EFFECT OF CORPORATE GOVERNANCE AND COMPETITIVE ADVANTAGE ON FIRM PERFORMANCE: A CASE STUDY OF LISTED COMPANIES IN THE STOCK EXCHANGE OF THAILAND

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ABSTRACT

Title of Dissertation	Effect of Corporate Governance and Competitive Advantage on Firm Performance: A Case Study of Listed Companies in the Stock Exchange of Thailand
Author	Mr. Pornpisit Lumpaopong
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The purposes of this research were 1) to study the effect of corporate governance on firm performance, 2) to examine the effect of corporate governance on competitive advantage, and 3) to find out the effect of competitive advantage on firm performance. The quantitative data consisted of 5-year longitudinal/panel data (2011-2015). Only qualified companies listed in the Stock Exchange of Thailand (SET) were selected as population. The total of 203 shortlisted companies were good for 1,015 observations. The dummy variables derived from IOD corporate governance scores were used as corporate governance indicators. Only the financial perspective of competitive advantage, or the weighted average cost of capital was considered, Return on asset, return on equity, Tobin's q, and market value to book value were used as firm performance indicators. The control variables were market capitalization, GDP, years listed in the SET, and firm leverage.

The techniques for analysis were panel regression by the fixed-effect method and the random-effect method. The Hausman test was carried out to select the appropriate method. The model was validated and corrected using Multicollinearity, Heteroskedasticity, and Autocorrelation. The results were as follows.

1) Corporate governance had a positive effect on firm performance when market value to book value was used as an indicator. On the other hand, no effect was found if return on asset, return on equity, and Tobin's q were used as indicators.

2) Corporate governance had a positive effect on competitive advantage (the cost of capital decreased). This confirms that Agency Theory is applicable to Thailand.

3) Competitive advantage had a positive effect on firm performance when market value to book value was used as an indicator. However, it had a negative effect on firm performance if return on asset and return on equity were used as an indicator. No negative effect on firm performance was found when competitive advantage was measured with Tobin's q.

Based on the above findings, the following were recommended:

1) The results support Agency Theory, which stresses that this Western theory can be applied to Thailand.

2) The Stock Exchange of Thailand should encourage listed companies to comply with corporate governance because the higher the score of corporate governance, the lower the cost of capital (competitive advantage).

3) Related agencies should promote or educate listed companies to focus more on cost of capital management since the lower the cost of capital, the better the firm performance. They should also urge longstanding listed companies to be flexible or active in response to business conditions all the time.

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ABBREVIATIONS

Abbreviations	Equivalence
CG1	Dummy variable for corporate governance 1
CG2	Dummy variable for corporate governance 2
DA	Debt to asset ratio
GDP	GDP growth
IOD	Thai Institute of Directors Association
Mktcap	Market capitalization
MVBV	Market value to book value ratio
ROA	Return on asset ratio
ROE	Return on equity ratio
SET	The Stock Exchange of Thailand
TobinQ	Tobin's ratio
WACC	Cost of capital
Yearslisted	Number of years the company has been listed in the Stock Exchange of Thailand

CHAPTER 1

INTRODUCTION

1.1 Background and Importance of the Problem

The centralized socialist governments are less prevalent in modern economy as evidenced by the collapse of several former communist regimes like the Soviet Union and East Germany, etc. The free enterprise or capitalism concept has been widely recognized and practiced in the economic system of many states. It is a system that inspires the private sector to play a key role of the economic driver (Montree Socatiyanurak, 2017; Chayakrit Asvathitanont, 2007; Wanrak Mingmaninakhin, 1992).

Capitalism plays an important role in the expansion of the national economy. Businesses usually tend to expand their ventures, causing the need for capital. Besides loans, fund raising is one of the ways to expand businesses. A recognized funding method is to raise capital through the stock exchange because rules and procedures are clearly prescribed for investors and business executives. Before raising fund (issuing of ordinary shares) in the stock exchange, however, most businesses were usually run as sole proprietorship or as small firms mostly operated by sole business owners or entrepreneurs. Corporate management in the stock market, on the other hand, differs from business operation in the past. Companies once listed in the stock market would raise capital from the public. That makes each shareholder become a minority. Executives are separated from shareholders in company management. Such capital investment by investors in the stock market needs a transparent and fair management system. Therefore, stock market regulators must set rules and regulations that ensure the confidence and trust of the investors and stakeholders (Hiran Radisri, 2005) in order to best protect the interests of fund owners.

Many countries promote state-level governance because they often face problems in borrowing from international financial institutions such as the International Monetary Fund (IMF) when they experience economic downturn (Bowornwathana & Westcoot, 2008; Rhodes, 1996). Later, good governance has been utilized at the organizational level in a lot of countries. For example, the Stock Exchange of Mexico issued the Code of Best Corporate Practices (1999, 2001, and 2003), the Stock Exchange of Thailand (SET) announced the Code of Best Practice for Directors of Listed Companies (1998), the US passed the Sarbanes-OxleyAct (2002), the UK ratified the Cadbury Code of Best Practice (1992), and Japan reformed 3 key areas: 1) minority stockholder's rights protection, 2) non-board duality, and 3) information disclosure (Solomon & Solomon, 2004; Chayakrit Asvathitanont, 2007; Bauer, Frijns, Otten, & Tourani-Rad, 2008; Athipol Kruapong, 2010; Price, Roman, & Rountree, 2011; The Stock Exchange of Thailand, n.d.).

Despite clear protocols, management of companies listed in the stock market is not always transparent or following the defined rules. As in the case of such a leading company as Enron in 2001 for instance, the company management, along with its auditor, Arthur Anderson, was charged with multiple frauds. Or AIG, a world leading insurance company, was accused of created accounting by the US Securities and Exchange Commission (Chayakrit Asvathitanont, 2007; Duangmon Chuengsatiansup, 2009). Even in Thailand, in 2008 the management of SEC Auto Sales and Services Plc. (SECC) was found cheating on car purchase for their own gains (The Securities and Exchange Commission Thailand, 2008b). This proves that rules or regulations may not be able to prevent corruption or mismanagement for business owners (Duangmon Chuengsatiansup, 2009).

Just glancing at poor business management, dishonesty, and lack of transparency, people may think that such affect malpractices only the stockholders who are business owners. But in reality, when a business is shut down due to the lack of transparency or of good business practices, the impact is beyond the stockholders. People, especially employees, would be fired and creditors lose money, etc. (Chayakrit Asvathitanont, 2007). It can be seen that poor management, dishonesty, and non-transparency have more impacts than they have been anticipated. In contrast, if the management follows good governance, it can be beneficial to both business owners and parties concerned.

Compliance with the principles of corporate governance greatly results in the firm's good performance. Hiran Radisri (2005) found that a group of companies at the top quartile on corporate governance had the asset market value of 34% higher (Tobin's Q) than the group at the bottom quartile on corporate governance. This was consistent with a study by the Thai Institute of Directors Association (IOD) (Athipol Kruapong, 2010).

From what mentioned above, if the regulator responsible for the promotion of corporate governance can afford means or factors inspiring executives of listed companies to comply with principles, then it would do a great favor to both shareholders and parties concerned. In Thailand, the market capitalization of the SET in the years 2013-2015 was valued at 84-106% of the GDP (World Bank, 2016), which was very huge in the Thai economic system. It would be a tremendous service to the business sector and Thailand if management of the listed companies followed good governance.

In 2002, the Stock Exchange of Thailand issued 15 principles of good governance as a guideline for corporate governance. Later in 2006, it revised the corporate governance principles to be in accordance with the 2004 Principles of Corporate Governance of the Organization for Economic Co-Operation and Development (OECD). By 2012, the principles were revised again to be compatible with the ASEAN Corporate Governance Scorecard (SET, 2012a).

Even though various studies on the stock market corporate governance have long been conducted and presented in developed and developing countries., Thailand has only recently concentrated corporate governance due to the financial crisis in 1997. One issue most studied on the corporate governance has been the relationship between corporate governance and stock market performance. The findings have indicated that corporate governance corresponds to good performance (Drobetz, Schillhofer, & Zimmermann, 2003; Gompers, Ishii, & Metrick, 2003; Miyajima, 2005; Zheka, 2005; Black, Jang, & Kim, 2006). In some countries, however, corporate governance renders a zero effect on performance (Price et al., 2011; Gherghina, 2015; Javaid & Saboor, 2015). In others, corporate governance even results in worse performance (Orapan Kongmalai, 2009).

Compliance in corporate governance demonstrates the ability to best retain the interests of shareholders and stakeholders. Management must be transparent and can be scrutinized, which makes it possible for problems to be detected and for potential business capacity to be strengthened, resulting in the company's competitive advantages, i.e. good reputation, reduction of agency conflict, decrease in the cost of capital, and increase in the chance of fund raising (Drobetz et al., 2003; Madhani, 2007; Athipol Kruapong, 2010). In fact, competitive advantage is an indicator of the company's edge over its competitors. In addition to the afore-mentioned advantages, many more have been cited: for example, differentiation, low cost (Porter, 1985), ability to respond to markets and competitors (Ramaswami et al., 2006), reduction of business time (Evans, 1994; Krajewski & Ritzman, 1996; Munizu, 2013), quality of products and services (Evans, 1994; Krajewski & Ritzman, 1996), access to funds, and reduction of financial cost (Madhani, 2007). Most previous studies showed that corporate governance positively affected financial advantage by keeping the cost of capital low (Chen, Wei, & Chen, 2003; Asbaugh, Collins, & LaFond, 2004; Klock, Mansi, & Maxwell, 2004; Chen, Chen, & Wei, 2009; Huang, Wang, & Zhang, 2009; Ramly, 2012; Ramly, 2013).

Thailand has still lacked studies of the relationship between corporate governance and competitive advantage, especially the financial advantage measured from the cost of capital, and the relationship between competitive advantage (the financial advantage in this case) and firm performance. Therefore, the researcher decided to study the effect of corporate government on competitive advantage and firm performance and the effect of competitive advantage on firm performance. Listed companies in the Stock Exchange of Thailand were selected as the research sample because the management by business owners and that by executives are separated, leading to the need for corporate governance principles, and because the stock exchange has enough information available for the public. Moreover, there are now plenty of listed companies to study, so the results can be used as a guideline to increase firm performance, which is beneficial to shareholders, stakeholders, society, and the nation as a whole.

1.2 Research Objectives

1) To study the effect of corporate governance on firm performance.

2) To investigate the effect of corporate governance on competitive advantage.

3) To find out the effect of competitive advantage on firm performance.

1.3 Research Questions

1) How does corporate governance affect firm performance?

2) How does corporate governance affect competitive advantage?

3) How does competitive advantage affect firm performance?

1.4 Expected Contributions

1) The findings are useful to public organizations that promote and regulate corporate governance.

2) The findings are useful to listed companies in improving their performance and in creating their competitive advantage, which can in turn help promote investment in the SET.

3) The findings are useful to the academic community in adding the body of knowledge on corporate governance, competitive advantage, and firm performance.

1.5 Scope of the Study

1) This study employed only the quantitative method.

2) Only the secondary (longitudinal) data from the years 2011 to 2015 (5 years) were collected from listed companies in the Stock Exchange of Thailand. Companies in the financial sector and unqualified companies were excluded from the study. There were 203 companies after screening.

1.6 Limitations of the Study

1) In this study, the scores from the assessment of corporate governance compliance were used to classify listed companies. These scores were not real assessment scores, so the results of the study might be deviated.

2) To prevent discrepancies, listed companies selected to study must have balanced data. This rendered omission of many companies from the study. If more companies has been included, the results might have been different.

3) In the assessment of the cost of equity, CAPM were used. The values might vary if calculated by other methods.

1.7 Operational Definitions

1) Corporate governance refers to a system, protocol, and surveillance of an organization/business for transparency and accountability to protect the interests of shareholders, including equitable treatment of different groups of stakeholders. Corporate governance consists of 5 key topics: 1) rights of shareholders, 2) equitable treatment of shareholders, 3) roles of stakeholders, 4) disclosure and transparency, and 5) board responsibilities.

2) Competitive advantage is the financial status superior to the competitors.

3) Cost of capital denotes the cost of business payable to capital owners to finance business operation in the form of loans, preferred stock, and issuance of new common equity, calculated by weighted average cost of capital (WACC).

4) Firm performance signifies the ability to make profits or values of the business, which comprises 3 types: 1) Return on Asset (ROA), 2) Return on Equity (ROE), 3) Tobin's q (TobinQ), and 4) Market Value to Book Value (MVBV).

1.8 Research Organization

This research paper contains 5 chapters as follows.

Chapter 1 presents the background and importance of the problem, followed by defining the research objectives, the research questions, expected contributions, and definitions of the terms.

Chapter 2 describes concepts, theories, and research findings related to corporate governance, competitive advantage, firm performance, and control variables, in order to determine appropriate variables and methods. Then the relationship of the variables can be specified for hypothesis testing to answer research questions.

Chapter 3 elaborates all steps in conducting research, namely the research model, the unit of analysis, the variables and measurement, hypotheses, the conceptual framework, population, statistics used for data analysis.

Chapter 4 presents results from the data analysis using basic statistics and inferential statistics to fulfill the research objectives.

Chapter 5 discusses the results of the study by answering research questions and presents recommendations for related parties and for future research based on the results.

CHAPTER 2

LITERATURE REVIEW

This chapter examines concepts, theories, and results of previous studies related to corporate governance, competitive advantage, firm performance, and control variables so that appropriate variables and methods of the study can be determined and hypotheses can be formulated to answer the research questions. The literature review is divided into 12 sections as follows.

2.1 Corporate Governance

2.2 Agency Theory

2.3 Stakeholder Theory

2.4 Competitive Advantage

2.5 Cost of Capital

2.6 Firm Performance

2.7 Relationship between Corporate Governance and Firm Performance

2.8 Relationship between Corporate Governance and Competitive Advantage

2.9 Relationship between Competitive Advantage and Firm Performance

2.10 Control Variable

2.11 Relationship between Control Variable and Firm Performance

2.12 Relationship between Control Variable and Competitive Advantage

After reviewing the literature, the researcher defined the relationship between the variables and formulate hypotheses for testing.

2.1 Corporate Governance

Prior to discussing the term corporate governance, the major variable in this study, the researcher will first explain the concept of governance. It is a traditional concept observed by the government, which has later been applied to the private

sector under the term of corporate governance. Governance is a concept of administration of public affairs initiated around 20 years ago. Henry (2010) considered governance as the latest paradigm of Public Administration (1990-present), which has, so far, been interpreted and applied differently. Bowornwathana (2006); Rhodes (1996) mentioned that governance in the public sector referred to the management of a country with transparency, accountability, and disclosure.

The Asian Development Bank (1995), which was one of the very first banks to adopt the governance and anti-corruption principles for national development, has defined governance as encompassing. 1) accountability, 2) participation, 3) transparency, and 4) predictability. These attributes are corresponding to the guideline suggested by UNESCAP (n.d.) that defines governance as a decision-making process in accepting or refusing any practices. UNESCAP good governance consists of 8 key elements: 1) participation, 2) rule of law, 3) transparency, 4) responsiveness, 5) consensus, 6) equity and inclusiveness, 7) effectiveness , and efficiency, and 8) accountability.

The term good governance was coined to be used for the third world nations, since many of these countries sought funds from the World Bank or the International Monetary Fund (IMF) (Bowornwathana & Westcoot, 2008). Following the 1997 economic crisis, Thailand was forced to adopt governance for the public sector as part of an obligation attached to the IMF loan condition. The private sector in Thailand later put good governance or corporate governance into practice as well. Gregory and Simms (1999) stated one benefit of corporate governance was a means for effective resources utilization. The meanings of corporate governance have been defined in both narrow and broad senses (Solomon & Solomon, 2004). According to Solomon and Solomon (2004), the narrow meaning, which mentions only the relationship between the company and its shareholders, is related to Agency Theory. In the broad sense, the relationship between the company and its shareholders and stakeholders, such as suppliers, customers, and debtors, etc. are identified.

Corporate governance is often defined as a system and a process of business control, or the relationships of different groups of people that enable the management to retain the interests of the shareholders and the stakeholders (Shleifer & Vishny, 1997; Ong, 2001; OECD, 2005).

The OECD (2005) specified four aspects of corporate governance as a guideline: 1) the rights of shareholders and key ownership functions, 2) the equitable treatment of shareholders, 3) the role of stakeholders in corporate governance, 4) disclosure and transparency, and 5) the responsibilities of the board.

Thus, it is apparent that corporate governance comprises the following essences: the system, the process, and supervision of an organization/business for transparency, accountability, responsibility, and equitable treatment for different parties-shareholders and stakeholders.

In Thailand, the Stock Exchange of Thailand issued the Code of Best Practice for Directors of Listed Companies. It was later developed into the Principles of Good Corporate Governance for Listed Companies (The current one was amended in 2012). Sangwien Intarawichai (2005, p. 23) defined corporate governance in the stock market as "a system that specifies the process and the structure of leadership and the control of the business so that the leader will do his duties with transparency to create competitive edge and to retain the long-term investment value for the shareholders within the overall ethical framework".

The Principles of Good Corporate Governance for Listed Companies 2012 (The Stock Exchange of Thailand, 2012b, p. 1), currently in effect in the Stock Exchange of Thailand, defines corporate governance as "a system that includes the structure and process of the relationships of the board, managers, and shareholders in order to build competitive advantage, leading to the growth and the high share value for shareholders in the long run, taking into consideration other stakeholders". The key elements similar to the OECD corporate governance principles are: 1) rights of shareholders, 2) equitable treatment of shareholders, 3) roles of stakeholders, 4) disclosure and transparency, and 5) board responsibilities.

Surveys on corporate governance of Thailand listed companies has been conducted by the Thai Institute of Directors Association: IOD since 2001 and the corporate governance reports of Thai listed companies (CGR) have been issued to listed companies and related parties in the stock market: investors/market analysts, and regulators, for example. Thai Institute of Directors Association (IOD, 2012). The sources used in the IOD assessment are: 1) the company's annual report, 2) the annual data form (Form 56-1), 3) meeting invitation letters and minutes of shareholders

meeting, 4) the company's website, 5) company information submitted to the Stock Exchange of Thailand and the Securities and Exchange Commission, and 6) public information. Like studies in foreign countries, the IOD study used publicly available information, not the data from any field survey (IOD, 2013). However, the data are assumed to be reliable. Other countries also assessed corporate governance For example, South Korea used KCGI; Germany, CGR: and Ukraine, UCGI. The most common criteria for measurement are the structure of the board, the proportion of independent directors, responsibilities, and accountability.

Good governance is observed not just in the private sector but in the public sector as well. The State Enterprise Policy Office (SEPO) (n.d.) has set a guideline for corporate governance practices, which include the structure, the work system, service standards, and protection of the interests of all parties. Criteria and guidelines on corporate governance for state enterprises developed by SEPO are similar to the 6 basic principles outlined by the SET and OECD. They include 1) accountability, 2) responsibility, 3) equitable treatment, 4) transparency, 5) vision, and 6) ethics.

Previous studies on corporate governance covered various issues. Some studies covered the overall corporate governance. They were, for example works by Gompers et al. (2003); Miyajima (2005); Black et al. (2003); Zheka (2006); Price et al. (2011); Drobetz, Schillhofer, and Zimmermann (2003); and Bauer et al. (2008). These studies were usually conducted on multiple aspects, such as rights of shareholders, transparency, the board structure, and disclosure, etc. Most studies of the overall corporate governance used the score or the index or the rating. Despite an overall study, individual scholars' works differed in facets or components. As in the case of Thailand, Athipol Kruapong (2010), Duangmon Chuengsatiansup (2009), Chayakrit Asvathitanont (2007) studied Corporate Governance Rating (CGR) through secondary data examined by the IOD. Components reviewed included 1) rights of shareholders, 2) equitable treatment of shareholders, 3) roles of stakeholders, 4) disclosure and transparency, and 5) board responsibilities. Public rating issued by the IOD was merely an announcement of corporate governance levels and not real assessing scores.

Most corporate governance studies focused on particular issues or aspects. As Beiner, Drobetz, Schmid, and Zimmermann (2006) pointed out that these studies often concentrated on the structure of the Board or remuneration. Some individual aspects of corporate governance explored are as follows.

1) Remuneration. Remuneration of the management is important. Stock exchanges usually require that listed companies appoint the compensation committee responsible for setting transparent and appropriate remuneration as per the ability of the management (Suchada Jiamsagul, 2007). Studies on compensation were conducted by Molokwu (2011) and Bauer et al. (2008), for instance.

