AN ANALYSIS OF CORPORATE GOVERNANCE, EARNINGS QUALITY AND STOCK RETURNS OF LISTED COMPANIES ON THE STOCK EXCHANGE OF THAILAND

RASITA SANGBOONNAK

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY PROGRAM IN BUSINESS ADMINISTRATION FACULTY OF BUSINESS ADMINISTRATION RAJAMANGALA UNIVERSITY OF TECHNOLOGY THANYABURI ACADEMIC YEAR 2016

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Name Surname	Miss Rasita Sangboonnak
Program	Business Administration
Dissertation Advisor	Assistant Professor Wanchai Prasertsri, Ph.D.
Academic Year	2016

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ABSTRACT

This research aimed to examine the relationship between corporate governance and ownership characteristics, earnings quality, and stock performance in the Stock Exchange of Thailand (SET). This research was undertaken because of the insufficient information available on the roles of corporate governance on SET despite of a rapidly improving corporate governance regime in Thailand since 2002. This research was conducted using structural equation modeling (SEM), with data including non-financial firms listed on the SET (2014 to 2015) (n = 255 firm-years).

The corporate governance study focused on board characteristics, including board size, board independence, CO duality, gender diversity, meeting frequency, and CEO compensation. Moreover, ownership structure was studied using institutional ownership, ownership concentration, and family ownership. On the other hand, stock returns were modeled as average return, while earnings quality was measured using the modified Jones (1991) model of discretionary accruals. Regression analysis was used to test direct effects of board structure on earnings quality (H1), ownership structure on earnings quality (H2), board structure on stock returns (H3), ownership structure on stock returns (H4), and earnings quality on stock returns.

Results indicated that meeting frequency and institutional ownership had an effect on earnings quality, while gender diversity and institutional ownership had an effect on stock returns. Apart from this, earnings quality did not influence stock returns. Mediating effects of earnings quality, however, were also examined for the relationships of board structure and stock returns (H6) and ownership structure and stock returns

(H7). In general, most relationships showed some mediation but in all cases this was small (<20% mediated at most).

Keywords: corporate governance, earnings quality and stock returns

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Rasita Sangboonnak

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CHAPTER 1
INTRODUCTION

1.1 Background and Statement of the Problem

This research examines the analysis of corporate governance, earnings quality and stock return of listed companies on the Stock Exchange of Thailand (SET). Corporate governance is the set of regulations and practices that are used within the firm to control the firm's management and ensure that the firm's economic and non-economic outputs are in line with the firm's owner's goals (Calder, 2008; Fernando, 2011). Corporate governance policies and goals typically include transparency, accountability, responsibility, and empowerment, which are used to ensure that the firm's resources are used properly to benefit its owners and other stakeholders (Fernando, 2011).

There are different theoretical bases for the implementation of corporate governance practices, which may lead to variations in the practices implemented (such as stakeholder management, corporate social responsibility, and board of directors oversight practices) (Calder, 2008). For this research, the main concern is the financial monitoring and control of the firm by the board of directors, who have a fiduciary duty to the firm to protect the interests of the owners (shareholders or investors) (Calder, 2008). The problem that this entails is the separation of ownership and control of the firms. In publicly listed firms, beneficial ownership of the firm is typically assigned to shareholders (investors in the firm), while control is assigned to professional managers (the CEO and other executives) (Calder, 2008). This opens up the possibility for emergence of a principal-agent conflict, in which the managers of the firm use information and power asymmetries in order to act in their own interests (Jensen & Meckling, 1976). Thus, the reason that firms have board of directors in the first place is to monitor the manager's performance and align the interests of the manager to the firm's own (Jensen & Meckling, 1976). Some of the duties of the board of directors, including executive compensation, auditing, and general management oversight, directly reflect this monitoring duty. However, firm owners are not powerless, particularly in cases with institutional, highly concentrated, or family ownership

(Bhagat & Jefferis, The econometrics of corporate governance studies, 2002). As the literature review will show, ownership structure such as indicated here exert pressures on management that can improve financial performance. Thus, corporate governance as it affects board performance can be considered as two distinct aspects, including the structure of the board itself and the ownership structure the board is representing.

The problem of this research is how corporate governance (board structure and ownership structure) influences the stock performance of the firm. One of the complexities of studying this topic is that, as the literature review shows, results are often conflicting and contradictory. In some cases, studies have successfully teased out factors that cause conflicts in a single area, such as family ownership and founder participation (Andres, 2008). Studies that relate firm corporate governance practices and their stock performance have been conducted in the past, but have had mixed results, with some studies finding positive or negative effects of different aspects. Some of these studies are highly contradictory; for example, while one study found that board size was significant but board independence was not, others found that neither were significant (Garg, 2007). Evidence on ownership structure is also mixed; for example, Chuang (2015) found a lack of consistent effects of institutional ownership, while other studies have had inconsistent effects for ownership concentration (Azzam, 2010; Perrini, et al., 2008). (Please see Section 2.4 in the Literature Review for a full overview of studies that relate these two performance measures.) Given the diversity and complexity of findings, with few if any corporate governance and ownership characteristics having a consistent effect on the firm's stock returns, it may be the case that there are institutional and investor characteristics between different markets that influence these relationships. However, there have been few cross-country comparison studies that could help isolate such differences, despite converging norms of corporate governance under the OECD's corporate governance principles (The World Bank, 2013). No such studies have been conducted in Thailand.

This study introduces earnings quality as a potential mediating variable in the relationship between the corporate governance factors and the firm's financial performance (stock returns) in an attempt to further explain some of this variance. Earnings quality, or the extent to which the firm's reported earnings reflects its real

position, is a widely used measure of the extent of management quality (Dechow, Ge, & Schrand, 2010). While it could have a meaningful relationship in this study, this has not been tested before, and thus contributes a possible novel relationship.

1.2 Purpose of the Study

The purpose of the study is to examine the relationship between the firm's corporate governance and ownership characteristics, its earnings quality, and its financial performance in the Stock Exchange of Thailand. The objectives of the study will include:To establish the theoretical and empirical ground for the relationships expressed within the study;

1. To conduct empirical study of the relationship between characteristics of the firm's board of directors (board size, board independence, CEO duality, gender diversity, and frequency of board meetings) and earning quality;
2. To conduct empirical study of the relationship between characteristics of firm ownership structure (institutional ownership, ownership concentration, family ownership) on earning quality;
3. To conduct empirical study of the relationship between characteristics of the firm's board of directors (board size, board independence, CEO duality, gender diversity, and frequency of board meetings) and stock return;
4. To conduct empirical study of the relationship between characteristics of firm ownership structure (institutional ownership, ownership concentration, family ownership) on stock return; and
5. To determine whether earnings quality of the firm (abnormal accruals) plays an intervening role in the relationships between corporate governance and/or ownership characteristics of the stock return.

1.3 Research Questions and Research Hypothesis

The research questions and hypotheses are based on the existing literature on corporate governance factors like board structure and ownership structure and the relationship to stock return of the firm. These studies have generally established that there *is* a relationship between these factors. However, this relationship is complex and

often depends on factors like whether the firm is simple or complex, extent of family involvement, or other factors. There is also a general absence of meta-analyses that assess the broad patterns of relationships. Thus, there is not enough information in the literature review to predict the relationships that will be seen in the SET.

Following the preliminary literature review into the relationships between the broad characteristics (board of directors and ownership structure), a set of research questions was established for the study. These research questions were then used to target the literature review and find more empirical information. This empirical information was used to establish hypotheses and a theoretical framework (which is discussed in more detail below). These questions and hypotheses guide the direction of the research.

1.3.1 Research Questions

The research questions of this study will be:

1. To what extent do board of directors characteristics affect the firm's earning quality?
2. To what extent does firm ownership structure affect the firm's earning quality?
3. To what extent do board of directors characteristics affect the firm's stock return?
4. To what extent does firm ownership structure affect the firm's stock return?
5. Does earnings quality play an intervening role (moderating or mediating) between the board of directors' characteristics and the firm's stock return?
6. Does earnings quality play an intervening role (moderating or mediating) between the firm's ownership structure and the firm's stock return?

1.3.2 Hypothesis

The hypotheses of the study are based on the theoretical framework (discussed below). There are seven hypotheses proposed for this study. The first hypothesis relates to the board of directors characteristics and earning quality:

- Hypothesis 1: Board of directors characteristics are positively the firm's earning quality.

- Hypothesis 1a: Board size is positively associated with earnings quality.
- Hypothesis 1b: Board independence is positively associated with earnings quality.
- Hypothesis 1c: CEO duality is positively associated with earnings quality.
- Hypothesis 1d: Gender diversity is positively associated with earnings quality.
- Hypothesis 1e: Meeting frequency is positively associated with earnings quality.
- Hypothesis 1f: CEO compensation is positively associated with earnings quality.

The second hypothesis is related to the ownership structure of the firm and earning quality:

- Hypothesis 2: Ownership structure is positively associated with the firm's earning quality
  - Hypothesis 2a: Institutional Ownership is positively associated with earning quality.
  - Hypothesis 2b: Ownership Concentration is positively associated with earning quality.
  - Hypothesis 2c: Family Ownership is positively associated with earning quality.

The third hypothesis relates to the board of directors characteristics and stock return:

- Hypothesis 3: Board of directors characteristics positively associated the firm's stock return
  - Hypothesis 3a: Board Size is positively associated with stock return.
  - Hypothesis 3b: Board Independence is positively associated with stock return.
  - Hypothesis 3c: CEO Duality is positively associated with stock return.

- Hypothesis 3d: Gender Diversity is positively associated with stock return.
- Hypothesis 3e: Board Meeting Frequency is positively associated with stock return.
- Hypothesis 3f: CEO compensation is positively associated with stock return.

The fourth hypothesis is related to the ownership structure of the firm and stock return:

- Hypothesis 4: Ownership structure characteristics positively associated the firm's stick return
  - Hypothesis 4a: Institutional Ownership is positively associated with stock return.
  - Hypothesis 4b: Ownership Concentration is positively associated with stock return.
  - Hypothesis 4c: Family Ownership is positively associated with stock return.

The fifth hypotheses is related to the role of earnings quality and stock return:

- Hypothesis 5: Earnings quality is related to stock return.

The sixth hypothesis relates to earning quality which pays a mediating variable between the board of director characteristics and stock return

- Hypothesis 6: Earnings quality plays a mediating role in the relationship between the board of director characteristics and stock return.
  - Hypothesis 6a: Earnings quality plays a mediating role in the relationship between board size and stock return.
  - Hypothesis 6b: Earnings quality plays a mediating role in the relationship between board independence and stock return.
  - Hypothesis 6c: Earnings quality plays a mediating role in the relationship between CEO duality and stock return.
  - Hypothesis 6d: Earnings quality plays a mediating role in the relationship between gender diversity and stock return.

- Hypothesis 6e: Earnings quality plays a mediating role in the relationship between board meeting frequency and stock return.
- Hypothesis 6f: Earnings quality plays a mediating role in the relationship between CEO compensation and stock return.

The seventh hypothesis relates to earning quality which pays a mediating variable between the ownership structure and stock return;

- Hypothesis 7: Earnings quality plays a mediating role in the relationship between the ownership structure and stock return.
  - Hypothesis 7a: Earnings quality plays a mediating role in the relationship between institutional ownership and stock return.
  - Hypothesis 7b: Earnings quality plays a mediating role in the relationship between ownership concentration and stock return.
  - Hypothesis 7c: Earnings quality plays a mediating role in the relationship between family ownership and stock return.

1.4 Theoretical Perspective

The main theoretical perspective in this research is that of agency theory. Agency theory is a commonly used theory of human decision-making under conditions of information asymmetry and control of resources that is used in social sciences including sociology and economics as well as business (Shapiro, 2005). The use of agency theory as a theory of firm control and management can be traced to authors Jensen and Meckling (1976). These authors proposed that the separation of beneficial ownership and management control in a modern publicly traded firm established the conditions for the emergence of the principal-agent problem (Jensen & Meckling, 1976). The principal-agent problem is the key conflict at the heart of agency theory. The problem is based on the actions of two parties, the principal (or owner of a resource) and the agent (the controller of the resource) (Shapiro, 2005). Ethically, the agent should control the resource in a way that benefits its owner, but human decision-making processes mean that either unintentionally or intentionally the agent may actually act in its own benefit. Two additional assumptions of agency theory enable this action of the agent. These assumptions include bounded rationality and self-interest decision-making,

along with an information asymmetry (Shapiro, 2005). In other words, each individual makes (to the best of their ability given their cognitive and information resources) decisions that maximize their own utility, sometimes at the expense of others. Agents are enabled in this behavior by information asymmetries, meaning that they have information about the resource that the principal does not have (Shapiro, 2005). Although there are several critiques that can be made of agency theory (Shapiro, 2005), it has been part of modern corporate governance models and assumptions since the 1970s and 1980s (Eisenhardt, 1989). Thus, agency theory is embedded in the logics and frameworks of this study and could not easily be removed.

1.5 Contribution to Academic Literature and Practice

The main contribution of this research is to the academic literature on corporate governance and its effect on firm financial performance in Thai publicly owned companies. The literature on corporate governance and the firm's financial performance includes relatively few recent studies on this topic, and as the literature review shows, many of the assumed relationships were established in the 1980s and/or 1990s. During this period, the global financial situation has changed dramatically and shifting corporate governance norms, regulations, and frameworks could have changed this relationship. Recently, Thailand has dramatically increased the stringency of its corporate governance rules by clarifying existing rules and regulations, creating new rules, and improving enforcement of corporate governance requirements (Raktabutr & Suteerasarn, 2013). This change is critically important because corporate governance regimes in weak regulatory environments may actually be less effective at protecting firm performance than those in stronger regulatory environments (Uyar, Kilic, & Bayyurt, 2013). Thus, this study will provide specific information about Thailand's corporate governance performance and effects on firms in a stronger regulatory environment. It could also provide general information about the effect of stronger regulatory environments on corporate governance when compared to earlier studies.

The research could also have some significance for business practice, particularly the practice of investors and firm managers and owners and their representatives (the board of directors). The study's identification of the effect of

various corporate governance characteristics on firm performance will help to identify key characteristics that investors could look for in firms that could signal positive long-term performance. It could also be a useful guide for businesses that are concerned about their corporate governance practices or that are undergoing change in these practices. Identifying key factors could help firms revise their internal corporate governance policies to improve performance.

1.6 Definition of Terms

Board of directors. The governing body of the firm, which oversees the management practices of the firm and selects top managers (Fernando, 2011). The board of directors has a fiduciary duty of the firm, which is a legal and ethical duty to ensure that the firm is operated in the best interests of its owners and/or stakeholders (Calder, 2008). Board of directors are typically composed of a chairman (sometimes held by the CEO of the firm in a position called CEO duality) and various directors, who may be independent (non-executive) or executive. Directors act on subcommittees that oversee specific areas of firm performance, such as executive compensation and audit committees (Calder, 2008).

Board independence. The extent to which the membership of the board is distinct from the management of the firm (Fernando, 2011). Boards are typically comprised of outside members (who have no connection to the management of the firm) and inside members (who typically hold high-level managerial positions within the firm, such as CEO, CFO and so on or are labor representatives). The board's level of independence is determined by the proportion of outside members to inside members.

Board size. The total number of members on the Board of Directors, including those with named roles (Chairman, Treasurer, and so on) and those without named roles (Fernando, 2011).

CEO compensation. Financial compensation offered to the CEO in return for the firm's performance (Frydman & Jenter, CEO compensation, 2010). CEO compensation may be divided generally into non-performance based compensation (salary and benefits) and performance-based compensation (bonuses, incentives, and stock grants and options) (Frydman & Jenter, CEO compensation, 2010). Although

agency theory claims that CEO compensation acts as an alignment cost, creating shared interests for the CEO and shareholders, in practice, CEO compensation has been rising at a rate higher than shareholder returns in most markets, suggesting that it is no longer serving this alignment purpose (Frydman & Jenter, CEO compensation, 2010).

CEO duality. The situation in which the role of CEO of the firm and Chairman of the Board of the firm are held jointly by the same individual (Fernando, 2011). CEO duality is discouraged under corporate governance principles because this can lead to self-dealing and lack of appropriate care for the interests of the firms (Calder, 2008). In practice, dual CEOs are commonly used, although they are more common in some markets than in others.

Corporate governance. The set of laws, rules and regulations, principles, and procedures by which the firm is governed in the interest of its key shareholders and/or stakeholders (Calder, 2008). Some corporate governance principles are legally required, while others are adopted as best practice by the firm.

Compensation. The strategy used by the firm in assigning its managers and staff members cash and non-cash benefits in exchange for their work (Devers, Cannella, Reilly, & Yoder, 2007). Executive compensation, offered to the CEO of the firm, typically comprises a mixture of cash compensation (salary and bonuses) and non-cash compensation (stock grants and/or options, benefits and perks) (Graham, Roth, & Dugan, 2008).

Earnings quality (quality of earnings). The extent to which the reported economic position and financial activities of the firm are informative of the firm's true position (Dechow, Ge, & Schrand, Understanding earnings quality: A review of the proxies, their determinants and their consequence, 2010). Earnings quality is an encapsulation of the information quality or value of the firm's financial reports.

Family ownership. The proportion of economic ownership (shareholding) retained by the founder and family members in a public business that was formerly family-owned (Giovannini, 2010). Family ownership in public firms varies widely, with some founding families remaining heavily involved in terms of both ownership and management and others diluting or selling off stock shares quickly (Giovannini, 2010).

Family ownership, like other ownership concentrations, can influence the management activities of the firm.

Gender diversity. The degree of female participation on the board of directors, including female members and women directors in positions of power (Bear, Rahman, & Post, 2010). Gender diversity on boards in most markets is limited, with many firms having no female representation on the board or only a small proportion of female directors (Bear, et al., 2010).

Institutional ownership. The proportion of economic ownership (shareholding) by institutional owners, who include banks, investment funds, retirement and pension funds, and similar groups (Chung & Zhang, 2011). Institutional owners have different time horizons, risk profiles, and return requirements than retail investors, and often use very large block holding and buy and hold investment strategies (Chung & Zhang, 2011). Thus, the degree of institutional ownership can influence the activities and managerial priorities of the firm.

Meeting frequency. The number of times the Board of Directors or its sub-committees meets on an annual basis (Calder, 2008). In most markets, at least one board meeting per year is required, but firms are able to determine their own level of board meetings as appropriate to meet their own needs.

Ownership concentration. The degree to which economic ownership (shareholding) is concentrated in large block holders, including individual, institutional or managerial investors (Javid & Iqbal, 2008). As with institutional ownership, ownership concentration is important because highly concentrated ownership can influence the interests of shareholders and the managerial activities.

Ownership structure. The division of financial ownership of the firm among different classes of investors, such as institutional and individual investors (Bhagat & Jefferis, 2002).

Stock return. The change in price of an equity (stock) over a set time period (Ball, Engle, & Murray, 2016). Stock returns can be measured using daily, weekly, monthly, or annual return rates or other time intervals (Ball, et al., 2016).

