

Effect of Corporate Governance on Relationship Between CEO Power and Cost of Equity

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Abstract: The aim of this study is to investigate the direct relationship between CEO power and the cost of equity. In addition, this study also explores the effect of Corporate Governance (CG) on the relationship between CEO power and the cost of equity, using a sample of firms listed on the Thailand Stock Exchange. This study is based on the assumption of agency theory. According to the agency theory, CEOs have a conflict of interest with shareholders. In addition, the most powerful CEOs can enjoy the most private benefits. The agency theory and the managerial power approach imply that CEO power leads to high agency cost. Therefore, this study hypothesizes that the higher cost of equity should be applicable for the higher CEO power. To test the direct effect, this study uses regression analysis. In addition, some empirical evidence supports that Corporate Governance (CG) is a set of mechanisms that can reduce the agency cost and support the firm's valuation. For example, La Porta found that in countries with better protection of minority shareholders, the company value is higher. Therefore, CG should have a moderating effect on the relationship between CEO power and cost of equity. Thus, this study hypothesizes that corporate governance mechanisms moderate the relationship between the CEO power and cost of equity. To test the moderating effect, this study uses moderator regression suggested by Sharma. To the best of our knowledge, this study is the first to examine the direct relationship between CEO power and cost of equity capital and to investigate the moderating effect of the direct relationship between CEO power and cost of equity capital. This study finds that CEO power directly affects the cost of capital and firms with high CEO power experience high cost of equity. The moderator regression shows that the interaction effect between CEO power and CG is significant. In addition, CG is also significant to the cost of equity. According to Sharma, CG is a moderator and a quasi-moderator in this model.

Key words: CEO power, cost of equity, corporate governance, investigate, interaction

INTRODUCTION

Firms need capital for their operation and investments and they mainly obtain outside sources of funds capital from two sources: borrowing and issuing stock. Lenders provide funds to the firm and receive interest as a reward for their borrowing. While shareholders invest their capital to the firm, they seek dividends and capital gain. These two sources of funds are expensive for the firm, namely cost of debt and cost of equity. The cost of debt is the interests paid to lenders and the cost of the equity is the dividends and capital gain that shareholders receive for investing their capital. Both capital costs are important for firms when managers make decisions on capital budgeting. Firms do not need to pay dividends if they do not earn profit or they want to invest in new projects. However, if investors sell their shares they may either gain or lose money. In summary, the cost of equity is the return that a firm pays to those investors to compensate their risk.

Cost of equity is important in this study because it is of economic significance to firms. It is of paramount importance in a company's financing and operating decisions. The cost of equity is unobservable and so previous literatures developed methods to estimate it. There are two types of estimating methods which are ex-post cost of equity such as CAPM and Gordon model and ex-ante cost of equity such as Ohlson and Juettner-Nauroth (2005). Previous studies explored several factors to determine the cost of equity such as leverage, disclosure, shareholder right and information asymmetry. However, this study suggests that CEO power is an interesting factor that can affect the cost of equity (Malmendier and Tate, 2005).

With this decision-making authority, the CEOs have the power to coordinate all activities of inputs and carry out the contract agreement with other stakeholders. Adams *et al.* (2005) also suggests that the CEO is very powerful in a firm because the CEO is on the top-level of

the organizational structure. He refers that “top executives not only have absolute power of firms’ operational decisions but also have substantial power to influence firms’ strategic decisions.” So, the decision-making power of CEOs is very significant along with the firms’ operations (Adams *et al.*, 2005).

According the Agency theory, separation of ownership and control in firms creates agency problems between shareholders (principals) and CEOs (agents) (Jensen and Meckling, 1976). The agency cost theory focuses primarily on the conflict of interests between managers and shareholders. Due to the separation of management and ownership, powerful CEOs may make corporate financing decisions that pursue their goal instead of shareholders’ goals. This leads to higher agency cost as a result, shareholders require higher risk premium. Based on agency theory, we argue that CEO power is a determinant to the cost of equity.

The objectives of this study are to explore the degree of CEO power that relates to the cost of equity, to test if the corporate governance can mitigate the agency cost of CEO power, thus lowering the cost of equity. To achieve these goals, this study addresses the first research question. What is the relationship between CEO power and the cost of equity? Yu and Yu (2012) stated that the fundamental goal of shareholders which is maximizing of firm value cannot be pursued if managers maximize their own wealth. As it is human beings, CEOs maximize their own wealth not the firm value. For example, nature that CEOs afraid of failing projects and losing their job. So, they are not willing to take a risky project even though it can enhance the firm value. To overcome the agency problem, corporate governance is used around the world. “Corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment” (Shleifer and Vishny, 1997). The governance mechanism can align the interest of manager closely to the interest of shareholders. Corporate governance is introduced to be used as a mechanism to reduce the agency costs of managers. Thus, the cost of equity should be reduced if the corporate governance is active. This study addresses the second research question. What is the impact of corporate governance on the relationship between CEO power and the cost of equity?

