The Association of Board's Characteristics in terms of Audit Committee to Cost of Capital: Empirical Evidence from Thailand

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ABSTRACT

This research study examined the association between corporate governance mechanisms related to board of directors' characteristics, namely the quality of audit committee, existence of remuneration and/or nomination committees, and costs of capital such as cost of debts, cost of capital and weighted average cost of capital (WACC) during the period of 2010-2011 among listed firms in Thailand. The results showed that cost of debts had a positive correlation with audit committee meeting but a negative relation with audit committee accountancy and financial expertise. Meanwhile, cost of equity was found to have a positive relationship with audit committee size, audit committee multi-directorship and audit committee ages. Moreover, a positive relationship was noted for WACC with audit committee meeting, audit committee multi-directorship and audit committee ages. However, we found no relationship between the existence of remuneration and/or nomination committee and cost of debts, cost of equity or WACC. The results of this current study were consistent with previous research studies that reported the effects of audit committee characteristics on audit committee efficiency and quality of financial statement, which eventually led to the reduction in cost of capital.

Keywords: Corporate Governance, Boards' characteristics, Audit Committee, Cost of capital

บทความวิจัย

การศึกษาความสัมพันธ์ระหว่างคุณลักษณะของคณะกรรมการในแง่ของคณะกรรมการตรวจสอบกับต้นทุนของเงินทุนของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย

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บทคัดย่อ

งานวิจัยศึกษาถึงความสัมพันธ์ระหว่างคุณลักษณะของคณะกรรมการตามหลักการกำกับดูแลกิจการกับต้นทุนของเงินทุนประกอบด้วย ต้นทุนของหนี้สิน ต้นทุนส่วนของผู้ถือหุ้น และต้นทุนถัวเฉลี่ยถ่วงน้ำหนัก ของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย ปี พ.ศ. 2553-2554 ผลการวิจัยพบว่าบริษัทที่มีขนาดของคณะกรรมการตรวจสอบที่มีขนาดเล็กจะมีต้นทุนส่วนของผู้ถือหุ้นที่น้อยกว่า นอกจากนี้ยังพบว่าบริษัทที่มีสัดส่วนของคณะกรรมการตรวจสอบที่มีความเชี่ยวชาญทางการบัญชี และ/หรือ การเงินที่มากกว่าจะมีต้นทุนของหนี้สินที่น้อยกว่า อย่างไรก็ตาม บริษัทที่มีจำนวนครั้งของการประชุมของคณะกรรมการตรวจสอบที่มากจะมีต้นทุนส่วนของหนี้สินและต้นทุนถัวเฉลี่ยถ่วงน้ำหนักที่มากกว่า อีกทั้งบริษัทที่มีกรรมการตรวจสอบดำรงตำแหน่งกรรมการในบริษัทอื่นจำนวนมากบริษัทจะมีต้นทุนส่วนของผู้ถือหุ้นและต้นทุนเงินทุนถัวเฉลี่ยถ่วงน้ำหนักที่มากกว่า สุดท้ายนี้พบว่าบริษัทที่มีอายุของกรรมการตรวจสอบที่มากกว่าจะมีต้นทุนส่วนของผู้ถือหุ้นและต้นทุนเงินทุนถัวเฉลี่ยถ่วงน้ำหนักมากกว่า อย่างไรก็ตาม การวิจัยครั้งนี้ไม่พบความสัมพันธ์ระหว่างคณะกรรมการสรรหา และ/หรือ คณะกรรมการพิจารณาค่าตอบแทนกับต้นทุนของเงินทุน ผลการศึกษานี้สอดคล้องกับงานวิจัยในอดีตที่พบว่าคุณลักษณะของคณะกรรมการตรวจสอบมีผลต่อประสิทธิภาพการทำงานของคณะกรรมการตรวจสอบและมีผลต่อคุณภาพของรายงานทางการเงิน ซึ่งสามารถนำไปสู่การมีต้นทุนของเงินทุนที่ต่ำกว่า

คำสำคัญ: การกำกับดูแลกิจการ คุณลักษณะของคณะกรรมการ คณะกรรมการตรวจสอบ ต้นทุนของเงินทุน

Introduction

Corporate governance is a vital mechanism that needs to be well emphasized among and properly adopted by firms so as to safeguard the interest of investors, including creditors and shareholders. Notwithstanding, many investors fail to fully realize the importance of corporate governance and potential damage that could ensue for the lack of it. Worse, the government and private sectors as well as the regulators contribute too little the effort to promote better corporate governance among business enterprises. In addition, firms have been found failing to strictly observe the corporate governance principles and/or failing to consistently implement them, examples of which were the cases of Enron and WorldCom, where the crisis was the result of their boards of directors' failing to monitor the management. Examples of lack of corporate governance abound following the Hamburger Crisis, the so-called financial crisis in the United States of America which was triggered by a failure to effectively regulate the financial sector.