1.7 Limitations and Delimitations of the Study

The study consists of a cross-sectional study of publicly listed non-financial firms on the Stock Exchange of Thailand (SET). It examines only the relationship between Board of Directors characteristics, Ownership characteristics, Earnings Quality, and Firm Financial Performance. Because the SET does allow cross-listing (Jotikasthira, 2011), all firms included may not be Thai in origin. The data and sampling strategy and the conceptual framework of the study are explained below.

1.7.1 Data and Sampling Strategy

1.7.1.1 Variables of the Study

The independent variables of the study included the following groups:

- Board of Directors characteristics: Board Size, Board Independence, CEO Duality, Gender Diversity, and Board Meeting Frequency, CEO Compensation
- Ownership Characteristics: Institutional Ownership, Ownership Concentration, and Family ownership

Intervening variables in the study included:

- Earnings Quality: Abnormal Accruals

Dependent variables in the study included:

- Stock return

1.7.1.2 Data Source and Data Selection

The population of interest was non-financial firms listed on the Stock Exchange of Thailand (SET) main index during the study period (2014 to 2015). This population includes a total of n = 502 firms in the smallest year (SET, 2016a).

Several sampling frames were included. First, financial firms (banks, investment corporations, insurance, and others) were excluded, because these firms have different corporate governance structures and requirements and financial holding patterns than non-financial firms (Erkens, Hung, & Matos, 2012). Next, firms must have filled their Form 56-1 annual disclosure report on time during both periods. This was to ensure that the firm's financial reporting was up-to-date. Firms with material restatements were also excluded, to make sure that the information in the Form 56-1 could be considered accurate. Any firms that had voluntarily or involuntarily been

delisted or suspended trading were also excluded, as were firms that joined the SET during 2015. This was to make sure a full two years of data was available for each firm.

Sampling was conducted using simple random sampling (SRS), which gives each firm an equal chance of being included in the study (Siegel, 2012). Data was collected from the SETSMART online database, which provides access to the source data (Form 56-1) for every firm listed on the SET (SETSMART, 2016). The research was conducted using a cross-sectional design, with a time period of 2014 to 2015.

1.7.2 Conceptual Framework

The conceptual framework of the study, as derived from the literature, is shown in Figure 1. This framework is derived from an extensive literature on the relationship between the firm's corporate governance structures and its financial performance, as well as a small amount of evidence that earnings quality could play a mediating role in the relationship between corporate governance and firm performance.

Corporate governance factors are divided into two categories, including board structure and ownership structure. Board structure includes variables of board size, board independence, CEO duality, gender diversity, and board meeting frequency. In general, there is a strong body of research supporting the role of these factors in the firm's financial performance, although some factors are supported more than others. In addition to the key sources used (Campbell & Mínguez-Vera, 2008; Coles, Daniel, & Naveen, 2008; Fich & Shivdasani, 2006; Gani & Jermias, 2006; Guest, 2009; Jackling & Johl, 2009; Joecks, Pull, & Vetter, 2013; Lam & Lee, 2008; Marinova, Plantenga, & Remery, 2016; Ntim & Osei, 2011; Ramdani & Witteloostuijn, 2010). As noted above, the relationships of these factors are often unpredictable, but it is likely that there will be such a relationship.

The second set of factors was ownership factors, that relate to who owns the firm. Factors including institutional ownership, ownership concentration and family or founder ownership have also been supported in the literature, although again this support is often contradictory (Andres, 2008; Chu, 2011; Cornett, Marcus, Saunders, & Tehranian, 2007; Gürbüz, Aybars, & Kutlu, 2010; Heugens, van Essen, & van Oosterhout, 2009; Hu & Izumida, 2008; Martínez, Stöhr, & Quiroga, 2007).

Evidence for a direct relationship between earnings quality and financial performance is weak and contradictory (Charitou, Lambertides, & Trigeorgis, 2007; Iatridis & Kadaronis, 2009; Jevons Lee, Li, & Hue, 2006; Lee S. , 2008). However, the evidence does suggest that firms with poorer financial performance are more likely to use earnings management, which negatively influences earnings quality.

CEO compensation is also proposed as a main effect on firm performance (H9) and earnings quality (H13). CEO compensation has been shown by a number of studies to have a positive effect on firm performance (Kato & Kubo, 2006; Michaud & Gai, 2009; Ozkan, 2011), although these relationships are to some extent conflicted and fragmentary (Frydman & Jenter, CEO compensation, 2010). This conflicted relationship is one of the main points of interest in this study, since the relationship between CEO compensation and firm performance is not fully understood (Chang, Dasgupta, & Hilary, 2010).

There is some evidence for a possible mediating effect of earnings quality in the relationship between corporate governance and firm performance, as indicated by the relationships between corporate governance factors and earnings quality (Beekes, Pope, & Young, 2004; Bradbury, Mak, & Tan, 2006; Cornett, Marcus, & Tehranian, 2008; Dechow, Ge, & Schrand, 2010; Doyle, Ge, & McVay, 2007; García-Meca & Sánchez-Ballesta, 2009; Gul, Srinidhi, & Ng, 2011; Sun, Liu, & Lan, 2011; Wang, 2006). However, the author of the present study could not find a previous study in which earnings quality was specified as a mediating variable between these two factors. Thus, this is the main novel value of the current study.

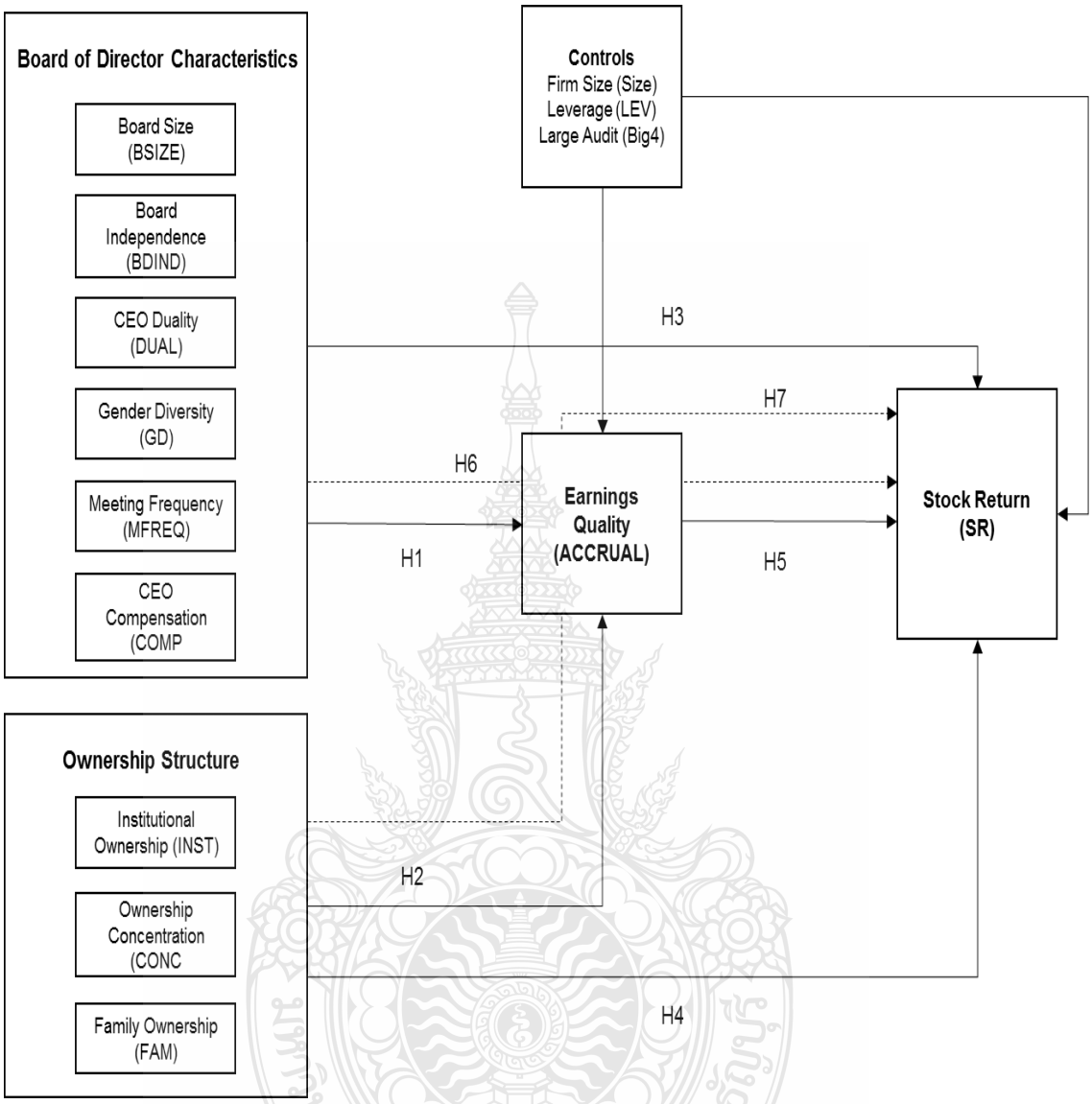

Figure 1.1 The conceptual framework of the study

1.7.3 Research Methodology

The research methodology is a cross-sectional, quantitative analysis of the relationships between the variables of the literature review. These variables included board structure and ownership structure (independent variables), earnings quality (intervening variable), and corporate financial performance. Non-financial performance was excluded because of problems of operationalization. Control variables, including

firm size, firm age, leverage, and use of a major audit firm were also included.

Data was extracted for a random selection of non-financial firms listed on the Stock Exchange of Thailand (SET) (2014 to 2015). This data was extracted from the SETSMART database, which is a publicly available database listing firm financial results and other public filings following the SET's requirement. Data was extracted from Form 56-1 filings, which firms are required to file to discharge its annual reporting and disclosure requirements. Any firms that had not filed their Form 56-1 during the two-year period, as were all firms that either listed during 2015 or delisted during the study period. Study variables are fully operationalized in Chapter 2 and 3.

Data analysis was conducted using structural equation modeling (SEM). SEM analysis was chosen because it allows for confirmation of a complete research model, including interactions between variables, and identification of latent variables (Kaplan, 2008). SEM includes a range of different techniques, including confirmatory factor analysis (CFA) and LISREL analysis. For this research, CFA was selected as the technique. The analysis was conducted in SPSS. Model fit and predictive or explanatory power is based on standard rules of thumb.

1.8 Presentation of Results

The results of the study are presented in five chapters. This chapter has introduced the background of the study and established its scope and boundaries. In the literature review (Chapter 2), the theoretical background and empirical results of previous studies that are relevant to this topic are reviewed and critiques. This helps support the theoretical framework and hypotheses of the study. The methodology of the study (Chapter 3) explains how the data was collected and analyzed for the study. It also explains the reasons these choices were made and why other choices were not included. The results of the study are presented in Chapter 4. This presentation includes descriptive statistics, as a way to describe the sample and characteristics. The results of the structural equation modeling (SEM) process are then presented. The results are analyzed and compared to the literature to identify shared findings, novel findings, and gaps and problems in the research. The conclusion and recommendations (Chapter 5) bring together the information from the previous chapters and synthesize this

information as a way of responding to the research questions. It also critically analyzes the study, including implications for academic research and practice, limitations, and opportunities for further study.

CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

This chapter presents the outcome of the literature review that was conducted in order to support the current study. The literature review primarily references peer-reviewed and academic works, such as journal articles and standard textbooks, as these are the most accurate sources of information available on the topic.

The chapter begins with a discussion of the theoretical background of the study. This discussion focuses on two areas. First, it examines agency theory, which is the underlying theory of corporate governance. Agency theory establishes key assumptions such as the nature of decision-making, separation of firm ownership and control, and information asymmetries that play a role in the central conflict of corporate governance. It then defines the theoretical background and positions of key concepts, including corporate governance, earnings quality, and firm performance.

The remaining sections of the chapter draw on the empirical literature on corporate governance and firm performance. The purpose of this literature review is to establish the likely empirical findings of this study, based on previous studies that have explored similar relationships. These sections of the review first address the role of corporate governance factors (primarily board structure) and ownership structure on firm performance. It then addresses the role of earnings quality as a potential intervening variable in this relationship. Finally, a brief review of the control variables selected for the study is provided. This information supports the establishment of a theoretical framework for the study, which is presented in Chapter 1.

2.2 Theoretical Foundations

2.2.1 Agency Theory

Agency theory is one of the classical theories of economics, although it has also been applied in other social sciences including sociology and is often applied in business theory (Shapiro, 2005). Agency theory is an explanatory theory for the possible outcomes of the agency relationship, which is classically defined as “[the

relationship] when one, designated as the agent, acts for, on behalf of, or as representative for the other, designated the principal, in a particular domain of decision problems (Ross, 1973, p. 134).” The agency problem arose in economics from the earlier literature on moral hazard, which relates to the relationship between risk exposure and action (Ross, 1973). The model of agency theory used in this research is that proposed by Jensen and Meckling (1976), who applied agency theory as a theory of the firm. These authors specified that an agency problem arose within the firm when conditions of *separation of ownership and control* emerged (Jensen & Meckling, 1976). This could occur through various mechanisms, such as opening to public investment through stock market listing and hiring of a professional manager for a family firm (Jensen & Meckling, 1976). Agency theory is not the only theory of the firm that helps to explain the relationship of the owners and managers; for example there is also stewardship theory, which offers an opposite set of assumptions about corporate governance (Donaldson & Davis, 1991). However, while there is some empirical evidence for competing theories, in modern practice agency theory underlies both academic study of corporate governance and actual implementation of rules and regulations addressing corporate governance (Solomon, 2007). Thus, agency theory is also adopted as the basis for this research.

2.2.1.1 Underlying Assumptions of Agency Theory

Regardless of where it is applied, agency theory has a set of basic underlying assumptions (Shapiro, 2005). The first of these assumptions is that both the principal and the agent are acting under certain cognitive conditions, including bounded rationality and self-interested utility maximization. This means that individuals make rational decisions within the scope of their knowledge, and when making these decisions seek the best outcomes for themselves (Brink, 2011). The second assumption is that there is an information asymmetry inherent in the principal-agent relationship, wherein the agent is assumed to know more about the shared interest than the principal (Shapiro, 2005). This information asymmetry could emerge due to differences in professional knowledge (for example a lawyer acting for a client) or pragmatic knowledge (for example a firm’s managers compared to non-managing owner). Previous authors have challenged these assumptions. For example, one critique points

out that individuals do not necessarily make rationally self-interested decisions, and that the model ignores concerns of obligation and reciprocity (Wright, Mukherji, & Kroll, 2001). Another analysis points out that the assumption of information asymmetry could be more carefully characterized as asymmetry of power between the principal and the agent (Saam, 2007). Thus, while the assumptions of agency theory may be stipulated, it must be carefully considered when applying the theory whether these conditions are actually in place.

2.2.1.2 The Principal-agent Problem

The conflict that arises within agency theory is known as the principal-agent problem (Brink, 2011; Shapiro, 2005). The principal-agent problem addresses the problem of self-interested utility maximization in cases where the self-interest of the principal and agent are not aligned. In cases where the two parties have different interests, but only the agent has the information (or following Saam (2007), the power) to act, the result of the agent's actions may not be in the principal's interests (Brink, 2011; Shapiro, 2005). In other words, the agent uses the principal's resources in their own self-interest, rather than in the principal's interest.

A further issue that arises in the principal-agent problem is that of moral hazard, or the situation in which the individual making an action will lose comparatively less than other parties involved (De la Rosa, 2011). Under conditions of moral hazard, decision makers may be overconfident, taking more risk than they would otherwise. Thus, even under situations where the agent does not deliberately act in a self-interested fashion, the effect of moral hazard and overconfidence could still result in poor performance (De la Rosa, 2011).

Classical analysis of the principal-agent problem assumes that in order to counter the information asymmetry that allows the agent to act, the principal uses incentives in order to align the interests of the agent with their own (Grossman & Hart, 1983). However, this is not as straightforward as it sounds, because the mechanism of alignment of interest between the two parties is still somewhat opaque (Shapiro, 2005). For example, while a common practice of corporate governance is to use performance-based pay in order to align the interests of the managers of a firm (agents) with the

interests of its owners (principals), risk aversion influences the extent of performance pay offered (Jullien, Salanie, & Salanie, 2007).

2.2.1.3 Critiques of agency theory

Although agency theory is widely accepted, there are some critiques that should be considered. One of these critiques is that it assumes a market-based, transactional model of interaction between the principal and agent, leaving out factors such as obligation and duty or public service orientation (Moynihan, 2008; Wright, Mukherji, & Kroll, 2001). This can have the effect of allowing misinterpretation of agent actions, particularly if it is assumed that there is no existing shared interest. Another critique is that the bounded rationality of agents means that while they may assume they are acting toward utility maximization, their actions within the firm may not actually reflect this orientation (Crossan & Lange, 2006). For example, managers of firms may state that they are acting to maximize profits, but actually make decisions that do not achieve this goal (Crossan & Lange, 2006). This critique reflects the complex cognitive and neurological basis of agency theory, which has not yet been fully explored (Shapiro, 2005). Thus, there are still conflicts in understanding of agency theory as it relates to the actual management decision process and outcomes.

2.2.2 Efficient Market Hypothesis (EMH)

The effect of corporate governance (and other firm activities) on stock returns is based on the efficient market hypothesis (EMH). The EMH was proposed by Eugene Fama, who argued that the stock price of a firm reflected its true value, making it impossible for stock traders to gain advantage through insider trading or through identifying undervalued stocks (arbitrage) (Fama, Efficient capital markets: A review of theory and empirical work, 1970). This argument was based on the availability of information, which Fama (1970) argued was already incorporated into the stock price of the firm. There are three forms of the EMH, each of which makes a different claim about the strength of the relationship between information and the firm's stock price (Bhatti, Al-Shanfari, & Hossain, 2006). The strong form of the EMH states that *all* information, including private information, is incorporated into the stock price; therefore, insider trading does not provide enhanced gains. The semi-strong form of the EMH argues that the stock price of the firm incorporates new information very rapidly,

leaving little or no time for this information to be used to achieve abnormal profits. Finally, the weak form of the EMH argues that historical data cannot be used to predict future returns (in other words technical analysis will not work) because of the market's response to new disclosure (Bhatti, et al., 2006). Corporate governance is relevant to market efficiency because corporate governance mechanisms provide a means of disclosure about the firm that influences prices (Lagoarde-Segot & Lucey, 2008).

These forms of the EMH have different levels of empirical support, in part because they are differently observable. Strong-form efficiency has long been understood to be difficult (if not impossible) to provide directly, due to the nature of hidden information; therefore, most studies have historically focused on weak or semi-strong form efficiency (Timmermann & Granger, 2004). Simply, while it is possible to examine whether technical analysis is effective using historic data (testing the weak form efficiency), it is not possible to determine whether hidden information has been incorporated into the firm's stock price because it is hidden. There is also the problem that market efficiency does vary between markets, with some developing markets showing low levels of weak form and semi-strong form efficiency (Kim & Shamsuddin, 2008). As these authors point out, inefficient news distribution in developing markets, along with incomplete or inefficient oversight mechanisms such as mandatory disclosure rules, has created conditions in markets such as Indonesia, Malaysia, and the Philippines where market efficiency is not observed (Kim & Shamsuddin, 2008). Corporate governance has been shown in a study of developing countries to be a factor in market efficiency (Lagoarde-Segot & Lucey, 2008). However, evidence does not support the EMH in Thailand, although studies are limited. For example, one study showed that the weak form of the EMH (that stock returns follow a random walk or are normally distributed) was not supported in Thailand, along with other Asia Pacific countries (Hamid, Suleman, Shah, & Akash, 2010), although another study found support for the semi-strong form (Munir, Ching, Furouka, & Mansur, 2012).