This study makes significant contributions. First, this study contributes to the cost of capital research by identifying a unique determinant of the cost of equity which is CEO power. Prior evidence suggests that CEO power has a higher cost of debt (Liu and Jiraporn, 2010). It remains an interesting question whether CEO power influences firms’ cost of equity. Therefore, this study

examines how the CEO power affects the cost of equity. Second, this study explores the role of corporate governance as a moderating effect by emphasizing the effectiveness of this mechanism to the relationship between CEO power and the cost of equity. If powerful CEOs align their interests to shareholders, they maximize shareholders’ wealth. Alternatively, if powerful CEOs maximize their wealth, private benefits they take are at the expense of shareholders. This study contributes by enhancing our understanding of the effectiveness of corporate governance to mitigate the agency cost caused from CEO power. As a result, corporate governance can reduce the risk premium which lower the cost of equity.

Literature review and hypothesis development

Power and CEO power: Organizations are defined as “legal fictions which serve as a nexus for a set of contracting relationships among individuals” (Jensen and Meckling, 1976). The CEO is in the middle of this contract and coordinates the contract between the nexus of stakeholders such as shareholders, creditors, employees, customers, suppliers and other stakeholders (Fama and Jensen, 1983). Thus by authority, CEOs have great power to perform directives in the organization. Dahl (1957) stated that “A has power over B to the extent that he can get B to do something that B would not otherwise do.” Thus, according to Dahl (1957), CEO power means CEO’s have the ability to force another person to do what the CEO desires. Emerson (1962) presents power in the relational term between persons. A general formula is given as “ $P_{ab} = D_{ba}$; the power of A over B is equal to, and based upon, the dependence of B upon A” (Emerson, 1962). Thus, in his formulation, the power is based on the relationship of person (s). CEO power may come from formal and informal sources (Pfeffer, 1992). In addition, Rabe (1962) states that “power is a personal thing derived from the individual’s own special skills, integrity and contacts.” Therefore, this study defines CEO power as the person’s ability derived from his skill, contacts and position that can manipulate other people according to CEO’s the desires.

Finkelstein (1992)’s study is one of the most dominant academic research in the management field that categorizes CEO power into four dimensions namely, structural power, expert power, ownership power and prestige power. These four dimensions of CEO power have been used in various academic research (Daily and Johnson, 1997; Diga and Kelleher, 2009; Wu *et al.*, 2011; Lewellyn and Muller, 2012). Structural power is related to the distribution of the hierarchical structure within an organization (Finkelstein, 1992). Expert power is the ability of the CEO to manage the firm in a complex

environment. This ability of CEOs can be captured to form their professional certificates and the longer period that they manage in the firms (Wu *et al.*, 2011). Ownership power derives from many ways. For example, CEOs hold shares of the firm or they are founders or related to the founders (Finkelstein, 1992). Prestige power relates to whether they are recognized as managerial elites.

Cost of equity: The cost of equity is the required rate of return that investors want from their investment. It is an important variable because it can be applied in many areas such as company valuation, capital budgeting and investment evaluation. The cost of equity cannot be directly observable. Previous academic research found that many factors affect the cost of equity.

Many factors are used to determine the cost of equity such as leverage and taxes (Dhaliwal *et al.*, 2006), disclosure (Botosan, 1997; Richardson and Welker, 2001; Cheng *et al.*, 2006; Eaton *et al.*, 2007; Souissi and Khelif, 2012; Lopes and Alencar, 2010; Kim and Shi, 2011; Dhaliwal *et al.*, 2014) and information asymmetry (He *et al.*, 2013; Reverte, 2009). The effect of the disclosure level on the cost of equity can be explained by two aspects (Botosan, 1997). First, the greater disclosure level causes the market to allow more liquidity, thus the cost of equity is reduced. Second, the greater disclosure level, the lower the information risk for shareholders. As a result, investors require lower premium when their estimation of risks decrease.

Corporate Governance (CG): Since the 1930s, corporate governance has been discussed in the academic areas. There are a lot of conceptual frameworks for corporate governance developed worldwide. For example, Standard and Poor's identifies four governance dimensions that are financial information quality and transparency, ownership structure, board structure and shareholder rights (Tran, 2014). The Organization of Economic Cooperation and Development (OECD) suggests five major principles of corporate governance which are the rights of shareholders, the equitable treatment of shareholders, the role of stakeholders in corporate governance, disclosure and transparency and the responsibilities of the board. Also, the globalization of financial markets acts as a key assist to the implementation of codes of CG (Khanna and Palepu, 2004; Brown *et al.*, 2011).

The role of corporate governance is an important impact factor to business. Before assessing that role, this study will describe the term "corporate governance". The concept of corporate governance has been defined in different ways. For example, Shleifer and Vishny (1997) state that "corporate governance deals with the ways in

which suppliers of finance to corporations assure themselves of getting a return on their investment." Zingales as cited in Gillan and Starks (2003), defines corporate governance as "the complex set of constraints that shape the ex-post bargaining over the quasi-rents generated by the firm". Gillan and Starks (1998) define corporate governance as "the system of laws, rules and factors that control operations at a company". Sir Adrian Cadbury, head of the Committee on the Financial Aspects of Corporate Governance in the United Kingdom defines the meaning of corporate governance as "the system by which companies are directed and controlled" (Spitzeck and Hansen, 2010; Claessens and Yurtoglu, 2013).