2) Rights of shareholders. Shareholders are the owners of business and want the return on investment. In large companies, owners and executives are often different people. Therefore, corporate governance assumes a key role as control mechanism for compensation of the fund owner (Zheka, 2006; Shleifer & Vishny, 1997). Thus, management needs to look after the interests of all shareholders, i.e. key shareholders, minority shareholders, or even foreign shareholders (OECD, 2005). The IOD assessment requires that shareholders be taken care of. An annual report or information must be distributed both in Thai and English. The issue of the rights of shareholders was studied by Miyajima (2005) and Molokwu (2011). Black et al. (2005); Zheka (2006); Bauer et al. (2008); Ilyas and Rafiq (2012) also studied the treatment of shareholders.

3) Ownership structure was studied by Molokwu (2011); Miyajima (2005); Mitton (2002); Dhnadirek and Tang (2003), Soh (2011). Ownership comprises insider ownership, blockholders, institutional investors, and family ownership (Soh, 2011). Insider ownership helps reduce agency cost since the owners strive for their stakes in the company (Soh, 2011). Another type of ownership is called blockholders who control and monitor firm executives (Soh, 2011). Institutional investors are quite powerful because often they are major shareholders (Soh, 2011), while family ownership usually does not have any asymmetric information problem (Soh, 2011).

4) The Board of Directors/ the board composition. The Board of Directors oversees the management. The Securities and Exchange Regulations of B.E. 2551 (2008) requires that the Board of Directors include the independent directors and the audit committee. The rule specifies that the Board of Directors shall compose of one third independent directors or at least 3 members. The audit committee shall be appointed by the shareholders or directors and all committee members must be independent directors. Bauer et al. (2008) also pointed that responsibility/ accountability should be the functions of the Board of Directors as well. The Board of directors was

studied by many scholars, such as Agrawal and Knoeber (1996), Conelly and Limpaphayom (2004), Suchada Jiamsagul (2007), Guoa and Kga (2012).

Moreover, the Board of Directors should have the appropriate number of members or around 7-8 persons (Jensen, 1993) so as to achieve performance according to the studies by Yermack (1996), Beiner, Drobetz, Schmid, and Zimmermann (2006), and Connelly and Limpaphayom (2004).

The Board of Directors is critical for the corporate governance system because it affects organizational planning, controlling, directing, and performance (Orapan Kongmalai, 2009). But it is surprising that Orapan Kongmalai's study (2009) found the negative impact on firm performance resulting from the board of directors' ability and participation in meetings. However, this was probably due to the limitations of her study, which was conducted in the context of state enterprises, contrasting to other studies of the private sector.

5) Transparency and information disclosure. Transparency and information disclosure are important parts of good corporate governance of OECD (2005). According to Ilyas and Rafiq (2012, p. 180), the SEC Manual of Corporate Governance (2002) indicates the exhibition of transparency is composed of 3 qualities: 1) accounting standard, 2) openness, and 3) compliance reporting. Firm performance can be scrutinized by stakeholders through the management's transparency and accountability. Studies on transparency and information disclosure were conducted by Miyajima (2005), Ilyas and Rafiq (2012), Zheka (2006), Black et al. (2005), Bauer et al. (2008), and Mitton (2002).

6) As discussed in the corporate governance notion, the organization should take social responsibility (Solomon & Solomon, 2007). The organization must build a good relationship with all stakeholders, both internal and external, i.e., customers, communities, employees, and suppliers. The management should take responsibility for those parties (Hill & Jones, 1998; Donaldson & Presston, 1995; Solomon & Solomon, 2004). In addition, OECD (2005) also identify the importance of stakeholders. Earlier studies on stakeholders were carried out by Ilyas and Rafiq (2012), Athipol Kruapong (2010), Duangmon Chuengsatiansup (2009), and Chayakrit Asvathitanont (2007).

The review of literature indicate that there exist many studies on various corporate governance issues as shown in Table 2.1.

Table 2.1 Dimensions of Corporate Governance

Author	**Compensation/Remuneration**	**Rights of Stockholders**	**Ownership Structure**	**Board of Directors/Board Composition**	**Disclosure/Transparency Information**	**Responsibility**	**Corporate Governance Score**	**Stakeholders**	**Debt Pressure**
Molokwu (2011)	✓		✓	✓					
Miyajima (2005)		✓		✓	✓		✓		
Black, Jang, and Kim (2006)	✓	✓	✓	✓	✓		✓		
Ilyas and Rafiq (2012)				✓	✓	✓		✓	
Zheka (2006)		✓		✓	✓		✓		
Bauer et al. (2008)	✓	✓		✓	✓			✓	
Guoa and Kga (2012)				✓					
Price et al. (2011)							✓		
Drobetz et al. (2003)							✓		
Mitton (2002)			✓		✓				
Dhnadirek and Tang (2003)			✓						✓
Suchada Jiamsagul (2007)				✓	✓				

Table 2.1 (Continued)

Author	Compensation/Remuneration	Rights of Stockholders	Ownership Structure	Board of Directors/Board Composition	Information Disclosure/Transparency	Responsibility	Corporate Governance Score	Stakeholders	Debt Pressure
Aekkachai Nittayagasetwat & Wiyada Nittayagasetwat. (2009)							✓		
Zheka (2005, 2006)		✓			✓				
Orapan Kongmalai (2009)				✓					

As mentioned earlier, corporate governance concerns the system, the process, and the supervision of an organization/business for transparency, accountability, and responsibility so as to protect the interests of shareholders. It also recognizes equitable treatment for different groups of shareholders and stakeholders. The OECD corporate governance principles have been used by the IOD for overseeing companies listed in the Stock Exchange of Thailand.

2.2 Agency Theory

Tippawan Lorsuwannarat (2013) remarked that as an organization theory, Agency Theory concerns organizational economics. According to Tippawan Lorsuwannarat (2013), Jensen and Meckling (1976) describes the relationship between the principal and the agent, saying that principals are individuals who seek to maximize shareholders' wealth by empowering agents to run the business. However, agents are usually opportunists; they do not always protect the best interests of the principals. They often carry out projects or policies that serve their own benefits, such as executive salary rise and focus on high yield short-term projects (Athipol Kruapong, 2010; Solomon & Solomon, 2004). That's why principals or shareholders attempt to control or monitor the operation of these agents in order to protect their interests. Such a course of action of controlling or monitoring the agents generates agency cost, which comprises 2 types, e.g. monitoring cost and bonding cost. Tippawan Lorsuwannarat (2013) defined monitoring cost as cost derived from agent monitoring mechanism set up by the principals to watch over their benefits, and bonding cost as cost derived from incentive for agents to protect the principals' benefits, usually in the form of compensation, which constituted more costs for principals. Tippawan Lorsuwannarat (2013) summed up Agency Theory as shown in Figure 2.1.

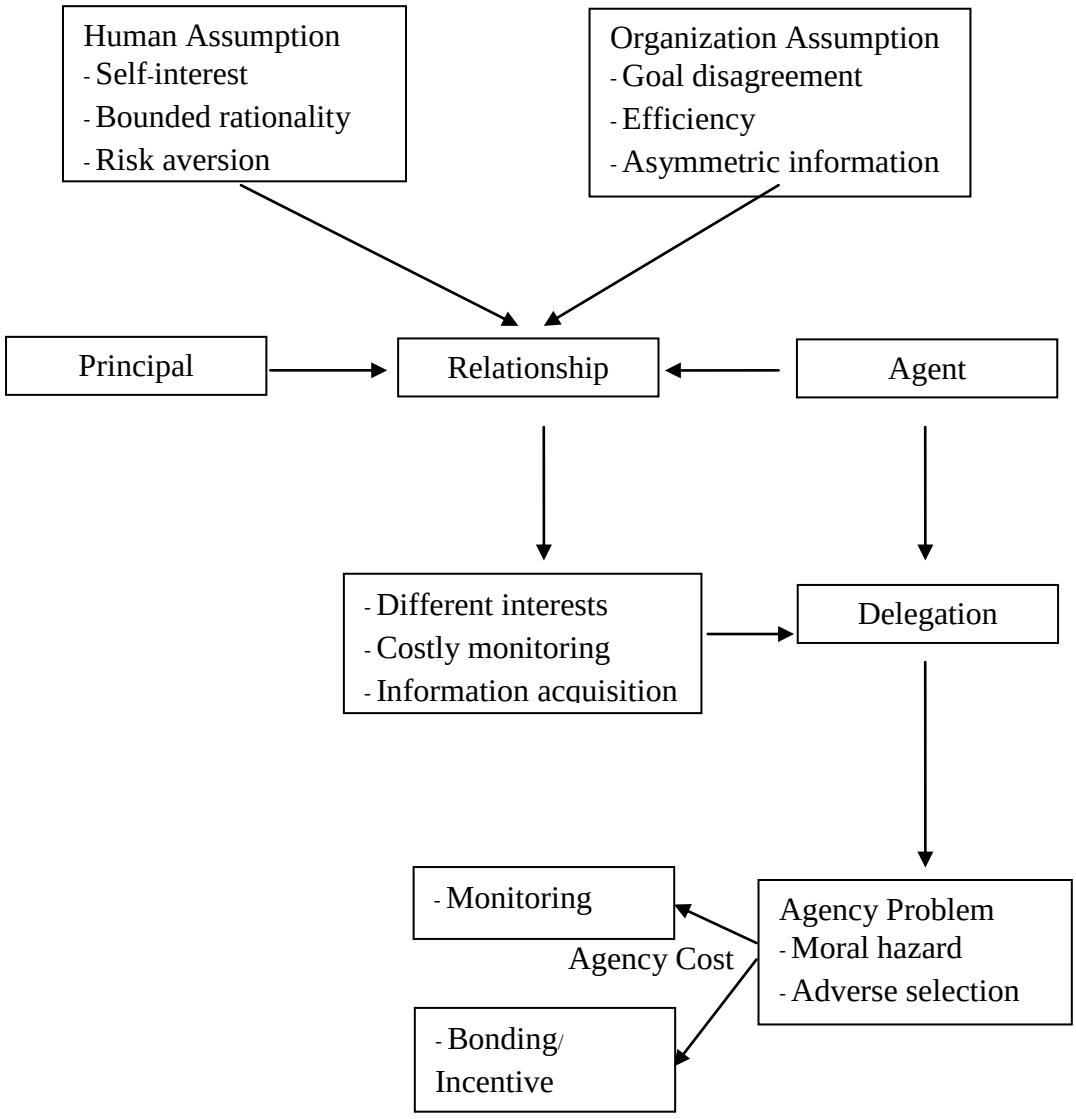

Figure 2.1 Agency Theory

Source: Tippawan Lorsuwannarat, 2013, p. 214.

Four control methods or incentives for agents, according to Brigham and Gapenski (1997), are as follows.

The first method involves a performance-based incentive plan. Shareholders may assess agents' performance via return on assets (ROA), return on shareholders' equity (ROE), earnings per share (EPS), and economic value added (EVA). Then they grant the right to own company stocks based on performance. This method can motivate agents to work harder for shareholders.

The second method is direct intervention by shareholders. This can be done by providing direct consultancy to the agents or demonstrating the intent through shareholders voting.

The third method is the threat of firing. Shareholders express their wish to fire the agents or force them to resign when they performed poorly.

The fourth method engages takeover. Normally, the company's share price drop is the result of poor performance. Dismissal of the company's management is usually followed by hostile takeover by other investors. Therefore, executives (agents) must strive for high performance to keep the share price high.

Besides agents and shareholders, agency cost can also be incurred from the relationship between agents and creditors. In the case of a big loan, creditors will show up and monitor business operation to ensure that they will get the principal and return from their investment (Brigham & Gapenski, 1997).

The above theory can explain behaviors and conflicts between principals and agents, especially for big enterprises listed in the stock market, and conflicts between agents and shareholders or between agents and creditors. This is a basic concept of good governance.

2.3 Stakeholder Theory

Stakeholder theory was introduced in 1970s as remarked by Friedman on social responsibility. Later in 1984, Freeman and Mcvea (2001) proposed the idea of accountability of the company, which covered stakeholders of the organization. According to Freeman and Mcvea (2001), stakeholders involved various groups of individuals. Donaldson and Presston (1995, p. 67) stated that stakeholders were the beneficiaries of the company operation, while Hill and Jones (1998) defined the term stakeholder as an individual or a group of individuals with interests and claims or relation to the company. Two types of stakeholders are: 1) internal stakeholders, e.g. shareholders, employees, managers, and board of directors, and 2) external stakeholders, e.g. customers, suppliers, governments, labor unions, local communities, and the public). See Figure 2.2.

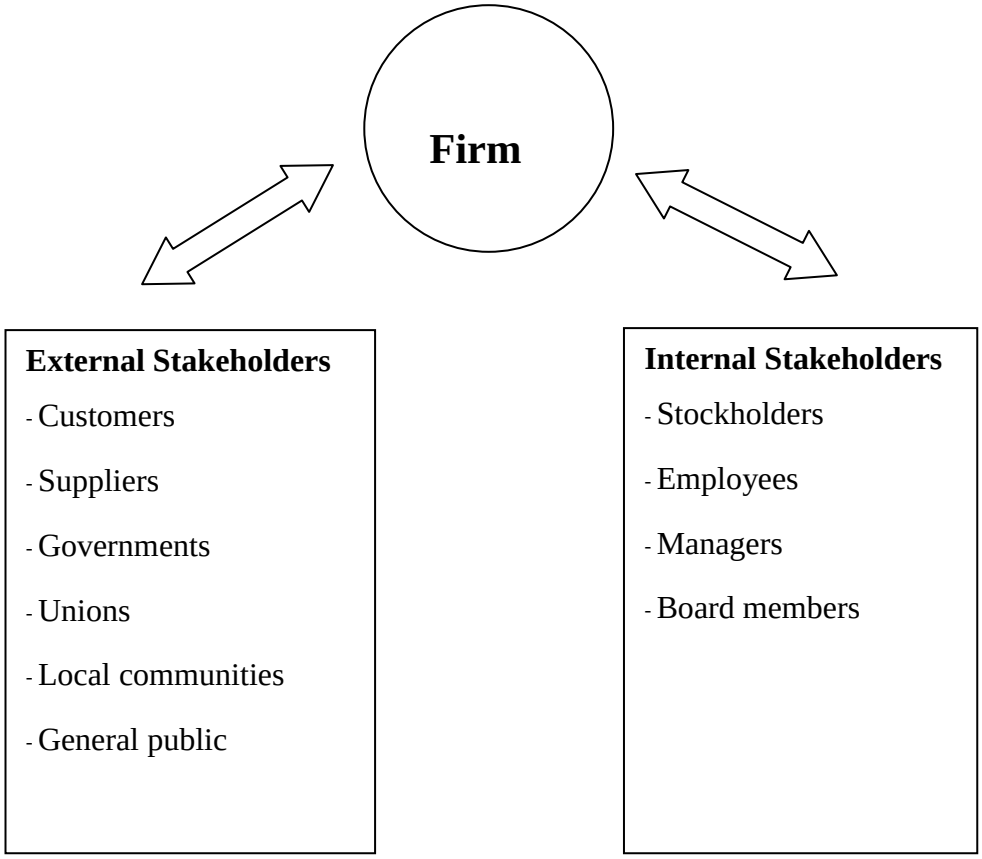

Figure 2.2 Stakeholders

Source: Adapted from Hill & Jones, 1998, p. 38.

Hill and Jones suggested that each group of internal and external stakeholders gave different priorities and held different purposes.

According to Hill and Jones (1998), internal stakeholders are

1) Shareholders who are owners of the fund for the company and expect return on investment.

2) Employees who work for the company and want good wages, job satisfaction, and good working conditions in return.

On the other hand, external stakeholders are

1) Customers are people who generate income for the company by paying money for goods and services and in the hope of getting the most for their money.

2) Suppliers provide raw materials for the company in exchange of payment.

3) The government which issues regulations with which companies must comply.

4) Labor unions which provide skilled workforce to the company desiring benefits in return.

5) Local communities which offer local infrastructure in anticipation of company responsibility for citizens.

6) The public that allows companies to make the best use of national infrastructure, wishing them, in turn, to improve the people's quality of life.

Based on the stakeholder theory, companies must be held onto accountability to not only shareholders but also all stakeholders. Hill and Jones (1992) stated that money from taxpayers was used on economic infrastructure. As beneficiaries of such infrastructure, businesses should therefore act responsiveness to the individuals. Apparently, this theory signifies that corporations should be held accountable to not only shareholders as in the past, but also all stakeholders, such as creditors, employees, including the natural environment.

2.4 Competitive Advantage

Competitive advantage has not yet been clearly defined, causing interpretation the problem of determining its elements (Ma, 2000; Rumelt, Kunin, & Kunin, 2003). However, it usually means an edge over one's competitors (Safarnia, Akbari, & Abbasi, 2011; Porter, 1985). Porter (1985) pointed out that a company's success or failure was influenced by competition. To have competitive advantage, a company needs competitive strategies. In building competitive advantage, the company must design strategies that are difficult for competitors to imitate (Barney, 1991, 2002).

According to Porter (1985), a sustainable competitive advantage is attainable through the following 3 strategies, i.e. 1) cost leadership strategy, 2) differentiation strategy, and 3) focus strategy. A company must deploy only one strategy. Carrying out 2 strategies at the same time can result in the company being stuck in the middle. And it could render the company the inability to attain competitive advantage (Hill &

Jones, 1998). However, there are now different thoughts on this matter. That is, the company may opt for more than one strategy at the same time. For example, cost leadership strategy and differentiation strategy can be simultaneously implemented (Khemaree Rugchoochip, 2008). Thompson and Strickland (1998) also supported the notion by calling the simultaneous use of two combined strategies the best cost provider.

Apart from Porter's study, a wide variety of competitive advantage studies have been conducted on the following key issues:

1) Differentiation is one of the keys to competitive advantage as studied by Porter (1985). Besides cost leadership and focus strategies, differentiation helps the company to have distinctive products or services to meet the customer satisfaction (Thompson & Strickland, 1998): durability, dependability, appearance, and safety, for example (Krajewski & Ritzman, 1996).

Differentiation in products and services is vital. When buying a product, many a time customers determine the value of their purchase rather than the price alone (Ramaswami, Bhargava, & Srivastava, 2004). Thus, having products of better quality and technology than the rivals' can give a company competitive advantage because they are valuable, rare, and hard to duplicate (Amabile, 1998; Cooper, 1979; Barney, 1991; Ramaswami et al., 2004).

2) Having low cost means products can be sold with lower/ competitive prices (Hill & Jones, 1998; Krajewski & Ritzman, 1996; Evans, 1994). Good management results in marketing that boosts sales, enabling the company to have the economies of scale, to upgrade the personnel's skills, through staff training, to reduce production cost, and to do research and development to cut costs, etc. (Hill & Jones, 1998). Safarnia et al. (2011) focused on cost in their study of competitive advantage in terms of market orientation. Munizu (2013) also focused on cost in his study of competitive advantage and Total Quality Management (TQM). While Tracey, Vonderembse, and Lim (1999) conducted a study of competitive advantage in terms of price and performance. However, competitive advantage in terms of cost may not be suitable for certain businesses, e.g., banks, because customers are interested in the quality of service rather than the cost (Al-alak & Tarbieh, 2011).

3) Marketing. There are two types of competitive advantage as follows.

(1) Market sensing: refering to the ability to respond to or foresee market conditions. It renders timely response to the market to prevent an opportunity loss. As market sensing helps understand customers better, it is good for the company (Ramaswami et al., 2004).

Leading scholars in market sensing research include Mahmood and Hanafi (2013), who investigated entrepreneurial orientation and firm performance; Al-alak and Tarbieh (2011), who studied customer orientation and firm performance; Martinette (2006), who focused on learning orientation and firm performance; and Ramaswami et al. (2004), who conducted a study on market-based assets, capabilities, business processes, and financial performance.

(2) Market responsiveness: meaning a swift response to both customers and rivals so as to attain competitive advantage (Ramaswami et al., 2004).

Market responsiveness was studied by many scholars: for example Mahmood and Hanafi (2013), Al-alak and Tarbieh (2011), Martinette (2006), and Ramaswami et al. (2004).

4) Time was examined by Krajewski and Ritzman (1996), Evans (1994), and Munizu (2013). They focused on the length of time customers had to wait for products/services, punctuality of products/services delivery, including the length of time in making products/ rendering services.

5) Flexibility: referring to quick response to customer needs in terms of quantity of goods purchased and designs of products and services (Evans, 1994; Krajewski & Ritzman, 1996; Agha & Alrubaiee, 2012).

6) Finance: concerning the cost of capital for financing business operation. It consists of the cost of debt, the cost of preferred stock, the cost of retained earnings, and the cost of newly issued common equity (Brigham & Gapenski, 1997).

Lower cost of capital: meaning lower cost in running business and better competitive advantage. Having such properties as standard corporate governance, transparency, and disclosure cannot only earn the company a good standing but also help reduce agency conflict, which in turn cuts the cost of capital down and eases fund raising (Madhani, 2007; Athipol Kruapong, 2010; Drobetz et al., 2003).