2.2.3 Corporate Governance

Corporate governance may be defined as:

The system of regulating and overseeing corporate conduct, balancing the interest of all internal stakeholders and other parties who may be affected by the

corporation's conduct in order to ensure responsible behavior by corporations and to achieve the maximum level of efficiency and profitability for a corporation. (du Plessis, Hargovan, & Bagaric, 2011, p. 19)

One of the main theories of corporate governance is based in agency theory. The theory of the firm proposed by Jensen and Meckling (1976) proposed that corporate governance was a mechanism for managing the principal-agent problem. The agency problem relates to differing interests between the principal (who owns an asset) and the agent (who controls its use) (Jensen & Meckling, 1976). Agency theory proposes that the agent, who has an advantageous information asymmetry (they know more about the asset than its economic owner) could use the asset to his own advantage (Forbes-Pitt, 2011). In order to make sure that the agent is aligned to the owner's interests, the owner must accrue costs related to monitoring and controlling the agent (Forbes-Pitt, 2011). In other words, corporate governance under agency theory is a way to align the interests of the firm's professional management to its economic owners (shareholders) (Nicholson & Kiel, 2007). Specifically, it relates to the agency costs the firm must accrue in order to ensure alignment of the CEO (Nicholson & Kiel, 2007). The corporate governance structures of the firm are the ways in which the firm manages agency costs, which are the costs incurred by the firm's principals in order to ensure the agent is working in their interests (Hart, 1995). Agency costs may be divided into two categories, including monitoring costs and bonding costs (Williamson, 1988). Monitoring costs are the costs that the firm incurs in order to attempt to control the actions of the manager, while bonding costs are the costs that the firm incurs in attempting to align the manager's interests with those of the firm's owners (Williamson, 1988). In modern corporate governance practice, monitoring costs including the cost of the board of directors and auditing firms, while bonding costs generally relates to executive compensation structure (du Plessis, et al., 2011). To date, agency theory is perhaps the most accepted theoretical model of corporate governance (Brennan & Solomon, 2008). Agency theory is appropriate for underpinning the practice of corporate governance because of its emphasis on creating accountability and transparency within the organization. This emphasis helps to eliminate information asymmetry and create aligned interests

between the owners and management, as well as promoting broader ethical practices that support the interests of the firm (Brennan & Solomon, 2008).

There are also other theoretical models of corporate governance (Nicholson & Kiel, 2007). While agency theory predominates, two additional theories include resource dependence theory and stewardship theory. Resource dependence theory holds that the board constitutes a critical resource for the firm, since it creates connections to other resources (such as markets, money, political influence, human capital or other factors). Thus, the role of corporate governance and board oversight is to ensure that the firm has appropriate resource availability and connections. This theory supports the use of outside directors in order to increase external and environmental linkages, but does not say anything about factors like executive compensation. Furthermore, as Nicholson and Kiel (2007) pointed out, resource dependency theory is poorly operationalized, for example not defining exactly what a resource is. Stewardship theory is more directly related to agency theory because it refutes one of the key assumptions of the agency problem: specifically, it proposes that the firm's managers are not self-interested, but are essentially oriented toward the owner's interests already (Nicholson & Kiel, 2007). The practical effect of stewardship theory is that inside directors, who work within the firm and understand the industry, are preferred to outside directors (Nicholson & Kiel, 2007). Nicholson and Kiel (2007) directly compared the explanatory value of these theories, finding that *none* of the theories fully explained corporate governance processes or outcomes. Later attempts at theorization of corporate governance have included establishment of a behavioral theory of the practice (van Ees, Gabrielsson, & Huse, 2009). This theory proposes that corporate governance can be understood as a series of behavioral processes of problem-solving, risk and uncertainty reduction, and cooperation and coordination, with the board acting as the main agent for these behavioral processes (van Ees, et al., 2009). This theory contradicts established theory, which view the role of corporate governance as reduction in conflicts of interest, control and monitoring of agents, and so on (van Ees, et al., 2009). Thus, the exact theoretical underpinnings of corporate governance are as yet poorly understood, and corporate governance theories could stem from a number of different origins. This is an area that is still under debate.

2.2.2.1 Aspects of corporate governance

Corporate governance can relate to either financial or non-financial outcomes, although most firms typically deploy corporate governance mechanisms related to both types of outcomes (du Plessis, et al., 2011). Some of the corporate governance aspects that are relevant to this study include board structure, ownership structure, executive compensation, and transparency and disclosure.

The board of directors can be considered the governing body of the firm, with responsibilities including oversight and monitoring and executive selection and compensation (Calder, 2008; Fernando, 2011). The purpose of the board of directors is to ensure that the ownership interests of the firm are being ensured through the management's decision-making process (Calder, 2008). However, the simple existence of a board of directors is not enough to ensure that the oversight and control of management is effective (Finkelstein, Hambrick, & Cannella, 2009). Board structure and composition – or in other words how the board is organized and what kind of members it has – has a significant impact on the board's effectiveness (Finkelstein, et al., 2009). The board's structure includes three main dimensions, including its size, organization into committees, and what Finkelstein, et al. (2009, p. 229) term "the division of labor between the board chair and CEO". This refers to CEO duality, or the situation in which the CEO of the firm also holds the board chairman position. The board's composition addresses the characteristics of its members, such as independence (not holding a management role in the firm), gender and ethnic diversity, and specialisms or expertise of the board members (Finkelstein, et al., 2009). Several of these characteristics are studied here.

Another aspect of corporate governance is ownership structure. Ownership structure is how the firm is divided between different types or classes of investors, such as institutional or individual investors, family members or founders (Bhagat & Jefferis, The econometrics of corporate governance studies, 2002). Ownership structure also relates to the concentration of ownership, or how much of the firm is owned by its biggest investors (Calder, 2008). Ownership structure is important for several reasons. First, major owners of the firm may have board representation, giving them a direct influence on the control of the firm (Finkelstein, et al., 2009).

Second, there may be conflicts of interest between different classes of owners, which can influence management decisions such as decision-making (Huang, 2006).

Other aspects of corporate governance include executive compensation and transparency and disclosure. While these factors are not directly studied in this research, they do have some implications for the study. Executive compensation refers to the strategy used to provide compensation for the firm's managers in order to align their interests to those of the firm's owners (Calder, 2008). Executive compensation typically includes a relatively small base salary paired with an often higher proportion of at-risk compensation, or compensation that depends on the performance of the firm (Fernando, 2011). This could include for example stock options or grants or performance-based bonuses. The at-risk portion of executive compensation can be regarded as a bonding cost (Calder, 2008). Transparency and disclosure are corporate governance practices of disclosing information that is materially important to its performance (Fernando, 2011). This includes, for example, voluntary disclosure of firm strategies, performance, and evidence of problems or failures. Transparency and disclosure enables monitoring of the firm's managers in order to assess the decision quality of the firm (Calder, 2008). Transparency and disclosure practices are also at the base of earnings quality, which is discussed in more detail below.

2.2.2.2 Corporate governance on the Stock Exchange of Thailand

Corporate governance principles are set out by the Stock Exchange of Thailand (2012) in its Principles of Good Corporate Governance for Listed Companies. The principles are required for listed firms, but they are not required privately held firms. These principles were originally established in 2002 following Organisation for Economic Cooperation and Development (OECD) principles, and were updated in 2006 (Stock Exchange of Thailand, 2013). The third revision, which took place in 2012, was designed to further improve the robustness of the corporate governance principles and to align them with the ASEAN Corporate Governance Scorecard, which establishes principles of good corporate governance for firms in the Association of Southeast Asian Nations (ASEAN) (Stock Exchange of Thailand, 2013). The Principles include both the basic principles of corporate governance and best practices for implementation. The five categories of corporate governance used in the Principles include: rights of

shareholders, equitable treatment of shareholders, role of stakeholders, disclosure and transparency, and responsibilities of the board (Stock Exchange of Thailand, 2013). The principles are implemented using a "comply or explain" approach, wherein firms listed on the SET must either fully comply with the principles or must explain any deviations from them. Furthermore, disclosure of implementation practices and deviations is required (Stock Exchange of Thailand, 2013).

The most recent World Bank review of Thailand's corporate governance principles found them to be consistent with OECD's principles of good corporate governance (The World Bank, 2013). There were a few problems according to this assessment, especially ineffective communication channels, which meant that firms were often uninformed about changes to principles, preferred implementation, or up-to-date best practices. Despite these gaps, Thailand's corporate governance regime for firms on SET is rated as a stronger than average set of principles (The World Bank, 2013).

2.2.3 Earnings Quality

A further aspect of this research is earnings quality (also often called quality of earnings). Earnings quality can be briefly defined as the extent to which the reported financial position of the firm is informative about the firm's true position (Dechow, et al., 2010). The assumption of earnings quality is that there is an information asymmetry between investors of the firm and the firm's managers regarding the true financial position of the firm (Bhattacharya, Desai, & Venkataraman, 2013). Even in cases where firms comply with reporting requirements, there is still typically flexibility regarding interpretation of principles regarding aspects of reporting such as when the firm recognizes accruals (Bhattacharya, et al., 2013). As a result, the firm's true financial position is opaque to investors (Dechow, et al., 2010). Earnings quality measures ranging from multi-period ratios of earnings and other performance indicators to non-quantitative measures such as news of restatements act as proxies for this hidden information, offering investors a rule of thumb about how informative the firm's reported earnings are (Dechow, et al., 2010).

2.2.3.1 Theoretical Basis of Earnings Quality

The reason earnings quality is reported is because of its relationship to the firm's financial value, or its share price, as explained through the efficient market hypothesis (EMH). The EMH states that the share price of a publicly own firm reflects all information about the firm's performance (Fama, Fisher, Jensen, & Roll, 1969). The EMH may be stated in one of three forms, each of which makes a different assumption about the relationship between availability of information about the firm and the share price (Wolk, Dodd, & Rozycki, 2012). The strong form of the EMH states that all information, including private information, is reflected immediately in the share price. The strong form of the EMH does not have much empirical support. However, support for the semi-strong form and weak form of the hypothesis is somewhat stronger. The semi-strong form of the EMH states that all publicly available information is reflected in the stock price, while the weak form states that the present price reflects historic price information (Wolk, et al., 2012). Earnings quality may be regarded as one of the information signals that EMH proposes has an influence on share price.

2.2.3.2 Consequences of Earnings Quality

There are several consequences of earnings quality that can be identified from the literature. Earnings quality acts as an early signal of potential restatements, which has been shown to attract short sellers (Desai, Krishnamurthy, & Venkataraman, 2006). Short selling is a practice in which a trader sells a borrowed stock and then repurchases it after the share price falls. Desai, et al. (2006) showed that firms targeted by short sellers, which has negative effects on future stock price, subsequently show performance declines. Poor earnings quality may also be indicative of a deliberate attempt at misrepresentation of earnings through earnings management or misreporting (Dichev I. D., Graham, Harvey, & Rajgopal, 2013; Dichev I. D., Graham, Harvey, & Rajgopal, 2016). Thus, earnings quality primarily acts as a signal to investors about the information quality of the firm's disclosures and managerial performance.

2.2.3.3 Measures of earnings quality

There are many different measures of earnings quality. The most reliable measures are accruals-based measures, which use publicly available

information from the firm's income statement and balance sheets to calculate excess discretionary accruals (earnings manipulation) (Dechow, et al., 2010). One of the most commonly used models is the Jones (1991) model, which is stated as:

$$ACC_t = \alpha + \beta_1 \Delta Rev_t + \beta_2 \Delta PPE_t + \varepsilon_t$$ (Jones, 1991)

This equation states that "accruals are a function of revenue growth and depreciation is a function of property, plant and equipment" (Dechow, et al., 2010, p. 359). While the Jones (1991) model is popular, it does have weaknesses, especially low explanatory power for year-ahead accruals, which means that it does not fully identify abnormal accruals (although it does accurately model total accruals). A modification of the Jones (1991) model has been stated, which decomposes credit sales (Dechow, Sloan, & Sweeney, 1995). The reason for decomposing credit sales is because credit sales can be more easily manipulated for earnings management than cash sales, and thus the decomposed model provides more information about the potential for *abnormal* accruals (rather than total accruals) (Dechow, et al., 1995). This model is stated as:

$$ACC_t = \alpha + \beta_1(\Delta Rev_t - \Delta Rec_t) + \beta_2 \Delta PPE_t + \varepsilon_t$$ (Dechow, et al., 1995)

This model increases the power of the model when examining abnormal accruals (an inverse measure of earnings quality). It also reduces the potential of miscategorization of normal accruals as abnormal accruals. Dechow, et al. (2010) identify several other variations on the basic Jones (1991) model, but these are more complex and do not add much in the way of explanatory power. Instead, these models are based on identifying abnormalities in specific accruals, identifying very small variations in abnormal accruals, or making other small adaptations to the accruals model. This research will use the modified Jones (1991) model proposed by Dechow, et al. (1995) which consists of 4 steps as below;

Step 1: Calculate the total accruals cash flow operating as expressed in the equation:

$$TA_{it} = NI_{it} - CFO_{it}$$ (1)

where: TA_{it} = total accruals of year t;

NI_{it} = net income

CFO_{it} = cash flow from operations; of year t;

Step 2: The results are calculated from equation (1) to estimate the coefficients by using Ordinary Least Squares (OLS) regressions,

$TA_{it} /A_{it-1} = a_{1i} (1/A_{it-1}) + a_{2i} (\Delta REV_{it})/A_{it-1} + a_{3i} PPE_{it}/A_{it-1} + \varepsilon_{it}$ (2)

where: TA_{it} = total accruals of year t.

A_{it-1} = total assets t-1.

ΔREV_{it} = change in revenue measured by change in sales, it relates to sales t-1.

PPE_{it} = gross value of property, plant and equipment in year t.

a_i = coefficient of correlation of the variable i

ε = the error term.

Step 3: Calculate accruals from the business operations of each company by applying the coefficients from Step 2 and r

$NDA_{it} = a_{1i}(1/A_{it-1}) + a_{2i}(\Delta REV_{it} - \Delta REC_{it})/A_{it-1}) + a_{3i} PPE_{it}/A_{it-1}$ (3)

where: NDA_{it} = nondiscretionary accruals year t.

ΔREV_{it} = change in revenue measured by change in sales it relates to sales it-1.

ΔREC_{it} = change in receivables for year t.

PPE_{it} = gross value of property, plant, and equipment in year t.

A_{it-1} = total assets it_{-1}.

a_i = coefficient of correlation of the variable i

Step 4: When non-discretionary accrual is defined, it is deduced from total accruals. The remaining is the difference that is discretionary accrual, as expressed in the equation: coefficient of correlation of the variable i.

$DA_{it} = (TA_{it}/A_{it-1}) - NDA_{it}$ (4)

Where: DA_{it} = discretionary accruals year t (based on modified Jones Model), as a measure of Earnings Quality

2.2.4 Stock returns

The performance outcome studied in this research is market performance, or in other words stock returns. Stock returns, or appreciation (or depreciation) of a given equity or publicly traded stock in a given time period, are one component of total shareholder return (TSR), or the financial return to shareholders (Fernandez, 2002). Other components of TSR include stock buybacks (which increase the value of the existing stock by removing shares from the open market) and dividend payments (which

redistribute some of the firm's profits to shareholders on a per-share basis) (Fernandez, 2002). Stock prices are informative about the firm's value because they are viewed as including all information about the stock under the efficient market hypothesis (EMH) (Lee, Lee, & Lee, 2009). While under some forms of the EMH factors like insider trading and arbitrage could make the stock price less informative, it is generally held that the stock return approximates the value of the firm under conditions of current performance (Fridson & Alvarez, 2011). Thus, the stock return can be a valuable insight into the firm's perceived market value. There are also other reasons to use stock returns in the analysis of firm performance. The granularity of stock performance data (available to daily or even sub-daily periods) allows for carefully timed event studies, helping to identify the influence of events or news on the firm's perceived value (Brown & Warner, 1985). Stock performance data can also help identify performance issues, such as idiosyncratic risk (Fu, 2009) or a higher level of volatility, indicating higher risk levels or uncertainty about the firm's values (French, Schwert, & Stambaugh, 1987). Stock prices are also related to earnings quality, since perceptions of the firm's earnings quality factor into the price investors are willing to pay (Dechow, et al., 2010; Lee, et al., 2009).

2.3 Relationship between Corporate Governance and Earning Quality

This research explores the relationship between corporate governance and earnings quality. The elements of corporate governance that are examined include board structure and ownership structure.

2.3.1 Board Structure

The first aspect of corporate governance explored is the board's structure and composition. Six variables have been identified as being very commonly studied in relation to firm earning quality. These variables include board size, board independence, CEO duality (sometimes termed CEO-Chairman independence), gender diversity, meeting frequency and CEO compensation. There have not been any studies found that specifically focused on Thai firms; the only study that could be identified only addressed operating performance rather than stock performance (Pathan, Skully, & Wickramanayake, 2007). Thus, this research, in addition to building understanding of

the overall role of board structure, also develops specific insight into the role of Thai corporate governance on earning quality. However, studies in other markets have identified the effect of board structure on earnings quality through mechanisms such as oversight, development of norms, and agency theory. (Aishah Hashim & Devi, 2008; Dimitropoulos & Asteriou, 2010; Vafeas, Board structure and the informativeness of earnings, 2000). Therefore, the first broad hypothesis of the research is:

Hypothesis 1: Board structure characteristics are associated with firm earning quality.

2.3.1.2 Board size

Board size refers to the number of members on the board of directors (Fernando, 2011). Evidence on the effect of board size on earnings quality is mixed. Some studies have found a negative effect of board size on earnings quality, measured as accruals quality or earnings informativeness (Ahmed, Hossain, & Adams, 2006; Aishah Hashim & Devi, 2008). On the other hand, a third study found a small negative effect on abnormal working capital accruals (AWCA), a measure of earnings management, suggesting a positive effect of board size on earnings quality (Bradbury, Mak, & Tan, Board characteristics, audit committee characteristcs, and abnormal accruals, 2006). Two other studies did not find a significant effect (Khalil & Ozkan, 2016; Prencipe & Bar-Yosef, 2011). Thus, while it is likely there will be an effect, it is not clear whether it would be positive or negative. Therefore, H1a states:

Hypothesis 1a: Board size is positively associated with earnings quality.

