	270	185	111	135	81	200	120
	Percentage	62.50	37.50	62.50	37.50	62.50	37.50	62.50	37.50

Note: capm is cost of equity capital estimated from Capital Asset Pricing model, indusep is cost of equity capital estimated from Industry Adjusted Earnings to Price Ratio, beta is systematic risk, riskfreerate is risk free rate on the 91-day Thai Government treasury bill, marketreturn is market rate of return, |emmj| is absolute value of earnings management estimated from the Modified Jones model, |empmt| is absolute value of earnings management estimated from the Performance Matched Discretionary Accruals model (current ROA), |empmt-1| is absolute value of earnings management estimated from Performance Matched Discretionary Accruals model (lagged ROA), |emcf| is absolute value of earnings management estimated from Cash Flow Modified Jones model, |emcfbm| is absolute value of earnings management estimated from the Modified Jones model with cash flows and book to market, bint is percentage of board directors that hold multiple board positions in Thai listed companies, bind is proportion of independent directors on board of directors, bsize is total number of board members, ceodual is dummy variable, the value of "1" if the CEO also served as chairman of the board "0" if the two positions are occupied by different individuals, acexpert is the proportion of the financial expertise on the audit committee, adopin is dummy variable; the value of "1"if the company received an audit modified opinion (qualified, adverse, or disclaimer opinions), and "0" otherwise, mngown is total percentage of shares owned by managerial directors, insshare is total percentage of shares held by institutional shareholders, roa is return on assets, lev is leverage ratio, cfo is cash flow from operation, logasset is natural logarithm of total assets, big4 is dummy variable, the value of "1" if the company's financial statements are audited by big 4 firms

and "0" otherwise, mtb is book to market ratio, block is total percentage of shares held by individual and unaffiliated owners who own 5% or more of sample firm's stock, ifrs is dummy variable with the value of "1" if firm's financial statements are fully complied with international financial reporting standards and "0" otherwise.

From these 10 board members, an average of 25 per cent hold multiple board positions on other Thai listed companies and, (3). 35 per cent are independent. Of these members, the proportion of audit committee expertise in Thai listed companies is on average 39 per cent. This means that one in three members has working experience in accounting, auditing and finance, and has professional accounting qualifications, such as being a CPA. In terms of ownership structure, averages of 5 per cent of total shares are owned by managerial directors of the company, and 3 per cent by institutional shareholders, such as insurance companies, banks, pensions, mutual funds and investment banks. ROA has mean and median values of 6.6 per cent and 6.9 per cent, respectively while the maximum value is 57 per cent; this ratio shows that the higher the ROA is, the more money a company is earning with less capital investment. However, the minimum value of ROA is -64 per cent, which means that the company has invested a huge amount of capital into the business while simultaneously receiving little income from its investment. Table 6.1 shows that the negative ROA of the companies mostly occurred in 2003 after the Asian financial crisis. LEV has mean and median values of 0.42 and 0.39, respectively while the minimum value is 0.001. CFO has mean and median values of 0.05 and 0.06, respectively while the minimum value is -29.48. The company's size (LOGGASSET) has mean and median values of 14.92 and 14.66, respectively, while the minimum value is 11.43. (MTB) has mean and median values of 1.72 and 1.07, respectively. A substantial shareholder (BLOCK) has mean value of 11 per cent which means that in a Thai listed company, there will be on average 11 per cent of shares held by individual and unaffiliated owners who own 5 per cent or more of the firm's stock.

Panel B of Table 1 presents the descriptive statistics of dichotomous variables used in this study. The table shows that, overall, listed companies in Thailand have 28 per cent of their board directors holding multiple board positions in other Thai listed companies, and most are directors in consumer products companies. For audit opinion, more companies received unqualified opinions are than those that received qualified opinions. Overall, 31 per cent of companies in the sample received a modified audit opinion (qualified, adverse and disclaimer). The resource sector maintained the highest percentage of companies receiving a modified audit opinion; just over half of the companies. In contrast, only 24 per cent of companies in the services sector received a modified audit opinion. In terms of the Big-4 variable, 47 per cent of all companies assessed have their financial statements audited by the Big-4 audit firms. The sector with the highest percentage of firms audited by the Big-4 is the technology sector, with just over 63 per cent of companies audited by these firms. FAP initiated a program to merge TAS with IAS/IFRS, and most of these new/revised/replaced TAS became effective from 2008 onward. The selected samples in this study are not SMEs and financial institutions where exemption of certain TAS is applied. This study assumes that all selected companies sampled are required to apply TAS.