Types of competitive advantage depend on the industry-for example, flexibility, speed, and innovation-(Ma, 2000, p. 28; Krajewski & Ritzman, 1996; Evans, 1994). Most studies on these issues defined the terms related to manufacture.

Some studies viewed competitive advantage as higher return than the rivals', such as stock price and financial return, etc. (Ghemawat, 1999; Rumelt et al., 2003).

Pervious studies on competitive advantage are summarized in Table 2.2.

Table 2.2 Dimensions of Competitive Advantage

Author	**Differentiation**	**Innovation**	**Differentiation**	**Market**	**Differentiation**	**Low Cost**	**Leadership**	**Market Sensing**	**Market**	**Responsiveness**	**Time**	**Flexibility**	**Finance**
Zhou et al. (2009)			✓		✓								
Safarnia et al. (2011)			✓		✓		✓						
Mahmood and Hanafi (2013)	✓							✓		✓			
Al-alak and Tarabieh (2011)			✓		✓								
Agha & Alrubaiee (2012)												✓	
Martinette (2006)	✓							✓		✓			
Ramasawami et al. (2004)	✓							✓		✓			
Munizu (2013)							✓				✓		

Table 2.2 (Continued)

Author	Differentiation	Innovation Differentiation	Market Differentiation	Low Cost Leadership	Market Sensing	Market Responsiveness	Time	Flexibility	Finance
Tracey et al. (1999)	✓			✓					
Madhani (2007)									✓
Krajewski and Ritzman (1996)							✓		
Evans (1994)							✓		

In this study, the researcher defines competitive advantage as company's better financial edge in terms of cost of capital compared to that of business rivals because the financial aspect reflects agency cost.

2.5 Cost of Capital

In order for a company to operate its business, capital from various sources such as loans (debt) or owners' fund (shareholders' equity), is needed. All owners of these funds want their returns from invested money. Therefore, such returns are tantamount to cost that must be paid to the owners of the funds. Such cost is called cost of capital. Normally, cost of capital is assessed using Weighted Average Cost of Capital (WACC). WACC is calculated from an average cost of capital of various funding sources-for example debt, preferred stock, and common equity. The following is the formula (Brigham & Gapenski, 1997, pp. 365-366).

$$WACC = W_d K_s (1-T) + W_{ps} K_{ps} + W_{ce}(K_s, K_e)$$

Whereas

WACC	stands for	Weighted average cost of capital
W_d	stands for	Weight of debt financing
W_{ps}	stands for	Weight of preferred stock financing
W_{ce}	stands for	Weight of common equity financing
K_d	stands for	Cost of debt
K_{ps}	stands for	Cost of preferred stock
K_s	stands for	Cost of retained earnings
K_e	stands for	Cost of issuing new common stock
T	stands for	Corporate Income Tax

The details of each component of WACC are as follows:

1) Cost of debt (K_d) is the cost of business as a borrower. It must be paid back to the money owners/creditors/debtors, who expect their returns on the loans in the form of interest and principal. Lenders anticipate the rate of return by assessing risk factors, such as inflation risk premium, default risk premium, liquidity risk premium, and maturity risk premium. The more the risk is designated, the more the expected returns they require to counterbalance of the risks. The computed formula is as follows (Brigham & Gapenski, 1997, pp. 105-109).

$$K_d = IP + DRP + LP + MRP$$

Whereas

IP	means	Inflation risk premium
DRP	means	Default risk premium
LP	means	Liquidity risk premium
MRP	means	Maturity risk premium

2) Cost of preferred stock (K_{ps}) is the business cost of making enough returns for preferred stockholders in the form of dividends.

Investors anticipate the rate of return by assessing potential risks. The more the risk is assigned, the more the expected returns they demand to offset the risks. K_{ps} is calculated by using the following formula (Brigham & Gapenski, 1997, pp. 346-347).

$$K_{ps} = \frac{D_{ps}}{\text{P-flotation cost}}$$

Whereas

D_{ps}	means	Dividends of preferred stock
P	means	Price of preferred stock
flotation cost	means	Cost of selling of preferred stock

3) Cost of retained earnings (K_s) is the business cost of generating enough return on investment for shareholders in the form of dividend yield and capital gain. Equation is as follows (Brigham & Gapenski, 1997, pp. 352-356).

Expected total return = Expected dividend yield + Expected capital gains yield

$$\hat{K}s = \frac{\hat{D}_1}{P_0} + \frac{\hat{P}_1 - P_0}{P_0}$$

Whereas

$\hat{K}s$	means	Expected total return
$\hat{D}_1$	means	Expected dividend yield at end of first year
P_0	means	Common stock price in current year
$\hat{P}_1$	means	Expected capital gains yield at end of first year

The required rate of return is assessed through opportunity cost by investors who put their money and want return in the invested business other than investing money in other alternatives to get returns from them. The more the risks, the higher the returns expected by the investors according to the notion of high risk high return.

Cost of capital from common stocks can be calculated in several ways, i.e.,

(1) Bond yield plus risk premium (Brigham & Gapenski, 1997, p.361) The calculating method is as follows.

$$K_s = \text{Bond yield} + \text{Risk premium}$$

(2) Capital Asset Pricing Model (CAPM) (Brigham & Gapenski, 1997) is an equation used to calculate investors' expected return by considering risk-free return, rate of market return, and stock risk in each company relative to the market. The formula is as follows (Brigham & Gapenski, 1997, p.348).

$$K_s = K_f + (K_m - K_f)\beta$$

Whereas

K_f	means	Risk-free return
K_m	means	Market return
β	means	Coefficient measure of stock return risk to market risk
$\lvert\beta\rvert > 1$		indicates stock risk is higher than market risk
$\lvert\beta\rvert = 1$		indicates stock risk is equal to market risk
$\lvert\beta\rvert < 1$		indicates stock risk is lower than market risk

Furthermore, β can have either a positive or a negative value. If $\beta > 0$, it indicates that stock risk and market risk move in the same direction. If $\beta < 0$, it indicates that stock risk and market risk move in the different direction.

(3) The Discounted Cash Flow (DCF) method takes cash flow, which is expected to get from dividends, to calculate the net present value as follows (Brigham & Gapenski, 1997, p. 352).

$$K_s = \frac{D_1 + g}{P_0}$$

Whereas

D_1	means	Next dividend payout
P_0	means	Current stock price
g	means	Growth rate or capital gain yield

4) Cost of newly issued common equity (K_e) is the business cost of making enough returns for common stockholders equivalent to returns for shareholders. However, in issuing of new common equity, flotation cost must be taken into account. K_e formula is as follows (Brigham & Gapenski, 1997, p. 356).

$$K_e = \frac{D_1 + g}{P_0 \text{ (1-flotation cost)}}$$

Whereas

D_1	means	Next dividend payout
P_0	means	Current stock price
flotation cost	means	Cost in issuing of new common equity
g	means	Growth rate or capital gain yield

2.6 Firm Performance

Firm performance is the result of measurement of the organization's success. Popular indicators are usually related to monetary factors, such as profits. However, simply profits cannot be used to measure firm performance. Other indicators should also be taken in consideration, such as profitability (Whiting, 1986). Venkatraman and Vasudevan (1986) proposed that firm performance measuring was an important part of strategic management. It consisted of 1) financial performance, 2) operational performance or non-financial performance, and 3) organizational effectiveness. Therefore, firm performance can be measured in both financial and non-financial aspects. The dimensions of firm performance to be measured are as follows:

2.6.1 The financial aspect is measured by several indicators. In economics, the greatest goal of any business is to maximize profits (Jarin Thetwanit, 1988). However, Whiting (1986) recommended the use of profitability as an indicator of return on capital employed, such as buildings and machinery, etc. Measurement of the financial aspect, according to Suchada Jiamsagul (2007), can be summed up as follows.

1) Accounting-Based Performance uses profitability index comprising profit margin on sales, basic earning power, return on asset (ROA), and return on common equity (ROE). Definitions and calculations are as follows.

Profit margin on sales, or simply profit margin, is an income calculated from the ratio of the net income to the sales of goods and services dispensable to common stockholders or the net profit. The following is the formula (Brigham & Gapenski, 1997, p. 43-57).

$$\text{Profit margin on sales} = \frac{\text{Net income available to common stockholders}}{\text{Sales}}$$

Basic earning power is performance measured from the ratio of earnings before interest and tax to the assets as in the following formula (Brigham & Gapenski, 1997, p. 43-57).

$$\text{Basic earning power} = \frac{\text{Earnings before interest and tax}}{\text{Total assets}}$$

Return on asset (ROA) is a performance measured from the ratio of earnings before interest and tax for the assets as in the following formula (The Stock Exchange of Thailand, 2015, p. 32).

$$\text{ROA} = \frac{\text{Earnings before interest and tax}}{\frac{\text{(Prior year-end asset + current year-end asset)}}{2}}$$

The greater value of this ratio means the better ability in generating higher returns on assets.

Return on common equity (ROE) is a performance measured from the ratio of net profit to shareholders equity as in the following formula (The Stock Exchange of Thailand, 2015, p. 33).

$$\text{ROE} = \frac{\text{Net profit}}{\frac{(\text{Prior year-end equity} + \text{current year-end equity})}{2}}$$

The greater value of this ratio means the better ability in generating higher returns on common equity.

ROA and ROE are financial performance ratios, which are the most widely used for accounting-based performance measurement. Researchers on ROA include Sorasart Sukcharoensin (2003), Connelly and Limpaphayom (2004), Ongore and Obonyo (2011), Dhnadirek and Tang (2003), Miyajima (2005), Price et al. (2011), Guoa and Kga (2012). The studies of ROE to measure firm performance were made by scholars like Dhnadirek and Tang (2003), Vintila and Gherghina (2012), and Ongore and Obonyo (2011).

2) In Market-Based Performance measurement, the future growth of the firm is used in computation. It is different from accounting-based calculation, which uses the book value as an indicator. Some market-based indicators are as follows.

Tobin's q is the ratio of company market value to replacement cost of assets as in the following formula (Damodaran, 1994, pp. 241-243).

$$\text{Tobin's q} = \frac{\text{Market value of assets}}{\text{Replacement cost of assets}}$$

which can be converted to (Investorpedia, 2017)

$$= \frac{\text{Market value of equity + Market value of liability}}{\text{Replacement cost of assets}}$$

According to Pathaporn Tawisapakit (n.d.), a ratio of greater than 1 means the company is more attractive to invest in. This is because its market value is over its asset value. On the other hand, a ratio of smaller than 1 means the company is unattractive. However, Tobin's q calculation is of difficulty, particularly the calculation of the market value of liability (Erickson & Whited, 2006). As a result, previous research that used Tobin's q generally employed the book value of liability rather than the market value of liability (Chung & Pruitt, 1994)., but studies by Suchada Jiamsagul (2007), and Miyajima (2005) used the book value of liability in calculation instead (Suchada Jiamsagul, 2007, p. 55).

$$\text{Tobin's q} = \frac{\text{Market value of equity + Preferred stock value + Book value of liability}}{\text{Average book value of asset}}$$

Average book value of asset is

$$\frac{\text{Total asset at the beginning of year + Total asset at year end}}{2}$$

Measurement firm performance with Tobin's q was widely applied in earlier studies such as those by Bhagat and Bolton (2008), Suchada Jiamsagul (2007), Miyajima (2005), Drobetz et al. (2003), Price et al. (2011), Guoa and Kga (2012), Black et al. (2005), Sorasart Sukcharoensin (2003), and Vintila and Gherghina (2012).

Market value to book value ratio (MVBV) is a comparison between the market value and book value of the stock, which represents the future growth of the firm. Companies with high ROE usually have high MVBV as well because ROE reflects the stock price (Brigham & Gapenski, 1997). The formula is as follows (Brigham & Gapenski, 1997, p. 55).

$$\text{MVBV} = \frac{\text{Market value per share}}{\text{Book value per share}}$$

MVBV were examined by Drobetz et al. (2003) and Black et al. (2005). In addition, stock price performance can be used for a firm performance assessment too, as in the studies by Bauer et al. (2008), Mitton (2002), and Suchada Jiamsagul (2007).

2.6.2 Productivity

Sureephan Senanuch (2016) defined productivity as an measurement of efficiency, taking into consideration input and output. More outputs signify high productivity. Thailand Productivity Center (1988), which is now Thailand Productivity Institute (FTPI, 2001), describes 2 views to productivity assessment as follows.

1) The scientific view which has been influenced by the concept of productivity proposed by Taylor (1911) is the ratio of output to input. Productivity can be improved by many means, such as the use of the same amount of inputs to yield more outputs and the reduction of inputs, yet producing greater outputs, etc.

2) The economic and social view is building public awareness so that people will make effective improvement and the best use of resources.

In measurement of productivity, inputs and outputs can be measured in many ways-both financial and non-financial-such as labor productivity, capital productivity, energy productivity, and sales per call, etc. (Whiting, 1986).

Besides the indicators already mentioned, there are measurements that combine financial and non-financial respects, such as the Balanced Scorecard (BSC) developed by Kaplan and Norton (1992), which contains 4 perspectives, i.e. 1) financial perspective, 2) innovation and learning perspective, 3) internal business perspective, and 4) customer perspective.

Problems may rise in case of different viewpoints or needs of individual users. For example, creditors and investors may opt for performance measurement via financial statements and profits, while executives prefer earnings data for cash flow management and decision-making (Whiting, 1986). In addition, the business type or

sector affects performance measurement. To be precise, if performance of companies listed in the stock exchange is measured as in the works of Suchada Jiamsagul (2007); Black, Jang, and Kim (2006); Price, et al. (2011), ROA, ROE, Tobin's q will be used as performance measurement. Sometimes, stock return is used thanks to its computable nature. On the other hand, in performance measurement of small and medium enterprises (SME) self-evaluation by Likert scale is usually utilized because entrepreneurs are often reluctant to give the confidential earnings data to outsiders (Mahmood & Hanafi, 2013). The components of firm performance mostly used to measure SMEs are market share, sales growth, and profitability as shown in the studies by Arief, Thoyib, Sudiro, and Rohman (2013), Mahmood and Hanafi (2013), as well as Idar and Mahmood (2011).

Since this study was conducted with companies listed in the stock exchange of Thailand as population, the researcher employed only 3 important financial ratios in the performance measurement. They were return on asset (ROA), return on equity (ROE), Tobin's q (TobinQ), and MVBV. These have been popular ratios used in performance measurement of listed companies. The measurements of performance of listed companies by earlier research studies are shown in Table 2.3.

Table 2.3 Performance Measurement of Listed Companies

Author	**Performance Measurement**
Bauer et al. (2008)	Stock price
Guoa and Kga (2012)	ROA, Tobin’s q
Price et al. (2011)	ROA, sales growth, Tobin’s q
Drobetz et al. (2003)	Tobin’s q, market-to-book value ratio
Black et al. (2005)	Tobin’s q, market/book value, Market/sale
Miyajima (2005)	ROA, Tobin’s q, sales growth
Mitton (2002)	Stock return
Dhnadirek and Tang (2003)	ROA, ROR, ROE
Nittayagasetwat and Nittayagasetwat (2009)	Stock return, Tobin’s q, Net profit margin, ROE

Table 2.3 (Continued)

Author	Performance Measurement
Vintila and Gherghina (2012)	Tobin's q, price per book value, ROA, ROE, P/E ratio
Ongore and Obonyo (2011)	ROA, ROE, dividend yield
Connelly and Limpaphayom (2004)	ROA
Sorasart Sukcharoensin (2003)	ROA, Tobin's q

2.7 Relationship between Corporate Governance and Firm Performance

The reviewed literature suggests that corporate governance concerns the company's control and monitoring system aimed at goal achievement or return expected by the shareholders. The related theory was Agency Theory. Zheka (2006) points out that the key concept of corporate governance is to retain the interests of shareholders or business owners. Shareholders' benefits are measured in terms of performance. Therefore, most academic papers focused on whether and how corporate governance could bring about higher returns to shareholders. The results from the previous studies are summarized as follows:

Firstly, most studies on the relationship between corporate governance score and firm performance (normally, only the financial performance of listed companies is measured) indicated that the higher the corporate governance score, the better the performance as shown in the following studies.

Drobetz et al. (2003) studied the level of corporate governance and performance of companies listed in the German Stock Exchange. Corporate Governance Rating (CGR) was created by using Tobin's q (firm value) and market-to-book value as the performance measurement tool. The findings indicated that 1) CGR was positively correlated with firm value; 2) return expected by investors was negatively correlated with the CGR level. In other words, the better the CGR, the lower the expected return and cost of capital.

Black et al. (2005) conducted a study of 515 companies listed in the Korean Stock Exchange. They used Korean Corporate Governance Index (KCGI) as

corporate governance and Tobin's q as firm performance. The findings indicated that the KCGI level was positively correlated with firm performance.

Miyajima (2005) examined the effects of corporate governance reform in Japan. The three studied issues were 1) protection of the minority shareholders, 2) separation of management from auditing, and 3) disclosure of information by creating Corporate Governance Score (CGS). The findings indicated that companies with a high level of CGS had better firm performance.

Zheka (2006) studied companies in Ukraine by creating Ukraine Corporate Governance Index (UCGI) and found that companies with a high UCGI had better firm performance.

Gompers et al. (2003) designed a governance index and found that companies that retained shareholders' rights had good firm performance when measured from earnings, sales, the firm value.

However, studies in some countries suggested that the corporate governance score bore no effect on firm performance. For example, Price et al. (2011) investigated 107 companies listed in the Mexican Stock Exchange. They found that the governance index had no correlation with firm performance (ROA, sales growth, and Tobin's q). As companies tried to follow the Code of Best Corporate Practices, they encountered higher costs in paying more dividends just to topple agency conflicts. In Mexico, business atmosphere was characterized by the concentrated ownership of insiders, the interlocked board of directors, and the lack of responsiveness to minority shareholders.

Although Price et al. (2011) found that compliance with the Code of Best Corporate Practices raised some disadvantages. Investigation by Bauer et al. (2008) in countries like Japan proved that companies with conformity to corporate governance yielded better firm performance than those without it.

Secondly, many studies of corporate governance in terms of information disclosure and firm performance or firm value indicated that disclosure was vital in corporate governance because it demonstrated transparency in work and promoted better firm performance. In their studies, Bauer et al. (2008) and Suchada Jiamsagul (2007) revealed that information disclosure positively affected firm performance.

Thirdly, previous studies of the board of directors and firm performance indicated that the board of directors was crucial in company operation because it assumed the role of directing the organization and of the supervising duty of the CEO, while independent directors were responsible for monitoring the company's internal management. If control and monitoring were effective, firm performance should also be good. The findings of the effect of the relationship between the board of directors and independent directors on firm performance are briefly stated below.

1) Proportion of the external auditing committee members (independent directors), Fuzi, Halim, and Julizaerma (2016), independent directors in the board of directors represented the shareholders in reducing the agency problem. To avoid conflicts with other executives, some independent directors, however, did not fully perform their duty in the hope that they would be reappointed to the position of independent director (Hart, 1995).

Regarding the proportion of independent directors and the protection of shareholders' interests, Beasley (1996) and Suchada Jiamsagul (2007) found that the proportion of independent directors positively affected fraud protection and firm performance. However, some studies such as the study by Guoa and Kga (2012) found no correlation between the proportion of independent directors and firm performance, while Agrawal and Knoeber (1996) reported that the proportion of independent directors and firm performance (Tobin's q) were negatively correlated.

2) Board size. The board size or difference in the number of directors affected firm performance. According to Jensen (1993), the suitable number of directors in the board should be 7-8 people. Yermack (1996) unveiled that the number of directors negatively affected firm performance (Tobin's q). However, Beiner et al. (2006) found a positive effect between the board size and firm performance (Tobin's q and ROA), while Connelly and Limpaphayom (2004) (abstract) did not find any correlation between the board size and firm performance among life insurance companies in Thailand. Furthermore, a study by Guoa and Kga (2012) indicated that a bigger board size could result in lower firm performance.

3) Board ethics, Brigham and Gapenski (1997) defined business ethics as the company's attitude and practices toward customers, employees, societies, and shareholders. Ethics must be equally applied to all parties. It can be measured

from regulatory compliance, product quality and safety, and fair treatment for employees, etc. As for the board of directors, Athipol Kruapong (2010) stated that the board of directors shall be free from criminal records or bad standing in career, such as fraud charges, and questionable practices. Arjoon (2005) revealed that directors with the history of fraud and transparency problems were inclined to corrupt if opportunity permitted.

The studies above dealt with listed companies. However, earlier studies of the relationship between corporate governance and firm performance in the public sector were conducted as well. Orapan Kongmalai (2009), in the assessment of the board of directors in Thai state enterprises, found a direct negative correlation with firm performance. In spite of this, the characteristics of the board of directors positively affected the management system, which acted as a mediator to provide a positive impact of the board of directors on firm performance in Thai state enterprises.