2.3.1.2 Board independence

Board independence is the number of outside directors compared to inside directors (Fernando, 2011). Studies have shown that board independence is positively associated with information quality (Chen, Cheng, & Wang, 2015). They have also shown that board independence is negatively associated with multiple measures of earnings management, including abnormal discretionary accruals (García-Meca & Sánchez-Ballesta, Corporate governance and earnings management: A meta-analysis, 2009; Prencipe & Bar-Yosef, 2011; Sarkar, Sarkar, & Sen, 2008). The evidence is not entirely consistent, as other studies have shown no significant effects

(Ahmed, Hossain, & Adams, 2006; Aishah Hashim & Devi, 2008). However, there is enough evidence to state that:

Hypothesis 1b: Board independence is positively associated with earnings quality.

2.3.1.3 CEO duality

CEO duality refers to the situation where the CEO and Chairman roles in a firm are held by the same person (Fernando, 2011). Several studies have not shown a significant relationship of CEO duality and earnings management or earnings quality (Aishah Hashim & Devi, 2008; Khalil & Ozkan, 2016). One meta-analysis suggested that variance in findings could be due to sampling error, suggesting there is no effect (García-Meca & Sánchez-Ballesta, Corporate governance and earnings management: A meta-analysis, 2009). However, other studies have found that CEO duality has a negative effect on earnings management, implying a positive relationship to earnings quality (Prencipe & Bar-Yosef, 2011; Sarkar, Sarkar, & Sen, 2008). Thus, we state H1c as:

Hypothesis 1c: CEO duality is positively associated with earnings quality.

2.3.1.4 Gender diversity

Gender diversity is usually measured as female participation on the board of directors (Bear, et al., 2010). Some studies have shown a negative effect of gender diversity on earnings management, indicating a positive relationship of gender diversity and earnings management (Arun, Almahrog, & Aribi, 2015; Strydom, Yong, & Rankin, 2016). Other studies have found no significant effect (Hili & Affess, 2012; Sun, Liu, & Lan, 2011). While one study showed a significant relationship of gender diversity and earnings management, the authors suggested this could be due to the institutional context (Buniamin, Johari, Rahman, & Rauf, 2012). Therefore, we assume a positive relationship:

Hypothesis 1d: Gender diversity is positively associated with earnings quality.

2.3.1.5 Meeting frequency

Meeting frequency is the number of meetings per year held by the board (Fernando, 2011). Most studies have not found a significant effect of meeting frequency on earnings quality (Aishah Hashim & Devi, 2008; Hermawan, 2016; Kantudu & Samaila, 2015). However, one study did show a positive relationship to measures of earning quality (Masahyekhi & Bazaz, 2010), while another showed a negative effect of meeting frequency on earnings management (Qi & Tian, 2012). Thus, it is proposed that meeting frequency, if it has an effect, will have a positive effect:

Hypothesis 1e: Meeting frequency is positively associated with earnings quality.

2.3.1.6 CEO compensation

CEO compensation refers to the salary, benefits, and performance-based compensation offered to the executive of the firm (Frydman & Jenter, CEO compensation, 2010). Studies have routinely show that option-based CEO compensation is has a strong positive effect on earnings management measures including discretionary accruals, financial restatements, and income smoothing (Baker, Collins, & Reitenga, 2003; Bergstresser & Philippon, CEO incentives and earnings management, 2006; Cornett, Marcus, & Tehranian, Corporate governance and pay-for-performance: The impact of earnings management, 2008; Grant, Markarian, & Parbonetti, 2009; Harris & Bromiley, Incentives to cheat: The influence of executive compensation and firm performance on financal misrepresentation, 2007) . Therefore, it is proposed that:

Hypothesis 1f: CEO compensation is positively associated with earnings quality.

2.3.1.7 Summary of studies on board structure

Table 2.1 Summary of studies on board structure and earnings quality

Variable	Authors	Purpose	Methods	Results
Board Size	Aishah Hashim and Devi (2008)	Studying the role of board characteristics and effect on earnings quality.	Market: Bursa Malaysia Sample: Non-financial companies (2004) (n = 280 firms) Earnings quality measure: Accruals quality (Dechow & Dichev, 2002) Analysis Technique: Multiple linear regression	Board size had a negative effect on accruals quality.
	Ahmed, et al. (2006)	Studying the effect of board composition and board size on informativeness of earnings.	Market: New Zealand Sample: Non-financial firms firms (1991-1997) (n = 615 firm-years) Earnings quality measure: Stock returns-earnings relationship Analysis technique: OLS regression	Board size had a significant negative effect on earnings informativeness.

Table 2.1 Summary of studies on board structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
	Bradbury, et al. (2006)	Studying the relationship of board and audit committee characteristics on abnormal accruals.	Market: Singapore and Kuala Lumpur Stock Exchanges Sample: Non-financial firms (2000) (n = 242 firms) Earnings quality measure: AWCA (DeFond & Park, 2001) Analysis technique: Multiple linear regression	Board size had a small, but significant, negative effect on AWCA, indicating a positive effect on earnings quality.
	Khalil and Ozkan (2016)	Studying the effect of board structure on audit quality and earnings management.	Market: Egyptian Exchange Sample: Non-financial firms (2005-2012) (n = 1,005 firm-years) Earnings quality measure: Performance-adjusted discretionary accruals (Kothari, Leone, & Wasley, 2005) Analysis technique: Multiple linear regression and fixed effects analysis	Board size did not have a significant effect on earnings management.

Table 2.1 Summary of studies on board structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
	Prencipe and Bar-Yosef (2011)	Studying corporate governance and earnings quality in family-controlled firms.	Market: Milan Stock Exchange Sample: non-financial companies (2003-2004) (n = 249 firm-yeaars) Earnings quality measure: Abnormal working capital accruals (AWCA) (DeFond & Park, 2001) Analysis technique: Multiple linear regression	The authors found that board size did not have a significant effect on AWCA.
Board Independence	Aishah Hashim and Devi (2008)	Studying the role of board characteristics and effect on earnings quality.	Market: Bursa Malaysia Sample: Non-financial companies (2004) (n = 280 firms) Earnings quality measure: Accruals quality (Dechow & Dichev, 2002) Analysis Technique: Multiple linear regression	Board independence was not a significant factor in earnings quality.

Table 2.1 Summary of studies on board structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
	Ahmed, et al. (2006)	Studying the effect of board composition and board size on informativeness of earnings.	Market: New Zealand Sample: Non-financial firms firms (1991-1997) (n = 615 firm-years) Earnings quality measure: Stock returns-earnings relationship Analysis technique: OLS regression	Authors did not find a significant relationship between board independence and informativeness of earnings.
	Chen, et al. (2015)	Studying the relationship of board independence and earnings quality in the context of regulatory change	Market: NYSE Sample: All firms (2000-2005) (n = 1,587 firms) Earnings quality measure: Discretionary accruals (Kothari, et al., 2005) Analysis technique: Panel data analysis	Authors showed that increases in board independence was associated with increased information quality (reduced earnings management) in non-compliance firms following the reform. Increased information availability acted as a moderating variable. This indicates that board independence does have varying effects, but requires a rich information environment for effective monitoring.

Table 2.1 Summary of studies on board structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
	García-Meca and Sánchez-Ballesta (2009)	Conducting a meta-analysis on the relationship between corporate governance and earnings management.	Markets: Mixed Sample: Studies that examined board structure and ownership structure (n = 35) Earnings quality measure: earnings management (multiple models) Analysis technique: Quantitative meta-analysis	Authors found a significant negative aggregate effect of board independence on earnings management.
	Prencipe and Bar-Yosef (2011)	Studying corporate governance and earnings quality in family-controlled firms.	Market: Milan Stock Exchange Sample: non-financial companies (2003-2004) (n = 249 firm-yeaars) Earnings quality measure: Abnormal working capital accruals (AWCA) (DeFond & Park, 2001) Analysis technique: Multiple linear regression	Independent directors had a significant negative relationship to AWCA.

Table 2.1 Summary of studies on board structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
	Sarkar, et al. (2008)	Studying the effect of board independence and board quality on opportunistic earnings management.	Market: Bombay Stock Exchange Sample: Large manufacturing firms (2003) (n = 500) Earnings quality measure: Opportunistic earnings management (abnormal discretionary accruals) (Jones, 1991) Analysis technique: Multiple linear regression	Neither the percentage of independent directors nor a majority independent board had a significant effect on opportunistic earnings management.
CEO Duality	Aishah Hashim and Devi (2008)	Studying the role of board characteristics and effect on earnings quality.	Market: Bursa Malaysia Sample: Non-financial companies (2004) (n = 280 firms) Earnings quality measure: Accruals quality (Dechow & Dichev, 2002) Analysis Technique: Multiple linear regression	CEO Duality had a significant negative effect on earnings quality.

Table 2.1 Summary of studies on board structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
	García-Meca and Sánchez-Ballesta (2009)	Conducting a meta-analysis on the relationship between corporate governance and earnings management.	Markets: Mixed Sample: Studies that examined board structure and ownership structure (n = 35) Earnings quality measure: earnings management (multiple models) Analysis technique: Quantitative meta-analysis	The authors found that variance in findings on CEO duality and earnings management were caused by sampling error, suggesting that there is no true effect.
	Khalil and Ozkan (2016)	Studying the effect of board structure on audit quality and earnings management.	Market: Egyptian Exchange Sample: Non-financial firms (2005-2012) (n = 1,005 firm-years) Earnings quality measure: Performance-adjusted discretionary accruals (Kothari, Leone, & Wasley, 2005) Analysis technique: Multiple linear regression and fixed effects analysis	CEO duality did not have a significant effect on earnings management.

Table 2.1 Summary of studies on board structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
	Prencipe and Bar-Yosef (2011)	Studying corporate governance and earnings quality in family-controlled firms.	Market: Milan Stock Exchange Sample: non-financial companies (2003-2004) (n = 249 firm-yeaars) Earnings quality measure: Abnormal working capital accruals (AWCA) (DeFond & Park, 2001) Analysis technique: Multiple linear regression	Non-dual CEOs had a significant negative effect on AWCA.
	Sarkar, et al. (2008)	Studying the effect of board independence and board quality on opportunistic earnings management.	Market: Bombay Stock Exchange Sample: Large manufacturing firms (2003) (n = 500) Earnings quality measure: Opportunistic earnings management (abnormal discretionary accruals) (Jones, 1991) Analysis technique: Multiple linear regression	CEO duality had a significant negative effect on opportunistic earnings management.

Table 2.1 Summary of studies on board structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
Gender Diversity	Arun, et al. (2015)	Studying the connection between female directors and earnings management.	Market: London Stock Exchange Sample: Non-financial, non-regulated and non-mining firms in FTSE 350 index (2005-2011) (n = 1,220 firm-years) Earnings quality measure: Discretionary accruals (Jones, 1991)	There was a negative effect of the number and proportion of female directors on earnings management. The effect was strongest in simple (low-debt) firms.
	Buniamin, et al. (2012)	Studying the effect of board diversity on earnings management.	Market: Malaysia Sample: Firms included in Malaysia Corporate Governance Index 92008) (n = 100 firms) Earnings quality measure: Modified Jones (1991) accruals quality model (Dechow, et al., 1995) Analysis technique: Multiple regression	Authors found a significant positive effect of gender diversity on earnings management. The authors acknowledged that this was opposite to expectations, which they suggested could be due to lack of full independence.

Table 2.1 Summary of studies on board structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
	Hili and Affess (2012)	Studying the effect of gender diversity on earnings persistence	Market: France Sample: Non-financial and non-estate firms listed in SBF 120 index (2007-2010) (n = 280 firm-years) Earnings quality measure: Earnings persistence (Dechow, et al., 2010) Analysis technique: Panel data analysis using generalized method of moments (GMM) technique	Authors found that gender diversity did not influence earnings persistence.
	Strydom, et al. (2016)	Studying the effect of gender diversity on earnings quality.	Market: Australia Sample: All firms (2005-2013) (n = 4,122 firm-year observations) Earnings quality measure: Modified Jones (1991) models with book-to-market and cash flow ratio (Larcker & Richardson, 2004) and with lagged return on assets (Kothari, et al., 2005) Analysis technique: Two-stage least squares regression	Gender diversity as measured using the Blau index had a negative effect on earnings management. There was a critical mass of 30% female directors required to achieve the effects on earnings management.

Table 2.1 Summary of studies on board structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
	Sun, et al. (2011)	Studying the effect of gender diversity in audit committees constrains earning management.	Market: US (S&P 500) Sample: Non-financial firms (2003-2005) (n = 525 firm-years) Earnings quality measure: Discretionary accruals (Jones, 1991) Analysis technique: Multiple regression	Authors used the proportion of female directors on the audit committee, along with measures of auditing expertise, director busy-ness, and firm value. The authors did not identify an effect of gender diversity on earnings management.
Meeting Frequency	Aishah Hashim and Devi (2008)	Studying the role of board characteristics and effect on earnings quality.	Market: Bursa Malaysia Sample: Non-financial companies (2004) (n = 280 firms) Earnings quality measure: Accruals quality (Dechow & Dichev, 2002) Analysis Technique: Multiple linear regression	Board meeting frequency was not significant for earnings quality.

Table 2.1 Summary of studies on board structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
	Hermawan (2016)	Studying the influence of board effectiveness on earnings quality	Market: Indonesian Stock Exchange Sample: Non-financial firms (2006-2007) (n = 207 firms) Earnings quality measure: Cumulative abnormal returns Analysis technique: Multiple linear regression	Board meeting frequency was not significant for earnings quality.
	Kantudu and Samaila (2015)	Studying the relationship of board and audit committee characteristics on earnings quality in oil firms.	Market: Nigerian Stock Exchange Sample: Oil firms (2000-2011) (n = 9 firms) Earnings quality measure: Qualitative financial reporting measure Analysis technique: Panel analysis	Board meeting frequency was not found to be a significant factor in reporting quality.

Table 2.1 Summary of studies on board structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
	Masahyekhi and Bazaz (2010)	Studying corporate governance effects on earnings quality.	Market: Tehran Stock Exchange Sample: Non-financial firms (2005-2008) (n = 600 firm-years) Earnings quality measure: Earnings persistence, earnings predictability, accruals quality Analysis technique: OLS regression	Board meeting frequency had a positive, significant effect on earnings persistence and accruals quality, but a negative effect on earnings predictability.
	Qi and Tian (2012)	Studying the effect of board personal characteristics on earnings management.	Market: China Sample: Non-financial firms with audit committees (2004-2010) (n = 8,148 firm-years) Earnings quality measure: Discretionary accruals (Jones, 1991) Analysis technique: Panel regression	Authors used board meeting frequency as a control variable. They found that there was a significant negative effect of meeting frequency on earnings quality.

Table 2.1 Summary of studies on board structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
CEO Compensation	Baker, et al. (2003)	Studying the effect of stock option-based compensation on earnings quality.	Market: United States Sample: US firms included in Wall Street Journal compensation survey (1992-1998) (n = 1,100 firm-years) Earnings quality measure: Modified Jones (1991) model of discretionary accruals (Dechow, et al., 1995) Analysis technique: Multiple linear regression	The authors found that the compensation option ratio (the proportion of CEO compensation based on stock options) had a significant positive effect on earnings management. They explained that this was probably due to managers using earnings management to ensure option payouts or supporting the value of their options.
	Bergstresser and Philippon (2006)	Studying the relationship of CEO compensation structure and use of earnings management	Market: United States Sample: Non-financial firms (1993-2000) (n = 4,199 firm-yeasr) Earnings quality measure: Modified discretionary accruals model (Dechow, et al., 1995) Analysis technique: OLS regression	Authors found that the CEO share of option-based compensation was positively related to earnings management ($p < .001$). They also found CEOs exercised abnormally high levels of options in years where high levels of earnings management occurred.

Table 2.1 Summary of studies on board structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
	Cornett, et al. (2008)	Studying the relationships of corporate governance, pay-for-performance and earnings management.	Market: United States Sample: S&P 100 firms (1994-2003) (834 firm-years) Earnings quality measure: Modified Jones (1991) model of discretionary accruals (Dechow, et al., 1995) Analysis technique: Pooled time-series/cross-section regression and Fama-MacBeth regressions	Option-based CEO compensation (as % of total compensation) had a significant positive effect on earnings management, and was the strongest determinant within the model.
	Harris and Bromiley (2007)	Studying the connection of CEO compensation and performance with financial misrepresentation.	Market: US Sample: Matching sample of firms that issued accounting restatements and firms that did not (1997-2002) (n = 434 firms each group) Earnings quality measure: Material accounting restatement Analysis technique: Logit regression	Authors found that option-based compensation had a significant positive effect on financial misrepresentation.

Table 2.1 Summary of studies on board structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
	Grant, et al. (2009)	Studying the role of CEO compensation structure on earnings quality	Market: United States Sample: S&P 500 firms (1992-2005) (n = 7,000 firm-years) Earnings quality measure: Income smoothing (correlation between changes in managed and unmanaged earnings) Analysis technique: Multiple regression	CEO option-based compensation was positively associated with income smoothing.

2.3.2 Ownership Structure and Earnings Quality

The second aspect of corporate governance studied is ownership structure. Ownership structure refers to the division of ownership between different classes of owners, such as inside and outside owners; family owners; institutional owners; large shareholders; domestic and foreign owners; government owners; and others (Bhagat & Jefferis, 2002). The three dimensions of ownership structure studied included institutional ownership, ownership concentration, and founder/family ownership. The evidence on ownership structure (Table 2) shows that there is strong evidence for the role of ownership structure on earnings quality, although these effects varied depending on the ownership class. It can be stated generally that:

Hypothesis 2: Ownership structure is associated with earnings quality.

2.3.2.1 Institutional ownership

Institutional ownership is the proportion of shares held by various groups of institutional owners (Chung & Zhang, 2011). Studies have shown varying effects of institutional ownership on earnings quality. one study found that institutional ownership had a significant positive effect on earnings quality (Aishah Hashim & Devi, 2008), while another showed that it had a significant negative effect on earnings management (discretionary accruals) (Ajay & Madhumathi, 2015). However, other studies have found a positive (but typically very small) relationship between institutional ownership and earnings management (Cornett, Marcus, & Tehranian, Corporate governance and pay-for-performance: The impact of earnings management, 2008; García-Meca & Sánchez-Ballesta, 2009; Mazumder, 2016). A possible explanation for this difference is provided by Mazumder (2016), who found different effects for different ownership classes. This research states only that:

Hypothesis 2a: Institutional ownership is associated with earnings quality.

2.3.2.2 Ownership concentration

Ownership concentration refers to the proportion of shares held by large block holders (Javid & Iqbal, 2008). Most studies have shown that institutional ownership was negatively associated with earnings management (Alves, Ownership structure and earnings management: Evidence from Portugal, 2012; Beuselinck & Manigart, 2007; Khalil & Ozkan, 2016), which implies a positive relationship to

earnings quality. A few studies show a small negative effect of ownership concentration on earnings quality, measured in different ways (García-Meca & Sánchez-Ballesta, 2009; Yunos, Smith, & Ismail, 2010). Based on these studies, H2b states that:

Hypothesis 2b: Ownership concentration is positively associated with earnings quality.