The Regression Analysis on the Influence of Earnings Management and Corporate Governance on Cost of Equity Capital

The use of financial reporting by investors to evaluate the share price and the performance of the companies creates the motivation for managers to manage the reported earnings with the view to influencing investors' decisions. Earnings management leads to less reliability of financial reporting, which increases investors' uncertainty about their investments (Healy & Wahlen, 1999). Therefore, investors will price protect themselves against potential losses caused by adverse decision making and trading employed by managers who use inappropriate

accounting practices and thereby increase the COE (Bhattacharya *et al.*, 2003; Poshakwale & Courtis, 2005). In the modern operating environment, dispersed shareholders as capital suppliers are unable to physically investigate the uses of a company's capital and the decision making processes of managers. When shareholders cannot discern management's efforts and the real economic performance of a company, adverse selection, moral hazard and information asymmetry problems may occur (Fama & Jensen, 1983). To overcome these problems, CG mechanisms have been introduced to improve the quality of the monitoring functions (Bedard & Johnstone, 2004), control the aggressive behaviour of managers (Klein, 2002b; Park & Shin, 2004; Davidson *et al.*, 2005b) and improve the quality of financial information and disclosure (Jans *et al.*, 2007; Hermalin & Weisbach, 2010).

The results of the influence of earnings management and corporate governance are presented and discussed in following sections.

Regression Results for Panel Data

The panel data with fixed effects is tested in this study to examine the influence of earnings management and CG on the COE for panel data. Table 2 presents the results of the influence of earnings management and CG on the COE in Thai listed companies during the period 2003 to 2010. The results of these regression analyses are further discussed as follows:

The Influence of Earnings Management on the Cost of Equity Capital: the Fixed Effects Panel Regression

Firstly, models (1) to (5) of Table 2 report the regression results of the relationship between the cost of equity capital (CAPM) and earnings management (|EMMJ|, |EMPMt|, |EMPMt-1|, |EMCF|, and |EMCFBM|). From these models, models (2) and (3) show that the COE (CAPM) is positively associated with earnings management estimated from the Performance Matched discretionary accruals model with current ROA (|EMPMt|) at P<0.10 with a t-statistics of 1.74 and the Performance Matched discretionary accruals with lagged ROA (|EMPMt-1|) at P<0.10 with a t-statistics of 1.96.

Secondly, when the COE is estimated from the industry adjusted earnings to price ratio model (INDEP) as the dependent variables in models (6) to (10) of Table 2, the results show that the COE (INDEP) is positively associated with earnings management in all five models;: the Modified Jones model (|EMMJ|) at P<0.01 with a t-statistics of 2.92, the Performance Matched discretionary accruals with current ROA (|EMPMt|*)* at P<0.01 with a t-statistics of 2.81, the Performance Matched discretionary accruals with lagged ROA (|EMPMt-1|) at P<0.01 with a t-statistics of 2.92, the Cash Flow Modified Jones model (|EMCF|*)* at P<0.01 with a t-statistics of 3.49, and the Modified Jones model with cash flow and book to market (|EMCFBM|*)* at P<0.01 with a t-statistics of 2.39.

From the results presented, it can be concluded that earnings management creates imprecise financial information (Healy & Wahlen, 1999) for investors. The evidence that the imprecise financial information results in higher cost of equity is consistent with the conclusions made by Botosan *et al.* (2004), Li (2005) and Armstrong *et al.* (2011) who report that imprecise financial information enhances information asymmetry, risk premiums and stock return volatility, thereby increasing the COE. Similarly, Kasznik (2004) argues that accounting restatement creates investor's uncertainty about management credibility, competence and overall concerns about the quality of earnings. In addition to this argument, Hribar and Jenkins (2004) provide evidence that accounting restatement is positively associated with the COE.

The results of this study are also consistent with those of Bhattacharya *et al.* (2003), where the COE is measured using dividend yield and the international CAPM and earnings management are measured from three dimensions of reported accounting earnings, including earnings aggressiveness, loss avoidance and earnings smoothing. Their results reveal that earnings management increased the COE in 34 countries, including Thailand. Likewise, Chen *et al.* (2011) find that reduced earnings management, attributable to the quality of the auditor, is associated with a reduction in the COE. In their study, both the industry method (Gebhardt *et al.*, 2001) and the PEG ratio method (Easton, 2004),which is also used in this study, are used as proxies for the COE. Additionally, the results of this study are similar to the results of Kim and Sohn (2013), which confirms that the quality of financial information is reduced when earnings management practice occurs, consequently increasing the COE.

In conclusion, the result of fixed effects regression supports the proposition that greater earnings management creates the investor uncertainty about the quality of financial reporting and accounting practice of managers. Consequently, the rational investor requires higher returns from their investment in exchange for bearing these uncertainties, resulting in higher company COE. Particularly, these results are robust across five different measures of earnings management and different measures of the COE.