The results of previous research on corporate governance and firm performance are summarized in Table 2.4.

Table 2.4 Relationship of Corporate Governance and Firm Performance

Author	Independent Variable	Mediator/ Moderator	Dependent Variable	Sample	Method	Finding
Bauer et al. (2008)	GMI rating 1. Board accountability 2. Financial disclosure and internal control 3. Shareholders' rights 4. Remuneration 5. Market for control 6. Corporate behavior		Stock price performance	Companies in Japan	Regression	1. Firms with corporate governance compliance had better performance than those without compliance. 2. Corporate governance compliance in terms of financial disclosure, shareholder rights, and remuneration significantly affected the share price, but compliance in terms of board accountability, market for control, and corporate behavior did not affect the stock price.

Table 2.4 (Continued)

Author	Independent Variable	Mediator/ Moderator	Dependent Variable	Sample	Method	Finding
Guoa and Kga (2012)	1. Board size 2. Proportion of independent directors 3. Managerial ownership 4. CEO duality		1. ROA 2. Tobin’s q	174 Companies listed in the stock exchange of Singapore	Multiple regression	1. The board size and the proportion of independent directors had no correlation with ROA and Tobin's q. 2. Proportion of independent directors had no correlation with firm performance. 3. Managerial ownership had a negative effect on ROA and Tobin’s q. 4. CEO duality had no effect on ROA and Tobin’s q.

Table 2.4 (Continued)

Author	Independent Variable	Mediator/ Moderator	Dependent Variable	Sample	Method	Finding
Price et al. (2011)	G-Index (entries conformed to the Code of Best Practice)		1. ROA 2. Sales growth 3. Tobin's q	107 Companies listed in the stock exchange of Mexico	Fixed-effect regression model	1. G-Index had no correlation with firm performance. 2. Compliance with the Code of Best Corporate Practices increased the cost of capital in dividend payment to reduce agency conflict.
Drobetz et al. (2003)	Corporate Governance Rating (CGR) 1. Corporate governance commitment		1. Tobin's q (firm value) 2. Market-to-book value 3. Dividend yield 4. PE ratio	Listed companies	Three-factor model	1. CGR had a positive correlation with the Tobin's q. 2. Investors' expected return had a negative correlation with CGR;

Table 2.4 (Continued)

Author	Independent Variable	Mediator/ Moderator	Dependent Variable	Sample	Method	Finding
	2. Shareholders' rights 3. Transparency 4. Management and supervisory board matters 5. Auditing					that is a good CGR reduced the expected return and the cost of capital (dividend yield and PE ratio used as the cost of capital).
Black et al. (2005)	KCGI 1. Shareholders' rights 2. Board structure 3. Board procedure 4. Disclosure 5. Ownership parity		1. Tobin's q 2. Market/book value 3. Market/sale	515 Companies listed in the stock exchange of Korea	1.Ordinary least square 2.Two-stage least square 3.Three-stage least square	1. KCGI had a positive effect on Tobin's q, market/book value, and market/sale. 2. KCGI had a positive effect on the stock price. 3. More board's independence resulted in a higher stock price.

Table 2.4 (Continued)

Author	Independent Variable	Mediator/ Moderator	Dependent Variable	Sample	Method	Finding
Miyajima (2005)	CG Score 1. Shareholders' rights 2. Board of directors 3. Information disclosure and transparency		1. ROA 2. Tobin's q	N/A	N/A	Higher CG Score meant better firm performance.
Mitton (2002)	Corporate governance variable 1. Disclosure quality 2. Ownership structure stock price		stock price	398 Organizations in Indonesia, Korea, Malaysia, the Philippines, and Thailand	Multiple regression	Compliance with disclosure and less focus on business diversification with high proportion of external shareholders resulted in better firm performance.

Table 2.4 (Continued)

Author	Independent Variable	Mediator/ Moderator	Dependent Variable	Sample	Method	Finding
	3. Corporate diversification Size Leverage Country dummy Industry dummy					
Dhnadirek and Tang (2003)	1. Managerial ownership 2. Debt pressure (D/E ratio) 3. Bank ownership		1. ROA 2. ROR 3. ROE	41 Financial companies	OLS Multiple regression	1. More managerial ownership resulted in poor ROA, ROR, and ROE. 2. Debt pressure had a negative effect on ROA and ROR. 3. Bank ownership had no effect on firm performance.

Table 2.4 (Continued)

Author	Independent Variable	Mediator/ Moderator	Dependent Variable	Sample	Method	Finding
Suchada Jiamsagul (2007)	1. Disclosure 2. Board structure		1. ROA 2. Tobin's q 3. Stock return	100 Companies listed in the stock exchange of Thailand (SET100)	Multiple regression	1. Disclosure and proportion of independent directors had positive effect on firm performance. 2. The compensation committee helped reduce agency conflict and improve the firm performance.
Aekkachai Nittayagasetwat and Wiyada Nittayagasetwat (2009)	CG Score (Dummy variable)		1. Stock return 2. Firm value (Tobin's q) 3. Firm operating performance (Net profit margin, ROE)	N/A	N/A	Good CG Score resulted in better stock return, Tobin's q, and a positive effect on ROE.

Table 2.4 (Continued)

Author	Independent Variable	Mediator/ Moderator	Dependent Variable	Sample	Method	Finding
Orapan Kongmalai (2009)	Board of directors	Management system	TRIS Rating	State enterprise	SEM	1. The characteristics of the Board of directors had negatively a direct correlation with firm performance. 2. The characteristics of the Board of directors had a positive effect on management, which was a mediator of the Board of director' s to firm performance in Thai state enterprises.

This research examined the influence of corporate governance over firm performance. Corporate governance was measured by corporate governance score in accordance with the IOD principles used in assessment of companies listed in the Stock Exchange of Thailand. The hypotheses were set as follows.

Hypothesis 1: Corporate governance has a positive impact on firm performance.

2.8 Relationship between Corporate Governance and Competitive Advantage

Compliance with corporate governance principles indicates the ability to run the company in defense of shareholders' interests and in consideration of stakeholders. As transparency of the management can be checked, problems can be deleted and more company capacity can be boosted. This conributes to the firm competitive advantage in terms of good reputation, less agency conflict, lower cost of capital, better credit rating, and financing (Drobetz et al., 2003; Madhani, 2007; Chen et al., 2009; Athipol Kruapong, 2010; Soh, 2011; Ramly, 2012). With regard to stakeholders, the control of product and service quality (Berman, Wicks, Kotha, & Jones, 1999), for example, would be better, including independent directors' duties or auditing committee's monitoring or improving of management functions.

Thus, compliance with corporate governance principles should give the company competitive advantage. Previous overseas studies on relationship between financial competitive advantage and corporate governance usually indicated that compliance with corporate governance reduced cost of capital (Chen et al., 2003; Ashbaugh et al., 2004; Byun, Kwak, & Hwang, 2008; Chen et al., 2009; Ramly, 2012; Ramly, 2013) as shown in Table 2.5. This issue has not yet been widely studied in Thailand, nonetheless.

Table 2.5 Relationship between Corporate Governance and Competitive Advantage (Cost of Capital)

Author	Independent Variable	Mediator/ Moderator	Dependent Variable	Sample	Method	Finding
Ramly (2012)	1. CG Index 2. CG Sub-index 1) Board structure and procedure 2) Board compensation practice 3) Shareholders' rights and relations 4) Accountability 5) Transparency 6) Social and environment	-	Cost of equity	Companies listed on Malaysian Bourse Composite Index	Regression	1. CG Index had a negative correlation with cost of equity. 2. Board structure and procedure, shareholders' rights and relations, and transparency had a negative correlation with the cost of equity.

Table 2.5 (Continued)

Author	Independent Variable	Mediator/ Moderator	Dependent Variable	Sample	Method	Finding
Chen et al. (2009)	Corporate governance 1. Transparency 2. Discipline 3. Independence 4. Accountability 5. Responsibility 6. Fairness	-	Cost of equity	Listed companies in emerging markets	Regression	Independence and accountability had a negative correlation with the cost of equity.
Byun et al. (2008)	CG Score (KCGS) 1. Shareholders' rights protection 2. Board of directors 3. Corporate	-	Cost of equity	Companies listed in the stock exchange of Korea	Regression	Corporate governance could lower the cost of equity through agency problem reduction and information asymmetry, but shareholders' rights protection had the most

Table 2.5 (Continued)

Author	Independent Variable	Mediator/ Moderator	Dependent Variable	Sample	Method	Finding
	disclosure 4. Audit committee 5. Dividend policy					effect while the board of directors and corporate disclosure had some effect.
Chen et al. (2003)	Corporate governance 1. Disclosure (Transparency) 2. Non-disclosure (Management discipline, Independence, Accountability,	-	Cost of equity	Companies in Asia	Regression	1. Disclosure had a negative correlation with the cost of equity. 2. When adding non-disclosure variables into the model, a weak negative correlation with the cost of equity occurred as if without adding non-disclosure.

Table 2.5 (Continued)

Author	Independent Variable	Mediator/ Moderator	Dependent Variable	Sample	Method	Finding
	Responsibility, Fairness, Social awareness)					
Ashbaugh et al. (2004)	1. Performance matched abnormal accruals 2. Financial transparency 3. Blockholders 4. Shareholders' rights score	-	Cost of equity		Regression	1. Quality of financial information had a negative correlation with the cost of equity. 2. More blockholders meant more risks. 3. More shareholders' rights meant more risks.
Huang Wang, and Zhang (2009)	1.Governance score 2. Shareholders' rights	-	Cost of equity	Large companies on S&P 500, Forbes, Fortune, Business Week during 1989-2002	1.OLS 2.Two-stage least square regression	1. High governance score reduced the cost of equity. 2. Strong shareholders' rights reduced the cost of equity.

Table 2.5 (Continued)

Author	Independent Variable	Mediator/ Moderator	Dependent Variable	Sample	Method	Finding
Klock et al. (2004)						Antitakeover had an opposite effect to the cost of equity.
Ramly (2013)	1. CG Index 2. CG Sub-index 1) Board structure and procedure 2) Board compensation practice 3) Shareholders' rights and relations 4) Accountability 5) Transparency 6) Social and environment		Cost of debt	101 Companies listed on the Main Board of Malaysian	Regression	1. CG Score had a negative correlation with the cost of debt. 2. Board structure and procedure, board compensation practice, accountability, and social and environment had a negative correlation with the cost of debt.

For that reason, this study performed an examination of the influence of corporate governance over financial competitive advantage as companies listed in the stock exchange of Thailand usually focus on the financial aspect. The lower the cost of capital, the more the competitive advantage (The interpretations of the cost of capital and the competitive advantage will be opposite). To avoid any confusion in the interpretation of the results, this research therefore performed hypothesis by focusing on the cost of capital, not competitive advantage. The hypothesis was as follows.

Hypothesis 2: Corporate governance has a negative impact on the cost of capital. (In other words, corporate governance has a positive impact on competitive advantage.)

2.9 Relationship between Competitive Advantage and Firm Performance

Typically, in studies of competitive advantage and firm performance, competitive advantage was not used as an independent variable but rather as a mediator or moderating variable. The findings indicated that in most cases, competitive advantage positively affected firm performance. The following are details of previous studies.

Zhou et al. (2009) studied 328 hotels worldwide. They used competitive advantage in terms of innovation differentiation and market differentiation as mediators between customer value and market orientation. They found that both innovation differentiation and market differentiation had a positive effect on market performance and indirectly had a positive effect on financial performance.

Mahmood and Hanafi (2013) investigated the effect of competitive advantage as a mediator between entrepreneurial orientation and firm performance of small and medium-sized enterprises owned by females in Malaysia. The study results showed that competitive advantage was a mediator between entrepreneurial orientation and firm performance.

Al-alak and Tarabieh (2011) studied the effect of competitive advantage as a mediator between customer orientation and firm performance of banks in Jordan. The findings confirmed that both innovation differentiation and market differentiation acted as mediators between customer orientation and firm performance.

Martinette (2006) probed whether learning orientation influenced firm performance with competitive advantage as a moderator. The study pointed out that competitive advantage was not a moderator of the influence of learning orientation on firm performance.

Agha et al. (2012) explored core competency influence on firm performance of 64 paint companies in the United Arab Emirates, with competitive advantage as a moderator. The findings revealed that competitive advantage was a mediator between core competency and performance.

Munizu (2013) investigated TQM influence on firm performance, with competitive advantage as a moderator. The sample 55 included fishing companies in Indonesia and the results proved that competitive advantage was a mediator between TQM and firm performance.

Besides, an article by Rose, Abdullah, and Ismad (2010) maintained that competitive advantage positively affected firm performance-both financial and non-financial, i.e, profitability, sales, customer satisfaction, and employee satisfaction. These indicators were suggested by Wang and Lo (2003), Falshaw, Glaister, and Tatoglu (2006), and Neely (2005).

Although competitive advantage was often found to positively affect firm performance, it might not be so in some cases. Ma (2000) commented that a company probably had an edge over its competitors but its performance might not be any better, depending on types of competitive advantage and management ability. Therefore, a company's competitive advantage might not be enough to achieve better firm performance. Or better firm performance might not be a result of competitive advantage, since it could be influenced by other external factors, such as laws which might have been amended to benefit the existing businesses by adding barriers for newcomers to enter or even the changing environment as well as the destiny.

If only financial advantage and firm performance were considered, the results unveiled that when a company had low cost of capital, its firm value increased (Brigham & Gapenski, 1997) or it had better performance. Nevertheless, the study results about the relationship between cost of capital and firm performance was uncertain. That is, when accounting-based performance was measured with ROA and ROE, which were book value, the findings indicated a positive correlation (Swanson

& Viinanen, 2006; Pouraghajan et al., 2012). Pouraghajan et al. (2012) explained that the high cost of capital resulted in an organization's endeavor to manage for higher return to satisfy its investors' required rate of return. But the two variables were negatively correlated when measured with ROA (Sattar, 2015; Sharma, 2012). In addition, Mohamad and Saad (2012) found that WACC had no effect on ROA whatsoever. When the market-based performance was measured with the market value to the book value (MVBV), a negative correlation was found (Reverte, 2012; Wu, Lin, and Wu, 2014). But when the firm performance was measured with Tobin's q, the results showed that WACC had no effect on Tobin's q (Tabari et al., 2013), and that WACC had a positive effect on Tobin's q (Mohamad & Saad, 2012). There have been few studies on this matter in Thailand. The previous studies on the relationship between competitive advantage and firm performance are summarized in Table 2.6.

Table 2.6 Relationship between Competitive Advantage and Firm Performance

Author	Independent Variable	Mediator/ Moderator	Dependent Variable	Sample	Method	Finding
Zhou et al. (2009)	Customer value	1. Market orientation 2. Competitive advantage 1) Innovation differentiation 2) Market differentiation	Organizational performance 1. market performance 2. financial performance	328 Hotels worldwide	SEM	1. Innovation differentiation and market differentiation had a positive effect on market performance. 2. Innovation differentiation and market differentiation had a positive effect on financial performance via market performance. 3. Innovation differentiation and market differentiation had no direct effect on financial performance.

Table 2.6 (Continued)

Author	Independent Variable	Mediator/ Moderator	Dependent Variable	Sample	Method	Finding
Mahmood and Hanafi (2013)	Entrepreneurial orientation	Competitive advantage 1. Differentiate product 2. Market sensing 3. Market responsiveness	Firm performance 1. Profitability 2. Market share	165 SMEs in Malaysia	Regression	1. Competitive advantage was a mediator between entrepreneurial orientation and firm performance. 2. Entrepreneurial orientation had directly a positive effect on firm performance.
Al-alak and Tarabieh (2011)	Customer orientation	Competitive advantage 1. Differentiate product 2. Market sensing 3. Market responsiveness	Firm performance 1. Profitability 2. Market share	Banks in Jordan	SEM	Innovation differentiation and market differentiation were mediators between customer orientation and firm performance.

Table 2.6 (Continued)

Author	Independent Variable	Mediator/ Moderator	Dependent Variable	Sample	Method	Finding
Martinette (2006)	Learning orientation	Competitive advantage (moderator) 1. Differentiation 2. Market sensing 3. Market responsiveness	Firm performance 1. Sales 2. Profit	Large and small companies	Correlation	Competitive advantage was not a moderator to the effect of learning orientation on firm performance.
Agha and Alrubaiee (2012)	Core competency	Competitive advantage 1. Flexibility 2. Respon-siveness	Organizational performance	64 Paint companies in UAE	Regression	1. Competitive advantage was a mediator between core competency and firm performance. 2. Core competency had directly a positive effect on firm performance.

Table 2.6 (Continued)

Author	Independent Variable	Mediator/ Moderator	Dependent Variable	Sample	Method	Finding
Munizu (2013)	TQM	Competitive advantage 1. Price/cost 2. Delivery dependability 3. Product innovation 4. Time to market	Organizational Performance 1. Market share 2. Sale	55 Fishing companies in Indonesia	SEM	1. Competitive advantage was a mediator between TQM and firm performance. 2. TQM had directly a positive effect on firm performance.
Sharma (2012)	Cost of capital	-	1. Profitability 2. Liquidity 3. Dividend yield 4. Growth	Companies in telecommunication industry during 2005-2010	Correlation	1. Cost of capital had the opposite direction of relationship with profitability, liquidity, and dividend yield. 2. Cost of capital had the same direction of relationship with growth.

Table 2.6 (Continued)

Author	Independent Variable	Mediator/ Moderator	Dependent Variable	Sample	Method	Finding
Pouraghajan et al. (2012)	WACC	-	1. ROA 2. ROE	70 Companies listed on the Tehran Stock Exchange during 2006-2010	1. Fixed-effect method 2. Random-effect method	Cost of capital had a positive effect on ROA and ROE.
Tabari et al. (2013)	WACC	-	1. P/E ratio 2. Market-to-book value 3. Tobin's Q	Companies listed on the Tehran Stock Exchange during 2006-2010	1. Fixed-effect method 2. Random-effect method	1. WACC had a negative effect on P/E ratio and market-to-book value. 2. WACC had no effect on Tobin's Q.

Table 2.6 (Continued)

Author	Independent Variable	Mediator/ Moderator	Dependent Variable	Sample	Method	Finding
Mohamad and Saad (2012)	WACC	-	1. Tobin's Q 2. ROA	517 Companies listed on the Bursa Malaysia Main market during 2005-2010	Regression	WACC had a positive effect on Tobin's Q but had no effect on ROA.

For the afore-mentioned reasons, this study would find out the effect of competitive advantage on firm performance. Only the financial aspect of competitive advantage was examined. When the cost of capital was low, the competitive advantage was high (interpretation of the cost of capital and that of competitive advantage are in the opposite direction). To avoid any confusion in the interpretation of the results, this research therefore employed the cost of capital as an independent variable for hypothesis testing rather than competitive advantage.

Hypothesis 3: Cost of capital has a negative impact on firm performance. (In other words, competitive advantage has a positive impact on firm performance.)

2.10 Control Variable

Economic and financial forecasting models often contain control variables because the dependent variable can also be affected by other variables than independent variables. A problem may occur from omitting such variables in the model. Thus, control variables are added in the model. Common control variables include firm size, gross domestic product (GDP), years listed, firm leverage. The details are as follows.

Firm size. Indicators of firm size are plentiful. Most studies measured firm size with indicators such as the total asset (Guoa and Kga, 2012; Price et al., 2011; Drobetzet al. (2003); Black et al., (2006); Ashbaugh et al. (2004); Pouraghajan et al. (2012)). sales (Black et al., 2006; Miyajima, 2005), number of employees, and market capitalization (Ashbagh et al., 2004; Price et al., 2011).

Gross Domestic Product (GDP). GDP is the final value of goods and services produced in a national territory regardless of the origin of manufacturers (irrespective of nationality of manufacturers) within a 1 year period (Wanrak Mingmaninakhin, 2009; Surak Bunnak & Wanrak Mingmaninakhin, 1993). GDP is used as the growth rate indicator (Ramly, 2013; Tabari et al., 2013).

Years listed. Years listed are the number of years a company has been listed in the stock exchange (Black et al., 2006; Ramly, 2012; Ramly, 2013; Shen & Rin, 2012).

Firm leverage. Firm leverage is the amount of loan for business operation. Most studies used debt to asset ratio or debt/equity ratio to measure firm leverage (Ramly, 2012; Ramly, 2013; Black et al., 2006; Suchada Jiamsagul, 2007; Chen et al., 2003).