2.3.2.3 Family ownership

Family ownership refers to the proportion of shares held by founders and family members (Giovannini, 2010). Studies have routinely shown that family ownership is negatively associated with earnings management (Adigüzel, 2013; Prencipe & Bar-Yosef, 2011) or positively associated with earnings quality (Aishah Hashim & Devi, 2008; Cascino, Pugliese, Mussolino, & Sansone, 2010). While one study did find a positive effect of family ownership on earnings management, this study aggregated multiple groups of inside ownership including family and manager ownership (Yang, 2010). Thus, this evidence suggests that:

Hypothesis 2c: Family ownership is positively associated with earnings quality

2.3.2.4 Summary of studies on ownership concentration and earnings quality

Table 2.2 Summary of studies on ownership structure and earnings quality

Variable	Authors	Purpose	Methods	Results
Institutional Ownership	Aishah Hashim and Devi (2008)	Studying the role of board characteristics and effect on earnings quality.	Market: Bursa Malaysia Sample: Non-financial companies (2004) (n = 280 firms) Earnings quality measure: Accruals quality (Dechow & Dichev, 2002) Analysis Technique: Multiple linear regression	Institutional ownership had a significant positive effect on earnings quality.
	Ajay and Madhumathi (2015)	Studying the effect of institutional ownership on earnings management	Market: India's National Stock Exchange Sample: Non-financial, non-government firms (2008-2013) (n = 393 firms) Earnings quality measure: Earnings management – modified Jones (1991) model of discretionary accruals (Dechow, et al., 1995) Analysis technique: Multiple linear regression	Institutional ownership had a significant negative effect on both unsigned DA and signed DA. Firms with higher than 15.3% institutional ownership had lower levels of DA than those below it.

Table 2.2 Summary of studies on ownership structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
	ornett, et al. (2008)	Studying the relationships of corporate governance, pay-for-performance and earnings management.	Market: United States Sample: S&P 100 firms (1994-2003) (834 firm-years) Earnings quality measure: Modified Jones (1991) model of discretionary accruals (Dechow, et al., 1995) Analysis technique: Pooled time-series/cross-section regression and Fama-MacBeth regressions	Authors found a significant positive effect of institutional ownership on earnings management.
	García-Meca and Sánchez-Ballesta (2009)	Conducting a meta-analysis on the relationship between corporate governance and earnings management.	Markets: Mixed Sample: Studies that examined board structure and ownership structure (n = 35) Earnings quality measure: earnings management (multiple models) Analysis technique: Quantitative meta-analysis	Authors found a significant, positive but very small effect of institutional ownership on earnings management.

Table 2.2 Summary of studies on ownership structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
	Mazumder (2016)	Studying the effect of ownership structure on predictability of earnings.	Market: Tokyo Stock Exchange Sample: Non-financial firms (2001-2012) (n = 14,496 firm-years) Earnings quality measure: Earnings predictability (Lipe, 1990) Analysis technique: Multiple linear regression	Different classes of institutional investors had a varying effect on earnings predictability, with financial institution ownership having a small negative effect and foreign investor share having a small positive effect. Domestic corporate investors had no significant effect.
	Prencipe and Bar-Yosef (2011)	Studying corporate governance and earnings quality in family-controlled firms.	Market: Milan Stock Exchange Sample: non-financial companies (2003-2004) (n = 249 firm-yeaars) Earnings quality measure: Abnormal working capital accruals (AWCA) (DeFond & Park, 2001) Analysis technique: Multiple linear regression	Institutional ownership had a significant positive effect on AWCA only in family controlled firms.

Table 2.2 Summary of studies on ownership structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
Ownership Concentration	Alves (2012)	Studying the effect of ownership structure on earnings management.	Market: Lisbon Stock Exchange Sample: Non-financial firms (2002-2007) (n = 34 firms) Earnings quality measure: Modified Jones (1991) discretionary accruals model (Dechow, et al., 1995) Analysis technique: OLS regression	Authors found that ownership concentration had a significant negative effect on earnings management. Institutional and managerial block concentration also had negative effects.
	Beuselinck and Manigart (2007)	Studying the effect of ownership concentration on financial reporting quality in private equity backed firms.	Market: Belgium Sample: PE-backed (unlisted) firms (n = 270 firms) Earnings quality measure: Abnormal accruals ((Leleux & Surlemont, 2003) Analysis technique: OLS regression	Authors found that high ownership concentration of PE partners had a negative effect on earnings quality.

Table 2.2 Summary of studies on ownership structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
	García-Meca and Sánchez-Ballesta (2009)	Conducting a meta-analysis on the relationship between corporate governance and earnings management.	Markets: Mixed Sample: Studies that examined board structure and ownership structure (n = 35) Earnings quality measure: earnings management (multiple models) Analysis technique: Quantitative meta-analysis	Authors found a significant positive effect of ownership concentration on earnings management.
	Khalil and Ozkan (2016)	Studying the effect of board structure on audit quality and earnings management.	Market: Egyptian Exchange Sample: Non-financial firms (2005-2012) (n = 1,005 firm-years) Earnings quality measure: Performance-adjusted discretionary accruals (Kothari, Leone, & Wasley, 2005) Analysis technique: Multiple linear regression and fixed effects analysis	Large shareholders (5% or more ownership share) had a significant negative effect on earnings management in the fixed effects analysis, but it was not significant in the analysis when split into pre-crisis, crisis, and post-crisis periods.

Table 2.2 Summary of studies on ownership structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
	Yunos, et al. (2010)	Studying the relationship of ownership structure on accounting conservatism.	Market: Kuala Lumpur Stock Exchange Sample: Non-financial firms (2001-2007 (n = 2,100 firm-years) Earnings quality measure: Asymmetric timeliness and conservative accruals Analysis technique: Fixed effects regression	Authors found that ownership concentration of both insider and outsider parties had a significant negative effect on measures of accounting conservatism.
Family Ownership	Adigüzel (2013)	Comparing corporate governance and financial management between family-owned and non-family firms.	Market: Istanbul Stock Exchange Sample: Non-financial firms (2006-2010) (n = 93 firms) Earnings quality measure: Modified discretionary accruals (Kothari, et al., 2005) Analysis technique: OLS regression	Authors found that family-owned firms (those where founder and family members were the largest shareholders) had lower rates of earnings management than non-family firms.

Table 2.2 Summary of studies on ownership structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
	Aishah Hashim and Devi (2008)	Studying the role of board characteristics and effect on earnings quality.	Market: Bursa Malaysia Sample: Non-financial companies (2004) (n = 280 firms) Earnings quality measure: Accruals quality (Dechow & Dichev, 2002) Analysis Technique: Multiple linear regression	Family ownership had a significant positive effect on earnings quality.
	Cascino, et al. (2010)	Studying the effect of family ownership on earnings quality	Market: Italy Sample: Non-financial firms (1998-2004) (n = 778 firm-year observations) Earnings quality measure: Multiple measures, including accrual quality, persistence and predictability, smoothness, value relevance, and timeliness and conservativism. Analysis technique: Multiple linear regression	Family firms were found to have significantly higher earnings quality measures than non-family firms. This indicates that firms with high family ownership concentration provide better quality information than other firms.

Table 2.2 Summary of studies on ownership structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
	Prencipe and Bar-Yosef (2011)	Studying corporate governance and earnings quality in family-controlled firms.	Market: Milan Stock Exchange Sample: non-financial companies (2003-2004) (n = 249 firm-yeaars) Earnings quality measure: Abnormal working capital accruals (AWCA) (DeFond & Park, 2001) Analysis technique: Multiple linear regression	Family ownership had a significant negative effect on AWCA. Family ownership also moderated the effect of Board independence – AWCA.
	Yang (2010)	Studying the effect of family ownership and control on earnings management.	Market: Taiwan Stock Exchange Sample: All firms (2001-2008) (n = 3,914 firm-years) Earnings quality measure: Modified discretionary accruals (Kothari, et al., 2005) Analysis technique: Multiple linear regression	The authors studied insider ownership, which included large shareholders, directors, and managers. Insider ownership had a significant positive relationship to discretionary accruals in firms with controlling family ownership. This effect was not mediated by family or non-family CEOs.

Table 2.2 Summary of studies on ownership structure and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Results
	Prencipe and Bar-Yosef (2011)	Studying corporate governance and earnings quality in family-controlled firms.	Market: Milan Stock Exchange Sample: non-financial companies (2003-2004) (n = 249 firm-yeaars) Earnings quality measure: Abnormal working capital accruals (AWCA) (DeFond & Park, 2001) Analysis technique: Multiple linear regression	Family ownership had a significant negative effect on AWCA. Family ownership also moderated the effect of Board independence – AWCA.
	Yang (2010)	Studying the effect of family ownership and control on earnings management.	Market: Taiwan Stock Exchange Sample: All firms (2001-2008) (n = 3,914 firm-years) Earnings quality measure: Modified discretionary accruals (Kothari, et al., 2005) Analysis technique: Multiple linear regression	The authors studied insider ownership, which included large shareholders, directors, and managers. Insider ownership had a significant positive relationship to discretionary accruals in firms with controlling family ownership. This effect was not mediated by family or non-family CEOs.

2.4 Relationship between Corporate Governance and Stock Return

The discussion above established a theoretical perspective on the role of corporate governance and stock return through agency theory. In this section, the roles of specific factors are reviewed. These factors are divided into two categories, including Board of Directors structure (board size, board independence, board expertise, CEO duality, gender diversity, board meeting frequency and CEO compensation) and makeup and ownership characteristics (institutional ownership, ownership concentration, and founder/family ownership). In each of the two sections below, each of these two sets of variables is reviewed, with a summary table provided for each of the variables. These summaries provide the purposes, methods, and findings of the research, while conflicts and interesting findings are discussed in individual sections for each variable.

2.4.1 Board Structure

This section builds understanding of the overall role of board structure (board size, board independence, CEO duality, gender diversity, meeting frequency and CEO compensation), also develops specific insight into the role of Thai corporate governance on firm performance. The hypothesis 3 is:

Hypothesis 3: Board of directors characteristics are associated with the firm's stock return.

2.4.1.1 Board Size

One of the most frequently tested corporate governance factors in stock returns or performance was board size (Behlkir, 2009; Di Pietra, Grambovas, Raonic, & Riccaboni, 2008; Garg, 2007; Guest, 2009; Jackling & Johl, 2009; Pham, Suchard, & Zein, 2011). Board size simply refers to the number of members (including independent and insider members) that serve on the board of directors of the firm (Fernando, 2011). Board sizes do vary between firms, based on factors like the size of the firm, the firm's complexity, and other factors (Fernando, 2011). While in many of these studies, board size was a control variable, for others it was the main characteristic or one of the main characteristics to be studied. Most of the studies used Tobin's q as the share price variable, with some also using measures such as economic value added (EVA) or accounting performance outcomes such as return on equity (ROE) or return on assets

(ROA). Only one study used raw share prices as the outcome (Di Pietra, et al., 2008). Board size was measured either as the raw number of board members or the natural log of this number. The log transformation was typically used to normalize the distribution of board members (Guest, 2009). The findings relating board size to stock returns varied. In the bulk of studies reviewed, there was a significant positive effect of board size on Tobin's q, as well as sometimes on accounting variables (Behlkir, 2009; Guest, 2009; Jackling & Johl, 2009; Pham, et al., 2011). Other studies showed either no significant effect (or limited and variable industrial effects) (Di Pietra, et al., 2008) or a significant negative effect (Garg, 2007). There are two distinct theoretical explanations for these differential effects. The first theoretical explanation is that a larger board offers a broader array of expertise, contacts, experience and other positive capital for the board to draw on in decision making and oversight, making it more effective at control (Guest, 2009). The opposing explanation is that a large board becomes ineffective due to group dynamics such as politeness effects, where board members form norms that prevent effective oversight (Garg, 2007). These two opposing explanations do not necessarily encompass all possible factors; for example, differences in corporate governance regimes between countries (Pham, et al., 2011) or culture (Behlkir, 2009) could make difference in the effect of board size on the firm's stock market performance. This study follows the majority of literature reviewed in proposing a positive effect of board size on the firm's market performance for Hypothesis 3a:

Hypothesis 3a: Board size is positively associated with stock returns.

2.4.1.2 Board Independence

Board independence refers to the extent to which the board is involved in the day-to-day operations of the firm, for example as a manager or technical specialist (Calder, 2008). Board independence is one of the more strictly regulated aspects of corporate governance, with different legal jurisdictions having different requirements for board independence, such as a certain percentage of independent members (Fernando, 2011). These requirements, sometimes implemented as codes of corporate governance practice rather than legal codes, are based on the assumption that board members without an interest in the firm's outcomes are more likely to effectively monitor and control the firm (Calder, 2008). Board independence is also commonly

reviewed as a factor in the firm's market and operational performance, often in conjunction with board size and other board structure indicators (Behlkir, 2009; Garg, 2007; Jackling & Johl, , 2009; Koerniadi & Tourani-Rad, 2012; O'Connell & Cramer, 2010; Pham, Suchard, & Zein, 2011). As with the board size studies, these studies also routinely use Tobin's q as an indicator of market performance, with one study adding EVA as an additional market performance indicator (Koerniadi & Tourani-Rad, 2012). There is also a consistent measure of board independence, which is the ratio of independent (non-executive) directors to total directors, measured either as a proportion or a percentage figure. Thus, there is a consistent approach to measuring board independence in relation to the firm's stock market performance. However, the results are not as consistent. One study found a significant, positive and strong effect of board independence on Tobin's q (though it did not influence EVA) (Pham, et al., 2011). Another study found a significant negative effect of board independence on the firm's stock market performance (including Tobin's q and EVA) (Koerniadi & Tourani-Rad, 2012). However, the other studies examined did not find a significant effect (either positive or negative) of board independence and stock market returns (Behlkir, 2009; Garg, 2007; Jackling & Johl, 2009; O'Connell & Cramer, 2010). This does raise the question of what role board independence plays in the firm's stock market performance. There are two opposing viewpoints on the theoretical role of board independence in corporate governance theory (Bloomfield, 2013; Koerniadi & Tourani-Rad, 2012; Tonello, 2010). Under the first perspective, independent directors monitor inside directors, providing an additional layer of functional oversight that would improve the company's performance efficiency. However, an opposing viewpoint argues that independent directors may be too distant from the company to be effective, since they are dependent on information from inside managers and unfamiliar with the workings of the firm. Lack of expert knowledge on board subcommittee topics and independent board members sitting on several boards (busyness levels) can also reduce monitoring effectiveness of independent directors (Jiraporn, Singh, & Lee, 2009). Thus, there are several reasons why, even though an independent board is thought to be more effective, it may not be so in practice. For the purposes of this research, the assumed theoretical

position that board independence has a positive effect on firm value and performance will be taken. This leads to the following second hypothesis.

Hypothesis 3b: Board independence is positively associated with stock returns.

2.4.13 CEO Duality

CEO duality refers to the situation in which the same person fills the CEO role (the top manager in the firm) and the Chairperson of the Board role (the top oversight committee member) (Fernando, 2011). In some jurisdictions, corporate governance regulations or codes of best practice reject the use of dual CEO/Chairperson positions, on the basis that this creates conflicting interests and allows for capture of principal control of the organization by the agent (Calder, 2008). However, even in cases where this is strongly recommended against it may remain common, particularly in firms that are closely held or with a high concentration of family members (Calder, 2008). CEO duality is commonly studied along with board size and independence (Behlkir, 2009; Jackling & Johl, 2009), although in a few studies reviewed it was also used as a control variable (Carter, D'Souza, Simkins, & Simpson, 2010). In two studies, CEO duality was part of a broader construct, such as CEO power or one aspect of the family controlled business (Braun & Sharma, 2007; Combs, Ketchen, Perryman, & Donahue, 2007). Studies all examined CEO duality as a binary dummy variable (typically using 0 = CEO and chair are separate and 1 = CEO and chair are the same). Tobin's q was used by two studies (Behlkir, 2009; Jackling & Johl, 2009). Other authors used abnormal returns (Combs, et al., 2007) or buy-and-hold adjusted returns (Braun & Sharma, 2007). The findings surrounding the effect of CEO duality on the firm's stock performance are complex, like other factors studied here. Behlkir's (2009) study did not find a relationship between CEO duality and Tobin's q, and neither did Jackling and Johl's (2009) study or Lee, Lev and Yeo's (2008) study. However, studies that focused on CEO duality tended to have more complex findings. Braun and Sharma (2007) studied CEO duality in family-controlled and non-family controlled firms. They found that in general, CEO duality did not affect abnormal returns. However, family-controlled companies with a non-dual CEO did have higher returns than family-controlled companies with dual CEOs. Combs, et al. (2007) studied CEO duality in the context of CEO power. They found that there was actually a positive relationship

between CEO duality and firm stock performance, but there was a negative interaction effect between CEO duality and board independence. Thus, the effect of CEO duality on the firm's stock performance could be contextual and endogenous with other board control variables. For this research, the role of CEO duality is assumed to be positive following Combs, et al. (2007):

Hypothesis 3c: CEO duality is positively associated with stock returns.

2.4.1.4 Gender Diversity

Gender diversity relates to the presence and representation on the board of directors (Campbell & Mínguez-Vera, Gender diversity in the boardroom and firm financial performance, 2008). Unlike other board characteristics, there are a variety of measures used to assess gender diversity. These include presence of any women on boards (Campbell & Vera, 2010; Chapple & Humphrey, 2014), percentage of women on the board (Campbell & Vera, 2010; Gallego-Álvarez, García-Sánchez, & Rodríguez-Dominguez, 2010), number of women on boards (Carter, D'Souza, Simkins, & Simpson, 2010), and event indicators of appointment to women on boards (Campbell & Vera, 2010; Kang, Ding, & Charoenwong, 2010). Typical measurement of gender diversity is based on dummy variables indicating female board membership and proportion of female members to total board members (Campbell & Mínguez-Vera, Gender diversity in the boardroom and firm financial performance, 2008; Joecks, Pull, & Vetter, 2013; Marinova, Plantenga, & Remery, 2016). However, some studies also used Blau and/or Shannon indices, which are indices constructed to indicate representation (Campbell & Mínguez-Vera, 2008; Joecks, et al., 2013). Gender diversity also stands out among the other board characteristics because it was the only characteristic examined through event studies (the appointment of a new female director (Campbell & Vera, 2010; Kang, et al., 2010). However, like most other studies, firm stock performance was typically measured using Tobin's q, an abnormal returns measure, or in the case of Chapple and Humphrey (2014), returns on portfolios. The findings showed a mixture of effects of gender diversity on the firm's stock performance. The two event studies showed positive, significant effects of increasing gender diversity on the firm's stock performance, measured using either Tobin's q (Campbell & Vera, 2010) or cumulative average abnormal returns (CAAR) (Kang, et

al., 2010). This indicates that the market response to news of appointments of new female directors is positive. However, longer-term studies that were tied to overall levels of gender diversity did not show this positive effect. One study showed that while ROA was positively affected by female directorship levels, Tobin's q was not (Carter, et al., 2010). However, this study measured gender diversity by number of female directors rather than proportion, which could skew the results. Another study found that total female representation in management, directorship, and ownership did not have an aggregate effect on Tobin's q (Gallego-Álvarez, et al., 2010). Chapple and Humphrey's (2014) study was unique in that it studied the effect of gender diversity at the market level, using portfolios divided between different characteristics. They found that there was industry-level variance in the effects of gender diversity, but that markets did not overall show a difference. However, they also found that gender diversity in Australia was quite low, with only about half of boards having *any* female representatives (Chapple & Humphrey, 2014). For this research, gender diversity will be assumed to have its theoretical position, which is that firm performance is positively associated with higher levels of diversity (Chapple & Humphrey, 2014):

Hypothesis 3d: Gender diversity is positively associated with stock returns.