Following the collapse of Enron emerged the "cost of capital shock" phenomenon whereby the cost of capital of firms has spiraled upward to account for such a shock. In addition, the shock which had driven up risk aversion of investors necessitated a large number of firms to introduce changes to their disclosure policies and practices. As a matter of fact, to mitigate the adverse effects of the cost of capital shock, it was reported that disclosure according to the requirements of the capital market and investors needs would eventually lead to lower cost of capital (Lanz and Schran, 2009). Meanwhile, transparency in disclosure lowers the cost of capital as investors perceive of the firm as low risk. For instance, in the work Botosan (1997), for firms that attract a low analyst following, those with higher disclosure level were related to lower cost of equity. Embong, Saleh and Hassan (2012) also found that higher disclosure was associated with lower cost of equity of large firms.

Jiamsagul (2007) reported that financial transparency and information disclosure, board composition and the existence of remuneration and/or nomination committees had a positive effect on performance of SET100 firms in Thailand, the finding which was attributable to reduction of information asymmetry due to increased transparency and disclosure; and that good board's characteristics could reduce agency problem. In addition, Byun, Kwak and Hwang (2008) found that firms practicing good corporate governance had lower cost of equity, the finding which was consistent with the agency theory in which corporate governance practice can reduce the implied cost of equity through a reduction in agency problem and information asymmetry. Bozec and Bozec (2010 and 2011) found that firms with better corporate governance practices were likely to have lower cost of debts, cost of equity, and WACC. In other words, good corporate governance was related to the reduced cost of debts and cost of equity (Pham, Suchard and Zein, 2007).

Based on review of literature and the agency theory, good corporate governance practices could give rise to the reduction in cost of capital. Since the main responsibility of audit committee entails reporting of financial information which in turn is a main source of information for investors in their investment decision-making, good audit committee characteristics could thus reduce the information asymmetry and agency problem through transparency in financial reporting, the action which decreases investors' risk and thereby leads to lower rate of return required by the investors and subsequently lower cost of capital for the firm. This research study used Thailand data because of its emerging market nature and the concentrated ownership of Thai firms, in contrast to most developed capital markets where ownership is dispersed.

Theory, Literature Review and Hypothesis Development

1. Agency Theory

Developed by Jensen and Meckling (1976), the agency theory relates to conflicts of interest between various contracting parties, i.e., shareholders (principal) who own the economic resources and management (agent) who use and control those resources. When two parties hold different interests, agency problems inevitably arise whereby owners of economic resources need managers to generate returns on their economic resources whereas the managers use the economic resources to maximize their own interest.

2. Audit Committee's Role And Duties

The audit committee is formed to assist the board of directors in the latter's oversight and monitoring of the firm as well as the manager. The committee's other responsibilities include overseeing of financial reports and disclosure process, such as accounting policies and principles; and reviewing the internal control systems, risk management and firm's compliance with laws and regulations. In addition, the audit committee is tasked with preparation of audit committee's reports of annual reports as required by the regulatory agencies.

2.1 Audit Committee Size (AC_SIZE)

The appropriate size of audit committee members depends in large on the firm's structure and nature of business and the committee should be comprised of individuals of diverse expertise and backgrounds. However, too many audit committee members were found to decrease the flexibility of operations. According to one research study by Pham, Suchard and Zein (2007), it was shown that a small board size could reduce the firm's asymmetry of information, thereby resulting in investors demanding lower rate of return which in turn led to lower cost of capital. In addition, a small size of audit committee allowed for efficient management, leading to better operation effectiveness of the firm (Hsu and Petchsakulwong, 2010). On the other hand, Felo, Krishnamurthy and Solieri (2003) pointed out the positive relation between larger audit committee size and the increasing quality of financial reports. Lin, Li and

Yang (2006) suggested that larger audit committee size could better monitor financial reporting process and thus lower the likelihood of earnings management. Nevertheless, Baxter (2007) did not find any evidence-based association between audit committee size and improved quality of financial reports, as well as earnings management, the findings which were consistent with the research work by Bedard, Chtourou and Courteau (2004).