The objective of corporate governance is to reduce the conflict of interest problem as explained in the agency theory that managers do not take action to maximize shareholders' wealth (Moussa *et al.*, 2013). Corporate governance represents a set of mechanisms (Kang and Shivdasani, 1995; Reverte, 2009; Junarsin, 2011; Claessens and Yurtoglu, 2013). The design of these mechanisms is to serve many objectives. For example, it is to improve the principal's control over the agent to ensure that managers act in the interest of shareholders (Kang and Shivdasani, 1995) and to reduce agency costs (Mazzotta and Veltri, 2014). Also, several researchers support that corporate governance is designed to reduce agency risk (Ashbaugh *et al.*, 2006; Reverte, 2009) and minimize agency conflicts (Jiraporn *et al.*, 2012). Various types of corporate governance mechanisms are used for firms such as executive compensation (Junarsin, 2011; Cai *et al.*, 2009), hostile takeovers (Dumitrescu, 2010), effectiveness of boards public disclosure requirements (Cannella, 1995), shareholder rights (Ashbaugh *et al.*, 2006), ownership structures (Dumitrescu, 2010) and legal protection of investors (Dumev and Kim, 2005; Doidge *et al.*, 2007; Skaife *et al.*, 2006).

Agency theory: Agency theory posits an agency relationship when shareholders (principal) delegate most power to managers (agent) to operate the firm (Jensen and Meckling, 1976). As ownership is separated from control, it is difficult for shareholders to monitor managers effectively, leading to various corporate problems (Maher and Andersson, 2000; Gillan and Starks, 2003). The agency problem occurs when managers adversely affect shareholders' interest by engaging in activities when considering their own interest such as "the erection of lavish office buildings to house corporate staff or other excessive perquisite consumption" (Bebchuk *et al.*, 2002). Thus, managers have many opportunities to pursue their private benefits at the expense of shareholder interests

(Jensen and Meckling, 1976). This agency problem leads to agency costs. Jensen and Meckling suggest that there were at least three forms of agency costs which are monitoring cost, bonding cost and residual loss. “The principal can limit divergences from his interest by establishing appropriate incentives for the agent and by incurring monitoring costs designed to limit the aberrant activities of the agent”. The monitoring cost is used to ensure the management activities. “In some situations it will pay the agent to expend resources (bonding costs) to guarantee that he will not take certain actions which would harm the principal or to ensure that the principal will be compensated if he does take such actions”. Thus, this bonding cost is a restrictive covenant between principal and agent. Even paying both monitoring cost and bonding cost, the divergence between their interests can remain. It is impossible to generate the zero cost to ensure that the agent will maximize shareholders’ wealth. This difference is referred to as the residual loss.

Moderator variable: Baron and Kenny (1986) define a moderator as a “variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable. A moderator-interaction effect also would be said to occur if a relation is substantially reduced instead of being reversed.” Within a correlation framework, a moderator effect can change the direction of the relationship between independent variable and dependent variable from positive to negative or vice versa. Within an analysis of Variance (ANOVA) terms, an interaction between the independent variable and the moderator is a moderator effect to the model. They also suggest a moderator model as following (Fig. 1).

Sharma *et al.* (1981) offered that even though the interaction term is not a significant exit that a variable still can be probably classified as a moderator variable. They define a moderator variable as a variable that either modifies the form and/or the strength of a relationship between two constructs. They identify four types of a moderator variable (Table 1).

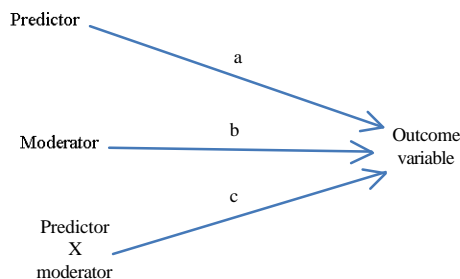


Fig. 1: Moderator model

CEO power, corporate governance and cost of equity: As already mentioned, the agency theory explains that CEOs act as agents who are delegated power from the shareholders to make critical decisions about financing, investment and product-market. The agency theory also implies that there is the agency problem because CEOs maximize their wealth instead of shareholders’ wealth. When the conflict of interest exists between CEOs and outside shareholders, it leads to agency costs. CEOs play a more dominant role among top executives thus powerful CEOs can act in a manner that benefits themselves causing deteriorated shareholders’ wealth. Bahloul *et al.* (2013) states that “if the powers of the CEO increase, he could restrict the dissemination of information to other managers and board members by increasing the agency costs of the firms”. He also states that powerful CEOs can dominate decision making from other members as a result, they will think of their self-interests not the firms’ interest. The conflict of interest cannot be aligned if CEOs try to maximize their self-interest. This study aims to directly estimate the relationship between CEO power and cost of equity. In doing so, this study is based on the assumption of agency theory. This study hypothesizes that the stronger the CEO power, the higher the cost of equity.

- H₁: CEO power is positively related to the cost of equity

Corporate governance, acting as a mechanism to lessen agency cost caused by CEO power taking shareholders’ wealth and decreasing the cost of equity has been documented in previous studies. Tran (2014) finds that the proper corporate governance structure can mitigate the cost of equity of German firms. This study shows that the cost of equity is negative to the block ownerships, the quality of financial transparency and the bonus level of board members. Many empirical studies (Bhattacharya and Daouk, 2002; Francis *et al.*, 2004; Cheng *et al.*, 2006; Hail and Leuz, 2006; Chu *et al.*, 2014) conclude that the strong investor protections are effective in decreasing the cost of equity. Bhattacharya and Daouk (2002) find significant negative results between the relationship of insider trading enforcement and the cost of equity. Also, substantial legal protection that reduces the