2.4.1.5 Meeting Frequency

Meeting frequency simply refers to how often the board of directors meets in person in order to conduct its business operations and oversight of the firm (Calder, 2008). The frequency of corporate board meetings is considered to be a proxy for board diligence in meeting its obligations (Ntim & Osei, 2011). Under agency theory, a board that meets frequently has more opportunities to monitor performance and ensure compliance (Ntim & Osei, 2011). However, there is a possibility that a board that meets too frequently could actually be counterproductive, particularly if it includes busy board members that may not be able to pay as much attention to the board firm's needs (Fich & Shivdasani, 2006). Board meeting frequency is not studied as often as other board structure characteristics, but a few studies have addressed it either as the main factor of interest or as a control variable (Brick & Chidambaran, 2010; Gallego-Álvarez, García-Sánchez, & Rodríguez-Dominguez, 2010; Jackling & Johl, 2009; Vafeas, 1999). This difference could be because this data must be hand-collected.

Most of these authors used Tobin's q as the stock performance indicator (dependent variable), but Vafeas (1999) used the firm's raw share price. This may be because the study is older, while newer studies have adopted newer approaches to stock price measurement and association. The board meeting frequency has a consistent measure, typically the total number of board meetings in a year, although Brick and Chidambaran (2010) used the logarithm of total meetings in the year due to a large difference in the number of meetings. Two studies showed a positive relationship of board meeting frequency and firm stock performance (Brick & Chidambaran, 2010; Gallego-Álvarez, et al., 2010). These studies also showed some interaction effects between meeting frequency and other board characteristics. Gallego-Álvarez, et al. (2010) did note that the effect of board meeting frequency was relatively small, however. Jackling and Johl (2009), in the context of a larger, multi-factor study into board characteristics and marekt performance, did not find a significant relationship. Finally, Vafeas (1999) found a negative relationship between board meeting frequency and stock performance. However, this author noted that this was an anomoly related to earlier poor performance; in other words, earlier poor stock performance caused increased board meeting frequency, rather than the other way around (Vafeas, 1999). In the long run, the increased monitoring from more board meetings resulted in an improved stock performance (Vafeas, 1999). Another study found a non-linear relationship, with more than 12 meetings a year not providing further benefit (Rodriguez-Fernandez, Fernandez-Alonso, & Rodriguez-Rodriguez, 2014). Since the general trend is for a positive effect of board meeting frequency on stock returns, H3e is proposed as follows:

Hypothesis 3e: Board meeting frequency is positively associated with stock returns.

2.4.1.6 CEO Compensation

Over the past 30 years there has been a substantial increase in global CEO compensation, accompanied by a shift toward the use of performance-based (at-risk) compensation (Frydman & Jenter, 2010). During the 1990s, CEO compensation in the United States grew by an average of 10% per annum, a growth that was echoed (though not usually as highly) in other countries (Frydman & Jenter, 2010). Frydman and Jenter (2010), in a comprehensive literature review on CEO compensation, found

that market forces, growing managerial power, and other factors have played a role in CEO compensation growth. Perhaps surprisingly, there is the least empirical evidence for the effect of CEO compensation on firm performance. Studying the effect of CEO compensation is complicated because of the lack of certainty regarding how CEO compensation should be measured and different theoretical approaches to understanding (Frydman & Jenter, 2010). Furthermore, most studies have examined the relationship of firm value to CEO compensation rather than the other way around (Frydman & Jenter, 2010). For example, one study found that Tobin's q (an indicator of stock value) had a significant effect on CEO compensation, but did not examine the opposite relationship (Ozkan, 2011). Thus, the evidence on this point is limited, which has continued to be a problem in the literature (Frydman & Jenter, 2010) .Frydman and Jenter's (2010) extensive review of the literature identified only a few studies that examined this question, and these studies had mixed effects. While in theory CEO compensation (especially at-risk compensation dependent on the share price) should have a positive effect on stock performance, this was not always found to be the case. In fact, other studies reviewed have also shown these unexpected effects. For example, one paper showed a negative relationship between CEO compensation and stock performance (Core, Holthausen, & Larcker, 1999). They attributed this negative relationship to the interaction effects of corporate governance; specifically, that poor corporate governance allowed for both excessive CEO compensation and weak performance (Core, et al., 1999). Another study went further than usual in breaking down CEO compensation, and found a performance difference between stock ownership and stock options (future-dated ownership rights) (Habib & Ljungqvist, 2005). While direct stock ownership was positively related to firm stock performance, stock options were negatively related (Habib & Ljungqvist, 2005). Another study supported increased returns associated with increased option-based compensation, but noted that this was due to increased managerial risk taking (Chen & Ma, 2011). One study suggested a possible cause of these mixed and uncertain outcomes through a mechanism of risk-aversion created by excessive pay-performance sensitivity (Brick, Palmon, & Wald, 2012). The authors found that higher levels of pay-performance sensitivity (or risk-based compensation) were associated with lowered future stock returns. They suggested this could be because

of risk-aversion effects, which caused managers to take lower assured returns rather than higher potential returns (Brick, et al., 2012). As with other corporate governance factors where there was an uncertain outcome, this research will follow the theoretical position of CEO compensation and its effect on stock returns:

Hypothesis 3f: CEO compensation is positively associated with stock returns**.**

2.4.1.7 Summary of Studies on Board Structure and Stock Returns

Table 2.3 Summary of studies on board structure and stock returns

Variable	Authors	Purpose	Methods	Results
Board size	Behlkir (2009)	Studying the effect of board size on firm performance in the banking industry.	Quantitative study of bank holding companies and savings and loans (1995-2002) (n = 174 banks) *Board size:* log of number of members *Stock performance:* Tobin's q *Other performance indicators:* ROA	This study showed a positive, significant effect of board size on stock performance (Tobin's q) and ROA.
	Di Pietra, et al. (2008)	Studying effects of board size and board 'busyness' on performance of Italian firms.	Quantitative study of non-financial firms listed on Milan Stock Exchange (1993-2000) (n = 71 firms) *Board size:* Total members on board *Stock performance:* Share price	Board size was not a significant factor in the firm's share price generally, but did have a small positive effect in heavy industry firms.

Table 2.3 Summary of studies on board structure and stock returns (Cont.)

Variable	Authors	Purpose	Methods	Results
	Garg (2007)	Studying the effect of board structure on firm performance in Indian firms.	Quantitative sample of firms in the BSE 200 index (1997-2003) (n= 164 companies) *Board size:* Number of board members, dummy variables for board size categories *Stock performance:* Tobin's q, market-adjusted stock returns (MASR) *Other performance indicators:* ROA, Sales to assets ratio	Board size had a negative, significant effect on Tobin's q, but was not significant for MASR. This effect persisted across several modifications, including examination of next year's predicted earnings and using log board size.
	Guest (2009)	Studying the relationship of board size and firm performance in the UK.	Quantitative study of UK firms (1981-2002) (n = 2,746 companies) *Board size:* log of number of board members *Stock performance:* Tobin's q, annual share return *Other performance indicators:* ROA	Board size had a significant negative effect on Tobin's q and share returns.

Table 2.3 Summary of studies on board structure and stock returns (Cont.)

Variable	Authors	Purpose	Methods	Results
	Jackling and Johl (2009)	Studying the effect of board structure on firm performance.	Quantitative sample of firms listed on the BSE (2006) (n =180 firms) *Board size:* Total number of members *Stock performance:* Tobin's q *Other performance indicators:* ROA	Board size had a significant positive effect on the firm's Tobin's q, although this effect was small.
	Pham, et al. (2011)	Studying the relationship of corporate governance and firm performance in multiple measures.	Quantitative time-series study of Australian firms (1994-2003) (n = 150) *Board Size:* Natural log of board members *Stock performance:* Tobin's q, EVA	Board size has decreased over the time of the study (falling from an average of 8.29 to 7.47). Board size had a significant positive effect on Tobin's Q, but no significant effect on EVA.
Board independence	Behlkir (2009)	Studying the effect of board size on firm performance in the banking industry.	*Board Independence:* Proportion of independent non-executive directors to total directors	Board independence was not significant for Tobin's q.

Table 2.3 Summary of studies on board structure and stock returns (Cont.)

Variable	Authors	Purpose	Methods	Results
	Garg (2007)	Studying the effect of board structure on firm performance in Indian firms.	*Board independence:* Ratio of independent to total directors, categorical classification	Board independence was not significant for Tobin's q or MASR.
	Jackling and Johl (2009)	Studying the effect of board structure on firm performance.	*Board independence:* Proportion of independent non-executive directors to total directors	Board independence did not have a significant effect on Tobin's q.
	Koerniadi and Tourani-Rad (2012)	Studying the effect of board independence in New Zealand firms.	Quantitative study of listed firms in New Zealand (2004-2006) (n = 182 firm-year observations) *Board independence:* Percentage of independent directors *Stock performance:* Tobin's Q, EVA *Other performance indicators:* ROA, ROE	Board independence had a significant negative effect on firm stock market performance.

Table 2.3 Summary of studies on board structure and stock returns (Cont.)

Variable	Authors	Purpose	Methods	Results
	O'Connell and Cramer (2010)		*Board independence:* Percentage of non-executive directors	Board independence did not have a significant effect on Tobin's q.
	Pham, et al. (2011)	Studying the relationship of corporate governance and firm performance in multiple measures.	*Board Independence:* Proportion of independent non-executive directors to total directors	Board independence has increased (46.55% to 58.23%). Board independence had a significant positive effect on Tobin's q, but no significant effect on EVA.
CEO duality	Behlkir (2009)	Studying the effect of board size on firm performance in the banking industry.	*CEO duality:* dummy variable (0 = not dual role, 1= dual role)	CEO duality was not significant for Tobin's q.

Table 2.3 Summary of studies on board structure and stock returns (Cont.)

Variable	Authors	Purpose	Methods	Results
	Braun and Sharma (2007)	Studying the effect of CEO duality in family-controlled firms.	Quantitative study of publicly listed family-owned businesses (2001-2002) (n = 156 firms) *CEO duality:* dummy variable *Stock performance:* Buy-and-hold adjusted returns (BHAR)	CEO duality was not shown to have an effect on the firm's market performance in general, but family-controlled firms with a nondual CEO/Chairman had higher returns.
	Combs, et al. (2007)	Studying the effect of CEO power on the firm's performance and interaction with board structure.	Event study of firms undergoing unexpected event of CEO death (n= 73 firms) *CEO duality:* dummy variable *Stock performance:* Abnormal returns	The authors found a positive, significant relationship of CEO duality to abnormal returns, indicating that CEO duality could improve firm performance. However, there was also a moderate negative interaction effect of CEO duality x board independence, indicating that these effects could be counterproductive in the case of an independent board.

Table 2.3 Summary of studies on board structure and stock returns (Cont.)

Variable	Authors	Purpose	Methods	Results
	Jackling and Johl (2009)	Studying the effect of board structure on firm performance.	*CEO Duality:* Dummy variable	CEO duality did not have a significant effect on Tobin's q.
	Lee, et al. (2008)	Studying the effects of CEO pay dispersion on firm performance.	Cross-sectional study of US firms (1992-2003) (n = 12,197 firm-years) *CEO Duality:* Dummy variable *Stock performance:* Abnormal returns and Tobin's Q	CEO duality did not have a significant effect on abnormal returns or Tobin's q.
Gender diversity	Campbell and Vera (2010)	Studying the market reaction to appointment of female board members in Spain.	Event study of firms appointing female directors in Spain (1989-2001) (n = 105 events) *Gender diversity:* DWOMAN (dummy variable, 0 = no women on board, 1 = at least one woman on board) PWOMEN (percent of women on board) *Stock performance:* Abnormal returns, Tobin's Q	DWOMAN and PWOMEN both had significant positive effects on firm performance based on Tobin's q.

Table 2.3 Summary of studies on board structure and stock returns (Cont.)

Variable	Authors	Purpose	Methods	Results
	Carter, et al. (2010)	Studying the effect of gender diversity in firm performance in US capital markets.	Quantitative study of American firms in the S&P 500 index (1998-2002) *Gender diversity:* Number of female directors, number of female committee members *Stock performance:* Tobin's q *Other performance indicators:* ROA	The number of female directors did not have a significant effect on Tobin's q, although it did have a positive significant effect on ROA. (Other structural variables examined in this research, including CEO duality, board size, and meeting attendance, where also insignificant.)
	Chapple and Humphrey (2014)	Studying whether board gender diversity influences firm performance compared to the market.	Portfolio comparison of firms in the S&P/ASX 300 (2004-2011) (n = 577 firms) *Gender diversity:* Dummy variable (all male/at least one female); Female participation level (only one, more than one woman) *Stock performance:* Return on portfolio	These authors took a slightly different approach than others, comparing *portfolios* of firms with different demographic profiles rather than individual firms. They did not find that gender diversity influenced performance at the market level. They did find some industry-level differences, with some industries having a negative relationship between board gender diversity and performance and others having a positive relationship.

Table 2.3 Summary of studies on board structure and stock returns (Cont.)

Variable	Authors	Purpose	Methods	Results
				The authors pointed out that the level of board diversity in Australian firms, with only 52% of boards having a minimum of one woman in 2011. Thus, there may not be sufficient diversity in the market to make a difference.
	Gallego-Álvarez, et al. (2010)	Studying the effect of female directors and management on firm performance in Spain.	Quantitative study of Spanish publicly listed firms on the Madrid Stock Exchange (n = 117) *Gender diversity:* FEMDIR (proportion of women directors), FEMMAN (proportion of female upper management), FEMST (proportion of female significant stock ownership), FEMALL (FEMDIR + FEMMAN + FEMST) *Stock performance:* Tobin's q *Other performance indicators:* ROA, ROE, ROS, ROAN (net return on assets), MUB (ratio of gross margin to net sales), Efficiency	Total female control of the company did not affect Tobin's q.

Table 2.3 Summary of studies on board structure and stock returns (Cont.)

Variable	Authors	Purpose	Methods	Results
	Kang, et al. (2010)	Studying investor reactions to appointment of female investors in Singapore.	Event study of firms on the Singapore Stock Exchange appointing additional female directors in 2004 (n = 45 firms) *Gender diversity:* Appointment announcement for at least one additional female director *Stock performance:* Cumulative average abnormal returns (CAAR)	The study found that investors reacted positively, with positive significant effect of announcement of new female director on CAAR. The effect was strongest for appointment of female independent directors and weakest for appointment of CEO directors.
Meeting frequency	(Brick & Chidambaran, 2010)	Studying the effect of board meetings as an indicator of board monitoring on the firm's value.	Quantitative study of firms listed in Compustat (1999-2005) (n = 5,228 firm-years) *Meeting frequency*: Log of Number of annual meetings of the board *Stock performance*: Holding period return for two prior years, Tobin's Q	The meeting frequency had a significant positive effect on Tobin's q. This study also examined a number of other complex interactions, including the impact of an event (Sarbanes-Oxley passage), board monitoring activities, audit committee meetings, and other factors.

Table 2.3 Summary of studies on board structure and stock returns (Cont.)

Variable	Authors	Purpose	Methods	Results
	Gallego-Álvarez, et al. (2010)	Studying the effect of female directors and management on firm performance in Spain.	*Meeting frequency:* Total number of board meetings in a given year	The authors found a significant, positive though small effect on the firm's stock performance as indicated by Tobin's q.
	Jackling and Johl (2009)	Studying the effect of board structure on firm performance.	*Meeting frequency:* Number of board meeting	Meeting frequency did not have a significant effect on Tobin's q.
	(Rodriguez-Fernandez, Fernandez-Alonso, & Rodriguez-Rodriguez, 2014)	Studying board characteristics and firm performance in Spain.	Quantitative study of firms on the Madrid Stock Exchange (2009) (121 companies) *Meeting frequency*: Number of meetings in the year *Stock performance:* Tobin's Q	The number of annual meetings had a non-linear relationship, with more than 12 meetings not providing additional benefits.

Table 2.3 Summary of studies on board structure and stock returns (Cont.)

Variable	Authors	Purpose	Methods	Results
	Vafeas (1999)	Studying the relationship of board meeting frequency and firm performance.	Quantitative study of US firms (1990-1994) (n = 307) *Meeting frequency:* Number of meetings in the year *Stock performance:* Share price	The author found a negative relationship between board meeting frequency and share price. However, he noted that this relationship was most likely due to increased monitoring following share price declines, rather than excessive meeting frequency causing reduced share prices.
CEO compensation	(Brick, Palmon, & Wald, 2012)	Examining the effects of pay-for-performance sensitivity in CEO compensation	Quantitative study of US firms (1992-2004) (n = 10,431 firm-years) *CEO compensation*: Pay=performance sensitivity (ratio of risk-based compensation to non-risk-based compensation) and Vega *Stock performance:* Stock returns (raw and adjusted)	Authors found that pay-performance sensitivity had a negative effect on stock returns in the sample. They suggested that risk-aversion effects could take hold with excessive risk-based compensation, leading managers to take lower assured returns rather than higher potential returns.

Table 2.3 Summary of studies on board structure and stock returns (Cont.)

Variable	Authors	Purpose	Methods	Results
	Chen and Ma (2011)	Studying the effect of stock option-based compensation on executive risk taking and firm performance.	Quantitative study of Execucomp-listed firms (1993-2003) *CEO Compensation:* Decomposed compensation model (managerial ownership and unexercised options) *Stock performance:* Average returns and average risk	Authors found a positive relationship of executive stock options and the firm's stock returns, but also found a positive relationship between stock options and risk. This shows that increased use of option-based compensation increases the managerial risk taking in the firm.
	(Core, Holthausen, & Larcker, 1999)	Studying the relationship of CEO compensation, corporate governance and firm performance.	Quantitative study of US firms (1982-1984) (n = 205 firms) *CEO Compensation*: total compensation, salary, and bonuses *Stock performance:* Stock return	The authors found a significant negative relationship between CEO compensation and stock performance. They attributed this relationship to weak corporate governance, to which they attributed both lose control over the CEO's compensation and poor financial performance.

Table 2.3 Summary of studies on board structure and stock returns (Cont.)