2.11 Relationship between Control Variable and Firm Performance

Firm size and firm performance. Most research studies found that the larger the company, the better the performance (Pouraghajan et al., 2012). The main reasons for better performance of larger companies as Shen and Rin (2012) and Pervan and Visic (2012) explained were as follows: 1) Big companies are better at risk management than their small counterparts. 2) Experience of big companies, thanks to their longer establishment, makes them better handle problems. 3) Credit constraints of small companies limited their chance of getting loans, causing difficulty in capital access compared to larger companies. 4) Innovation of big companies enables them to have quality products and services. 5) Economies of scale allow big companies to use their high bargaining power with suppliers in buying raw materials in bulk with lower average cost. And 6) Ability to control market, such as prices and conditions adjustments empowers big companies to lessen the power of buyers. However, some research revealed that firm size negatively affected firm performance (Black et al., 2006; Shen & Rin, 2012) due to slowness in change of bigger companies.

Gross Domestic Product (GDP). In countries with expanded/shrunk GDP or rising/declining economic growth, the overall performance could be pushed for better/worse (Wasiuzzaman & Tarmizi, 2010).

Year listed. The longer the companies were listed in the stock exchange, the worse the firm performance they got due to then slowness in adaptation to business environment (Shen & Rin, 2012). The finding was consistent with Shen and Rin (2012); Black et al. (2005); Miyajima (2005).

Table 2.7 Relationship between Control Variable and Firm Performance

Author	Control Variable	Dependent Variable	Sample	Method	Finding
Black, Jang, and Kim (2006)	1. Asset 2. Year listed 3. Debt/equity ratio 4. Sale growth 5. Advertising/sale	1.Tobin's q 2.Market/book value 3.Market/sale	515 Companies listed in the stock exchange of Korea	1. Ordinary least square 2. Two-stage least square 3. Three-stage least square	1. Asset had a negative effect on Tobin's q and market/book value. 2. Year listed had a negative effect on Tobin's q and market/sale. 3. Debt/equity ratio had a positive effect on Tobin's q but a negative effect on market/book value. 4. Sale growth and Advertising/sale had no effect on firm performance.
Shen and Rin (2012)	1. Firm Leverage 2. Firm Size 3. Firm Age	ROE	2007 Data for companies in Germany, France, Italy, and the UK	OLS regression	1. Firm leverage had a negative effect on ROE in Italy. 2. Firm size had a negative effect on ROE in the UK. 2. Firm age had a negative effect on ROE in France.

Table 2.7 (Continued)

Author	Control Variable	Dependent Variable	Sample	Method	Finding
Suchada Jiamsagul (2007)	1. Blockholders ownership 2. Director ownership 3. Leverage (D/E ratio) 4. Firm risk (standard deviation of stock return)	1. ROA 2. Tobin's q 3. Stock return	100 Companies listed in the stock exchange of Thailand (SET100)	Multiple regression	1. Blockholders ownership had a positive effect on Tobin's q. 2. Director ownership had a positive effect on Tobin's q. 3. Leverage (D/E ratio) had a positive effect on stock return. 4. Firm risk had negative effect on ROA and stock return.
Miyajima (2005)	1. Year of listing 2. Firm size 3. Sale growth	1. ROA 2. Tobin's q	N/A	N/A	1. Years of listing had a negative effect on ROA, Tobin's q. 2. Firm size had a positive effect on ROA and Tobin's q. 3. Sale growth had a positive effect on ROA and Tobin's q.

Table 2.7 (Continued)

Author	Control Variable	Dependent Variable	Sample	Method	Finding
Pouraghajan et al. (2012)	Firm size	ROA	70 Companies listed on the Tehran Stock Exchange during 2006-2010	Fixed-effect model	Firm size had a positive effect on ROA.

2.12 Relationship between Control Variable and Competitive Advantage

Firm size. It was found that the larger the company, the lower the cost of capital thanks to company's financing accessibility (Pervan & Visic, 2012), lower risk, and stability compared to small companies (Ramly, 2012).

Gross Domestic Product (GDP). GDP was reflected by economic growth. That is, during the high growth, companies needed more capital, resulting in higher cost of capital (Ramly, 2012).

Years listed. The longer the companies have been listed in the stock exchange, the decreased the cost of capital would be due to their reputation and confidence in cash flow compared to newly listed companies (Garcia, Saravia, & Yepes, 2015).

Firm Leverage Brigham and Gapenski (1997) mentioned three theories related to the effects of firm leverage on cost of capital. 1) Modigliani and Miller (1958) or MM gave priority to financing from loans. That is, borrowing incurs interest and the interest payment bears a tax effect known as tax deductible. On the contrary, dividend payment is not tax deductible. Therefore, companies should seek financing through borrowing more. The MM concept, however, ignores bankruptcy cost. 2) Trade-off theory explains that financing through more borrowing solicits more bankruptcy cost and financial distress. Companies therefore must pick up either an advantage of tax deductible or a disadvantage of bankruptcy cost and financial distress. The lower the cost of financing through borrowing, the lower the Weighted Average Cost of Capital (WACC). In spite of this, too high debt incurred creates heavier agency cost and finally diminishes the value of the firm. 3) Signal theory describes that executives usually hold more information (asymmetric information) than investors. However, if financing can signal that a company is getting a good chance for investment, financing with loans is preferred over a common stocks option because financing through common stocks would result in sharing wealth with other shareholders.

Therefore, more firm leverage may bring about good or bad effects on cost of capital. Most research measured firm leverage in the form of debt/equity ratio or debt/asset ratio. The results of the studies on firm leverage and cost of capital showed various patterns and indicators, although they found that firm leverage positively affected the cost of equity (Ramly, 2012), not the cost of debt (Ramly, 2013).

Table 2.8 Relationship of Control Variable and Cost of Capital

Author	Control Variable	Dependent Variable	Sample	Method	Finding
Ramly (2012)	1. Total assets 2. Leverage (D/A ratio) 3. Return on assets 4. Market-to-book ratio 5. GDP	Cost of equity	Companies listed in the stock exchange of Malaysian during 2003-2007	General least square Regression	1. Total asset, return on assets, and market-to-book ratio had a negative effect on the cost of equity. 2. Leverage and GDP had a positive effect on the cost of equity.
Ramly (2013)	1. Total assets 2. Leverage (Interest coverage ratio) 3. Return on assets 4. Market-to-book ratio 5. GDP	Cost of equity	101 Companies listed in the stock exchange of Malaysian during 2003-2007	Regression	1. Total asset, leverage, and return on assets had no effect on the cost of debt. 2. Market-to-book ratio and GDP had a negative effect on the cost of debt.

CHAPTER 3

RESEARCH METHODOLOGY

This chapter describes the research design, the unit of analysis, variables, operational definitions, measurements, hypotheses, the conceptual framework, population, data collection, statistics used for data analysis, research objectives and research questions. The details are as follows.

3.1 Research Design

3.1.1 This study employed only the quantitative method. It examined the longitudinal data or the panel data with the purpose of measuring the effect of corporate governance on firm performance, the effect of corporate governance on competitive advantage, and the effect of competitive advantage on firm performance.

3.1.2 The five-year performance (2011-2015) were collected from related documents of listed companies in the Stock Exchange of Thailand since it took a long time to see the effects of the independent variables. Additionally, the use of panel data has its advantage of having additional observations.

3.2 Unit of Analysis

This research studied listed companies in the SET as population, so the unit of analysis is at an organization level.

3.3 Variable and Measurement

The variables comprises corporate governance, competitive advantage, and firm performance. The data were taken from the annual reports and various other

types of documents of listed companies in the Stock Exchange of Thailand. The following are definitions of variables and measurements gathered from literature review in Chapter 2.

3.3.1 Corporate Governance (CG)

Foreign research has used as data the score or index of corporate governance of individual companies. In Thailand, assessment of corporate governance was based on the criteria set by the Thai Institute of Directors Association (IOD), which reflects the overall corporate governance in 5 areas. They are 1) rights of shareholders, 2) equitable treatment of shareholders, 3) roles of stakeholders, 4) disclosure and transparency, and 5) board responsibilities. The IOD scores are assessed through the criteria shown in Table 3.1.

Table 3.1 Assessment Criteria of Corporate Governance by the Thai Institute of Directors Association

Score	Symbol	Definition
90-100 (5 Stars)		Excellent
80 - 89 (4 Stars)		Very good
70-79 (3 Stars)		Good
60-69 (2 stars)		Satisfactory
50-59 (1 star)		Pass
Below 50	-	-

The overall picture, not individual categories, is assessed. No exact scores are announced. Only the range of scores from 1 to 5 star symbols is publicized. The group with 5 stars receives the highest score, while the groups with 4 and 3 stars receive lower scores accordingly. The results of the 2011-2015 assessment indicated that evaluated companies were rated between 3 and 5 stars. No company was rated below 3 stars. Therefore, the researcher classified the assessment scores into 3 groups, i.e. 1) 5 stars, 2) 4 stars, and 3) 3 stars, respectively. Two dummy variables-CG1 and CG2-were used, like the study by Patiwate Jaroongkiattikhajorn (2014).

For the 5-star group: 1 and 0 represent CG1 and CG2, respectively.

For the 4-star group: 0 and 1 represent CG1 and CG2, respectively.

For the 3-star group: 0 represents both CG1 and CG2.

In 2009, the IOD revised the assessment criteria and only some specific groups of companies were assessed. In fact, only 290 companies were evaluated that year. Therefore, this research covered the data after 2009, starting with the data in 2011 when many companies were evaluated and the balanced data were available.

3.3.2 Competitive Advantage

Research on competitive advantage usually focuses on the financial aspect. The lower the cost of capital, the more the competitive advantage (Interpretation of cost of capital and that of competitive advantage are opposite).To prevent confusion in the interpretation, this research therefore formulated hypotheses with cost of capital as the independent variable instead of competitive advantage. The Weighted Average Cost of Capital (WACC) was used to calculate the cost of capital. The weighted average cost of capital was taken from various sources, i.e. debt, preferred stock, and common equity. Brigham and Gapenski's formula (1997, pp. 365-366) was used for this purpose. The details are as follows:

$$WACC = W_d K_s (1-T) + W_{ps}K_{ps} + W_{ce}(K_s, K_e)$$

Whereas

WACC	stands for	Weighted average cost of capital
W_d	stands for	Weight of debt financing

W_{ps}	stands for	Weight of preferred stock financing
W_{ce}	stands for	Weight of common equity financing
K_d	stands for	Cost of debt
K_{ps}	stands for	Cost of preferred stock
K_s	stands for	Cost of retained earnings
K_e	stands for	Cost of issuing new common stock
T	stands for	Corporate Income Tax

K_d (Ramly, 2013, pp. 469-479)

$$= \frac{\text{Interest payment}}{\frac{(\text{Total Liabilities at the beginning of the year} + \text{Total Liabilities at year end})}{2}}$$

K_s is calculated with CAPM as follows: (Brigham & Gapenski,1997, p. 348)

$$K_s = K_f + (K_m - K_f)\beta$$

K_f	stands for	Risk-free return
K_m	stands for	Market return
β	stands for	Risk of return of stock relative to market risk coefficient

K_f used the yield of 10-year government bonds from the Thai Bond Market Association website (www.thaibma.or.th)

K_m was assessed from the stock market return during the study period and the data worldwide acquired by Fernandez, Aguirrelamalloa, and Corres (2011, 2012); Fernandez, Aguirrelamalloa and Linares (2013); Fernandez, Linares, and Acin (2014); Fernandez, Ortiz and Acin (2015).

β was assessed from the security market line slope, which shows the relationship between the yield of individual securities compared to the return of stock market during the study period, together with Datastream and SETSMART

This research assumed that company's financing came from only debt and retained earnings. The details are as follows.

3.3.3 Firm Performance

This study investigated only the financial performance, which is commonly measured in research. Four types of ratio used as firm performance indicators are 1) Return on Asset (ROA), 2) Return on Equity (ROE), 3) Tobin's q (TobinQ), and 4) Market to Book Value (MVBV). ROA and ROE were secondary data obtained from SETSMART while TobinQ and MVBV were taken as raw data from SETSMART and calculated through the following formula.

Tobin's q (Suchada Jiamsagul, 2007, p. 46, 55)

$$= \frac{\text{Market value of Equity + Preferred stock value + Book value of liability}}{\frac{\text{Prior year-end asset + current year-end asset}}{2}}$$

$$\text{MVBV} = \frac{\text{Market value per share}}{\text{Book value per share}}$$

(Brigham & Gapenski, 1997, p. 55)

3.3.4 Business Sector

Because every business differs from one another and each is unique in its way, a comparative study should be conducted utilizing the entries within the same type of business. Thus, the models for testing in this research contain variables characterizing business type. The data came from 8 types of business, but, the financial sector were excluded. The researcher divided the businesses into 7 groups and used 6 dummy variables similar to the work of Patiwate Jaroongkiattikhajorn (2014) as follows.

1) Sector 1 refers to Agro & Food Industry. Whereas 1 stands for companies operated within this industry and 0 for those that were not.

2) Sector 2 means Consumer Products. Whereas 1 stands for companies operated within this industry and 0 for those that were not.

3) Sector 3 denotes Industry. Whereas 1 stands for companies operated within this industry and 0 for those that were not.

4) Sector 4 signifies Property & Construction. Whereas 1 stands for companies operated within this industry and 0 for those that were not.

5) Sector 5 represents Resources. Whereas 1 stands for companies operated within this industry and 0 for those that were not.

6) Sector 6 indicates Services. Whereas 1 stands for companies operated within this industry and 0 for those that were not.

As for Technology, the value is always 0.

3.3.5 Control Variable

In order for the variables to be under the same conditions, control variables must be determined to prevent the problem of omitted variables in the model. Control variables usually used in the study of listed companies are firm size, gross domestic product, years listed, and firm leverage.

3.3.6 Firm Size

Most studies employed total asset, sales, number of employees, and market capitalization as indicators. This research used only market capitalization as an indicator.

3.3.7 Gross Domestic Product (GDP)

This research used the GDP growth rate in real term as GDP measurement.

3.3.8 Years Listed in the SET

This research used years listed in the stock exchange as an indicator.

3.3.9 Firm Leverage

Most research used as indicators many forms of firm leverage, e.g., debt/equity ratio, debt/asset ratio, and interest coverage ratio. This research used debt/asset ratio as an indicator, which is a ratio of ability in debt repayment. Creditors prefer lending money to companies with a low ratios since a high ratio suggests high risk of debt repayment. As opposed to executives, they prefer debt financing lead to a high debt ratio, according to Signaling Theory (Brigham & Gapenski, 1997).

In Table 3.2, the researcher briefly provides definitions of variables, measurement, and reference sources.

Table 3.2 Variables and Measurement of Variables

Variables/ Definition	References	Indicator	Measurement	Source
Corporate Governance (CG) is refers to a system, protocol, and surveillance of an organization/business for transparency and accountability to protect the interests of shareholders, including equal treatment of different groups of people, i.e., shareholders and stakeholders. Corporate governance	Ong (2001); OECD (2005); Solomon and Solomon (2004); Shleifer and Vishny (1997); SET (2012a)	Corporate governance assessment scores, i.e. 1) 5 stars, 2) 4 stars, and 3) 3 stars	Two dummy variables (CG1 and CG2) were used as follows: For the 5-star group: 1 and 0 represent CG1 and CG2, respectively. For the 4-star group: 0 and 1 represent CG1 and CG2, respectively. For the 3-star group: 0 represents both CG1 and CG2.	Thai Institute of Directors Association website (www.thai-iod.com)

Table 3.2 (Continued)

Variables/ Definition	References	Indicator	Measurement	Source
consists of 5 key topics: 1) rights of shareholders, 2) equitable treatment of shareholders, 3) roles of stakeholders, 4) disclosure and transparency, and 5) board responsibilities.				
Competitive Advantage is financial status superior to the competitors.	Safarnia et al. (2011); Porter (1985)	Cost of Capital	Weighted average cost of capital (WACC)	

Table 3.2 (Continued)

Variables/ Definition	References	Indicator	Measurement	Source
Cost of Capital is the cost of business payable to capital owners to finance business operation in the form of loans, preferred stock, and issuance of new common equity.	Madhani (2007); Brigham and Gapenski (1997); Sharma (2012); Drobetz et al. (2003); Ramly (2012); Pouraghajan et al. (2012); Ramly (2013); Nantana Jaengsawang (2012)	Weighted average cost of capital (WACC)	WACC = W_dK_d (1-T) + $W_{ps}K_{ps}$ + $W_{ce}(K_s, K_e)$	1.SETSMART 2.Datastream 3. The Thai Bond Market Association website (www.thaibma.or.th) 3.World market risk premium gathered by Fernandez, Aguirrelamalloa and Corres (2011, 2012); Fernandez, Aguirrelamalloa and Linares (2013); Fernandez, Linares and Acin (2014); Fernandez, Ortiz and Acin (2015)

Table 3.2 (Continued)

Variables/ Definition	References	Indicator	Measurement	Source
Firm Performance is the ability to make profits or values of the business, which comprises 3 types: 1) Return on Asset (ROA), 2) Return on Equity (ROE), 3) Tobin's q (TobinQ), and 4) Market Value to Book Value (MVBV).	Brigham and Gapenski (1997); Sorasart Sukcharoensin (2003); Connelly and Limpaphayom (2004); Ongore and Owoko (2011); Dhnadirek and Tang (2003); Miyajima (2005); Price et al. (2011); Guoa and Kga (2012)); Pouraghajarn et al. (2012)	1) Return on Asset (ROA) is a performance measured from the ratio of earnings before interest and tax for assets.	ROA = Earnings before interest and tax / (Prior year-end asset + current year-end asset) / 2	SETSMART
	Brigham and Gapenski (1997); Dhnadirek and Tang (2003); Vintila and Gherghina (2012);	2) Return on Equity (ROE) is a performance measured from the	ROE = Net Profit / (Prior year-end equity + current year-end equity) / 2	SETSMART

Table 3.2 (Continued)

Variables/ Definition	References	Indicator	Measurement	Source
	Ongore and Owoko (2011)	ratio of net profit to shareholders equity.		
	Suchada Jiamsagul (2007); Miyajima (2005); Drobetz et al. (2003); Price et al.(2011); Guoa and Kga (2012); Black et al. (2006); Vintila and Gherghina (2012)	3)Tobin's q is ratio of firm value to replacement cost.	Tobin's q = $\frac{\text{Market value of Equity + Preferred stock value + Book value of liability}}{\frac{\text{Prior year-end asset + current year-end asset}}{2}}$	Data from SETSMART and Datastream was calculated by the researcher.
	Dang and Ji (2015); Tabari, et al. (2013); Brigham and Gapenski (1997)	4)MVBV is the ratio of the market value to the book value of the stock.	MVBV = $\frac{\text{Market value per share}}{\text{Book value per share}}$	Data from SETSMART Datastream was calculated by the researcher.

Table 3.2 (Continued)

Variables/ Definition	References	Indicator	Measurement	Source
Business Sector is the types of business as follows: 1. Agro &Food Industry (AGRO) 2. Consumer Products (CONSUMP) 3. Industry (INDUS) 4. Property &Construction (PROPCON) 5. Resources (RESOURC) 6. Services (SERVICE) 7. Technology (TECH)	Ramly (2012); Ramly (2013); Patiwate Jaroongkiattikhajorn (2014)	Dummy variables	6 dummy variables were used as follows. 1) Sector1 refers to Agro &Food Industry. Whereas1 stands for companies operated within this industry and 0 for those that were not. 2) Sector2 means Consumer Products. Whereas 1 stands for companies operated within this industry and 0 for those that were not. 3) Sector3 denotes Industry. Whereas 1 stands for companies operated within this industry and 0 for those that were not. 4) Sector4 signifies Property & Construction. Whereas 1 stands for	SETSMART

Table 3.2 (Continued)

Variables/ Definition	References	Indicator	Measurement	Source
			companies operated within this industry and 0 for those that were not. 5) Sector5 represents Resources. Whereas 1 stands for companies operated within this industry and 0 for those that were not. 6) Sector6 indicates Services. Whereas 1 stands for companies operated within this industry and 0 for those that were not. As for Technology, the value is always 0.	
Control Variables				
1. Firm size	Guoa and Kga (2012); Price et al. (2011);	Market capitalization	Market capitalization	SETSMART and Datastream

Table 3.2 (Continued)

Variables/ Definition	References	Indicator	Measurement	Source
	Drobetz et al. (2003); Black et al. (2006); Ashbaugh et al. (2004); Pouraghajan et al. (2012)			
2.Gross domestic product GDP) is the final value of goods and services produced in a national territory regardless of the origin of manufacturers (irrespective of nationality of manufacturers) within a 1 year period.	Wanrak Mingmaninakhin (2009); Surak Bunnak and Wanrak Mingmaninakhin (1993); Ramly (2012); Ramly (2013)	Real GDP	Growth rate of GDP at the constant price.	1.Bank of Thailand website (www.bot.or.th) 2.World Bank website (www.worldbank.org)

Table 3.2 (Continued)

Variables/ Definition	References	Indicator	Measurement	Source
3.Years listed is the number of years the company has been listed in the SET.	Black et al. (2006); Miyajima (2005); Shen and Rin (2012)	Number of years the company has been listed in the SET.	Number of years the company has been listed the in the SET.	SET website (www.set.or.th)
4.Firm Leverage is the amount of debt for business operation**.**	Brigham and Gapenski (1997); Ramly (2012); Ramly (2013); Black et al. (2006); Suchada Jiamsagul (2007); Chen et al. (2003)	Debt to asset ratio (D/A Ratio)	D/A Ratio = $\frac{\text{Total debt}}{\text{Total asset}}$	SETSMART

3.4 Hypothesis

Nine hypotheses were proposed in this study as follows.