Literature review on the size of audit committee suggests that smaller audit committee size can operate with more flexibility but lower conflicts, resulting in effective and efficient management within the committee. As such, we anticipate a positive correlation between the audit committee size (AC_SIZE) and the cost of capital and hypothesize that:

H_1: Firms with greater numbers of audit committee members are more likely to have higher cost of capital.

2.2 Audit Committee Accounting and Finance Expertise (AC_EXP)

The duties of audit committee mainly involve overseeing of financial reporting process, verifying whether financial reports are prepared in a correct and complete manner, and ensuring that accounting and financial information contained in the financial reports is accurate and reliable. Thus, the Stock Exchange of Thailand requires that there should be at least one audit committee member with some knowledge, understanding or experiences in accounting or finance. Bedard, Chtourou and Courteau (2004) stated that firms with at least one audit committee member with expertise on accounting and finance tended to exhibit the decreased likelihood of earnings management. In addition, Felo and Solieri (2008) viewed that the audit committee with more expertise could improve the quality of financial reports (Felo, Krishnamurthy and Solieri, 2003). Likewise, Ahmat, Iskandar and Saleh (2009) noted that the greater the number of audit committee members with financial expertise, the higher the chance a firm would survive in the event of financial distress. It is argued that audit committee members with expertise in accounting and finance are able to monitor and review more effectively the operational and financial reporting of the company. However, Baxter (2007) reported no association between the expertise of audit committee in accounting and finance and the improved quality of financial reports.

Literature review on the audit committee's accounting and finance expertise suggests that accounting and finance expertise of the audit committee could have an impact on the efficiency of audit committee and thereby the quality of financial reports. Hence, we expect a negative correlation between the audit committee's accounting and finance expertise (AC_EXP) and the cost of capital and hypothesize that:

H_2: Firms with higher proportion of audit committee members with accounting and finance expertise are more likely to have lower cost of capital.

2.3 Audit Committee Meeting (AC_MEET)

The audit committee meeting is used as a proxy for audit committee's diligence which reflects the effectiveness and efficiency of the audit committee. The audit committee members should convene at least four times a year to review the accuracy and reliability of the financial statements. Previous studies showed the frequent meeting of the audit committee could reduce earnings management (Xie, Davidson and Dedalt, 2003), prevent fraudulent financial reports (Owens-Jackson, Robinson and Shelton, 2009) as well as improve the quality of financial reports (McMullen and Raghunandan, 1996). However, Bedard, Chtourou and Courteau (2004) found no significant association between the audit committee meeting and the earnings management or improved financial reporting quality (Baxter, 2007)

Literature review on the audit committee meeting suggests that the audit committee meeting reflects how responsible the audit committee is in performing the tasks of examining problems or issues in the firm's operation and in the financial reports, including the issues having been ignored by the board of directors. Frequent audit committee meeting helps ensure that important issues are investigated and addressed. We thus anticipate a negative correlation between the audit committee meeting (AC_MEET) and the cost of capital and propose the following hypothesis:

H_3: Firms with more audit committee meeting tend to have lower cost of capital.

2.4 Multiple-Directorship of Audit Committee Members (AC_MULTI)

Audit committee members holding multiple directorships, i.e. serving on multiple boards in multiple firms, are less likely to have sufficient time to perform their duties, the situation which gives rise to lower effectiveness and efficiency of the audit committee. On the other hand, in a number of cases audit committee members holding multi-directorships are able to transfer knowledge between firms they are serving, leading to more effectiveness and efficiency. Persons (2005) described that audit committee members with fewer directorship associations had a lower chance of financial statement fraud. Meanwhile, Sharma and Iselin (2012) showed that audit committee members with fewer directorships had positive association with financial misstatements due to the fact that audit committee members who served on multiple boards of directorships may ineffectively perform their monitoring responsibilities. Nevertheless, Zheng (2008) did not find any relations between the audit committee members' multiple directorships and the firm's financial reporting quality. Yet, the audit committee members with either accounting or financial expertise and multiple directorships are more likely positively associated with the quality of financial reports, as they need to protect their reputation through diligence and effective knowledge transfer among the firms they are serving.

Literature review on the audit committee members' multiple directorships suggests that multiple directorships can affect the effectiveness

and efficiency of audit committee. This is due to the fact that multiple directorships likely leave them with insufficient time to fully perform their duties. Therefore, we expect a positive correlation between the audit committee members' multiple-directorships (AC_MULTI) and the cost of capital and propose the following hypothesis:

H_4: Firms with higher numbers of audit committee members holding multiple directorships are more likely to have higher cost of capital.