Table 1: Typology of moderator variable

Parameters	Related to Criterion and/ or Predictor	Not Related to Criterion and
No Interaction with Predictor moderator	Not a moderator	Homologizer
Predictor variable Interaction with Predictor variable	Quasi moderator	Pure moderator

expropriation of minority shareholders also indirectly decreases the cost of equity (Dyck and Zingales, 2004; Chu *et al.*, 2014). Based on the above discussion, corporate governance is a mechanism that effects the relationship between the CEO power and cost of equity. Therefore, this study hypothesizes that the corporate governance mechanism moderates the relationship between the CEO power and cost of equity as follows:

- H₂: CG moderates the relationship between CEO power and cost of equity

MATERIALS AND METHODS

Variable and measurement

Independent variable: Finkelstein (1992) identified that executive power is categorized into four dimensions to cope with uncertainty, namely, structural power, expert power, ownership power and prestige power.

Structural power is related to the hierarchical structure of an organization (Finkelstein, 1992). Many prior studies (Daily and Johnson, 1997; Wu *et al.*, 2011; Lewellyn and Muller, 2012; Nanda *et al.*, 2013; Bach and Smith, 2007; Ting, 2013) use duality to measure CEO structural power. Consistent with experts, this study uses a dummy variable by taking the value of one if the CEO serves both the CEO and the board chair and zero otherwise. In addition, this study uses board independence to capture CEO structural power by calculating the ratio of independent directors to total directors. In contrast with other dummy variables to measure the CEO power this dummy variable will be used by taking the value of one if the ratio of independent directors is below the sample median and zero otherwise.

Finkelstein (1992) says that “in the context of strategic decision making, expertise maybe defined as the ability to deal with environmental dependencies” and he proposes that an executive who can cope successfully with uncertainties of the firm’s industrial environment has expert power. Wu *et al.* (2011) used two dummy variables to capture the expert power: certification and tenure. This study uses tenure to capture CEO expert power by calculating the ratio of total number of years that the CEO has served position and years of service (Lewellyn and Muller, 2012; Pérez and Fontela, 2006). A dummy variable will be used by taking the value of one if the ratio of tenure is above the sample median and zero otherwise. Wu *et al.* (2011) state that “CEOs with professional certificates usually have more knowledge and information about company affairs than directors and they may limit the directors’ access to such information. This study

measures CEO’s certification by taking the value of one if the CEO has at least a professional certificate and zero otherwise.

CEOs have ownership power when they own equities in the firm that they work. The greater level of equities the CEOs own, the greater the ownership power (Chen *et al.*, 2011a, b). Consistently with the experts (Bach and Smith, 2007; Daily and Johnson, 1997; Laan, 2010; Pérez and Fontela, 2006), this study uses CEO stock ownership to capture CEO ownership power by calculating the percent of total shares owned by the CEO to total shares outstanding. A dummy variable will be used by taking the value of one if the CEO stock ownership is above the sample median and zero otherwise.

Giddens as quoted in Daily and Johnson (1997), states that CEOs are a member of the managerial elite because they have a top position in an organization. With this member of the administrative elite, CEOs have prestige power to signal to both within and outside stakeholders. Wu *et al.* (2011) use two variables that are education and outside service to measure the level of CEO power prestige. Consistent with experts, this study uses education and outside service of CEOs who serve as directors of other firms to capture the prestige power. Following Wu, this study measures education by considering if the CEO has a master’s degree or above, the variable is valued one and zero otherwise. Consistent with Lewellyn and Muller (2012), this study captures the outside service as directors of other firms by taking the value one if the CEO serves other firms’ boards of directors and zero otherwise.

In conclusion, this study employs the CEO power measurement based on four dimensions of from Finkelstein (1992). For the structural power, this study uses two proxy variables that are duality and board independence. For expert power, this study uses two proxies to measure the CEO expert power: CEO tenure and certification. This study uses CEO stock ownership to capture CEO ownership power. This study uses education and outside service to capture the prestige power. Consistent with Wu *et al.* (2011), Adams *et al.* (2005) and Liu and Jiraporn (2010), this study chooses to construct the CEO power index by adding one for each variable score that meets the criteria.

Dependent variable: Although, the cost of equity is crucial for making financial decisions such as choice of capital structure and capital budgeting analysis, the current cost of equity cannot be observed directly. Scholars have proposed various models to tackle the firms’ cost of equity. One of the conventional models that

has been used to estimate this cost is the Capital Asset Pricing Model (CAPM). This model was developed by Sharpe (1964) and Lintner (1965). Graham and Harvey found that this model is widely used by US firms to estimate the cost of equity. Graham and Harvey (2001) reports that “73.5% of United States CFOs “always or almost always use the CAPM for estimating the cost of equity capital.” CAPM has commonly been used not only by financial practitioners in the business world (Warnes and Warnes, 2014) but also in academic research (Shah and Butt, 2009). The equation used to calculate expected returns following CAPM is:

$$E(R_i) = R_f + \beta_i (R_m - R_f) \quad (1)$$

Where:

- $E(R_i)$ = The expected cost of equity for firm i
- R_m = The return on the benchmark market portfolio
- R_f = The return on the risk-free asset
- β_i = The Beta of the asset i

It measures the sensitivity of the firm’s return to the benchmark market return.