Hypothesis 1: Corporate governance has a positive impact on firm performance.

Hypothesis 1a: Corporate governance has a positive impact on ROA.

Hypothesis 1b: Corporate governance has a positive impact on ROE.

Hypothesis 1c: Corporate governance has a positive impact on Tobin's q.

Hypothesis 1d: Corporate governance has a positive impact on MVBV.

Hypothesis 2: Corporate governance has a negative impact on cost of capital. (In other words, corporate governance has a positive impact on competitive advantage.)

Hypothesis 3: Cost of capital has a negative impact on firm performance. (In other words, competitive advantage has a positive impact on firm performance.)

Hypothesis 3a: Cost of capital has a negative impact on ROA.

Hypothesis 3b: Cost of capital has a negative impact on ROE.

Hypothesis 3c: Cost of capital has a negative impact on Tobin's q.

Hypothesis 3d: Cost of capital has a negative impact on MVBV.

Regarding control variables, the following hypotheses were formulated: 1) firm size has a positive impact on firm performance and a negative impact on cost of capital. 2) GDP has a positive impact on firm performance and on cost of capital. 3) Years listed has a negative impact on firm performance and on cost of capital. And 4) firm leverage has a negative impact on cost of capital.

3.5 Conceptual Framework

The information in Table 3.2 and the hypotheses can be used to formulate the conceptual framework in the form of equation models as follows.

Model1

$$LnROA_{it} = \beta 0 + \beta 1 CG1_{it} + \beta 2 CG2_{it} + \beta 3 Sector1_{it} + \beta 4 Sector2_{it} + \beta 5 Sector3_{it} + \beta 6 Sector4_{it} + \beta 7 Sector5_{it} + \beta 8 Sector6_{it} + \beta 9 LnMktcap_{it} + \beta 10 GDP_{t} + \beta 11 LnYearslisted_{it} + \varepsilon_{it} \quad \ldots\ldots (1)$$

Model 2

$$LnROE_{it} = \beta 0 + \beta 1 CG1_{it} + \beta 2 CG2_{it} + \beta 3 Sector1_{it} + \beta 4 Sector2_{it} + \beta 5 Sector3_{it} + \beta 6 Sector4_{it} + \beta 7 Sector5_{it} + \beta 8 Sector6_{it} + \beta 9 LnMktcap_{it} + \beta 10 GDP_{t} + \beta 11 LnYearslisted_{it} + \varepsilon_{it} \ldots\ldots (2)$$

Model 3

$$LnTobinQ_{it} = \beta 0 + \beta 1 CG1_{it} + \beta 2 CG2_{it} + \beta 3 Sector1_{it} + \beta 4 Sector2_{it} + \beta 5 Sector3_{it} + \beta 6 Sector4_{it} + \beta 7 Sector5_{it} + \beta 8 Sector6_{it} + \beta 9 LnMktcap_{it} + \beta 10 GDP_{t} + \beta 11 LnYearslisted_{it} + \varepsilon_{it} \ldots\ldots (3)$$

Model 4

$$LnMVBV_{it} = \beta 0 + \beta 1 CG1_{it} + \beta 2 CG2_{it} + \beta 3 Sector1_{it} + \beta 4 Sector2_{it} + \beta 5 Sector3_{it} + \beta 6 Sector4_{it} + \beta 7 Sector5_{it} + \beta 8 Sector6_{it} + \beta 9 LnMktcap_{it} + \beta 10 GDP_{t} + \beta 11 LnYearslisted_{it} + \varepsilon_{it} \ldots\ldots (4)$$

Model 5

$$WACC_{it} = \beta 0 + \beta 1 CG1_{it} + \beta 2 CG2_{it} + \beta 3 Sector1_{it} + \beta 4 Sector2_{it} + \beta 5 Sector3_{it} + \beta 6 Sector4_{it} + \beta 7 Sector5_{it} + \beta 8 Sector6_{it} + \beta 9\ DA + \beta 10 LnMktcap_{it} + \beta 11\ GDP_{t} + \beta 12 LnYearslisted_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots (5)$$

Model 6

$$LnROA_{it} = \beta 0 + \beta 1 WACC_{it} + \beta 2 Sector1_{it} + \beta 3 Sector2_{it} + \beta 4 Sector3_{it} + \beta 5 Sector4_{it} + \beta 6 Sector5_{it} + \beta 7 Sector6_{it} + \beta 9 LnMktcap_{it} + \beta 10\ GDP_{t} + \beta 11 + LnYearslisted_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots (6)$$

Model 7

$$LnROE_{it} = \beta 0 + \beta 1 WACC_{it} + \beta 2 Sector1_{it} + \beta 3 Sector2_{it} + \beta 4 Sector3_{it} + \beta 5 Sector4_{it} + \beta 6 Sector5_{it} + \beta 7 Sector6_{it} + \beta 9 LnMktcap_{it} + \beta 10\ GDP_{t} + \beta 11 + LnYearslisted_{it} + \varepsilon_{it} \ldots\ldots (7)$$

Model 8

$$LnTobinQ_{it} = \beta 0 + \beta 1 WACC_{it} + \beta 2 Sector1_{it} + \beta 3 Sector2_{it} + \beta 4 Sector3_{it} + \beta 5 Sector4_{it} + \beta 6 Sector5_{it} + \beta 7 Sector6_{it} + \beta 9 LnMktcap_{it} + \beta 10\ GDP_{t} + \beta 11\ LnYearslisted_{it} + \varepsilon_{it} \ldots\ldots (8)$$

Model 9

$$LnMVBV_{it} = \beta 0 + \beta 1 WACC_{it} + \beta 2 Sector1_{it} + \beta 3 Sector2_{it} + \beta 4 Sector3_{it} + \beta 5 Sector4_{it} + \beta 6 Sector5_{it} + \beta 7 Sector6_{it} + \beta 9 LnMktcap_{it} + \beta 10\ GDP_{t} + \beta 11 + LnYearslisted_{it} + \varepsilon_{it} \ldots\ldots (9)$$

Whereas

ROA_{it}	=	Company's total return on asset at i year t
ROE_{it}	=	Company's total return on equity at i year t
$TobinQ_{it}$	=	Company's total Tobin's q at i year t
$MVBV_{it}$	=	Company's market value to book value at i year t
$WACC_{it}$	=	Company's WACC at i year t
$Mktcap_{it}$	=	Company's market capitalization at i year t
GDP_{t}	=	GDP growth year t
$Yearslisted_{it}$	=	Company's number of years in the stock exchange at i year t
DA_{it}	=	Company's debt to asset ratio at i year t
ε_{it}	=	Company's forecast errors at i year t
Sector1-6	=	Company's sector at i year t
$\beta 0$	=	Intercept (constant value)
$\beta 1$-11	=	Coefficient of independent variable

3.6 Population

The population in this study were listed companies in the Stock Exchange of Thailand (SET) with recorded performance and complete balanced data during the years 2011-2015. Only the company's data on common stocks/securities were considered. Analyses of the effect of corporate governance on firm performance and competitive advantage and the effect of competitive advantage on firm performance require complete data to prevent errors in data processing. As a result, only qualified securities with properties good for this research were chosen and all unqualified companies were left out. The researcher followed the approach described by Nantana Jaengsawang (2012) and Tabari et al. (2013).

3.6.1 Banking, finance and securities, and insurances, which are in the financial sector, were excluded from the research since these businesses are governed by specific laws (Nantana Jaengsawang, 2012). Deposits are the primary source of fund for their business operation. Unlike others, this type of business has different objectives in incurring debts, which affect firm performance.

3.6.2 Because this research used panel data, studied companies must have complete balanced data in order to prevent errors in data processing. Securities with incomplete data which were excluded from the research were:

1) Those with scores on corporate governance of less than 5 years during

2) Those with years listed in the stock market of less than 5 years during the years 2011-2015.

3.6.3 Companies with securities suspended from trading or possibly delisted, i.e. SP (Trading Suspension), H (Trading Halt), and NC (Non-Compliance) during the years 2011-2015 were excluded from the research because this had an effect on securities trading decisions and there was no information regarding securities trading.

3.6.4 Companies' accounting period must be in the same fiscal year so that financial information was in the same period. Almost all securities listed in the Stock Exchange of Thailand follow the Jan-Dec accounting period, so this research removed companies with accounting period other than Jan-Dec.

3.6.5 Mutual funds were eliminated from the study because they differ from ordinary shares.

3.6.6 Companies under rehabilitation were disregarded in the research because no information on firm performance, assessment score of corporate governance, and securities trading could be obtained for the research.

3.6.7 Companies with negative debt to equity ratio were omitted from the research due to the fact that this ratio should not be less than 0. Values of lower than 0 indicate a negative shareholder ratio. It implies trouble in business operation, which affects data processing.

In 2015, there were576 listed companies in the Stock Exchange of Thailand. The following were unqualified companies and were excluded from the research.

Companies in the financial sector	59
Companies with scores of corporate governance of less than 5 years	97
Companies with years listed in the stock market of less than 5 years	44
Companies with SP, H, NC sign	84
Mutual fund	63
Companies with the accounting period other than Jan-Dec	13

Companies under rehabilitation	12
Companies with a negative debt to equity ratio	1
Net population (companies) after screening	203

The population after screening divided by sector were as shown in Table 3.3.

Table 3.3 Population in the Research

Sector	No. of Company	%
Agro & Food Industry (AGRO)	22	10.84
Consumer Products (CONSUMP)	18	8.87
Industry (INDUS)	31	15.27
Property & Construction (PROPCON)	45	22.17
Resources (RESOURC)	18	8.87
Services (SERVICE)	44	21.67
Technology (TECH)	25	12.32
Total	**203**	**100**

Since the data were collected from the secondary sources, the research expense was not high. There was also plentiful information for study. Thus, the researcher decided to examine the past 5-year data of all selected qualified 203 companies. The number of data sets being processed is 203 X 5 = 1,015.

3.7 Data Analysis

3.7.1 Data Used in the Research

Panel data were used in this study. They were a mix of cross-sectional data and time-series data (Montri Piriyakul, n.d.).

Regarding cross-sectional data, each company's revenue and costs at a particular time were studied. Table 3.4 shows the sample of the cross-sectional data in 2011.

Table 3.4 Sample of Cross-Sectional Data

Company	Year	Cost	Revenue
A	2011	25	1,000
B	2011	30	3,500
C	2011	73	10,000
D	2011	16	600
E	2011	99	50,000
F	2011	16	700

As for the time-series data, the same data or samples were repeatedly studied in a series of time-for instance, revenue and costs of a company during the years 2011-2015. See Table 3.5.

Table 3.5 Sample of Time-Series Data

Year	Cost	Revenue	No. of employee
2011	25	1,000	3,500
2012	30	3,500	3,900
2013	73	10,000	4,000
2014	16	600	3,900
2015	99	50,000	3,900
2016	50	3,000	4,100

The same samples were studied for different periods of time in the analysis of panel data (Reyna, 2007), i.e., revenue and costs of companies in the years 2011-2013. See Table 3.6.

Table 3.6 Sample of Panel Data

Company	Year	Cost	Revenue
A	2011	25	1,000
A	2012	30	3,500
A	2013	73	10,000
B	2011	16	600
B	2012	99	50,000
B	2013	16	700
C	2011	16	600
C	2012	99	50,000
C	2013	73	10,000

3.7.2 Statistics Used in the Research

This research employed both descriptive statistics (basic statistics) and inferential statistics as follows.

3.7.2.1 Descriptive Statistics

The descriptive statistics, or basic statistics, used in the research comprised mean, standard deviation, maximum value, minimum value, and skewness. They were used to verify abnormalities or suitability of the information before formulating a model with SPSS for Windows version 19. Zero skewness indicates normal distribution. A positively skewed curve suggests that distribution is skewed to the right. And a negatively skewed curve implies that distribution is skewed to the left. Suitable data for statistical tests must be skewed in the range of -3 to +3 (Kline, 2005).

3.7.2.2 Inferential Statistics

The inferential statistics were used to derive population parameters. In this research, the hypotheses were tested for correlation, influence, and statistical significance.

1) Correlation

Correlation, or r, or Pearson Correlation value reveals the degree and direction of the relationship among variables compared.

r > 0 means correlation with same direction

r = 0 means no correlation

r < 0 means correlation with opposite direction

The interpretation of the correlation coefficient is demonstrated in Table 3.7.

Table 3.7 Meanings of Correlation Coefficients

Correlation Coefficient (r) *	Meaning
0.90 to 1.00	Very high correlation
0.70 to 0.90	High correlation
0.50 to 0.70	Moderate correlation
0:30 to 0:50	Low correlation
0:00 to 0:30	Very low correlation

Source: Adapted from Krit Raengsungnoen, 2011, p. 72.

Note: *Correlation Coefficient means absolute value

2) Model for Panel Data Testing (Reyna, 2007)

This research employed the panel data regression model as an analysis approach, which is based on traditional linear regression. Traditional linear regression has important assumptions as follows (Gujarati, 2003).

(1) The parameter has a linear relationship.

(2) Homoscedasticity or variance of errors must be fixed.

(3) There must be no autocorrelation.

(4) There must be no perfect multicollinearity.

The regression model used in panel data analysis consisted of 2 types: fixed-effect method and random-effect method.

3) Fixed-effect method

Reyna (2007) states that the fixed-effect method is appropriate for analyzing the influence of internal dependent and independent variables of the entity (e.g., company, student, and country). Individual characteristics of each entity may affect independent variables. For instance, the regulations of each company affect its performance, and economic policies affect the country's GDP, etc. The fixed-effect method is unique to each entity and is of time-invariant characteristics, which has no effect on other entities.

4) Random-effect method

Reyna (2007) states that variation of entities is random and has no influence on independent and dependent variables. The random-effect method is appropriate for data with the difference among entities affecting dependent variables.

5) HausmanTest

As mentioned earlier, panel data can be analyzed with 2 types of models. Therefore, results from the fixed-effect method and those from the random-effect method must be verified by Hausman test to see which method is more appropriate for the data. The following hypotheses are tested (Pouraghajan et al., 2012) .

H_0: The data are appropriate for the random-effect method.

H_1: The data are appropriate for the fixed-effect method.

Hausman test requires statistics from the χ^2 Table. If H_0 is rejected, it means that data in the model are appropriate for the fixed-effect method, and thus results from fixed-effect method analysis should be used.

6) Test of the Reliability of the Model

Panel data analysis using the linear regression model generally involves:

7) Multicollinearity Problem

If any independent variable in the same model has a high correlation of $\pm$0.8 or over, the multicollinearity problem will occur. This results in an abnormal model, i.e., the coefficient sign differs from what it should be, etc. Such a highly correlated variable of the same pair can be corrected by removing one of them from the pair in the analysis (Gujarati, 2003; Phit Chongwatthanakun, n.d.).

8) Heteroskedasticity Problem

Heteroskedasticity is the variance of error. It does not have a constant value. Variance is then not the lowest value; thus the coefficient is inefficient. The tested Hypothesis is therefore inaccurate, often without statistical significance (Gujarati, 2003; Phit Chongwatthanakun, n.d.). Heteroskedasticity can be tested in many ways, e.g., using Wald Test or Breusch-Pagan Test, etc. In the Wald Test, hypotheses are as follows (Phit Chongwatthanakun, n.d.).

H_0: There is no heteroskedasticity problem.

H_1: There is heteroskedasticity problem.

Heteroskedasticity testing requires statistics from the χ^2 Table. If H_0 is rejected, it means that the model has the heteroskedasticity problem. It can be corrected by adjusting the standard errors in the clusters (Hoechle, 2007).

9) Autocorrelation Problem

Autocorrelation is a forecast error that variables are correlated with each other or correlated with time (Gujarati, 2003; Phit Chongwatthanakun, n.d.). Autocorrelation can be tested in many ways, i.e., using Durbin-Watson test or Wooldridge Test, etc. In the Wooldridge Test, the hypotheses are as follows (Phit Chongwatthanakun, n.d.).

H_0: There is no autocorrelation problem.

H_1: There is an autocorrelation problem.

Autocorrelation testing requires statistics from the F Table. If H_0 is rejected, it means that the model has an autocorrelation problem. It can be corrected by adjusting the standard errors in the clusters (Hoechle, 2007).

CHAPTER 4

RESEARCH RESULTS

The objectives of the study on “Effect of Corporate Governance and Competitive Advantage on Firm Performance: A Case Study of Listed Companies in the Stock Exchange of Thailand" were as follows:

1) To find out the effect of corporate governance on firm performance

2) To identify the effect of corporate governance on competitive advantage

3) To ascertain the effect of competitive advantage on firm performance

The researcher employed quantitative analysis. The results of data analysis were divided into two parts:

4.1 Data analysis using Basic statistics

4.1.1 Description of the population in each business sector

4.1.2 Description of the variables

4.1.3 Multicollinearity testing

4.2 Data analysis to answer the research objectives

4.2.1 Model testing

4.2.2 Heteroskedasticity and autocorrelation testing

To avoid confusion with the variables, the researcher encapsulated symbols for variables and statistics as follows.

CG1	=	Dummy variable for corporate governance 1
CG2	=	Dummy variable for corporate governance 2
WACC	=	Cost of capital
ROA	=	Return on asset ratio
ROE	=	Return on equity ratio
TobinQ	=	Tobin's ratio
MVBV	=	Market value to book value.
Mktcap	=	Market capitalization

GDP	=	GDP growth
Yearslisted	=	number of years the company has been listed in the Stock Exchange of Thailand
DA	=	Debt to asset ratio

Symbols for statistical values

$\bar{x}$	means	Mean
S.D.	means	Standard deviation
p-value	means	Significant level
Ln	means	Logarithm base e

4.1 Data Analysis Using Basic Statistics

4.1.1 Description of the Population in Each Business Sector

The population were classified by sector as shown in Table 4.1.

Table 4.1 Percentage of Individual Business Sectors

Sector	**No. of Companies**	**(%)**
Agro & Food Industry (AGRO)	22	10.84
Consumer Products (CONSUMP)	18	8.87
Industry (INDUS)	31	15.27
Property & Construction (PROPCON)	45	22.17
Resources (RESOURC)	18	8.87
Services (SERVICE)	44	21.67
Technology (TECH)	25	12.32
Total	**203**	**100**

Three most studied sectors as shown in Table 4.1 were 1) property and construction (45 companies or 22.17%), 2) services (44 companies or 21.67%), and 3) industries (31 companies or 15.27%).

4.1.2 Description of the Variables

The results from applying the basic statistics like mean, standard deviation, maximum, minimum, and skewness were shown in Table 4.2. The appropriate data for the research must be in the range -3 to +3 of skewness (Klein, 2005). Prior to the analysis, out-of-range data need to be adjusted to have normal distribution.

Table 4.2 Mean, Standard Deviation, Maximum, Minimum, and Skewness of Variables

Variable	Unit	Number	Minimum	Maximum	$\bar{X}$	S.D.	Skewness
Mktcap	Billion Baht	1015	0.018	94.800	2.930	9.450	6.280
TobinQ	Time	1015	0.42	14.01	1.6517	1.09929	3.674
WACC	Percent	1015	0.900	36.700	6.628	3.55	2.963
MVBV	Time	1015	0.18	17.09	2.1286	1.83647	3.093
ROA	Percent	1015	-50.31	62.74	9.6832	9.17714	0.445
ROE	Percent	1015	-100.15	84.46	12.8306	14.90282	-0.497
GDP	Percent	1015	0.8	7.2	2.86	2.34004	100.6
Yearlisted	Year	1015	1	40	17.8079	8.77775	0.308
DA	Time	1015	0.003	0.887	0.43671	0.193772	-0.139

Table 4.2 shows the values of all variables as follows:

1) Mktcap had the minimum value of 0.018, the maximum value of 94.800, the mean of 2.930, the standard deviation of 9.450, and the skewness of 6.280.

2) TobinQ had the minimum value of 0.42, the maximum value of 14.01, the mean of 1.652, the standard deviation of 1.099, and the skewness of 3.674.