2.5 Audit Committee Member Age (AC_AGE)

The responsibilities of audit committee require diverse knowledge and experiences and such diversity contributes to various points of view, which would enable monitoring and handling of all issues in a comprehensive manner. Meanwhile, high audit committee member age, an indication of years of experiences, is beneficial to the functioning of the audit committee as they have a good understanding of investors' demands for information in the financial reports. Hsu and Petchsakulwong (2010) illustrated a negative relation between the board of directors' age and efficiency, indicating that the increased average age of the board directors could undermine the firm's efficient performance. Due to deteriorating health and/or old age, senior board directors may respond to the demand of the job more slowly than those of younger age. In contrast, Dao, Huang and Zhu (2012) claimed that higher average audit committee members' age in the US firms led to lower cost of equity capital, the finding of which could be a reason for the US Securities and Exchange Commission's calling for greater board diversity.

Literature review on the audit committee members' age suggests that aging audit committee members lead to lower audit committee effectiveness and efficiency because they respond to the demand of the job more slowly than members with younger age. We expect a positive correlation between the audit committee member age (AC_AGE) and the cost of capital. Thus, the following hypothesis is proposed:

H_5: Firms with higher audit committee member age are more likely to have higher cost of capital.

2.6 Existence of Remuneration and/or Nomination Committee (COM_NOR)

The existence of the remuneration committee helps increase transparency in determination of executive compensation packages, whereas the nomination committee is responsible for the recruitment and appointment of new directors and managers. Jiamsagul (2007) showed that the existence of remuneration and/or nomination committees is correlated with the firm's high performance as the agency problems reduce and transparency increases.

Literature review on the existence of remuneration and/or nomination committees suggests that both committees can solve the conflicts of interest between directors and their compensation levels and conflicts between the recruitment and management teams. We expect a negative correlation between the existence

of remuneration and/or nomination committees (COM_NOR) and the cost of capital and propose the following hypothesis:

H_6: Firms with the existence of remuneration and/or nomination committees are more likely to have lower cost of capital.

Research Design

1. Sample Selection

This study examined 484 listed firms in the Stock Exchange of Thailand (SET) during the period of 2010–2011, excluding firms in financial services and insurance industries because they are subject to specific regulatory bodies and thereby have different corporate governance and stricter accounting policies. In addition, firms whose fiscal year-ends do not fall on 31st December were excluded because the samples were required to be subject to the similar market conditions.

The corporate governance data were gleaned from the firms' annual reports and annual registration forms (Form 56-1) of the SET Market Analysis and Reporting Tool ("SETSMART"). The accounting data used in this study were both retrieved from DataStream and manually collected from SETSMART and the consolidated financial statements.

2. Measuring Firm's Cost of capital

This study examines the relation between corporate governance mechanisms related to the board of directors' characteristics and the cost of capital in terms of cost of debts (Kd), cost of equity (Ke) and Weighted Average Cost of Capital (WACC).

2.1 Cost of debts (K_d)

The cost of debts is the interest rates on the firm's debts, measured by the interest expense for the year divided by average interest-bearing debt.

$$K_d = \left(\frac{\text{Interest Expense}}{\text{Average Interest-Bearing Debt}}\right) \times (1 - T) \quad (1)$$

Where

Interest Expense = Interest expense at Yeart

Average Interest-Bearing Debt = Average between Interest-Bearing Debts at $Year_t$ and $Year_{t-1}$

T = Corporate tax rate

2.2 Cost of equity (K_e)

The minimum rate of return or expected rate of return that shareholders require, determined by the Capital Asset Pricing Model (CAPM) as follows:

$$K_e = R_f + (MRP \times \beta) \quad (2)$$

Where

R_f = Risk-free rate (by referring to the interest rate of Treasury bond at $Year_t$)

MRP = Market Risk Premium, determined by $R_m - R_f$ (Market Return Rate – Risk Free Rate)

β = Intercept and slope associated with the linear relation $\frac{Cov(R_i, R_m)}{VAR(R_m)}$, Where $Cov(R_i, R_m)$ is covariance of security i's return with the market return and $Var(R_m)$ is variance of the market return.