Moderator variables: Corporate governance is designed specifically to ensure that managers act in the best interest of shareholders (Jiraporn *et al.*, 2012). A number of studies suggest that corporate governance plays an important role to mitigate agency problems. Previous literature classifies corporate governance mechanisms into a number of categories which include legal, regulatory and volunteer mechanisms such as disclosures, board structure, shareholder rights, ownership structures, institution monitoring and equity-based compensation. In this study, institutional ownership is invited as external corporate governance to monitor management on behalf of shareholders. Institutional ownership concentration was measured by calculating the percentage of total shares held by the top five institutional investors in a firm (Hartzell and Starks, 2003).

Control variables: The control variables identified in relevant literatures are included in this study. There are the firm’s characteristics such as size, the performance variable such as return on assets and the Risk Factors such as beta, leverage and market-to-book. The accounting return is measured by Return on Assets (ROA). The financial leverage is indicated by the total debt to total assets. Other control variables are industry and time-years. Return on Assets (ROA) is measured by the ratio of the operating income to total assets. Market-to-Book (MB) ratio is measured by the ratio of the market value of equity to the book value of equity. Firm

size is measured as the natural log of the market value of equity at the end of fiscal year. Leverage (LEV) is measured by the ratio of the long-term debt to total assets.

Regression model: As with the literature review, our research hypothesizes that the CEO power impacts the cost of equity. In addition, corporate governance mechanisms impact this relationship by mitigating agency costs and reduce risk premium. Therefore, there is a moderating effect between the relationship between CEO power and the cost of equity.

Main regression model: This study constructs the following models to examine the hypothesis. The models used in our regression analyzes are as follows:

$$COE_{it} = \beta_0 + \beta_1 CPower_{it} + \beta_2 BETA_{it} + \beta_3 ROA_{it} + \beta_4 MBV_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \epsilon_{it} \quad (2)$$

$$COE_{it} = \alpha_0 + \alpha_1 CPOWER_{it} + \alpha_2 CG_{it} + \alpha_3 BETA_{it} + \alpha_4 RAO_{it} + \alpha_5 MBV_{it} + \alpha_6 SIZE_{it} + \alpha_7 LEV_{it} + \epsilon_{it} \quad (3)$$

$$COE_{it} = \gamma_0 + \gamma_1 CPOWER_{it} + \gamma_2 CG_{it} + \gamma_3 CEOPOWER_{it} \times CG_{it} + \gamma_4 BETA_{it} + \gamma_5 ROA_{it} + \gamma_6 MBV_{it} + \gamma_7 SIZE_{it} + \gamma_8 LEV_{it} + \epsilon_{it} \quad (4)$$

Where:

- i and t = The subscripts denote firm and time, respectively
- COE_{it} = Cost of equity
- $CPower_{it}$ = CEO power
- CG_{it} = Governance score/institutional ownership
- $CPower_{it} \times CG_{it}$ = CEO power × governance score
- $BETA_{it}$ = Percentage change in the price of an equity given a one percent change in its benchmark index
- ROA_{it} = Return on assets = operating income to total assets
- MBV_{it} = Market-to-Book is calculated as the market value of equity to the book value of equity.
- $SIZE_{it}$ = Firm size (LogMV) is measured as the natural logarithm of the market value
- LEV_{it} = Total debt/total asset

Data collection and analysis method: This study will use the data of the listed companies on the Stock Exchange of Thailand (SET) and the Market for Alternative Investment (MAI). The data will cover the period of 2011-2014 and will be taken from financial statements and annual reports provided by the Stock Exchange Commission (SEC) and

the SET. The data is collected from both markets and the incomplete data will be eliminated. Our sample consisted of 1368 firm-year listed in both markets for the years of 2011-2014. The data uses in this study comes from four separate sources that are the annual reports, Bloomberg database, DATA STREAM database, and SET Market Analysis and Reporting Tool (SETSMART) on-line service. The CEO power will be calculating using a hand-collected data and it can be obtained from the company website, company annual reports and notes in the financial statement.

Multiple regression analysis is used to test our hypothesis. The primary objective of this study is to examine the relationship between CEO power and cost of equity. This study first establishes that there is a significant relationship between CEO power and cost of equity. We also include corporate governance in the full model to see if corporate governance changes the relationship between CEO power and cost of equity.

RESULTS

Descriptive statistics of CEO power index: Table 2 shows the results of each proxy that was used to calculate the CEO power index. Each indicator variable is a dummy variable which takes the value of one if each of the criteria is met and zero otherwise. According to previous literatures, CEO power score is constructed by adding one of each dummy variable (Liu and Jiraporn, 2010; Adams *et al.*, 2005; Ting, 2013; Wu *et al.*, 2011). The CEO power index calculated from this part will be referred to as “CEO power” for the remaining parts of this analysis. Thus, the CEO power index ranges from 0-7. The median of the CBI (Board independence), CTnur (CEO tenure), CCEr (CEO certificate), COWn (CEO ownership) and CED (CEO education level) show a value equal to 1. It implies that these variables indicate a high level of CEO power.