3) WACC had the minimum value of 0.9%, the maximum value of 36.7%, the mean of 6.628%, the standard deviation of 3.55%, and the skewness of 2.963.

4) MVBV had the minimum value of 0.18, the maximum value of 17.09, the mean of 2.129, the standard deviation of 1.836, and the skewness of 3.093.

5) ROA had the minimum value of -50.31%, the maximum value of 62.74%, the mean of 9.683, the standard deviation of 9.177, and the skewness of 0.445.

6) ROE had the minimum value of-100.15%, the maximum value of 84.46%, the mean of 12.831, the standard deviation of 14.901, and the skewness of -0.497.

7) GDP had the minimum value of 0.8%, the maximum value of 7.2%, the mean of 2.86, the standard deviation of 2.340, and the skewness of 100.6.

8) YearsListed had the minimum value of 1, the maximum value of 40, the mean of 17.808, the standard deviation of 8.778, and the skewness of 0.308.

9) DA had the minimum value of 0.003, the maximum value of 0.887, the mean of 0.437, the standard deviation of 0.194, and the skewness of -0.139.

Upon examination, ROA, ROE, and Yearslisted were nonlinear. Mktcap, TobinQ, and MVBV had non-normal distribution. For these reasons, these variables were adjusted by using Log base e (Ln)

4.1.3 Multicollinearity

Correlation between variables in Table 4.3 shows that no independent variable in the same model had correlation beyond $\pm$0.8. Therefore, no multicollinearity problem had been found.

4.2 Data Analysis to Answer the Research Objectives

4.2.1 Model Testing

Each model was tested by the STATA program using the fixed-effect method and the random-effect method. The test results indicated that in the model derived from fixed-effect method, the dummy variable "Sector" was excluded from the calculation due to its unchanged nature through time. The dummy variable "Sector" was, therefore, used in the model derived from the random-effect method only (Table 4.4 and 4.5).

After testing each model with the fixed-effect method and the random-effect method, Hausman Test was carried out in order to check whether the data was fixed-effect or random-effect type. The hypotheses were as follows:

H_0: The data are appropriate for the random-effect model.

H_1: The data are appropriate for the fixed-effect model.

The result of Hausman testing indicated that H_0 were rejected in all the models (Table 4.6). Therefore, this research used the fixed-effect method to all the models to answer research questions. Then Wald Test and Wooldridge Test were performed to verify whether or not the models were free from Heteroskedasticity and Autocorrelation problems. The following are hypotheses:

Heteroskedasticity Test

H_0: There is no heteroskedasticity problem.

H_1: There is a heteroskedasticity problem.

Autocorrelation Test

H_0: There is no autocorrelation problem.

H_1: There is an autocorrelation problem.

The results are shown in Table 4.7 and 4.8, respectively.

Table 4.3 Correlation between Variables

	ROA	ROE	TobinQ	MVBV	LnROA	LnROE	LnTobinQ	LnMVBV	WACC	DA	Mktcap	LnMktcap	GDP	LnYearsListed
ROA	1													
ROE	**0.896****	1												
TobinQ	**0.600****	**0.517****	1											
MVBV	**0.529****	**0.515****	**0.936****	1										
LnROA	**0.995****	**0.904****	**0.564****	**0.494****	1									
LnROE	**0.877****	**0.988****	**0.464****	**0.450****	**0.896****	1								
LnTobinQ	**0.587****	**0.533****	**0.942****	**0.904****	**0.560****	**0.484****	1							
LnMVBV	**0.498****	**0.499****	**0.832****	**0.884****	**0.475****	**0.445****	**0.941****	1						
WACC	-0.056	**-0.109****	**-0.064***	**-0.147****	-0.054	**-0.093****	**-0.081****	**-0.165****	1					
DA	**-0.136****	**0.047**	-0.014	**0.156****	**-0.133****	0.025	0.041	**0.219****	**-0.261****	1				
Mktcap	**0.187****	**0.240****	**0.240****	**0.313****	**0.178****	**0.213****	**0.221****	**0.229****	-0.033	**0.144****	1			
LnMktcap	**0.263****	**0.326****	**0.429****	**0.484****	**0.257****	**0.302****	**0.460****	**0.482****	**-0.118****	**0.243****	**0.625****	1		

Table 4.3 (Continued)

	ROA	ROE	TobinQ	MVBV	LnROA	LnROE	LnTobinQ	LnMVBV	WACC	DA	Mktcap	LnMktcap	GDP	LnYearsListed
GDP	**0.093****	**0.094****	**0.101****	**0.080***	**0.093****	**0.087****	**0.109****	**0.095****	0.045	-0.005	0.012	0.031	1	
LnYearListed	-0.041	-0.045	**-0.086****	**-0.117****	-0.033	-0.024	**-0.123****	**-0.163****	-0.057	**-0.201****	0.009	0.046	-0.021	1

Note: ** Denotes statistical significance level of 0.01

* Denotes statistical significance level of 0.05

Table 4.4 Results of the Application of the Fixed-Effect Method and the Random-Effect Method prior to Heteroskedasticity and Autocorrelation Testing (Models 1-5)

Dependent Variable / Independent Variable	Model 1 LnROA		Model 2 LnROE		Model 3 Ln TobinQ		Model4 Ln MVBV		Model5 WACC	
	FE	**RE**	**FE**	**RE**	**FE**	**RE**	**FE**	**RE**	**FE**	**RE**
CG1	0.002	-0.038	-0.145	-0.012	-0.002	-0.037	-0.001	-0.053	**-0.004*** **	**-0.004*** **
	(0.23)	(-0.66)	(-1.51)	(-1.52)	(-0.10)	(-1.93)	(-0.03)	(-1.58)	**(-3.57)**	**(-3.38)**
CG2	0.005	0.003	-0.0003	-0.002	0.007	-0.008	0.035	-0.013	**-0.002*** **	**-0.002*** **
	(1.12)	(0.77)	(-0.05)	(0.33)	(0.64)	(-0.69)	(1.78)	(0.60)	**(-2.85)**	**(-2.85)**
Sector 1	-	0.157	-	-0.010	-	0.165	-	0.130	-	-0.007
		(1.17)		(-0.67)		(1.78)		(0.77)		(0.68)
Sector 2	-	0.011	-	-0.013	-	0.150	-	0.070	-	**-0.029*** **
		(0.73)		(-0.83)		(1.51)		(0.39)		**(-2.86)**
Sector 3	-	0.017	-	-0.003	-	0.065	-	0.624	-	-0.010
		(1.39)		(-0.25)		(0.79)		(0.16)		(-1.11)
Sector 4	-	-0.003	-	-0.15	-	-0.083	-	**-0.257***	-	**0.018** **
		(-0.28)		(-1.22)		(-1.05)		**(-1.80)**		**(2.16)**
Sector 5	-	-0.028	-	-0.051	-	**-0.488*** **	-	**-0.916*** **	-	**0.021** **
		(-2.02)		(-3.28)		**(-5.01)**		**(-5.19)**		**(2.08)**

Table 4.4 (Continued)

Dependent Variable / Independent Variable	Model 1 LnROA		Model 2 LnROE		Model 3 Ln TobinQ		Model4 Ln MVBV		Model5 WACC	
	FE	**RE**	**FE**	**RE**	**FE**	**RE**	**FE**	**RE**	**FE**	**RE**
Sector 6	-	0.002	-	-0.025	-	0.651	-	-0.041	-	0.004
		(0.21)		(-1.92)		(0.82)		(-0.29)		(0.48)
LnMktcap	**0.032*** **	**0.015*** **	**0.374*** **	**-0.015*** **	**0.374*** **	**0.291*** **	**0.644*** **	**0.510*** **	**-0.002*** **	**-0.002*** **
	(9.71)	**(8.25)**	**(42.71)**	**(-8.25)**	**(42.71)**	**(34.89)**	**(40.21)**	**(34.11)**	**(-3.63)**	**(-3.81)**
GDP	**1.114*** **	**0.187*** **	0.748	0.187	0.748	**1.025*** **	**1.054*** **	**1.498*** **	**0.068*** **	**0.068*** **
	(2.19)	**(3.55)**	(5.37)	(3.55)	(5.37)	**(6.50)**	**(4.13)**	**(5.32)**	**(7.62)**	**(7.60)**
LnYearlisted	**-0.072*** **	**-0.021*** **	**-0.248*** **	**-0.021*** **	**-0.248*** **	0.175***	**-0.471*** **	**-0.345*** **	**-0.012*** **	**-0.011*** **
	(-8.40)	**(-4.32)**	**(-10.756)**	**(-4.32)**	**(-10.76)**	(-8.02)	**(111.16)**	**(-8.79)**	**(-8.12)**	**(-8.16)**
DA									**-0.107*** **	**-0.105*** **
									(-37.32)	**(-37.31)**
Constant	-0.054	**0.017*** **	**-7.016*** **	**0.170*** **	**-7.016*** **	**-5.351*** **	**-12.73*** **	**-9.943*** **	**0.191*** **	**0.185*** **
	(-0.78)	**(4.04)**	**(-37.75)**	**(4.04)**	**(-37.75)**	**(-27.88)**	**(-37.38)**	**(-28.84)**	**(15.63)**	**(13.80)**

Note: *** Denotes statistical significance level of 0.01 ** Denotes statistical significance level of 0.05 * Denotes statistical significance level of 0.10 FE denotes Fixed-Effect Method RE denotes Random-Effect Method

Table 4.5 Results of the Application of the Fixed-Effect Method and the Random-Effect Method prior to Heteroskedasticity and Autocorrelation Testing (Models 6-9)

Dependent Variable / Independent Variable	Model6 LnROA		Model7 LnROE		Model8 Ln Tobinq		Model9 Ln MVBV	
	FE	**RE**	**FE**	**RE**	**FE**	**RE**	**FE**	**RE**
WACC	**0.653*** **	**0.246*** **	**0.651*** **	0.079	-0.065	0.340	**-2.871*** **	**-1.893*** **
	(5.31)	**(3.21)**	**(3.53)**	(0,86)	(-0.20)	(1.03)	**(-4.74)**	**(-3.21)**
Sector 1	-	0.012	-	-0.008	-	**0.164***	-	0.196
		(0.92)		(-0.53)		**(1.76)**		(1.18)
Sector 2	-	0.015	-	-0.010	-	0.158	-	0.078
		(1.00)		(-0.64)		(1.59)		(0.43)
Sector 3	-	0.017	-	-0.002	-	0.072	-	0.46
		(1.38)		(-0.15)		(0.84)		(0.30)
Sector 4	-	-0.006	-	-0.014	-	-0.082	-	-0.212
		(0.55)		(-1.14)		(-1.04)		(-1.49)
Sector 5	-	**0.034** **	-	**-0.052*** **	-	**-0.496*** **	-	**-0.880*** **
		(-2.40)		**(-3.56)**		**(-5.07)**		**(-5.00)**
Sector 6	-	0.0001	-	**-0.023***	-	-0.067	-	0.002
		(0.01)		**(1.83)**		(-0.84)		(0.02)

Table 4.5 (Continued)

Dependent Variable / Independent Variable	Model6 LnROA		Model7 LnROE		Model8 Ln Tobinq		Model9 Ln MVBV	
	FE	**RE**	**FE**	**RE**	**FE**	**RE**	**FE**	**RE**
LnMktcap	**0.031*** **	**0.016*** **	**0.039*** **	**0.019*** **	**0.373*** **	**0.290*** **	**0.643*** **	**0.506*** **
	(9.58)	**(8.71)**	**(8.05)**	**(8.16)**	**(42.67)**	**(34.84)**	**(40.79)**	**34.00**
GDP	0.083	**0.166*** **	**0.118*** **	**0.223*** **	**0.755*** **	**0.950*** **	**1.243*** **	**1.564*** **
	(1.64)	**(3.21)**	**(1.56)**	**(2.94)**	**(5.48)**	**(6.09)**	**(4.98)**	**(5.62)**
LnYearlisted	**-0.062*** **	**0.020*** **	**-0.653*** **	**-0.011***	**-0.249*** **	**-0.72*** **	**-0.516*** **	**-0.366*** **
	(-7.17)	**(-4.11)**	**(-4.07)**	**(-1.88)**	**-10.55**	**(-7.77)**	**(-12.07)**	**(-9.24)**
DA								
Constant	-0.100	**0.141*** **	**-0.021**	**0.363*** **	**-7.002*** **	**-5.370*** **	**-12.461*** **	**-9.698*** **
	(-1.46)	**(3.28)**	**(-0.20)**	**(7.08)**	**(-37.36)**	**(-27.60)**	**(-36.69)**	**(-27.87)**

Note: *** Denotes statistical significance level of 0.01

** Denotes statistical significance level of 0.05

* Denotes statistical significance level of 0.10

FE denotes Fixed-Effect Method RE denotes Random-Effect Method

Table 4.6 Results of Hausman Testing

Hausman Test	**Model 1**	**Model2**	**Model3**	**Model4**	**Model5**	**Model6**	**Model7**	**Model8**	**Model9**
P-value	**0.0000*** **	**0.0000*** **	**0.0000*** **	**0.0000*** **	**0.0002*** **	**0.0000*** **	**0.0000*** **	**0.0000*** **	**0.0000*** **
Result	Fixed-effect (Reject H_0)	Fixed-effect (Reject H_0)	Fixed-effect (Reject H_0)	Fixed-effect (Reject H_0)	Fixed-effect (Reject H_0)	Fixed-effect (Reject H_0)	Fixed-effect (Reject H_0)	Fixed-effect (Reject H_0)	Fixed-effect (Reject H_0)

Note: *** Denotes statistical significance level of 0.01

** Denotes statistical significance level of 0.05

* Denotes statistical significance level of 0.10

Table 4.7 Results of Heteroskedasticity Testing

Wald Test	**Model 1**	**Model2**	**Model3**	**Model4**	**Model5**	**Model6**	**Model7**	**Model8**	**Model9**
P-value	**0.0000*** **	**0.0000*** **	**0.0000*** **	**0.0000*** **	**0.0000*** **	**0.0000*** **	**0.0000*** **	**0.0000*** **	**0.0000*** **
Result	Heteroskedasticity (Reject H_0)	Heteroskedasticity (Reject H_0)	Heteroskedasticity (Reject H_0)	Heteroskedasticity (Reject H_0)	Heteroskedasticity (Reject H_0)	Heteroskedasticity (Reject H_0)	Heteroskedasticity (Reject H_0)	Heteroskedasticity (Reject H_0)	Heteroskedasticity (Reject H_0)

Note: *** Denotes statistical significance level of 0.01

** Denotes statistical significance level of 0.05

* Denotes statistical significance level of 0.10

Table 4.8 Results of Autocorrelation Testing

Wooldridge test	**Model 1**	**Model2**	**Model3**	**Model4**	**Model5**	**Model6**	**Model7**	**Model8**	**Model9**
P-value	**0.0001*** **	**0.0502***	**0.0000*** **	**0.0000*** **	**0.0000*** **	**0.0001*** **	**0.0000*** **	**0.0000*** **	**0.0000*** **
Result	Autocorrelation (Reject H_0)	Autocorrelation (Reject H_0)	Autocorrelation (Reject H_0)	Autocorrelation (Reject H_0)	Autocorrelation (Reject H_0)	Autocorrelation (Reject H_0)	Autocorrelation (Reject H_0)	Autocorrelation (Reject H_0)	Autocorrelation (Reject H_0)

Note: *** Denotes statistical significance level of 0.01

** Denotes statistical significance level of 0.05

* Denotes statistical significance level of 0.10

The test results indicated that all the models encountered heteroskedasticity and autocorrelation problems. The researcher thus solved the problems by adjusting the standard errors in the clusters (Hoechle, 2007). Tables 4.9 and 4.10 exhibit models that had been corrected to end both problems.

Table 4.9 Results of the Application of the Fixed-Effect Method after Adjustment Heteroskedasticity and Autocorrelation Problems (Models 1-5)

Dependent Variable / Independent Variable	**Model 1 LnROA**	**Model 2 LnROE**	**Model 3 Ln Tobinq**	**Model 4 LnMVBV**	**Model 5 WACC**
CG1	0.001	-0.015	-0.002	-0.0008	**-0.004*** **
	(0.23)	(-1.29)	(-0.10)	(-0.02)	**(-3.57)**
CG2	0.005	-0.0003	0.007	**0.035***	**-0.002*** **
	(1.03)	(-0.05)	(0.52)	**(1.71)**	**(-2.62)**
LnMktcap	**0.032*** **	**0.040*** **	**0.373*** **	**0.644*** **	**-0.002***
	(4.43)	**(4.37)**	**(19.35)**	**(15.43)**	**(-1.75)**
GDP	**0.114***	**0.174***	**0.748*** **	**1.054*** **	**0.068*** **
	(1.80)	**(1.76)**	**(6.35)**	**(4.60)**	**(9.67)**
LnYearlisted	**-0.072** **	**-0.063***	**-0.248*** **	**-0.471*** **	**-0.012*** **
	(-3.33)	**(-1.96)**	**(-6.58)**	**(-5.24)**	**(-4.63)**
DA					**-1.073*** **
					(-8.92)
Constant	-0.054	0.025	**-7.016*** **	**-12.73*** **	**0.191*** **
	(-0.44)	(0.17)	**(-17.09)**	**(-14.88)**	**(6.87)**
R^2	0.0512	0.0791	0.2347	0.2672	0.0846

Note: *** Denotes statistical significance level of 0.01

** Denotes statistical significance level of 0.05

* Denotes statistical significance level of 0.10

Table 4.10 Test Results of the Application of the Fixed-Effect Method after Heteroskedasticity and Autocorrelation Adjustment (Models 6-10)

Dependent Variable / Independent Variable	Model 6 LnROA	Model 7 LnROE	Model 8 Ln Tobinq	Model 9 LnMVBV
WACC	**0.653*** **	**0.651** **	**1.98**	**-2.871***
	(3.00)	**(2.39)**	**(1.02)**	**(-1.92)**
LnMktcap	**0.031*** **	**0.039*** **	**0.946*** **	**0.646*** **
	(4.47)	**(4.39)**	**(14.17)**	**(15.18)**
GDP	0.083	0.118	**2.174*** **	**1.243*** **
	(1.40)	(1.19)	**(4.17)**	**(5.50)**
LnYearlisted	**-0.062*** **	**-0.053***	**-0.674*** **	-0.516*** **
	(-2.94)	**(-1.67)**	**(-5.64)**	(-5.54)
DA				
Constant	-0.101	-0.021	**-17.978*** **	**-12.461** **
	(-0.83)	(-0.14)	**(-12.44)**	**(-14.56)**
R^2	0.0406	0.0621	0.2344	0.2766

Note: *** Denotes statistical significance level of 0.01
** Denotes statistical significance level of 0.05
* Denotes statistical significance level of 0.10

The test results showed that the models above could be used to test the following hypotheses.

Hypothesis 1: Corporate governance has a positive impact on firm performance.

Hypothesis 1a: Corporate governance has a positive impact on ROA (Model 1).

When corporate governance was used as an independent variable, ROA as the dependent variable, and firm size, GDP, and years listed as control variables, the results revealed that dummy variables for corporate governance-CG1 and CG2-had no

impact on ROA at a significance level of 0.05; Hypothesis 1a was rejected as earlier found by Price, Roman, and Rountree (2011).

Control variables, such as firm size and GDP, were significant at the 0.01 and 0.10 levels, respectively. Firm size had a positive impact on ROA. The result was consistent with Guoa and Kga (2012). GDP had a positive impact on ROA and the result was consistent with that of to Ali, Akhtar, and Ahmed (2011). However, years listed had a negative impact on ROA at a significance level of 0.05. The findings supported Shen and Rin's (2012). R^2 of the model was 0.0512.

Hypothesis 1b: Corporate governance has a positive impact on ROE (Model 2).

When corporate governance was used as independent variable, ROE as dependent variable and firm size, GDP, and years listed as control variables, the results revealed that dummy variables for corporate governance-CG1 and CG2-had no impact on ROE at a significance level of 0.05. Hypothesis 1b was thus rejected.

In contrast, control variables like firm size and GDP was statistically significant at the 0.01 and 0.10 levels, respectively. Firm size had a positive impact on ROE. The finding was consistent with Mule, Mukras, and Nzioka's (2015). GDP had a positive impact on ROE. The result was consistent with that of Ali, Akhtar, and Ahmed (2011). However, years listed had a negative impact on ROE at a significance level of 0.10. This supported the Shen and Rin's finding (2012). R^2 of the model was 0.0791.

Hypothesis 1c: Corporate governance has a positive impact on Tobin's q (Model 3).

When corporate governance was used as independent variable, Tobin's q as dependent variable, and firm size, GDP, and years listed as control variables, the results revealed that dummy variables for corporate governance-CG1 and CG2-had no impact on Tobin's q at a significance level of 0.05. This indicated that corporate governance had no impact on Tobin's q. Hypothesis 1c was rejected. The findings differed from Miyajima's (2005).