The Influence of Corporate Governance on the Cost of Equity Capital: the Fixed Effects Panel Regression

Table 2 also shows the effect of CG (BINT, BIND, BSIZE, CEODUAL, ACEXPERT, ADOPIN, MNGOWN, and INSSHARE) on the COE (CAPM and INDEP). The regression models are the same as used earlier for the pooled data set. The results of the regression analyses for panel data are reported in models (1) to (10) of this table.

Models (1) to (2) of this table show the effect of CG (BINT, BIND, BSIZE, CEODUAL, ACEXPERT, ADOPIN, MNGOWN, and INSSHARE) on the COE (CAPM). The results show that only three out of the eight CG variables are found to be associated with the COE. BIND is found to be significantly negatively associated with the COE (CAPM) for all five models (models 1-5) at $P<0.01$ with t-statistics of -5.24, -5.08, -5.16, -5.31 and -5.05 respectively. This result is consistent with the findings of Dechow *et al.* (1996) that board independence decreases the likelihood of fraudulent financial statements. Similarly, Reverte (2009) and Mazzotta and Veltri (2012) find that board independence reduces the COE.

ACEXPERT is also found to be significantly negatively associated with the COE (CAPM) for all five models (models 1-5) at $P<0.05$ with t-statistics of -2.32, -2.26, -2.23, -2.31 and -2.34 respectively. These results suggest that a higher proportion of financial expertise on the audit committee improves the quality and transparency of the financial reports. Increased transparency in the financial reports results in less uncertainty for investors, which results in a lower COE. This result is similar to that of Dao *et al.* (2012) who provide evidence that the COE is lower in companies with an audit committee which has long-term working experience. This is because investors are more likely to trust the audit committee's financial experiences. Therefore, it could be argued that the audit committee members who have experience or a background in accounting and finance are likely to deal with complexities of financial reporting effectively, which can reduce the COE.

Moreover, MNGOWN has a significant positive association with the COE (CAPM) for all five models (models 16-20) at $P<0.01$ with t-statistics of 3.03, 3.24, 3.27, 3.17 and 3.26 respectively. These results indicate that managerial shareholders who mainly control decisions made at board meetings have an information advantage over other shareholders. Therefore, they may use their power inappropriately to achieve their own interest at the expense of the other shareholders. As well, their controlling power can increase the investment risk and

information asymmetry of other shareholders, thereby increasing the agency problem and the COE. However, this finding is in contrast to the finding of Huang *et al.* (2009), which shows that high concentrations of managerial ownership reduces the degree of agency problems and lowers the COE.

For control variables, the results show that ROA, MTB, BLOCK, and BETA have significant positive associations with the CAPM. However, LEV, LOGASSET and IFRS are found to be negatively associated with the COE.

Models (6) to (10) of Table 2 report the relationship between CG (BINT, BIND, BSIZE, CEODUAL, ACEXPERT, ADOPIN, MNGOWN, and INSSHARE) and the COE (INDEP). The results show that three out of the eight CG variables are found to be associated with the COE.

For example, BINT is found to be negatively associated with the COE (INDEP) for all five models (models 6-10) at P<0.01 with t-statistics of -3.44, -3.07, -3.10, -3.38 and -3.66 respectively.

CEODUAL is found to have a positive relationship with the COE (*I*NDEP) for all five models (models 6-10). For models (6) to (9), the coefficients are significant at P<0.10 with t-statistics of 1.84, 1.93, 1.97, and 1.92 respectively. For model (10), the coefficient is significant at P<0.05 with t-statistics of 2.02. These results suggest that the companies which have the CEO also simultaneously performing the duty of chairman on the board of directors are more likely to have higher COE compared to companies that have the CEO and chairman positions occupied by different individuals. Klein (2002a) argue that a board whose CEO also sits in a monitoring position as chairman is less likely to investigate the work of CEOs and other executives. In addition, Boyd (1994) posits that CEO-duality increases agency costs between management and shareholders, which therefore increases the COE of the companies.

ADOPIN is found to have a positive relationship with the COE (INDEP) for all five models (models 6-10). For models (6) to (9), the coefficients are significant at P<0.10 with t-statistics of 1.92, 1.95, 1.88, and 1.86 respectively. For model (10), the coefficient is significant at P<0.05 with t-statistics of 2.35. These results suggest that the modified audit opinion provides a signal to investors that there are material misstatements in the financial statements of the companies. Therefore, a higher return is required to offset risky investment.

However, INSSHARE is found to be significantly positively associated with the COE (INDEP). Contrary to conventional expectations, the results of this table show that companies with higher institutional shareholders have a higher COE, suggesting that institutional shareholders collide or collude with managerial owners to pursue strategic-alignment objectives, such as not performing adequate monitoring. This result is consistent with the finding in the Regalli and Soana (2012) study, which shows that companies with a greater percentage of institutional ownership are likely to have a higher COE. Based on the institution's perspective regarding the profitability of the company, Jiang and Anandarajan (2009) argue that, if institutional investors focus on short-term profitability, they could pressure a manager to exercise aggressive accounting practices with the purpose of increasing the value of the institution's share in the short-term.