2.3 Weighted Average Cost of Capital (WACC)

Because of differences in the financial structures of each firm, the cost of capital is calculated with consideration given to the ratio (weights) of liability to equity of the firm. The weighted average cost of capital is thus calculated as follows:

$$WACC = \left[\left(\frac{D}{D+E}\right)\times(K_d\times(1-T))\right]+\left[\left(\frac{E}{D+E}\right)\times K_e\right] \quad (3)$$

Where:

D = Book value of total liability at Yeart

E = Book value of total equity at Yeart

K_d = Cost of debt at Yeart

K_e = Cost of equity at Yeart

3. Measuring Board of Directors' Characteristics

3.1 Audit Committee Size (AC_SIZE) is measured by number of audit committee members.

3.2 Audit Committee Accounting And Finance Expertise (AC_EXP) is measured by the number of audit committee members who have accounting and finance expertise divided by number of audit committee members. Accounting and finance expertise is referred to work experience in accounting or finance field and/or graduating with an accounting or finance degree.

3.3 Audit Committee Meeting (AC_MEET) is measured by number of audit committee meetings in 1 year.

3.4 Audit Committee Member Multiple-Directorship (AC_MULTI) is measured by the number of firms that audit committee members work as directors divided by the number of audit committee members.

3.5 Audit Committee Member age (AC_AGE) is measured by of the total age of audit committee members divided by the number of audit committee members.

3.6 Existence of Remuneration and/or Nomination Committees (COM_NOR) is equal to 1 if the firms have remuneration and/or nomination committees and 0 for otherwise.

4. Control Variables

4.1 Firm Size

Among the control variables is the firm's size (LOG_ASSET) as determined by natural logarithm of total assets. Firm's size is used as a proxy for a firm's performance and risks. Larger firms usually have more diversified operating activities, more transparency and are easier to monitor with potentiality of reducing firm's risks, leading to investors' request for lower rate of return and thereby a lower cost of capital (Pham, Suchard and Zein, 2007; Bozec and Bozec, 2010; 2011). Therefore, we expect a negative correlation between the firm's size (LOG_ASSET) and the cost of capital.

4.2 Leverage

Leverage (LEVERAGE), calculated as interest bearing debt to book value of equity, is the firm's financial structure. If the firm manages debts, it will lower the cost of capital because of tax savings from interest payments. On the other hand, if the firm has high debts, it will lead to higher risk

for bankruptcy and thus have high cost of capital because investors demand higher return to recover the risks. (Fama and French, 1992). Therefore, we expect a positive correlation between leverage (LEVERAGE) and the cost of capital.

4.3 Price to Book Ratio

Price to book ratio (PB_RATIO), calculated as the market value of equity to the book value of equity, is used as a proxy for the firm's growth opportunities. High growth firms are expected to produce high revenue and cash flow, thus lowering cost of capital (Bozec and Bozec, 2010). However, if the firms have higher return, investors will demand high return, causing an increase in the cost of capital (Pham, Suchard and Zein, 2007). Therefore, we expect a negative correlation between the price to book ratio (PB_RATIO) and the cost of capital.

4.4 Interest Coverage

Interest coverage ratio (INT_COVER) is available only for the cost of debts and WACC model, calculated as operating profit over interest expense. It is used to proxy the firm's ability to repay its debts (Lorca et al., 2011). Therefore, we expect a negative correlation between the interest coverage ratio (INT_COVER) and the cost of debts and WACC.

5. Regression Model

In this study, we developed models to investigate the relations between all variables to test the proposed hypotheses.

$$K_{d,i,t} = \beta_0 + \beta_1(AC\_SIZE)_{i,t} + \beta_2(AC\_EXP)_{i,t} + \beta_3(AC\_MEET)_{i,t} + \beta_4(AC\_MULTI)_{i,t} + \beta_5(AC\_AGE)_{i,t} + \beta_6(COM\_NOR)_{i,t} + \beta_7(LOG\_ASSET)_{i,t} + \beta_8(LEVERAGE)_{i,t} + \beta_9(PB\_RATIO)_{i,t} + \beta_{10}(INT\_COVER)_{i,t} + \varepsilon_{i,t} \quad (4)$$

$$K_{e,i,t} = \delta_0 + \delta_1(AC\_SIZE)_{i,t} + \delta_2(AC\_EXP)_{i,t} + \delta_3(AC\_MEET)_{i,t} + \delta_4(AC\_MULTI)_{i,t} + \delta_5(AC\_AGE)_{i,t} + \delta_6(COM\_NOR)_{i,t} + \delta_7(LOG\_ASSET)_{i,t} + \delta_8(LEVERAGE)_{i,t} + \delta_9(PB\_RATIO)_{i,t} + \varepsilon_{i,t} \quad (5)$$

$$WACC_{i,t} = \alpha_0 + \alpha_1(AC\_SIZE)_{i,t} + \alpha_2(AC\_EXP)_{i,t} + \alpha_3(AC\_MEET)_{i,t} + \alpha_4(AC\_MULTI)_{i,t} + \alpha_5(AC\_AGE)_{i,t} + \alpha_6(COM\_NOR)_{i,t} + \alpha_7(LOG\_ASSET)_{i,t} + \alpha_8(LEVERAGE)_{i,t} + \alpha_9(PB\_RATIO)_{i,t} + \alpha_{10}(INT\_COVER)_{i,t} + \varepsilon_{i,t} \quad (6)$$