Control variables like firm size, GDP, and years listed were significant at the 0.01 level. Firm size had a positive impact on Tobin's q. The result was consistent with Miyajima's (2005). In contrast, years listed had a negative impact on Tobin's q. The findings supported Shen and Rin (2012). R^2 of the model was 0.2347.

Hypothesis 1d: Corporate governance has a positive impact on MVBV (Model 4).

When corporate governance was used as an independent variable and MVBV as the dependent variable, and firm size, GDP, and years listed as control variables, the results revealed that CG1-a dummy variable for corporate governance-had no impact on MVBV at a significance level of 0.10, but CG2 had a positive impact on MVBV at a significance level of 0.10. This indicated that in the assessment of corporate governance of 4-star companies, MVBV rose up to 0.035; Hypothesis 1d was accepted. The control variables like firm size, GDP, and years listed were significant at the 0.01 level.

To sum up, firm size and GDP had a positive impact on MVBV. The finding was consistent with Dang and Ji (2015) and Ali, Akhtar, and Ahmed (2011) respectively, while years listed had a negative impact on MVBV. The findings supported Shen and Rin's (2012). R^2 of the model was 0.2672.

Hypothesis 2: Corporate governance has a negative impact on cost of capital. (Corporate governance has a positive impact on competitive advantage) (Model 5).

When corporate governance was used as an independent variable, cost of capital as the dependent variable and firm size, GDP, firm leverage, and years listed as control variables, the results revealed that change in dummy variables for corporate governance-CG1 and CG2-had an opposite direction of impact on cost of capital at a significance level of 0.01. The CG1 and CG2 coefficients were -0.004 and -0.002, respectively. This indicated that in the assessment of corporate governance on 5-star companies, WACC dropped to 0.004 and WACC of 4-star companies dropped to 0.002. Hypothesis 2 was accepted. The findings were in accordance with the results of the studies by Madhani (2007); Sharma (2012); Ramly (2012); Ramly (2013); Chen et al. (2003); Chen et al. (2009); Byun et al. (2008); Drobetz, Schillhofer, and Zimmermann (2003). On the contrary, control variables like firm size and firm leverage were significant at the 0.10, 0.01, and 0.01 levels, respectively due to the advantage of being a large firm (Pervan & Visic, 2012), advantage of tax deductible from interest payment on financing (WACC formula). The finding thus supported Agency Theory.

Next, GDP had a positive impact on cost of capital at a significance level of 0.01. Ramly (2012) stated that businesses needed more money during economic

upsurge, rendering an increase in cost of capital. However, years listed had a negative impact on cost of capital at a significance level of 0.01, as found by Garcia, Saravia, and Yepes (2015) that time listing had an advantage of company reputation, and that higher uncertainty from cash flow of young organizations conversely caused investors to require higher rate of return. R^2 of the model was 0.0846.

Hypothesis 3: Cost of capital has a negative impact on firm performance. (Competitive advantage has a positive impact on firm performance) (Model 6).

Hypothesis 3a: Cost of capital has a negative impact on ROA.

When cost of capital was used as an independent variable, ROA as the dependent variable, and firm size, GDP, and years listed as control variables, the results revealed that cost of capital had a positive impact on ROA at a significance level of 0.01; Hypothesis 3a was rejected, as shown by Pouraghajan et al. (2012). In contrast, control variables like firm size and years listed were significant at the 0.01 level. Firm size had a positive impact on ROA. The finding was consistent with that of Guoa and KGA (2012) and that of Ali, Akhtar, and Ahmed (2011). However, GDP had no correlation with firm performance. Years listed had a negative impact on ROA, as reported by Shen and Rin (2012). R^2 of the model was 0.0406.

Hypothesis 3b: Cost of capital has a negative impact on ROE (Model 7).

When cost of capital was used as an independent variable, ROE as the dependent variable, and firm size, GDP, and years listed as control variables, the results revealed that cost of capital had a positive impact on ROE at a significance level of 0.05. Hypothesis 3c was rejected, which supported the findings of Pouraghajan et al. (2012). In contrast, control variables like firm size and years listed were significant at the of 0.01 and 0.10 levels, respectively. However, GDP had no correlation with ROE. Firm size had a positive impact on ROE as found by Mule, Mukras, and Nzioka (2015). And year listed had a negative impact on ROE as asserted by Shen and Rin (2012). R^2 of the model was 0.0621.

Hypothesis 3c: Cost of capital has a negative impact on Tobin's q (Model 8).

When cost of capital was used as an independent variable, Tobin's q as the dependent variable, and firm size, GDP, and years listed as control variables, the results revealed that cost of capital had no impact on Tobin's q at the 0.10 level**.** Hypothesis 3c was rejected. This was similar to the findings by Tabari, Nasrollahi,

Emamgholiour, and Mansourinia (2013). In the contrary, control variables like firm size, GDP, and years listed all were statistically significant at the 0.01 level. Firm size and GDP had a positive impact on Tobin's q as found by Tabari et al. (2013). In contrast, years listed had a negative impact on Tobin's Q as claimed by Shen and Rin (2012). R^2 of the model was 0.2344.

Hypothesis 3d: Cost of capital has a negative impact on MVBV (Model 9).

When cost of capital was used as an independent variable, MVBV as the dependent variable, and firm size, GDP, and years listed as control variables, the results revealed that cost of capital had a negative impact on MVBV at a significance level of 0.05. Hypothesis 3d was accepted. While control variables like firm size, GDP, and years listed all were significant at the 0.01 level. Firm size had a positive impact on MVBV. The finding was consistent with the study by Dang and Ji (2005). GDP also had a positive impact on MVBV, while years listed had a negative impact on MVBV as revealed by Shen and Rin (2012). R^2 of the model was 0.2766.

To sum up, 3 out of 9 research hypotheses were accepted. The details are shown in Table 4.11.

Table 4.11 Results of Hypothesis Testing

Hypothesis	**Result**	**Coefficient**
H1a: Corporate governance has a positive impact on ROA	Rejected	-
H1b: Corporate governance has a positive impact on ROE	Rejected	-
H1c: Corporate governance has a positive impact on Tobin's Q	Rejected	-
H1d: Corporate governance has a positive impact on MVBV	**Accepted**	**0.035 for CG2**
H2: Corporate governance has a negative impact on cost of capital	**Accepted**	**-0.004 and -0.002 for CG 1 and CG2 respectively**

Table 4.11 (Continued)

Hypothesis	**Result**	**Coefficient**
H3a: Cost of capital has a negative impact on ROA	Rejected	-
H3b: Cost of capital has a negative impact on ROE	Rejected	-
H3c: Cost of capital has a negative impact on Tobin's Q	Rejected	-
H3d: Cost of capital has a negative impact on MVBV	**Accepted**	**-2.871**

CHAPTER 5

CONCLUSIONS, DISCUSSION AND RECOMMENDATIONS

This chapter wraps up study results, limitations and recommendations for related parties and for future research.

5.1 Research Overview

This research aimed to investigate the relationship of corporate governance and competitive advantage with firm performance of companies listed in the Stock Exchange of Thailand. Three objectives were: 1) to study the effect of corporate governance on firm performance, 2) to examine the effect of corporate governance on competitive advantage, and 3) to find out the effect of competitive advantage on firm performance. Only the quantitative method was employed, using longitudinal/panel data of the years 2011-2015 (5 years) of companies listed in the SET. No companies listed in the MAI were selected. To attain complete and balanced data, companies with inadequate information were removed from the research: for example, companies in the financial sector, mutual funds, companies with the fiscal year other than the period of January to December, companies undergoing rehabilitation, companies with an SP, H, or NC sign, and companies with negative debt to equity ratio. There were 203 qualified companies after screening. The total observations were 1,015. Dummy variables derived from IOD corporate governance scores were used as corporate governance indicators. Only competitive advantage in terms of financial perspective or the weighted average cost of capital (WACC) was studied. Return on asset (ROA), return on equity (ROE), Tobin's q (TobinQ), and market value to book value (MVBV) were used as firm performance indicators. Control variables were market capitalization, GDP, years listed in the SET, and firm leverage (debt to asset ratio).

One technique of analysis was panel regression through the fixed-effect method and the random-effect method. The Hausman test was carried out to select the appropriate method. In addition, multicollinearity, heteroskedasticity, and autocorrelation were executed to validate the model.

5.2 Study Results

The study of the impacts of corporate governance and competitive advantage on firm performance was conducted to answer the following research questions.

1) How does corporate governance affect firm performance?
2) How does corporate governance affect competitive advantage?
3) How does competitive advantage affect firm performance?

The findings for each question are summarized as follows.

1) How does competitive advantage affect firm performance ? (Models 1-4)

The results depended on variables used in measurement of firm performance. For example, when ROA, ROE, and TobinQ were used as indicators, corporate governance was not found to have any significant effect on firm performance. This is in line with the findings of research studies by Price, Roman, and Rountree (2011); Gherghina (2015); and Javaid and Saboor (2015). However, when MVBV was used as an indicator, corporate governance had a rather positive effect on MVBV. The findings was consistent with those of Black, Love, and Rachinsky (2005) and Prince (2014). That is, CG1 had no impact on MVBV, while CG2 had a positive impact on MVBV with a t-value of 0.035 (1.71).

Good corporate governance may not yield good firm performance as expected, which is probably due to many major factors that influence firm performance like customers' view on price, quality, and brand of products and services. These factors affect the decision to buy goods and services, which, in turn, influences the profit/performance of the company (Ljubojevic & Ljubojevic, 2008). Corporate governance could result in the company's reputation, which affects its ability to compete and its profitability. (Ljubojevic & Ljubojevic, 2008) Thus, corporate governance may not directly affect firm performance (Ljubojevic &

Ljubojevic, 2008). Moreover, raising the quality of corporate governance greatly elevates cost of business operation (Aluchna, 2009; Price et al., 2011).

As for control variables, firm size had a positive impact on firm performance when measured with ROA, ROE, TobinQ, and MVBV. Coefficients (T-value) of firm size were 0.032 (4.43), 0.040 (4.37), 0.373 (19.35), and 0.644 (15.43), respectively. The findings highlight the advantage of being a large company (Pervan and Visic, 2012). According to Pervan and Visic (2012), the explanations are 1) large companies can manage risk better than smaller ones. 2) Experiences of large companies result in better problem-solving, compared to smaller counterparts. 3) Credit constraint of small companies renders them credit limitation to acquire loans and inaccessibility of capital compared to larger companies. 4) Innovation of large companies enables them to build better quality products and services. 5) Economies of scale help reduce average cost. and 6) Large companies have an ability to control market.

GDP had a positive impact on ROA, ROE, TobinQ, and MVBV. Coefficient (T-value) of GDP were 0.114 (1.80), 0.174 (1.76), 0.748 (6.35), and 1.054 (4.60), respectively. In countries with expanded/shrunk GDP or rising/declining economic growth, the overall performance can be pushed for better/worse (Wasiuzzaman & Tarmizi, 2010). Years listed in the SET had a negative impact on ROA, ROE, Tobin's q, and MVBV. Coefficients (T-value) of years listed were -0.072 (-3.33), -0.063 (-1.96), -0.248 (-6.58), and -0.471 (-5.24), respectively. This was in accordance with the finding of Shen and Rin (2012); Black, Jang, and Kim (2005); Miyajima (2005). The longer the company's years listed in the SET, the slower the adaptability the company can perform to cope with the business condition (Shen & Rin, 2012).

R2 for model for accounting-based performance measurement (ROA and ROE) was lower than market-based performance measurement (TobinQ and MVBV). This is probably due to the fact that corporate governance reflects market-based performance rather than accounting-based performance.

2) How does corporate governance affect competitive advantage (cost of capital) ? (Model 5)

The study results indicated that corporate governance provided companies listed in the Stock Exchange of Thailand more competitive advantage (lower cost of capital). Change of dummy variables for corporate governance ─CG1 and CG2-had an opposite direction of the impact on cost of capital. Coefficients (T-value) of CG1 and CG2 were 0.004 (-3.57) and -0.002 (-2.62), respectively. This indicated that in the assessment of corporate governance of 5-star and 4-star companies, WACC was cut down. The finding was in accordance with that of Madhani (2007); Athipol Kruapong (2011); Drobetz et al. (2003); Ramly (2012); Soh (2011); Chen et al. (2009); and Drobetz, Schillhofer, and Zimmermann (2003). Particularly, it supports Agency Theory that without corporate governance the owners of capital-creditors and shareholders-both want to retain their interests and will take greater control/monitoring of the business operation. This results in higher agency cost/agency conflict and the higher required rate of return from investment and the higher cost of capital. On the contrary, corporate governance renders a lower required rate of return, which is good for the business.

The control variable, firm size, had a positive impact on cost of capital. Coefficient (T-value) of firm size was -0.002 (-1.75), which corresponded to the advantage of large firms (Pervan & Visic, 2012). This is due to the fact that larger companies have lower cost of capital, for they are able to access sources of capital (Pervan & Visic, 2012). They also have lower risk and greater stability than smaller companies (Ramly, 2012). But years listed in the SET had a negative impact on cost of capital. Coefficient (T-value) of years of listed was -0.012 (-4.63). The finding is in line with that of Garcia, Saravia, and Yepes (2015), who state that the longer the years listed, the better the organizational reputation will be. In contrast, younger organizations have greater uncertainty of cash flow, which renders them a higher rate of return required by investors (Garcia et al., 2015). According to Ljubojevic and Ljubojevic (2008), reputation creates competitive advantage.

Firm leverage had a positive impact on cost of capital. Coefficient (T-value) of firm leverage was -1.073 (-8.92). The finding is consistent with that of MM (1958) regarding the tax benefits from company financing. In such a case, companies listed in the SET receive more tax benefits than bankruptcy costs and financial distress. GDP was found to have a positive impact on cost of capital. Coefficient (T-

value) was 0.068 (9.67). This findings also corresponds to that by Ramly (2012), who suggests that during the economy surge, businesses demand more money resulting in an increase of cost of capital.

3) How does competitive advantage (cost of capital) affect firm performance? (Models 6-9)

The research findings indicated that competitive advantage (cost of capital) of companies listed in the stock exchange of Thailand had various forms of impact on firm performance, depending upon the indicators used. 1) Competitive advantage might have an impact on performance when MVBV was used as measurement of firm performance. Coefficient (T-value) of cost of capital was -2.871 (-1.92). The finding is consistent with that of Reverte (2012) and that of Wu et al. (2014). 2) Impact of competitive advantage on firm performance in the opposite direction was found when ROA and ROE were used as measurement of firm performance. Coefficients (T-value) of cost of capital were 0.653 (3.00) and 0.651 (2.39), respectively. The finding supports the studies by Swanson and Viinanen (2006) and by Pouraghajan et al. (2012). Pouraghajan et al. (2012) argue that the greater the cost of capital, the more the effort an organization needed in order to meet investors' demand on the required rate of return. However, the results differ from Mohamad and Saad's (2012) study. They found that WACC had no impact of competitive advantage on ROA, while Sattar (2015) revealed that WACC had a negative impact of competitive advantage on ROA. 3) No impact of competitive advantage on firm performance was found when TobinQ was used as a measurement of firm performance. Coefficient (T-value) of cost of capital was 1.98 (1.02). The finding is opposite to that of Sattar's (2015), who reported that WACC had a negative impact on TobinQ, while Mohamad and Saad (2012) and Stanica (2015) revealed that WACC had a positive impact on TobinQ.

Obviously, using cost of capital alone as the measurement of impact of competitive advantage on firm performance yields uncertain outcomes, i.e., the same or the opposite direction of the relationship or no relationship as found in foreign studies. This is probably due to the fact that only competitive advantage might not always be enough for a company to outperform its competitors. Other factors might also affect its firm performance, such as management ability, laws, environment as

well as destiny, etc. (Ma, 2000). Considering the cost of capital alone might not be adequate. Profitability has to be taken into account as well. That is to say, the high cost of capital may not damage firm performance if the company's profitability is high. Therefore, future studies should be conducted on this matter.

Regarding control variables, it was found that firm size had a positive impact on firm performance when ROA, ROE, Tobin's q, and MVBV were used as measurements. Coefficients (T-value) of firm size were 0.031 (4.47), 0.039 (4.39), 0.946 (14.17), and 0.646 (15.18), respectively. The findings emphasize the advantage of large firms (Pervan & Visic, 2012). According to Pervan and Visic (2012), the main reasons are: 1) Larger companies can manage risk better than their smaller counterparts. 2) Experiences of larger companies, which they have gained for a longer period of time, help them handle problems better. 3) Credit constraints of small companies usually limit their chance of borrowing, which impedes their fund access, compared to larger companies. 4) Innovation of big companies enables them to produce quality products and services. 5) Economies of scale allow big companies to enjoy a lower average cost. and 6) Big companies have the ability to control market.

GDP had a positive impact on Tobin's q and MVBV. Coefficients (T-value) of GDP were 2.174 (4.17) and 1.243 (5.50), respectively. The more the GDP expanded/ shrunk or the more the economic growth, rose/ declined, the better/ worse the overall performance (Wasiuzzaman & Tarmizi, 2010). Although GDP had no impact on ROA and ROE, while years listed in the SET had a negative impact on ROA, ROE, TobinQ, and MVBV. Coefficients (T-value) of years listed were -0.062 (-2.94), -0.053 (-1.67), -0.674 (-5.64), and -0.516 (-5.54), respectively. The findings are in line with the studies by Shen and Rin (2012); Black, et al. (2005); Miyajima (2005), who suggested that the longer the time a company was listed, the lower ability to adapt to business conditions (Shen & Rin, 2012).

5.3 Limitations of the Study

1) Indicators for firm performance may be affected by the accounting policy of individual companies, causing distinctive outcomes due to different accounting recording methods.

2) Indicators for corporate governance in the study were 3 to 5 stars ratings , so they might not reflect the real raw scores derived from the assessment, and this might render inaccurate outcomes. If real raw scores had been used, the results might have been more accurate.

3) The use of the fixed-effect method for measurement reflected only the overall picture, not the individual sectors.

5.4 Recommendations

The afore-mentioned research findings can be applied as a policy guideline for the Stock Exchange of Thailand and related agencies overseeing listed companies so that the latter would gain competitive advantage and good firm performance.

5.4.1 Theoretical Implications

As there have been few studies on the impacts of corporate governance in Thailand, the findings can be used to strengthen the body of knowledge about the impact of corporate governance on competitive advantage (cost of capital) and the impact of competitive advantage (cost of capital) on firm performance in Thailand. As the results are consistent with Agency Theory, the study underscores that the Western theory can be applied to Thailand.

5.4.2 Implications for Related Parties

1) The Stock Exchange of Thailand should encourage listed companies to strictly follow corporate governance, as it was found that the higher the corporate governance score, the lower the cost of capital would be (attaining competitive advantage). In short corporate governance brings about better firm performance.

2) Related authorities should foster or educate listed companies to focus more on the management of cost of capital because lower cost of capital improves firm performance.

3) Companies should give importance to the post listing period, too. That is, expanding business operation renders organizational tardiness in response to business conditions. As a result, organizations need to be flexible and active to cope with business conditions at all times.

4) Companies should regularly follow news about GDP since it affects firm performance and competitive advantage. So that, they can set a plan to handle changing economic conditions.

5) Small and medium enterprises may apply study results to improve their financing ability because too much lending may result in higher agency cost, bankruptcy cost and financial distress, and cost of debt (interest).

5.4.3 Recommendations for Future Research

1) Further research should use real raw scores to measure corporate governance to achieve more precision of the impacts of corporate governance. Individual aspects as well as the overall picture of corporate governance should be measured to see how any of the five indicators of corporate governance affects the impact of firm performance or competitive advantage.

2) The impacts of aspects other than financial one, such as marketing and production, etc., on competitive advantage and firm performance should also be fully studied in order to achieve a more complete picture. Especially, the marketing aspect should be examined because foreign studies found that price, quality, and brand influenced a decision to buy goods and services. The reputation of the company is also a factor affecting competitive advantage and firm performance that needs investigtion.

3) More studies on the effect of competitive advantage in terms of cost of capital on firm performance should be conducted since impact on firm performance in this study and others are still unclear. For example, both positive and negative effects of corporate governance on return on asset and return on equity were found. Future research should be conducted on this issue, particularly in the context of Thailand.

4) Companies listed in the MAI should be studied too because firm size and conditions of listing are different from those of the Stock Exchange of Thailand. Different results might be found.

5) Qualitative research should be conducted to allow the collection of in-depth data related to potential factors affecting corporate governance, competitive advantage, and financial performance.

6) Indirect effects of corporate governance on firm performance through competitive advantage (cost of capital) should also be studied because such an issue has not yet been widely studied in Thailand.

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