Table 2: Regression results for panel data with fixed effects

	Capital Asset Pricing model (CAPM)					**Industry Adjusted Earning to Price Ratio model (INDEP)**				
	CAPM (Model 1)	**CAPM (Model 2)**	**CAPM (Model 3)**	**CAPM (Model 4)**	**CAPM (Model 5)**	**INDEP (Model 6)**	**INDEP (Model 7)**	**INDEP (Model 8)**	**INDEP (Model 9)**	**INDEP (Model 10)**
|emmj|	0.034					0.090***				
	(1.58)					(2.92)				
|empmt|		0.048*					0.080***			
		(1.74)					(2.81)			
|empmt1|			0.045*					0.101***		
			(1.96)					(2.92)		
|emcf|				0.001					0.160***	
				(0.04)					(3.49)	
|emcfbm|					-0.025					0.060**
					(-1.89)					(2.39)
bint	-0.008	-0.006	-0.006	-0.007	-0.006	-0.038***	-0.033***	-0.034***	-0.037***	-0.043***
	(-1.38)	(-1.09)	(-1.15)	(-1.32)	(-1.10)	(-3.44)	(-3.07)	(-3.10)	(-3.38)	(-3.66)
bind	-0.110***	-0.107***	-0.109***	-0.111***	-0.106***	0.003	0.010	0.008	-0.001	-0.004
	(-5.24)	(-5.08)	(-5.16)	(-5.31)	(-5.05)	(0.08)	(0.34)	(0.26)	(-0.03)	(-0.12)
bsize	-0.001	-0.001	-0.001	-0.001	-0.001	0.001	0.001	0.001	0.001	0.001

	Capital Asset Pricing model (CAPM)					**Industry Adjusted Earning to Price Ratio model (INDEP)**				
	CAPM (Model 1)	**CAPM (Model 2)**	**CAPM (Model 3)**	**CAPM (Model 4)**	**CAPM (Model 5)**	**INDEP (Model 6)**	**INDEP (Model 7)**	**INDEP (Model 8)**	**INDEP (Model 9)**	**INDEP (Model 10)**
	(-1.07)	(-0.99)	(-1.04)	(-1.17)	(-1.23)	(0.64)	(0.48)	(0.48)	(0.53)	(0.53)
ceodual	-0.001	-0.001	-0.001	-0.001	-0.001	0.013*	0.014*	0.014**	0.014*	0.016**
	(-0.29)	(-0.27)	(-0.21)	(-0.25)	(-0.39)	(1.84)	(1.93)	(1.97)	(1.92)	(2.02)
acexpert	-0.013**	-0.012**	-0.012**	-0.012**	-0.012**	-0.013	-0.013	-0.013	-0.013	-0.013
	(-2.32)	(-2.26)	(-2.23)	(-2.31)	(-2.34)	(-1.19)	(-1.21)	(-1.15)	(-1.14)	(-1.09)
adopin	0.002	0.002	0.002	0.003	0.003	0.012*	0.012*	0.012*	0.012*	0.015**
	(0.58)	(0.57)	(0.48)	(0.82)	(0.84)	(1.92)	(1.95)	(1.88)	(1.86)	(2.35)
mngown	0.033***	0.035***	0.035***	0.034***	0.035***	0.022	0.027	0.027	0.024	0.030
	(3.03)	(3.24)	(3.27)	(3.17)	(3.26)	(1.12)	(1.36)	(1.33)	(1.18)	(1.44)
insshare	0.002	0.001	0.002	-0.001	0.002	0.018	0.020	0.021	0.016	0.020
	(0.08)	(0.05)	(0.09)	(-0.03)	(0.11)	(0.67)	(0.73)	(0.77)	(0.60)	(0.70)
roa	0.039**			0.040**	0.047***	0.148*			0.137*	0.084
	(2.21)			(2.33)	(2.94)	(1.87)			(1.79)	(1.15)