The sample size is 1368 firms. Sample period is during the year 2010-2014. CDu (Duality) is measured as taking value of one if CEO is also serving as chairman of the board of directors and zero otherwise. CBI (board independence) is measured as the ratio of independent directors to total directors. Takes the value one if it is below the sample median and zero otherwise. CTnur (CEO tenure) is measured as taking the value one if CEO tenure is above the sample median and zero otherwise. CCEr (CEO certificate) is measured as taking value of one if CEO has at least a professional certificate and zero otherwise. COWn (CEO ownership) is measured as the percent of total shares owned by the CEO. Takes the value one if it is above the sample median and zero otherwise. CED (CEO education level) is measured as taking value of one if CEO has a master's degree or above and zero otherwise. CSer (CEO outside service) is

measured as taking value of one if CEO serves on other organizations' boards of directors and zero otherwise.

The descriptive statistics for the variables used in our regression model are presented in Table 3. The Cost of Equity (COE) mean is 12.28 (median 12.25) with a minimum of 5.13 and a maximum of 20.14. The median value for CEO power in our sample is 3. The mean value for size in our sample is 8.56 (median 8.42). Beta measures the sensitivity of the firm return to the benchmark market return. The minimum and maximum Beta reports negative and positive results which are -18.82 and 16.91 respectively. The negative Beta means that firms' risk is in the opposite direction with the market index and the positive Beta means that firms' risk is in the same direction with the market index. Leverage (LEV) is measured by the ratio of the long-term debt to total assets. The mean (median) value for leverage in our sample is 0.08 (0.04). In this study, Corporate Governance (CG) is institution ownership. The institution ownership shows the mean of 22.26 (median 13.35).

Variable definitions: COE is the measures of cost of equity. CPower (CEO power) is CEO power index that measure of adding one of each indicator variable of CEO power in Table 1. SIZE is the natural log of the market value of firm. MBV is the market value of equity to the book value of equity. BETA is the measure of market risk. ROA is calculated as income before extraordinary items scaled by total assets of the firm. LEV is a measure of firm leverage calculated as a ratio of total debt to total asset. ROA is calculated as income before extraordinary items scaled by total assets of the firm. CG (institutions ownership) is percentage of institutional investors' share ownership.

This table reports the Pearson correlation coefficients of the key variables. Variable definitions: COE is the measures of cost of equity. CPower (CEO power) is CEO power index that measure of adding one of each indicator variable of CEO power in Table 1. SIZE is the natural log of the market value of firm. MBV is the market value of equity to the book value of equity. LEV is a measure of firm leverage calculated as a ratio of total debt to total asset. ROA is calculated as income before extraordinary items scaled by total assets of the firm. CG (institutions ownership) is percentage of institutional investors' share ownership.

Table 3 presents the Pearson's correlation coefficients between the cost of equity, CEO power, the corporate governance and other control variables. This study observes that the cost of equity is positively correlated to CEO power, size, the market-book value, beta and leverage and is negatively correlated to ROA. In addition, we find that corporate governance is significantly negative to CEO power but it is in significantly positive correlate to the cost of

Table 2:CEO power index

Dimension of power	Variable	Median	Min.	Max.	SD	No. of observations
Structural power	CDu	0.000	0.000	1.000	0.363	1368
	CBI	1.000	0.000	1.000	0.500	1368
Expert power	CTnur	1.000	0.000	1.000	0.500	1368
	CCer	1.000	0.000	1.000	0.444	1368
Ownership power	COwn	1.000	0.000	1.000	0.500	1368
Prestige power	CEd	1.000	0.000	1.000	0.483	1368
	CSer	0.000	0.000	1.000	0.477	1368

Table 3: Descriptive statistics of variables

Variables	Mean	Median	Min.	Max.	SD	N
COE	12.28	12.25	5.13	20.14	2.91	1368
CPowr	3.37	3.00	0.00	7.00	1.36	1368
SIZE	8.56	8.42	4.49	13.76	1.77	1368
MBV	2.07	1.46	0.181	4.33	1.90	1368
BETA	1.18	1.08-1	8.821	6.91	2.12	1368
LEV	0.08	0.0	0.00	0.88	0.11	1368
ROA	5.62	5.16-5	7.44	64.9	89.01	1368
CG	22.26	13.35	0.00	97.76	22.36	1368

Table 4: Pearson correlation matrix of variables

Variables	COE	CPower	SIZE	MBV	BETA	LEV	ROA	CG
COE	1							
CPower	0.081**	1						
SIZE	0.267**	0.064*	1					
MBV	0.074**	0.009	0.417**	1				
BETA	0.157**	0.038	0.015	0.026	1			
LEV	0.145**	-0.072**	-0.209**	-0.222**	-0.005	1		
ROA	-0.063*	0.054*	0.229**	0.367**	-0.025	-0.348**	1	
CG	0.016	-0.071**	0.300**	0.075**	-0.004	-0.079*	0.035	1

*, **indicate significance at the 5 and 1% levels respectively for a two-tailed test

equity. This correlation coefficients of variables presented in Table 4 are not high, thus it does not raise the concerns of endogeneity among these variables. The table shows the pooled results derived from the estimation of the following:

$$COE_{it} = \beta_0 + \beta_1 CPOWER_{it} + \beta_2 SIZE_{it} + \beta_3 MBV_{it} + \beta_4 BETA_{it} + \beta_5 LEV_{it} + \beta_6 ROA_{it} + \epsilon_{it}$$

Where:

- COE = Cost of equity capital for firm i time t
- CEO power (CPower) = CEO index derived from Table 3
- SIZE = Natural log of fiscal year-end market value of equity for firm i time t. Growth (MBV) is measured by fiscal year end market value of equity divided by fiscal year end book value of equity for firm i time t
- BETA = Beta for firm i time t estimated over the 60 months prior to a firm-year observation fiscal year end. Financial leverage (LEV) is measured by fiscal year end of total liabilities over divided by fiscal year end of total assets
- ROA = Return on assets for firm i time t. N denotes the sample size

Table 5: Pooled results from the regression model (see Eq. 1)

Parameters	Standardized coefficients	t-values
Constant		17.46
CPower	0.061**	2.655
SIZE	0.263**	10.016
MBV	0.023	0.848
BETA	0.145**	6.324
LEV	0.152**	5.943
ROA	-0.051*	-1.955
R ²	0.317	
Adjust R ²	0.308	
Durbin-Watson	1.965	
N	1368	
Industry Dummies	Yes	
Year Dummies	Yes	

Table 5 reports the pooled results from the regression of model (Eq. 1) where cost of equity capital is regressed on CEO power, BETA, ROA, MBV, SIZE and LEV, respectively. Consistent with prior literature, our results indicate a significantly positive relation between BETA and cost of equity which means the higher risk, the higher return to shareholders. This study hypothesizes that there is a significant relationship between CEO power and cost of equity. Therefore, we run a regression analysis for the main effect that is to establish whether there is a relationship between CEO power and cost of equity as expected. The result of the multiple regression analysis of this model confirms that CEO power is a determinant of the cost of equity. From Table 4 the regression results show that CEO power is significantly positive with the cost of equity at a 1% level. R² and Adjusted R² are 0.317 and 0.308, respectively. The Durbin-Watson coefficient value close to 2.0, confirms that an autocorrelation problem doesn't exist. The Durbin-Watson coefficient value from our study is 1.965, so there is no autocorrelation of first-order. The Variance Inflation Factor (VIF) is used to confirm that a multicollinearity problem doesn't exist and its value should be <10. The results of VIF in Table 4 show lower than 10; thus, there is not a serious multicollinearity problem:

$$COE_{it} = \alpha_0 + \alpha_1 CPOWER_{it} + \alpha_2 CG_{it} + \alpha_3 SIZE_{it} + \alpha_4 MBV_{it} + \alpha_5 BETA_{it} + \alpha_6 LEV_{it} + \alpha_7 ROA_{it} + \alpha_8 AGE_{it} + \epsilon_{it}$$

Table 6: Pooled results from the second regression of model (see Eq. 2)

Parameters	Standardized coefficients	t-values	VIF
Constant		17.296	
CPower	0.059**	2.572	1.046
SIZE	0.279**	10.34	1.443
MBV	0.019	0.71	1.485
BETA	0.145**	6.375	1.033
LEV	0.154**	6.029	1.288
ROA	-0.049**	-1.881	1.349
CG	-0.06*	-2.496	1.161
R ²	0.320		
Adjust R ²	0.311		
Durbin-Watson	1.982		
N	1368		
Industry Dummies	Yes		
Year Dummies	Yes		

Table 7: Pooled results from third regression model (see Eq. 3)

Variables	Standardized coefficients	t-values	VIF
(Constant)	16.618		
CPower	0.079***	3.136	1.246
SIZE	0.286***	10.514	1.467
MBV	0.018	0.647	1.486
BETA	0.144***	6.29	1.035
LEV	0.155***	6.072	1.289
ROA	-0.049*	-1.871	1.349
CG	-0.016**	-0.48	2.204
CPower*CG	-0.068**	-1.937	2.466
R ²	0.320		
Adjust R ²	0.311		
Durbin-Watson	1.982		
N	1368		
Industry Dummies	Yes		
Year Dummies	Yes		

The table shows the pooled results derived from the estimation of the following model

Where:

- COE = Cost of equity capital for firm i time t
- CEO power = CEO index derived from Table 4 age is (Cpower) CEO age
- BETA = Beta for firm i time t estimated over the 60 months prior to a firm-year observation fiscal year-end
- ROA = Return on assets for firm i time t is calculated as net income divided by total assets. Growth (MBV) is measured by fiscal year end market value of equity divided by fiscal year-end book value of equity for firm i time t
- SIZE = Natural log of fiscal year-end market value of equity for firm i time t. Financial leverage (LEV) is measured by the ratio of total liabilities over total assets. INSTown (institutions ownership) is percentage of institutional investors' share ownership. N denotes the sample size

Table 6 reports the results from the second regression model (Eq. 2). As predicted, the coefficient on CG is significantly negative to the cost of equity

capital (-0.06) which indicates that the stronger the corporate governance is the cost of equity capital declines after controlling variables such as beta, size and market-to-book. The result implies that firm with a higher corporate governance enjoy lower cost of equity. R₂ and Adjusted R₂ are 0.320 and 0.311, respectively. The Durbin-Watson measure from our study is 1.982 and it confirms that an autocorrelation problem doesn't exist. The Variance Inflation Factor (VIF) is used to confirm that a multicollinearity problem doesn't exist and its value was >10.

$$COE_{it} = \gamma_0 + \gamma_1 CPOWER_{it} + \gamma_2 CG_{it} + \gamma_3 CEOPOWER_{it} \times CG_{it} + \gamma_4 SIZE_{it} + \gamma_5 MBV_{it} + \gamma_6 BETA_{it} + \gamma_7 LEV_{it} + \gamma_8 ROA_{it} + \gamma_9 AGE_{it} + \epsilon_{it}$$