Where

K_d	=	Cost of debt
K_e	=	Cost of equity
WACC	=	Weighted average cost of capital
AC_SIZE	=	Audit committee size
AC_EXP	=	Audit committee accounting and finance expertise
AC_MEET	=	Audit committee meeting
AC_MULTI	=	Audit committee member with multiple directorships
AC_AGE	=	Audit committee member age
COM_NOR	=	The existence of remuneration and/or nomination Committees
LOG_ASSET	=	Firm size
LEVERAGE	=	Leverage
PB_RATIO	=	Price to book ratio
INT_COVER	=	Interest coverage ratio

Results

1. Descriptive Statistics

Table 1 presents descriptive statistics for all samples, consisting of minimum, maximum, mean and standard deviation values of all variables. The means of cost of debt (K_d), cost of equity (K_e), weighted average cost of capital (WACC) are 3.24, 0.96 and 2.12, respectively.

The average of audit committee size (AC_SIZE) is 3.10 persons per committee. The average of audit committee with accounting and finance expertise (AC_EXP) is 31.59 percent. The average of audit committee meeting (AC_MEET) is 5.85 times per year. The average of audit committee multiple-directorship (AC_MULTI) is 2.72 companies per person. The average of audit committee age (AC_AGE) is 62.52 years while the existence of remuneration and/or nominating committees (COM_NOR) is 0.64 or 64 percent of the samples.

In terms of control variables, the average firm size is 22,562 million Thai Baht (approximately USD 752.07 million) and the average leverage

Table 1 Descriptive Statistics On Cost Of Capital And Board's Characteristics Variables (N = 480)

Variables	Minimum	Maximum	Mean	Standard Deviation
Cost of Capital:				
K_d	.0051	9.0260	3.2487	1.6013
K_e	−1.7432	6.8197	0.9632	1.3824
WACC	−.6413	8.5545	2.1245	1.1423
Board's Characteristics:				
AC_SIZE	3.0000	5.0000	3.1000	.3730
AC_EXP	.0000	1.0000	0.3159	.2521
AC_MEET	3.0000	18.0000	5.8500	2.6575
AC_MULTI	.6667	8.3333	2.7247	1.3834
AC_AGE	42.33	81.0000	62.5264	7.0541
COM_NOR	.0000	1.0000	0.6450	.4750
Control Variable:				
LOG_ASSET	2.2143	6.1469	3.5254	.6454
LEVERAGE	.0000	35.5923	0.8245	1.8686
PB_RATIO	.1400	13.2800	1.7141	1.6234
INT_COVER	−389.3700	3426.7500	80.7413	326.8246

(LEVERAGE) is 82.45%. The average price to book ratio (PB_RATIO) is 1.71 and the average interest coverage ratio (INT_COVER) is 80.74.

2. Regression Results

From Table 2, F-statistic of the cost of debt (K_d) regression model is significant at 1% level and the adjusted R^2 for the cost of debt (K_d) model is 6.1%. Besides, F-statistic of the cost of equity (K_e) regression model is significant at 1% level and the adjusted R^2 for the cost of equity (K_e) model is 19.8%. Finally, F-statistic of the weighted average cost of capital (WACC) regression model is significant at 1% level and the adjusted R^2 for the weighted average cost of capital (WACC) model is 22.8%

Table 2 presents the regression results of cost of debts (K_d), cost of equity (K_e) and weighted average cost of capital (WACC). Coefficient of audit committee size (AC_SIZE) is significantly positive at 1% level in the cost of equity (K_e) model. The findings reveal that firms with smaller audit committee size have lower cost of equity. Small audit committee size with efficient operation enhances the firm's operation efficiency (Hsu and Petchsakulwong, 2010). In addition, small board size can reduce the firm's information asymmetry and thereby the rate of return as demanded by investors, leading to lower cost of capital (Pham, Suchard and Zein, 2007).