	Capital Asset Pricing model (CAPM)					**Industry Adjusted Earning to Price Ratio model (INDEP)**				
	CAPM (Model 1)	**CAPM (Model 2)**	**CAPM (Model 3)**	**CAPM (Model 4)**	**CAPM (Model 5)**	**INDEP (Model 6)**	**INDEP (Model 7)**	**INDEP (Model 8)**	**INDEP (Model 9)**	**INDEP (Model 10)**
lev	-0.009	-0.015*	-0.015*	-0.007	-0.000	0.075***	0.060***	0.058***	0.075***	0.056***
	(-1.00)	(-1.66)	(-1.72)	(-0.72)	(-0.06)	(3.86)	(3.42)	(3.26)	(3.90)	(2.94)
cfo	-0.001	0.001	0.000			0.006**	0.006**	0.007**		
	(-0.52)	(0.41)	(0.21)			(2.05)	(2.17)	(2.24)		
logasset	-0.004***	-0.003**	-0.003**	-0.004***	-0.004***	-0.001	-0.000	-0.000	-0.001	-0.001
	(-2.73)	(-2.22)	(-2.20)	(-2.70)	(-2.64)	(-0.26)	(-0.09)	(-0.09)	(-0.40)	(-0.31)
mtb	0.002*	0.002*	0.002*	0.002*		-0.016***	-0.014***	-0.014***	-0.015***	
	(1.75)	(1.75)	(1.79)	(1.75)		(-2.81)	(-3.03)	(-2.94)	(-2.82)	
big4	-0.004	-0.004	-0.004	-0.004	-0.004	-0.016**	-0.015**	-0.015**	-0.015**	-0.015**
	(-1.09)	(-1.12)	(-1.03)	(-1.12)	(-1.17)	(-2.32)	(-2.26)	(-2.25)	(-2.16)	(-2.12)
block	0.000*	0.000*	0.000*	0.000	0.000*	0.000	0.000	0.000	0.000	0.000
	(1.70)	(1.65)	(1.67)	(1.54)	(1.73)	(0.33)	(0.26)	(0.17)	(0.18)	(0.26)
beta	0.313***	0.312***	0.311***	0.313***	0.314***	0.039***	0.038***	0.037***	0.039***	0.033***
	(45.14)	(46.08)	(45.99)	(45.21)	(45.95)	(3.26)	(3.22)	(3.08)	(3.25)	(2.65)
ifrs	-0.081***	-0.082***	-0.083***	-0.081***	-0.082***	0.012*	0.013*	0.011	0.013*	0.020***
	(-18.76)	(-19.09)	(-19.00)	(-18.72)	(-18.60)	(1.81)	(1.89)	(1.62)	(1.91)	(2.96)

	Capital Asset Pricing model (CAPM)					**Industry Adjusted Earning to Price Ratio model (INDEP)**				
	CAPM (Model 1)	**CAPM (Model 2)**	**CAPM (Model 3)**	**CAPM (Model 4)**	**CAPM (Model 5)**	**INDEP (Model 6)**	**INDEP (Model 7)**	**INDEP (Model 8)**	**INDEP (Model 9)**	**INDEP (Model 10)**
Year dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Sector dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Cons	0.151***	0.141***	0.143***	0.152***	0.154***	0.028	0.041	0.041	0.032	0.028
	(6.16)	(5.75)	(5.82)	(6.31)	(6.28)	(0.54)	(0.84)	(0.81)	(0.65)	(0.52)
Number of observations (N)	2286	2287	2287	2288	2304	1173	1173	1173	1173	1173

t statistics in parentheses

* p<0.10 ** p<0.05 *** p<0.01

Note: All variables are as previously defined in Table 1

The control variables, ROA, LEV, CFO, BETA, and IFRS have a significant positive relationship with the COE (INDEP). However, BTM and Big-N (BIG4) have a significant negative relationship with the COE (INDEP). In conclusion, it could be argued that the quality of CG affects the company's COE by constraining the self-serving tendencies of managers, maximising shareholders' wealth and increasing the value of the companies.

Conclusion

This paper provides the results of the empirical analysis, including descriptive statistics, pairwise correlation and regression analyses, relating to the effect of earnings management and corporate governance on the cost of equity capital in Thai listed companies for the period 2003-2010. For the regression analysis, this paper presents the results of two main objectives of this study: (1) the influence of earnings management on the cost of equity capital, and (2) the influence of corporate governance on the cost of equity capital. The first main finding is that, in general, cost of equity capital is positively associated with earnings management. These results support the argument that, since earnings management practice creates information risk for investors and reduces the quality of financial information, investors will expect a high price to protect themselves from uncertainty on their investment; this, ultimately, increases the company's cost of equity capital. The second main finding is the influence of corporate governance on the cost of equity capital. Seven out of eight corporate governance variables are found to be associated with the cost of equity capital. The direction of the relationship depends on the variable. For example, on the one hand, the results suggest that a higher proportion of board interlocking, board independence, and audit committee expertise are negatively associated with the cost of equity. On the other hand, CEO-duality, audit opinion, managerial ownership and institutional shareholders are positively associated with the cost of equity capital. These findings are consistent with agency theory expectations and most research on this topic.

References

Ahmad-Zaluki, N. A., Campbell, K., & Goodacre, A. (2011). Earnings management in Malaysian IPOs: The East Asian crisis, ownership control, and post-IPO performance. *International Journal of Accounting, 46*(2), 111-137.