Where:

- COE = Cost of equity capital for firm i time t
- CEO power = CEO index derived from Table 4 age is (Cpower) CEO age
- BETA = Beta for firm i time t estimated over the 60 months prior to a firm-year observation fiscal year-end
- ROA = Return on assets for firm i time t is calculated as net income divided by total assets. Growth (MBV) is measured by fiscal year end market value of equity divided by fiscal year-end book value of equity for firm i time t
- SIZE = Natural log of fiscal year-end market value of equity for firm i time t. Financial leverage (LEV) is measured by the ratio of total liabilities over total assets. CG (institutions ownership) is percentage of institutional investors' share ownership
- Cpower×CG = The interaction between CE power and institutions ownership. N denotes the sample size and Std. denotes the standard deviation

Table 7 reports the results from the third regression model (Eq. 3). The result show that CEO power is significantly positive with the cost of equity at 1% level, but CG is significantly negative with the cost of equity at a 1% level. As predicted, the coefficient on the interaction between CEO power and CG (CPower×CG) is significantly negative to the cost of equity capital (-0.068) which indicates that the CG influencehas opposite association between CEO power and the cost of equity. It implies that corporate governance is a good mechanism for the relationship between CEO power and the cost of equity capital. This result suggests that CEO power with higher

institutional ownership takes on a lower cost of equity. Overall, these findings suggest that when a CEO has more power they take more personal wealth tied to higher cost of equity. When the corporate governance is active, the private benefits caused by CEO power decline. As a result, the cost of equity is reduced.

R^2 and adjusted R^2 are 0.320 and 0.31, respectively. The Durbin-Watson measure from our study is 1.982 and it confirms that an autocorrelation problem doesn't exist. The Variance Inflation Factor (VIF) is used to confirm that a multicollinearity problem doesn't exist and its value is <10.

DISCUSSION

Summary and discussion of research findings: While early studies demonstrate some determinants of the cost of equity such as return, leverage and information asymmetry, little has mentioned CEO power as a determinant of the cost of equity. In this study we have presented the results of an empirical study of the direct effect of the impact of CEO power on the cost of equity and its moderating effect. Aiming to investigate this relationship, we focused on four dimensions of CEO power and constructed a CEO power index. To measure the cost of equity, this study used the Capital Asset Pricing Model (CAPM). It is a model developed by Sharpe (1964) and Lintner (1965) and it is widely used in business. It measures the sensitivity of the firm return to the benchmark market return and the expected return is calculated from historical data such as the return of firms and return of markets. As suggested in the literature (Liu and Jiraporn, 2010), CEO power has a positive influence on the cost of debt but does not state that CEO power will affect the cost of equity. This study confirms that CEO power is significantly positive with the cost of equity at a 1% level (Table 4). Thus, hypothesis 1 is supported and it shows that CEO power influences higher cost of equity. This study contributes to the existing literature by allowing for the conclusion that CEO power behaves as a predictor variable of the cost of equity.

As mentioned earlier, "corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment" (Shleifer and Visny, 1997). This implies that corporate governance is an adequate control mechanisms to ensure that managers act in the best interests of shareholders' wealth. The aim of corporate governance is to mitigate or moderate the agency problem. Therefore, the second aim of this study was to examine a possible moderating effect of corporate governance. This study contributes to the existing

literature by providing a comprehensive understanding of the moderating role of corporate governance on the relationship between CEO power and cost of equity.

Moderation effect is detected by examining interaction effects of dependent variable and moderator variable. The results of the moderation analysis using an interaction term in this study indicated that the CEO power and institution ownership (interaction term) is significant (Table 6) and the relationship between the institution ownership and cost of equity is also significant (Table 5). According to Mathieu and Taylor (2006) framework for identifying a moderator variable, institutional ownership is a quasi-moderator variable.

CONCLUSION

Therefore, we conclude that institutional ownership is a strong moderator to a relationship between CEO power and cost of equity of listed Thai firms and the relationship is weakened when institutional ownership act as a moderator. It implies that the monitoring from institutional investors can mitigate the agency cost, so risk-premium requirement from investors can be reduced. Hypothesis 2 suggests that CG moderates the relationship between CEO power and cost of equity. Thus, Hypothesis 2 is supported when institution ownership is a moderator variable.

From the empirical results, this comprehensive empirical study contributes to the existing literature by indicating CEO power is an important factor in determining the cost of equity, a comprehensive understanding of the moderating role of corporate governance on the relationship between CEO power and cost of equity. To our knowledge, this is the first study to examine the direct relationship between CEO power and cost of equity and also the moderating effect between this relationships. In summary, these results are important not only for theoretical contribution but also for practical contributions. If the criteria for evaluating corporate governance are improved, stakeholders such as legislators and investors can assure that CEOs are difficult to act for their own wealth. As a result, investors are able to get a good return on their investment if CEOs try to maximize shareholders' wealth. The major contribution of this study is that the findings may be generalized to the other countries within a different context.

LIMITATIONS

The major limitation of this study is that the ex-anti cost of equity is not estimated. This is because of the

limitation of forecasting data available in the database. There is very little information to support growth forecasting and analyst coverage.

RECOMMENDATIONS

With respect to future research, each dimension of CEO power may be conducted to further our understanding of their effect to the cost of equity. This additional knowledge will give more advanced information to stakeholders.

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