Audit committee's accounting and finance expertise (AC_EXP) is significantly negative at 5% level in the cost of debt (K_d) model, indicating that firms with higher proportion of audit committee with accounting and finance expertise have lower cost of debts. Increasing the number of audit committee members with financial expertise would increase efficiency, thus improving the firm's survival chances in financial distress (Rahmat, Iskandar and Saleh, 2009). Besides, firms with at least one audit committee member with accounting and finance expertise exhibited a lower likelihood of earnings management (Bedard, Chtourou and Courteau, 2004) while improving financial reporting quality (Felo, Krishnamurthy and Solieri, 2003; Felo and Solieri, 2008).

Audit committee meeting (AC_MEET) is significantly positive at 5% level in the cost of debt (K_d) model and the weighted average cost of capital (WACC) model, indicating that firms with more frequent audit committee meeting have higher cost of debts and weighted average cost of capital. This is probably attributable to perceptions of investors that frequent meeting of audit committee members is indicative of imminent accounting or financial problems and/or irregularities in the financial statements, both of which negatively affect investors' attitudes toward the firm's transparency and financial reporting quality. Consequently, investors demand for higher rate or return to compensate for the risks, leading to the increased cost of debt and weighted average cost of capital.

Audit committee member multiple-directorship (AC_MULTI) is significantly positive at 5% level in the cost of equity (K_e) model and significantly positive at 1% level in the weighted average cost of capital (WACC) model, indicating that firms with

Table 2 Multiple Linear Regression Analysis (N = 480)

$$K_{d,i,t} = \beta_0 + \beta_1(AC\_SIZE)_{i,t} + \beta_2(AC\_EXP)_{i,t} + \beta_3(AC\_MEET)_{i,t} + \beta_4(AC\_MULTI)_{i,t} + \beta_5(AC\_AGE)_{i,t} + \beta_6(COM\_NOR)_{i,t} + \beta_7(LOG\_ASSET)_{i,t} + \beta_8(LEVERAGE)_{i,t} + \beta_9(PB\_RATIO)_{i,t} + \beta_{10}(INT\_COVER)_{i,t} + \varepsilon_{i,t} \quad (4)$$

$$K_{e,i,t} = \delta_0 + \delta_1(AC\_SIZE)_{i,t} + \delta_2(AC\_EXP)_{i,t} + \delta_3(AC\_MEET)_{i,t} + \delta_4(AC\_MULTI)_{i,t} + \delta_5(AC\_AGE)_{i,t} + \delta_6(COM\_NOR)_{i,t} + \delta_7(LOG\_ASSET)_{i,t} + \delta_8(LEVERAGE)_{i,t} + \delta_9(PB\_RATIO)_{i,t} + \varepsilon_{i,t} \quad (5)$$

$$WACC_{i,t} = \alpha_0 + \alpha_1(AC\_SIZE)_{i,t} + \alpha_2(AC\_EXP)_{i,t} + \alpha_3(AC\_MEET)_{i,t} + \alpha_4(AC\_MULTI)_{i,t} + \alpha_5(AC\_AGE)_{i,t} + \alpha_6(COM\_NOR)_{i,t} + \alpha_7(LOG\_ASSET)_{i,t} + \alpha_8(LEVERAGE)_{i,t} + \alpha_9(PB\_RATIO)_{i,t} + \alpha_{10}(INT\_COVER)_{i,t} + \varepsilon_{i,t} \quad (6)$$

	Expected Sign	Kd		Ke		WACC	
		β	t-statistic	β	t-statistic	β	t-statistic
Intercept		6.064	6.411	1.304	1.724	2.608	4.131
AC_SIZE	+	−0.121	−0.614	0.298	1.931*	0.174	1.258
AC_EXP	−	−0.588	−2.044**	0.031	0.134	−0.287	−1.465
AC_MEET	−	0.074	2.458**	−0.009	−0.097	0.045	2.280**
AC_MULTI	+	0.022	0.437	0.092	2.161**	0.102	2.909***
AC_AGE	+	−0.007	−0.653	0.027	3.242***	0.015	2.150**
COM_NOR	−	0.001	0.004	0.086	0.671	−0.021	−0.197
LOG_ASSET	−	−0.646	−5.123***	−0.934	−9.243***	−0.722	−8.543***
LEVERAGE	+	0.127	3.279***	−0.095	−3.080***	0.212	8.213***
PB_RATIO	−	−0.013	−0.298	0.074	2.068**	0.044	1.483
INT_COVER	−	0.000	−0.521			0.000	−1.412
R^2		0.081		0.219		0.247	
Adjust R^2		0.061		0.198		0.228	
F-value		4.030		13.959		14.711	
P-value		0.000		0.000		0.000	

Note: *** significance at 1% level, ** significance at 5% level, and * significance at 10% level

fewer audit committee members holding multiple directorships have the lower cost of equity and weighted average cost of capital. Audit committee members with fewer directorship associations were presented with fewer opportunities of financial statement fraud (Persons, 2005). Audit committee members serving on multiple boards may be stretched too thinly to effectively perform their monitoring responsibilities (Sharma and Iselin, 2012).