Variable	Authors	Purpose	Methods	Results
	(Habib & Ljungqvist, 2005)	Studying the role of managerial incentives in firm value using a stochastic frontier analysis approach.	Quantitative study of US firms (1992-1997) (1,487 firms) *CEO Compensation:* Price-sensitive CEO compensation (CEO stockholdings and option-holdings) Stock performance: *Tobin's q compared to Q* of fully-efficient firm*	The authors found that the type of CEO compensation mattered. There was a positive effect of CEO stock holding (or CEO ownership) and firm value. However, CEO holding of stock options (where the CEO may purchase the stock at a set price) had a negative effect on firm value.
	Frydman and Jenter (2010)	Conducting a comprehensive review of the literature on CEO compensation.	Literature review of existing studies over the previous 30 years (1979-2009)	Previous studies have documented a U-shaped relationship between managerial incentive/firm ownership and firm performance using Tobin's q. However, other studies have had inconsistent or mixed findings regarding the relationship of management ownership and firm performance. A known problem is endogeneity of the variables, as

Table 2.3 Summary of studies on board structure and stock returns (Cont.)

Variable	Authors	Purpose	Methods	Results
				managerial ownership determinants are also related to Tobin's q (the most commonly used measure of performance). Thus, there is a lack of consistency in findings and subsequent validity problems with this relationship.

2.4.2 Ownership Structure and Stock Return

The second aspect of corporate governance studied is ownership structure. The three dimensions of ownership structure studied included institutional ownership, ownership concentration, and founder/family ownership. The fourth hypothesis is:

Hypothesis 4: Ownership structure characteristics are associated with the firm's stock returns.

2.3.2.1 Institutional Ownership

The first factor considered is institutional ownership. Institutional ownership refers to the share of the firm owned by institutional investors, such as pension funds, banks, or other large investors (Lee S. , 2008). Institutional ownership is one of a number of different classes of potential large investors, including institutional investors, managerial investors, and family investors, that could make up the firm's ownership structure (Fernando, 2011). Most of the studies reviewed operationalized institutional ownership as the percentage of total shares controlled by institutional owners, with some firms breaking this down further (for example by different types of institutional investors) (Azzam, 2010; Bohl, Brzeszczynski, & Wilfling, 2009; Chuang, 2015; Rubin & Smith, 2009). However, unlike studies of board structure, there was no consensus indicator of stock performance, which probably relates to the sparseness of studies on this topic. Some combination of annual stock return, risk (standard deviation of daily returns), and payout ratio were used by most authors, while Rubin and Smith (2009) also added the book to market ratio. The studies found inconsistent effects of institutional ownership on the firm's stock market performance, however it was measured. Azzam's (2010) study of the Egyptian stock market decomposed institutional ownership into different groups. It found consistent effects only for individual owners (negative effects on all three indicators), while other institutional owners had negative effects on the payout ratio and private holdings had positive effects on risk. Conversely, Bohl, et al.'s (2009) study showed that institutional investors reduced rather than increased return volatility or risk, showing a positive impact on the firm's performance. Finally, Chuang (2015) decomposed institutional investors on the Taiwanese market into three groups (dealers, foreign owners, and investment trusts), and lagged institutional ownership shares across five time horizons. He found only scattered

significant effects and no overall significant effect. This inconsistency in findings of significance and direction of effect could be due to intervening variables, such as the moderating effect of dividend payment policies found by Rubin and Smith (2009). Thus, the effect of institutional investors on stock market performance of the firm is an open question. This research assumes a positive relationship:

Hypothesis 4a: Institutional ownership is positively associated with stock return.

2.4.2.2 Ownership Concentration

Ownership concentration refers to the percentage of the firm's shares held by its largest investors (Hu & Izumida, 2008). Ownership concentration may provide a protective effect in regions with weak institutions, since it provides an increased level of monitoring and control (Heugens, van Essen, & van Oosterhout, 2009). Ownership concentration is perhaps one of the least studied ownership effects on stock performance, which limits the amount of empirical evidence available. Ownership concentration is operationalized differently by different authors, although most construct an index representing the percentage of shares owned by the largest shareholders (such as top three, top five, or top 10 shareholders) (Azzam, The impact of institutional ownership and dividend policy on stock price and volatility: Evidence from Egypt, 2010; Bai, Liu, Lu, Song, & Zhang, 2004; Perrini, Rossi, & Rovetta, 2008). As with institutional ownership, diverse indicators for the firm's stock performance are used. Although both Bai, et al. (2004) and Perrini, et al. (2008) use Tobin's q as the stock performance indicator. The findings of these three studies generally support a positive relationship between ownership concentration and performance, with some limitations. For example, Azzam (2010), in a study of firms on the Egyptian Stock Market, found that there was a significant negative effect of private ownership concentration (the top three private owners) on risk and a positive effect on payout ratio, indicating that private concentration reduces risk and increases dividend payouts. No effect was seen for public ownership concentration. Similarly, Bai, et al.'s (2004) study of the Chinese stock market found that ownership concentration (top ten large owners) had a significant positive effect on market performance as measured by Tobin's q. The same effect was seen in the Italian stock market (top five shareholders) (Perrini,

et al., 2010). However, situations like dual-class ahare ownership may change the situation and create a negative effect of ownership concentration on the firm's market performance (Bjuggren, Eklund, & Wiberg, 2007). Overall, these findings strongly support the position that ownership concentration positively affects the stock performance of the firm. The hypothesis, which is based on this research, states that:

Hypothesis 4b: Ownership concentration is positively associated with stock return.

2.4.2.3 Family Ownership

The final relationship explored is founder and family ownership and stock return. Founder and/or family ownership refers to whether or not the founder of the firm and/or the founder's family is still active in the management and ownership of the firm (Andres, 2008). Consistent with other ownership structure studies, family ownership was typically operationalized as the percent of firm stock or voting rights owned or controlled by the founding family (Anderson, Reeb, & Zhao, 2012; Braun & Sharma, 2007; Lins, Volpin, & Wagner, 2013; Perrini, Rossi, & Rovetta, 2008; Sraer & Thesmar, 2007). However, unlike these other variables, it was also common for the studies to use a classification approach, either using a binary dummy variable for family control at a certain level or a categorical variable to indicate total control level of the family and participation in the board or top management (Anderson, et al. 2012; Bouzgarroud & Navatte, 2013; Lins, et al., 2013; Sraer & Thesmar, 2007). These additional variables acknowledge the complexity of the question of family control and the distinction between economic ownership of the firm and substantive control of its management. A range of different stock market performance indicators were used, with little consistency in measures between the studies. The findings of these studies were very mixed. Perrini, et al.'s (2008) study on the Italian stock market and Sraer and Thesmar's (2007) study on the French stock market showed that under normal conditions on these markets, there was a significant positive effect of family ownership or control on Tobin's q. However, under difficult operating conditions there was a change. Abnormal returns for family firms were also found by another study on the French stock market (Bouzgarrou & Navatte, 2013). Lins, et al. (2013) conducted a cross-country study of firms during the financial crisis (2008-2009). This study showed

that family control of the firm was associated with poorer market performance during the crisis, accompanied by lower investment. Braun and Sharma (2007) also showed that family-controlled firm with non-dual CEOs had a negative relationship between family ownership and stock market performance. Furthermore, Anderson, et al. (2012) showed evidence of increased short sales in family-owned firms, indicating that a higher level of informed (insider) trading was happening in these firms. These conditions do not allow us to draw a firm conclusion about the influence of family firm ownership or control on the firm's stock market performance. Following Perrini, et al. (2008) and Sraer and Thesmar (2007), who had the least complex findings of direct tests, we propose that:

Hypothesis 4c: Family ownership is positively associated with stock return.

2.4.2.4 Summary of Studies on Ownership Structure and Stock Return

Table 2.4 Summary of studies on ownership structure and stock returns

Variable	Authors	Purpose	Methods	Results
Institutional ownership	Azzam (2010)	Studying institutional ownership and dividend policies on stock returns and volatility in Egypt.	Quantitative study of companies on the Egyptian Stock Exchange (2004-2007) (n = 50 firms) *Institutional ownership:* Percent of ownership by institutional owners (public and private holding companies, other companies, banks, and employee association) *Stock performance:* Annual return, risk (standard deviation of daily total returns), payout ratio (ratio of dividends per share to earnings per share)	Institutional ownership had limited effects on firm stock performance. Individual owners, top management, private holding companies, and other private companies had significant negative effects on payout ratio. Private holdings had significant positive effect on risk, while individual holdings had significant negative effects on risk, return and payout ratio.

Table 2.4 Summary of studies on ownership structure and stock returns (Cont.)

Variable	Authors	Purpose	Methods	Results
	Bohl, et al. (2009)	Studying the effect of institutional investors on return volatility in Poland following a pension system return that changed levels of institutional participation.	Quantitative study of Polish WIG20 index firms (n = 20) before and after change (1999-2003) using Markov-switching-GARCH analysis *Institutional ownership:* Percent of stock owned by institutional investors *Stock performance:* Stock volatility (standard deviation of returns)	Increased participation of institutional owners had a significant negative effect on return volatility over the period of the study. This indicates that institutional ownership had a stabilizing influence on the stock market.
	Chuang (2015)	Studying the effect of institutional ownership on cross-sectional stock returns.	Quantitative study of Taiwanese publicly listed firms (2001-2014) *Institutional ownership:* percent of shares owned by institutional investors (monthly) (lagged 1, 3, 6, 9, and 12 months) *Stock performance:* Stock returns	There was no consistent pattern of significant effects of institutional ownership between groups (dealers, foreign owners, and investment trusts) across a time period on intersectional returns, although there were isolated significant results.

Table 2.4 Summary of studies on ownership structure and stock returns (Cont.)

Variable	Authors	Purpose	Methods	Results
	Rubin and Smith (2009)	Studying the effect of institutional ownership on return volatility and interaction with dividend policy.	Quantitative study of firms in the US stock market (1999-2003) (n = 22,867 firm-quarter observations) *Institutional ownership:* Percent of firm controlled by institutional owners *Stock performance:* Stock volatility (standard deviation of annual returns), book-to-market ratio	The authors found that dividend policy acted as a moderating variable in the relationship of institutional ownership and stock volatility. In dividend paying firms, institutional ownership is positively related to stock volatility. In non-dividend paying firm, this relationship is negative.
Ownership concentration	Azzam (2010)	Studying institutional ownership and dividend policies on stock returns and volatility in Egypt.	*Ownership concentration:* percent of equity ownership held by three largest owners (>5%) (public and private calculated separately)	Public ownership concentration had no significant effect on risk, return or payout ratio. Private ownership concentration had a significant negative effect on risk and a positive effect on payout ratio.

Table 2.4 Summary of studies on ownership structure and stock returns (Cont.)

Variable	Authors	Purpose	Methods	Results
	Bai, et al. (2004)	Studying a range of factors related to corporate governance in China and associated market performance.	Quantitative study of firms listed on Chinese stock markets *Ownership concentration:* Percent of stock owned by top ten shareholders *Stock performance:* Tobin's q	Ownership concentration had a significant positive effect on the firm's market performance.
	Bjuggren, Eklund, and Wiberg (2007)	Studying the role of vote-differentiated shares on firm performance.	Quantitative study of Swedish firms (1997-2002) *Ownership concentration:* Ownership percentage of largest shareholder *Stock performance:* Marginal q	Authors showed that ownership concentration had a negative effect on stock performance and overall firm value. They also showed that dual-class shares, where voting rights were separate from ownership, exacerbated this effect.

Table 2.4 Summary of studies on ownership structure and stock returns (Cont.)

Variable	Authors	Purpose	Methods	Results
	Perrini, et al. (2008)	Studying the effect of ownership structure on the firm's market performance.	Quantitative study of firms on the Italian stock market (2000-2003) (n = 297 firms, 921 firm-years) *Ownership concentration:* Individual ownership concentration (%) of top five shareholders, combined ownership of top five shareholders, concentrated ownership dummy (1 = controlling shareholder holds more than 50% of shares) *Stock performance:* Tobin's q, firm risk (standard deviation of annual returns)	Top five shareholder ownership concentration had a significant positive effect on Tobin's q.

Table 2.4 Summary of studies on ownership structure and stock returns (Cont.)

Variable	Authors	Purpose	Methods	Results
Family ownership	Anderson, et al. (2012)	Examining evidence for informed trading in family firms as reflected in stock market performance (short sales).	Quantitative study of US firms (2004) (n = 1,571 firms) *Family ownership:* Binary dummy variable (1 = 5% or greater family ownership stake); Founder/Heir participation in top management *Stock performance:* Abnormal short sales ratio	The authors found strong evidence for abnormal short sales ahead of negative news announcements compared to non-family firms, with an estimated 340% increase in short sales. The authors noted that this is evidence of informed trading from insiders, which is more common in family-controlled firms.
	(Bouzgarrou & Navatte, 2013)	Studying the differences in acquirer performance in acquisitions of family and non-family firms.	Quantitative study of French firm acquisition (1997-2006) (n = 239 acquisitions) *Family ownership*: Percentage of family ownership *Stock performance:* Cumulative abnormal returns (CAR)	Authors found that family firms (51%+ family ownership) had higher CAR than non-family firms in the short and long term after acquisition.

Table 2.4 Summary of studies on ownership structure and stock returns (Cont.)

Variable	Authors	Purpose	Methods	Results
	Braun and Sharma (2007)	Studying the effect of CEO duality in family-controlled firms.	*Family ownership:* Percent of firm control assigned to family members through voting rights (family control at least 10%) (Moderating)	Family ownership was found to be a moderating variable between CEO duality and firm performance. In non-dual FCPs, family control had a significant negative effect on firm performance.
	Lins, et al. (2013)	Studying the performance of family firms compared to other firms during financial crisis (2008-2009)	Quantitative sample of publicly listed firms in 35 countries (n = 8,534 firms) *Family ownership/control:* Percent of stock owned/controlled by the founder and family members (>25% defined as family-controlled firm) *Stock performance:* Crisis-period return, book-to-market ratio *Other performance indicators:* Profitability, investment	Family control of the firm had a significant, negative effect on crisis period stock returns. This contrasted with a positive effect of all firms with controlling block holders and for non-family controlled firms. Family-controlled firms were also less likely to invest during the crisis period.

Table 2.4 Summary of studies on ownership structure and stock returns (Cont.)

Variable	Authors	Purpose	Methods	Results
	Perrini, et al. (2008)	Studying the effect of ownership structure on the firm's market performance.	*Family ownership/control*: Percent of shares owned by founder and family members	Family ownership had a significant positive relationship to Tobin's q.
	Sraer and Thesmar (2007)	Studying the effects of family control and ownership in the French stock market.	Quantitative study of French publicly listed non-financial and non-real estate firms (1994-2000) (n = 2,973 firm-years, approximately 420 firms) *Family ownership/control:* Percent of family ownership/voting control, categorical classification (four categories) *Stock performance:* Market-to-book value *Other performance indicators:* ROA, ROE, payout ratio	Family firm ownership had a positive, significant relationship to ROA, ROE, and market-to-book ratio, but a negative relationship of dividend to profit ratio. Founder CEO, Heir CEO, and Professional CEO also had positive significant effects for ROA and ROE, but not for market-to-book ratio. The magnitude of these effects were similar.

2.5 Relationship of Earnings Quality and Stock Return

For this research, earnings quality is proposed as an intervening variable between board structure and stock return. Section 2.4, above, established the groundwork for the relationship between corporate governance characteristics and stock return. Thus, in order to justify earnings quality as a potential mediating variable, it is necessary to connect earnings quality and the firm's stock return. Studies that address this relationship are summarized in Table 5. However, it should be recalled that this relationship can be bidirectional, largely because earnings quality is a reflection of the firm's financial performance (Dechow, et al., 2010). Thus, it is possible that results could be conflicting or the relationship observed may not be significant. A surprisingly small number of authors have studied the relationship of earnings quality and the firm's stock market performance directly (Apergis, Artikis, Eleftheriou, & Sorros, 2012; Callen, Khan, & Lu, 2013; Kim & Qi, 2010; Rajgopal & Venkatachalam, 2011; Teoh, Welch, & Wong, 1998). Although these authors have used different operationalizations of earnings quality, most have used an accruals-based measure. The use of an accruals-based measure means that a negative effect on stock returns would show a positive relationship between earnings quality and stock returns, because higher accruals indicate worse earnings quality. This was generally the case with the studies reviewed. Rajgopal and Venkatachalam (2011) also showed that there is a temporal aspect to the relationship, with both earnings quality and stock price volatility worsening over time. Teoh, et al. (1998) demonstrated that earnings management in one period was associated with lower returns in subsequent periods. Apergis, et al. (2011) identified a key consequence of this relationship, which is that lower earnings quality is associated with higher demand for returns (indicating increased risk). Based on these studies, the following hypothesis is proposed:

Hypothesis 5: Earnings quality (Abnormal accruals) is related to stock return.

Table 2.5 Summary of studies on earnings management and firm financial performance

Variable	Authors	Purpose	Methods	Results
Earnings Quality	Apergis, et al. (2012)	Studying the relationship of earnings quality, cost of capital and excess returns.	Panel data study of US firms (1990-2009) (n = 2,830 firms, 56,600 total firm-years) *Earnings quality:* Modified Jones (1991) abnormal accruals measures *Stock performance:* Stock prices *Other indicators:* Cost of capital, accounting variables	The authors showed that accounting information affected cost of capital, which in turn had a negative effect on excess stock returns. Thus, increased earnings quality reduced the excess returns.
	Callen, et al. (2013)	Studying the effect of accounting quality on stock price delay and future stock returns.	Quantitative study of US firms (1981-2006) (n = 29,435 firm-years) *Earnings quality:* Accrual quality *Stock performance:* Stock price delay, future returns	The authors found that accruals quality did have a significant, negative effect on stock price delay; this means that firms with lower accruals quality also had delayed response to new releases in their stock price. Accruals quality was negatively associated with future demands, consistent with the idea that increased accounting quality reduced risk perceptions and reduced cost of equity demanded.

Table 2.5 Summary of studies on earnings management and firm financial performance (Cont.)

Variable	Authors	Purpose	Methods	Results
	Kim and Qi (2010)	Studying the effect of accruals quality on stock returns under different macroeconomic conditions.	Quantitative study of US firms (1970-2006) (103,682 firm-year observations) *Earnings quality:* Accruals quality (AQ), representing the extent to which total current accruals are consistent with operating cash flow *Stock performance:* Average monthly stock returns	The authors found a positive significant effect of AQ on monthly stock returns, which was persistent across different stock portfolios and risk levels (modelled using the beta statistic). This indicates that earnings quality and stock returns are positively related.
	Rajgopal and Venkatachalam (2011)	Studying the change in stock return volatility in the US (1960-2001)	Panel data study of US firms (1962-2001) (99,643 firm-year observations) *Earnings quality:* Accruals based measures (DD and ABACC) *Stock performance:* Volatility (average monthly variance of raw returns), Returns (annual buy-and-hold returns), book-to-market ratio	Authors found that earnings quality in the dataset degraded over time, while at the same time stock volatility rose. Earnings quality had a negative effect on earnings volatility.

Table 2.5 Summary of studies on earnings management and firm financial performance (Cont.)

Variable	Authors	Purpose	Methods	Results
	(Teoh, Welch, & Wong, 1998)	Studying the relationship of earnings management and post-further equity offering stock performance.	Quantitative study of US firms conducting seasoned equity offerings (1976-1989) (n = 1,265 firms) *Earnings quality:* Decomposed accruals model *Stock performance:* Abnormal returns	Authors found that higher pre-offering earnings management as indicated by abnormal accruals was associated with lower cumulative abnormal returns in the post-offering period.