Armstrong, C. S., Core, J. E., Taylor, D. J., & Verrecchia, R. E. (2011). When Does Information Asymmetry Affect the Cost of Capital? *Journal of Accounting Research, 49*(1), 1-40.

Armstrong, C. S., Larcker, D. F., Ormazabal, G., & Taylor, D. J. (2013). The relation between equity incentives and misreporting: The role of risk-taking incentives. *Journal of Financial Economics, 109*(2), 327-350.

Ashton, D. (1995). The cost of equity capital and a generalisation of the dividend growth model. *Accounting and business research, 26*(1), 3-17.

Banz, R. W. (1981). The relationship between return and market value of common stocks. *Journal of Financial Economics, 9*(1), 3-18.

Basu, S. (1977). Investment performance of common stocks in relation to their price-earnings ratios: A test of the efficient market hypothesis. *The Journal of Finance 32*(3), 663-682.

Becker-Blease, J. R., & Irani, A. J. (2008). Do corporate governance attributes affect adverse selection costs? Evidence from seasoned equity offerings. *Review of Quantitative Finance and Accounting, 30*(3), 281-296.

Bedard, J., Chtourou, S. M., & Courteau, L. (2004a). The effect of audit committee expertise, independence, and activity on aggressive earnings management. *Auditing: A Journal of Practice & Theory, 23*(2), 13-35.

Bedard, J., Chtourou, S. M., & Courteau, L. (2004b). The Effect of audit committee expertise, Independence, and Activity on Agressive Earnings management *Auditing: A Journal of Practice & Theory* (Vol. 23, pp. 13-35).

Bedard, J. C., & Johnstone, K. M. (2004). Earnings manipulation risk, corporate governance risk, and auditors' planning and pricing decisions. *Accounting Review, 79*(2), 277-304.

Bhandari, L. C. (1988). Debt/equity ratio and expected common stock returns: Empirical evidence. *The Journal of Finance 43*(2), 507-528.

Bhattacharya, U., Daouk, H., & Welker, M. (2003). The world price of earnings opacity. *The accounting review, 78*(3), 641-678.

Black, F. (1972). Capital market equilibrium with restricted borrowing. *The Journal of Business, 45*(3), 444-455.

Botosan, C., Plumlee, M., & Xie, Y. (2004). The role of information precision in determining the cost of equity capital. *Review of Accounting Studies, 9*(2-3), 233-259.

Boyd, B. K. (1994). Board control and CEO compensation. *Strategic Management Journal, 15*, 335-344.

Chen, H., Chen, J. Z., Lobo, G., & Wang, Y. (2011). Effects of Audit Quality on Earnings Management and Cost of Equity Capital: Evidence from China. *Contemporary Accounting Research, 28*(3), 892-925.

Chen, K. Y., Lin, K.-L., & Zhou, J. (2005). Audit quality and earnings management for Taiwan IPO firms. *Managerial Auditing Journal, 20*(1), 86-104.

Cheng, C. A., Collins, D., & Huang, H. H. (2006). Shareholder rights, financial disclosure and the cost of equity capital. *Review of Quantitative Finance and Accounting, 27*(2), 175-204.

Cornett, M. M., Marcus, A. J., & Tehranian, H. (2008). Corporate governance and pay-for-performance: The impact of earnings management. *Journal of Financial Economics, 87*(2), 357-373.

Da, Z., Guo, R.-J., & Jagannathan, R. (2012). CAPM for estimating the cost of equity capital: Interpreting the empirical evidence. *Journal of Financial Economics, 103*(1), 204-220.

Dao, M., Huang, H. W., & Zhu, J. (2012). The effects of audit committee members' age and additional directorships on the cost of equity capital in the usa. *European Accounting Review*.

Davidson, R., Goodwin-Stewart, J., & Kent, P. (2005a). Internal governance structures and earnings management. *Accounting and Finance, 45*, 241-267.

Davidson, R., Goodwin-Stewart, J., & Kent, P. (2005b). Internal governance structures and earnings management. *Accounting and Finance, 45*(2), 241-267.

DeAngelo, L. E. (1988). Managerial competition, information costs, and corporate governance. The use of accounting performance measures in proxy contests. *Journal of Accounting and Economics, 10*(1), 3-36.

Dechow, P. M. (1994). Accounting earnings and cash flows as measures of firm performance The role of accounting accruals. *Journal of accounting and economics, 18*, 3-42.

Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *Accounting Review*, 193-225.

Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1996). Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC. *Contemporary Accounting Research, 13*(1), 1-36.

Easton, P. D. (2004). PE Ratios, PEG Ratios, and Estimating the Implied Expected Rate of Return on Equity Capital. *The accounting review, 79*(1), 73-95.