Audit committee member age (AC_AGE) is significantly positive at 1% level in the cost of equity (K_e) model and at 5% level in the weighted average cost of capital (WACC) model, indicating that firms with higher audit committee member age have higher cost of capital. High average age of the directors is likely to lower the efficiency of the firm's performance. Due to deteriorating health and/or old age, senior directors may respond to the demand of their tasks more slowly than their younger counterparts (Hsu and Petchsakulwong, 2010).

However, this study finds no significant relation of the existence of remuneration and/or nomination committees (COM_NOR) to cost of debts (K_d), cost of equity (K_e), and weighted average cost of capital (WACC).

For the control variables, it is found that the firm's size (LOG_ASSET) has a negative relation with cost of debts (K_d), cost of equity (K_e) and weighted average cost of capital (WACC) at 1% significance level. Besides, the firm's leverage (LEVERAGE) has positive relation with cost of debts (K_d) and weighted average cost of capital (WACC) at 1% significance level; but negative relation with cost of equity (K_e). Finally, the price to book ratio (PB_RATIO) has positive relation with cost of equity (K_e).

Summary

This study examines the association between corporate governance mechanisms related to the board of directors' characteristics and cost of capital, including cost of debts, cost of equity and weighted average cost of capital (WACC) during the period of 2010-2011 among listed firms in Thailand.

We found that audit committee size has positive relation with cost of equity. However, the results show that there is no relation between audit committee size and cost of debts or WACC. This is consistent with prior studies which documented that small board size with more efficient audit committee reduces information asymmetry and increases operation efficiency of the firm, resulting in lower rate of return demanded by investors, which in turn leads to lower cost of capital.

Besides, the audit committee's accounting and finance expertise has negative relation to the cost of debts. However, the results show that there is no relation between audit committee's accounting and finance expertise and cost of equity or WACC. This is consistent with prior studies which reported that increasing the number of audit committee members with financial expertise could enhance audit committee performance as the likelihood of earnings management decreases while the quality of financial reporting improves, both of

which reduce investors' risks and thereby lead to lower rate of return demanded by the investors and subsequently lower cost of debts for firms.

Audit committee meeting frequency has positive relation with cost of debts and WACC. However, the results show that there is no relation between audit committee meeting frequency and cost of equity. This is probably attributable to perceptions of investors that frequent meeting of audit committee members is indicative of imminent accounting or financial problems and/or irregularities in the financial statements, both of which negatively affect investors' attitudes toward the firm's transparency and financial reporting quality. Consequently, investors demand for higher rate or return to compensate for the risks, leading to the increased cost of debt and weighted average cost of capital.

Audit committee member multiple-directorship has positive relation with cost of equity and WACC. However, the results show that there is no relation between audit committee multiple-directorship and cost of debt. This is consistent with prior studies which documented that audit committee members with fewer directorships were more efficient, so the quality of financial reporting improved while risks were reduced, leading to lower rate of return demanded by investors and thus lower cost of equity and WACC.

Audit committee member ages have positive relation with cost of equity and WACC. However, the results show no relation between audit committee member age and cost of debts. This is consistent with prior studies in that the increased average age of directors could hinder the firm's performance. The performance of audit committee also suffers due to deteriorating health and/or old age, the conditions which could lower the financial reporting quality but increase the rate of return demanded by investors, leading to the higher cost of equity and WACC.

However, this study finds no significant relationship between the existence of remuneration and/or nomination committees and cost of debts, cost of equity or WACC. This finding could influence the long term cost of capital of the firm when investors have more faith in corporate governance mechanisms.

Limitations of this study lie in the calculation methods of the cost of debt (K_d), calculated as interest expenses for the year divided by average interest-bearing debt, and of the cost of equity (K_e), derived from the Capital Asset Pricing Model (CAPM). Since there exist many other methods to derive both costs of money, the outcomes could be greatly different with the other calculation methods. And, this research chiefly focuses on the audit committee variable, one of the corporate governance mechanisms, to investigate its relation with the cost of capital, there are many other variables of the corporate governance mechanisms for future researchers to choose, which could possibly better portray their relation to the cost of capital. In addition, it is recommended that future researchers employ different calculation approaches and/or methods to determine the cost of debts and cost of equity.

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