Elton, E. J. (1999). Expected return, Realized return, and Asset pricing tests. *The Journal of Finance, 54*(4), 1199-1220.

Fama, E. F., & French, K. R. (1992). The cross-section of expected stock returns. *The Journal of Finance 47*(2), 427-465.

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics, 33*(1), 3-56.

Fama, E. F., & French, K. R. (1996). The CAPM is wanted, dead or alive. *The Journal of finance, 51*(5), 1947-1958.

Fama, E. F., & French, K. R. (2004). The capital asset pricing model: theory and evidence. *The Journal of Economic Perspectives, 18*(3), 25-46.

Fama, E. F., & Jensen, M. C. (1983). Separation of Ownership and Control. *Journal of Law and Economics, 26*(2), 301-325.

Forster, N. (2003). The FASB and the Capital Market. Retrieved 9 July, 2013, from http://www.fasb.org/articles&reports/Foster_FASBReport.pdf

Francis, J., LaFond, R., Olsson, P., & Schipper, K. (2005). The market pricing of accruals quality. *Journal of accounting and economics, 39*(2), 295-327.

Gebhardt, W. R., Lee, C., & Swaminathan, B. (2001). Toward an implied cost of capital. *Journal of Accounting Research, 39*(1), 135-176.

Graham, J. R., & Harvey, C. R. (2001). The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics, 60*(2), 187-243.

Gray, P., Koh, P. S., & Tong, Y. H. (2009). Accruals quality, information risk and cost of capital: Evidence from Australia. *Journal of Business Finance and Accounting, 36*(1-2), 51-72.

Harris, R. S., Marston, F. C., Mishra, D. R., & O'Brien, T. J. (2003). Ex ante cost of equity estimates of S&P 500 firms: The choice between global and domestic CAPM. *Financial Management*, 51-66.

Hashim, H. A., & Devi, S. S. (2008). Corporate governance, ownership structure and earnings quality: Malaysian evidence. *Unpublished manuscript*, 1-22.

Healy, P. M. (1984). The effect of bonus schemes on Accounting decisions. *Working paper*, 1-94.

Healy, P. M., & Wahlen, J. M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons, 13*(4), 365-383.

Hermalin, B. E., & Weisbach, M. S. (2010). Information Disclosure and Corporate Governance. *Working paper, 17*, 1-43.

Hribar, P., & Jenkins, N. T. (2004). The effect of accounting restatements on earnings revisions and the estimated cost of capital. *Review of Accounting Studies, 9*(2-3), 337-356.

Huang, H., Wang, Q., & Zhang, X. (2009). The effect of CEO ownership and shareholder rights on cost of equity capital. *Corporate Governance, 9*(3), 255-270.

Huang, H. H., Wang, W., & Zhou, J. (2013). Shareholder Rights, Insider Ownership and Earnings Management. *Abacus, 49*(1), 46-73.

Jagannathan, R., & Meier, I. (2002). *Do we need CAPM for capital budgeting?* National Bureau of Economic Research.

Jaggi, B., Leung, S., & Gul, F. (2009). Family control, board independence and earnings management: Evidence based on Hong Kong firms. *Journal of Accounting and Public Policy, 28*(4), 281-300.

Jans, M., Orens, R., & Lybaert, N. (2007). The Relation between Disclosure Quality, Income Smoothing and Earnings' Timeliness. *Unpublished manuscript*, 1-16.

Jeter, D. C., & Shivakumar, L. (1999). Cross-sectional estimation of abnormal accruals using quarterly and annual data: Effectiveness in detecting event-specific earnings management. *Accounting and business research, 29*(4), 299-319.

Jiang, W., & Anandarajan, A. (2009). Shareholder rights, corporate governance and earnings quality: The influence of institutional investors. *Managerial Auditing Journal, 24*(8), 767-791.

Jo, H., & Kim, Y. (2007). Disclosure frequency and earnings management. *Journal of Financial Economics, 84*, 561-590.

Jones, J. (1991). Earnings Management During Import Relief Investigations. *Journal of Accounting Research, 29*(2), 193-228.

Jones, K., Krishnan, G., & Melendrez, K. (2008). Do Models of Discretionary Accruals Detect Actual Cases of Fraudulent and Restated Earnings? An Empirical Analysis. *Contemporary Accounting Research, 25*(2), 499-531.

Kasznik, R. (1999). On the Association between Voluntary Disclosure and Earnings Management. *Journal of Accounting Research, 37*(1), 57-81.

Kasznik, R. (2004). Discussion of "the effect of accounting restatements on earnings revisions and the estimated cost of capital". *Review of Accounting Studies, 9*(2-3), 357-367.

KielholzÃ, W. (2000). The cost of capital for insurance companies.

Kim, J.-B., & Sohn, B. C. (2013). Real Earnings Management and Cost of Capital. *Journal of Accounting and Public Policy, Forthcoming*.

King, M. (2009). The cost of equity for global banks: a CAPM perspective from 1990 to 2009. *BIS Quarterly Review, September*.

Klein, A. (2002a). Audit committee, board of director characteristics, and earnings management. *Journal of Accounting and Economics, 33*(3), 375-400.

Klein, A. (2002b). Audit committee, board of director characteristics, and earnings management. *Journal of Accounting and Economics, 33*, 375-400.

Kothari, S. P., Leone, A. J., & Wasley, C. E. (2005). Performance matched discretionary accrual measures. *Journal of accounting and economics, 39*, 163-197.

Kubota, K., Suda, K., & Takehara, H. (2010). Dissemination of Accruals Information, Role of Semi-Annual Reporting, and Analysts' Earnings Forecasts: Evidence from Japan. *Journal of International Financial Management & Accounting, 21*(2), 120-160.

Larcker, D. F., & Richardson, S. A. (2004). Fees paid to audit firms, accrual choices, and corporate governance. *Journal of Accounting Research, 42*(3), 625-658.

Lee, K. W., Lev, B., & Yeo, G. (2007). Organizational structure and earnings management. *Journal of Accounting, Auditing and Finance, 22*(2), 293-331.

Levitt, A. (1997). *"The Importance of High Quality Accounting Standards" Remarks by Arthur Levitt*. Inter-American Development Bank, September 29,1997.

Li, G. (2005). Information quality, learning, and stock market returns. *Journal of Financial and Quantitative Analysis, 40*(3), 595-620.

Lintner, J. (1965). The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets. *The review of economics and statistics, 47*(1), 13-37.

Mazzotta, R., & Veltri, S. (2012). The relationship between corporate governance and the cost of equity capital. Evidence from the Italian stock exchange. *Journal of Management and Governance*, 1-30.

Osma, B. G., & Noguer, B. G. D. A. (2007). The effect of the board composition and its monitoring committees on earnings management: Evidence from Spain. *Corporate Governance, 15*(6), 1413-1428.

Park, Y. W., & Shin, H.-H. (2004). Board composition and earnings management in Canada. *Journal of Corporate Finance, 10*, 431-457.

Poshakwale, S., & Courtis, J. K. (2005). Disclosure level and cost of equity capital: evidence from the banking industry. *Managerial and Decision Economics, 26*(7), 431-444.

Ramly, Z., & Rashid, H. M. A. (2010). Critical review of literature on corporate governance and the cost of capital: The value creation perspective. *Affrican Journal of Business Management, 4*(11), 2198-2204.

Regalli, M., & Soana, M.-G. (2012). Corporate Governance Quality and Cost of Equity in Financial Companies. *International Journal of Business Administration, 3*(2), 2-16.

Reverte, C. (2009). Do better governed firms enjoy a lower cost of equity capital?: Evidence from Spanish firms. *Corporate Governance, 9*(2), 133-145.

Rosenberg, B., Reid, K., & Lanstein, R. (1985). Persuasive evidence of market inefficiency. *The Journal of Portfolio Management, 11*(3), 9-16.

Saleh, N. M., & Ahmed, K. (2005). Earnings management of distressed firms during debt renegotiation. *Accounting and business research, 35*(1), 69-86.

Sharpe, W. F. (1964). Capital Asset Prices: A Theory of Market Equlibrium under Conditions of Risk
The Journal of finance, 19(3), 425-442.

Shuto, A. (2007). Executive compensation and earnings management: Empirical evidence from Japan. *Journal of International Accounting, Auditing and Taxation, 16*(1), 1-26.

Strobl, G. (2013). Earnings Manipulation and the Cost of Capital. *Journal of Accounting Research, 51*(2), 443-479.

Sun, L., & Rath, S. (2009). An Empirical Analysis of Earnings Management in Australia. *International Journal of business, Economics, Finance and Management Sciences, 1*(2), 150-166.

Teoh, S. H., Welch, I., & Wong, T. J. (1998). Earnings management and the long-run market performance of initial public offerings. *The Journal of Finance, 53*(6), 1935-1974.

Teshima, N., & Shuto, A. (2008). Managerial ownership and earnings management: Theory and empirical evidence from Japan. *Journal of international financial Management and Accounting, 19*(2), 107-132.

Upadhyay, A., & Sriram, R. (2011). Board size, corporate information environment and cost of capital. *Journal of Business Finance and Accounting, 38*(9-10), 1238-1261.

Welch, I. (2008). The consensus estimate for the equity premium by academic financial economists in December 2007. *Available at SSRN 1084918*.

Williams, M. (2004). Discussion of "the role of information precision in determining cost of equity capital". *Review of Accounting Studies, 9*(2-3), 261-264.