2.6 Relationship of Corporate Governance, Earnings Quality and Stock Return

The novel relationship explored in this research is the relationship between corporate governance, earnings quality, and stock return. It is proposed that earnings quality plays a mediating role in the relationship between corporate governance and stock return. The individual relationships between corporate governance and earnings quality (independent variables) and stock return (dependent variables) have been presented in the discussion above. As this discussion showed, there is strong evidence for corporate governance indicators and stock return. The evidence for the relationship between earnings quality and stock return is more conflicted, but there is still some indication of such a possible relationship. This evidence comes from observed relationship between board of directors characteristics and earnings quality. The literature shows that there is at least some evidence for a relationship between all of the corporate governance variables and earnings management (often specified as earnings management or abnormal accruals). The evidence is perhaps weakest for CEO duality, gender diversity of the board, and meeting frequency. However, factors including board size, board independence, family and institutional ownership and ownership concentration have stronger evidence for this relationship. Given that these relationships have been observed, it is reasonable to suppose that earnings quality may be a mediating variable between corporate governance characteristics and stock return. Few studies have examined the role of earnings quality as a mediating variable in the corporate governance-stock return relationship directly. However, there is evidence of a direct relationship between corporate governance and stock returns and earnings quality and stock returns, as presented above. To complete this logical chain, evidence of the relationship of corporate governance indicators and stock returns has also been reviewed (Table 4). It should be noted that most of these studies measure earnings *management*, a negative indicator of earnings quality. (In other words, lower earnings management indicates higher earnings quality.) Thus, negative effects on earnings management indicate positive effects on earnings quality.

The empirical research showed several studies that identified relationships of board structure variables on earnings quality (Cornett, McNutt, & Tehranian, Corporate governance and earnings management at large US bank holding companies, 2009;

Fodio, Ibikunle, & Oba, 2013; Gavious, Segev, & Yosef, 2012; Hashim & Devi, 2008; Kent, Routledge, & Stewart, 2010; Krishnan & Parsons, 2008; Lin & Manowan, 2012). Other studies examined issues of ownership structure, often examining multiple aspects and sometimes including study of other corporate governance variables (Alves, 2012; Hashim & Devi, 2008; Klai & Omri, 2011). What these studies showed is that there are often complex relationships between corporate governance factors and earnings management, which do sometimes result in conflicting findings. For example, while Fodio, et al. (2013) found that board size was positively associated with earnings quality, the findings of Hashim and Devi (2008) contradicted this finding. In contrast, findings on gender diversity generally showed that diverse boards increased earnings quality (Gavious, Segev, & Yosef, 2012; Krishnan & Parsons, 2008). These studies do generally provide evidence on the *existence* of the relationships, even if they cannot point to the direction. This evidence justifies testing earnings quality as a possible mediating factor in the relationship between corporate governance and stock returns.

In conclusion, the following hypotheses are stated:

- Hypothesis 6: Earnings quality plays a mediating role in the relationship between the board of director characteristics and stock return.
    - Hypothesis 6a: Earnings quality plays a mediating role in the relationship between board size and stock return.
    - Hypothesis 6b: Earnings quality plays a mediating role in the relationship between board independence and stock return.
    - Hypothesis 6c: Earnings quality plays a mediating role in the relationship between CEO duality and stock return.
    - Hypothesis 6d: Earnings quality plays a mediating role in the relationship between gender diversity and stock return.
    - Hypothesis 6e: Earnings quality plays a mediating role in the relationship between board meeting frequency and stock return.
    - Hypothesis 6f: Earnings quality plays a mediating role in the relationship between CEO compensation and stock return.

- Hypothesis 7: Earnings quality plays a mediating role in the relationship between ownership structure and stock return.
    - Hypothesis 7a: Earnings quality plays a mediating role in the relationship between institutional ownership and stock return.
    - Hypothesis 7b: Earnings quality plays a mediating role in the relationship between ownership concentration and stock return.
    - Hypothesis 7c: Earnings quality plays a mediating role in the relationship between family ownership and stock return.

Table 2.6 Summary of studies on corporate governance and earnings quality

Variable	Authors	Purpose	Methods	Findings
Board structure				
Board size	(Cho & Rui, 2009)	Examining two-tier board structure and ownership on Chinese firm performance	Quantitative study of Chinese firms *Board size:* number of directors *Stock returns:* Earnings-returns relationship	Authors found board size was only significant for earnings informativeness in one period. It was not significant for the earnings-returns relationship.
	(Kanagaretnam, Lobo, & Whalen, 2007)	Studying the relationship of corporate governance and information asymmetry	Quantitative study of NYSE listed firms *Board size:* Number of directors *Earnings management*: Information asymmetry *Stock returns:* Bid-ask spread	Authors found that board size had a negative relationship to information asymmetry depth, indicating that larger boards had higher information asymmetry and a larger bid-ask spread (suggesting effect on stock returns following quarterly reports).

Table 2.6 Summary of studies on corporate governance and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Findings
	Fodio, et al. (2013)	Studying the relationship of corporate governance and earnings quality in Nigeria.	Quantitative study of Nigerian insurance industry firms (2007-2010) (n = 25 firms) *Board size:* Number of directors *Earnings management:* Cross-sectional modification of Jones (1991) model (abnormal accruals)	Board size had a significant negative effect on earnings management (total accruals). This indicates that board size and earnings quality are positively related.
	Hashim and Devi (2008)	Studying the relationship of corporate governance and earnings quality in Malaysia.	Quantitative study of Malaysian firms (2004) (n = 280) *Board size:* Number of directors *Earnings management:* Accruals quality model (Dechow & Dichev, 2002)	Board size had a significant, negative effect on earnings quality.

Table 2.6 Summary of studies on corporate governance and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Findings
Board independence	Fodio, et al. (2013)	Studying the relationship of corporate governance and earnings quality in Nigeria.	*Board independence:* Proportion of independent to non-independent directors	Board independence had a significant negative effect on earnings management, indicating a positive relationship to earnings quality.
	(Cho & Rui, 2009)	Examining two-tier board structure and ownership on Chinese firm performance	*Board independence:* Proportion of independent to non-independent directors	Board independence was significant in one period but not others.
	Cornett, et al. (2009)	Studying the role of corporate governance in earnings management in US banking firms.	Quantitative study of US bank holding companies (1994-2003) (n = 593 firm-year) *Board independence:* Proportion of independent directors to total directors *Earnings management:* Proportion of discretionary realized gains and losses minus discretionary loan loss provisions to total assets	Board independence was negatively related to earnings management (positively related to earning quality).

Table 2.6 Summary of studies on corporate governance and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Findings
	Hashim and Devi (2008)	Studying the relationship of corporate governance and earnings quality in Malaysia.	*Board independence*: Proportion of independent board members	Board independence did not have a significant effect on earnings quality.
	Kanagaretnam, et al. (2007)	Studying the relationship of corporate governance and information asymmetry	Quantitative study of NYSE listed firms *Board size:* Number of directors *Earnings management*: Information asymmetry *Stock returns:* Bid-ask spread	Board independence is negatively related to information asymmetry.
	Kent, et al. (2010)	Studying the relationship of corporate governance and earnings management.	Quantitative study of Australian listed companies (2004) (n = 381) *Board independence:* Proportion of independent directors *Earnings management:* Accruals quality (Dechow & Dichev, 2002)	Board independence did not have a significant effect on either innate or discretionary accruals quality.

Table 2.6 Summary of studies on corporate governance and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Findings
	Lin and Hwang (2010)	Studying the effect of audit quality and corporate governance on earnings quality.	Meta-analysis of 48 prior studies. *Variable definitions varied between studies.*	Board of directors independence had a strong, negative effect on earnings management.
CEO duality	Cornett, et al. (2009)	Studying the role of corporate governance in earnings management in US banking firms.	*CEO duality:* dummy variable	CEO duality had a positive effect on earnings management.
	(Cho & Rui, 2009)	Examining two-tier board structure and ownership on Chinese firm performance	*CEO Duality:* Dummy variable	CEO duality was not significant.
	Hashim and Devi (2008)	Studying the relationship of corporate governance and earnings quality in Malaysia.	*CEO duality*: dummy variable	CEO duality had a significant negative effect on earnings quality.

Table 2.6 Summary of studies on corporate governance and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Findings
	Kent, et al. (2010)	Studying the relationship of corporate governance and earnings management.	*CEO duality*: dummy variable	CEO duality had a significant positive effect to innate accrual quality, but not to discretionary accrual quality.
Gender Diversity	Krishnan and Parsons (2008)	Studying the effect of female board participation on the firm's financial positions.	Quantitative study of US firms (2004) (n = 385 firm-year observations) *Gender diversity:* Gender diversity index *Earnings management:* Asymmetric timeliness, earnings skewness, accruals-based conservatism, earnings smoothness, earnings persistence	Firms with high gender diversity had higher levels of conservatism and overall better earnings quality than those with lower gender diversity levels.

Table 2.6 Summary of studies on corporate governance and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Findings
	Gavious, et al. (2012)	Studying the effect of female directors on earnings management	Quantitative study of Israeli US-listed technology firms (2002-2009) (n = 478 firm-years) *Gender diversity:* Multiple measures (number and percent of female board directors, female CEO/CFO, female audit committee participation) *Earnings management:* Accruals quality (modified Jones (1991) model)	The percentage of female members on the board of directors and audit committee both had a negative, significant effect on abnormal accruals and non-operating accruals. Female CEO/CFO had an insignificant effect on abnormal accruals but a significant negative effect on non-operating accruals.
Board meeting frequency	Cornett, et al. (2009)	Studying the role of corporate governance in earnings management in US banking firms.	*Meeting frequency:* number of meetings a year	Meeting frequency was not significantly associated with earnings management.

Table 2.6 Summary of studies on corporate governance and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Findings
	Kanagaretnam, et al. (2007)	Studying the relationship of corporate governance and information asymmetry	Board independence and board meeting frequency	Board independence is negatively related to board meeting frequency (board activity).
CEO compensation	Cornett, et al. (2009)	Studying the role of corporate governance in earnings management in US banking firms.	*CEO compensation*: Percentage of CEO pay-for-performance compensation (PPS)	CEO compensation was positively associated with earnings management.
Ownership Structure				
Institutional ownership	Hashim and Devi (2008)	Studying the relationship of corporate governance and earnings quality in Malaysia.	*Institutional ownership:* Percent of stocks owned by large institutional owners	Institutional ownership had a positive significant effect on accruals.

Table 2.6 Summary of studies on corporate governance and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Findings
	Alves (2012)	Studying the effect of ownership characteristics on earnings management.	Study of non-financial Portuguese firms (2002-2007) (n = 34 firms) *Institutional ownership:* Percent of shares owned by institutional investors *Earnings management:* Modified Jones (1991) model (Dechow, et al., 1995)	Institutional ownership had a significant, positive effect on accruals under the modified Jones (1991) model.
	Klai and Omri (2011)	Studying the relationship of corporate governance factors in earnings quality.	Study of Tunisian listed non-financial firms (1997-2002) *Institutional ownership:* percentage of foreign ownerships *Earnings management:* two accruals based models	Foreign ownership (the main type of institutional ownership studied) had a significant positive effect on earnings management.

Table 2.6 Summary of studies on corporate governance and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Findings
Ownership concentration	Alves (2012)	Studying the effect of ownership characteristics on earnings management.	*Ownership concentration:* Percent of stock owned by investors who own at least 2% of stock	Ownership concentration had a significant negative effect on discretionary accruals. This indicates that high ownership concentration is associated with high earnings quality.
	(Cho & Rui, 2009)	Examining two-tier board structure and ownership on Chinese firm performance	*Ownership concentration:* Percentage of stock owned by largest shareholder.	Ownership concentration was not significant.
	(Fan & Wong, 2002)	Studying ownership structures and informativeness of earnings.	Quantitative study of East Asian firms (n = 977 firms). *Ownership concentration:* Voting rights share of largest owner *Earnings management:* earnings informativeness (correlation of stock returns to earnings) *Stock performance:* Cumulative abnormal returns	Ownership concentration x book-to-market ratio had a negative effect on CAR. This indicates interaction between ownership concentration, earnings informativeness, and stock returns.

Table 2.6 Summary of studies on corporate governance and earnings quality (Cont.)

Variable	Authors	Purpose	Methods	Findings
Family ownership	Hashim and Devi (2008)	Studying the relationship of corporate governance and earnings quality in Malaysia.	*Family ownership:* Percent of stocks owned by founders or family.	Family ownership had a positive significant effect on earnings quality.
	Klai and Omri (2011)	Studying the relationship of corporate governance	*Family ownership:* Percent of stocks owned by founders or family.	Family ownership had a significant positive effect on earnings management.

2.7 Control Variables (Proxies for Firm Economic Characteristics)

Four control variables serve as proxies for firm economic characteristics in this study. These include: Firm Size, Firm Leverage, and Large Audit Firm. The reason for using these control variables and their measurement is explained below.

2.7.1 Firm Size

The firm size is used as a control variable because the size of the firm affects resource availability, decision-making and other issues that can influence economic outcomes (Álvarez, Ansón, & Méndez, 2013). Firm size is also one of the variables that acts as a proxy for firm maturity, which is associated with more stable and less risky management practices (Beiner, et al., 2006). Although there are various measures of firm size, one of the more common measures is the natural logarithm of total assets (ln(Assets)) (e.g. Carter, et al., 2003 and others). This measure is adopted for this study to measure firm size because it helps to reduce problems of scale between firms of very different sizes.

2.7.2 Firm Leverage

Firm leverage relates to the debt structure of the firm, or how much debt financing it supports compared to the equity financing (Armitage, 2005). Firm leverage is essentially an indicator of the accumulated financing decisions of management (Armitage, 2005). Thus, it is a useful control variable since it determines the overall management capability of the firm. Firm leverage is measured using the debt-equity ratio (Total debt/Total equity), a coefficient measure in which a higher coefficient indicates a more highly leveraged firm (Armitage, 2005).

2.7.3 Large Audit Firm

The use of a large (Big Four) audit firm is the final control variable. The Big Four firms include KPMG, Deloitte, Ernst and Young, and PwC (Whittle, Mueller, & Carter, 2016). In previous studies, use of these auditing firms are associated with more stringent auditing application and increased rates of voluntary disclosure compared to firms using smaller or more local auditing firms (Haat, Rahman, & Mahenthiran, 2008). Because Big Four firms are associated with higher rates of voluntary disclosure, this could influence factors such as earnings quality, which could in turn influence the firm's financial performance. Use of a big Four auditor is measured using a dummy

variable, or a binary variable that indicates a specific condition (Baltagi, 2011). In this case, 1 = Uses Big Four Auditor, 0 = Does Not Use Big Four Auditor.

CHAPTER 3
RESEARCH METHODOLOTY

3.1 Introduction

The purpose of this chapter is to introduce and explain the methodology used for the primary study. This allows the reader to understand how the results were derived. Furthermore, it offers specific information to allow others to replicate or extend the study if necessary to verify results or apply the model to other markets.

The methodology was derived from the research reviewed in the literature, and is designed to test the relationships in the conceptual framework. The conceptual framework (Figure 2) was also based on the literature review. In brief, the primary study is designed to test corporate governance factors as the predictor (independent) variables. These variables are divided into two categories. The first category is board structure, which includes five variables (board size, board independence, gender CEO duality, gender diversity, and meeting frequency). The second category is ownership structure, which includes three variables (institutional ownership, ownership concentration, and family/founder ownership). The third category is CEO Compensation. The main outcome variable is firm performance, which is specified as financial performance. The conceptual framework also includes a mediating variable (earnings quality). Finally, there are four control variables included (firm age, firm size, leverage, and large auditing firm).

This chapter is arranged in several further sections that explain how the study was conducted. First, the data and data sources are discussed and the data collection procedure explained (Section 3.2). Next, the specification of variables is presented (Section 3.3). Third, the data analysis procedure is presented (Section 3.4).

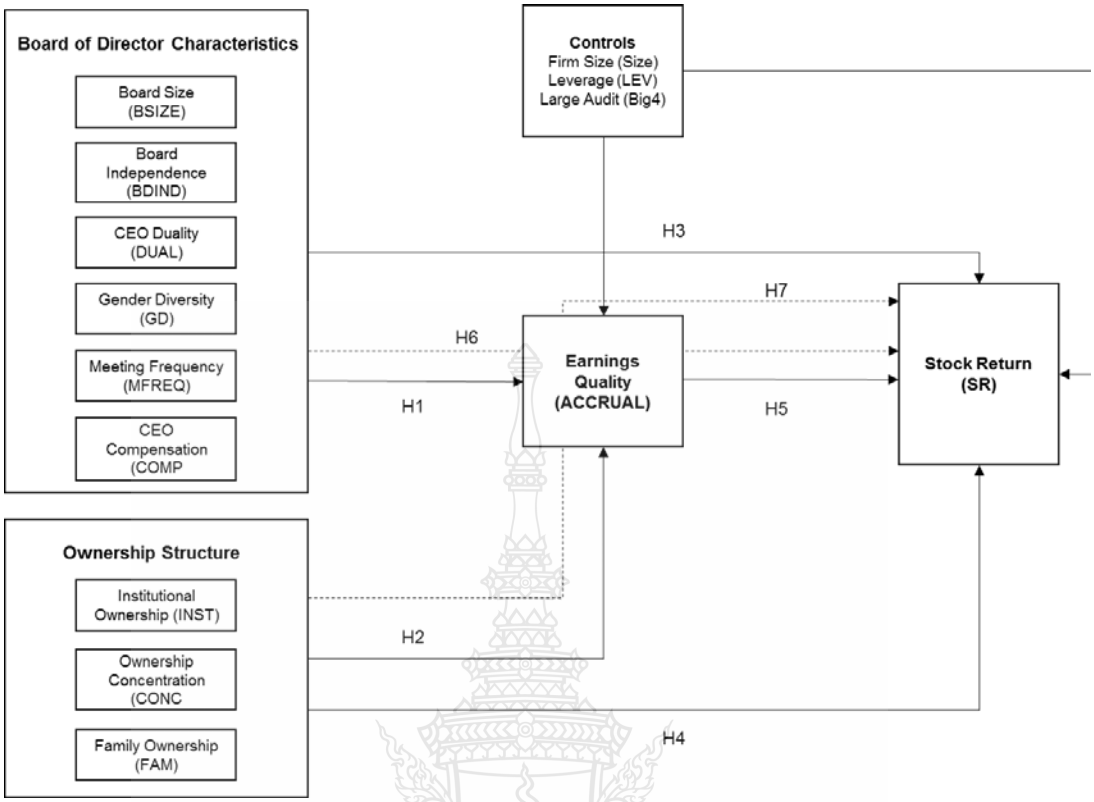

Figure 3.1 Research conceptual framework

3.2 Data Sources and Data Collection

This study consists of a cross-sectional data analysis of non-financial firms listed on the Stock Exchange of Thailand (SET) (2014-2015). The use of two years of data for each firm increases the number of firm years, which may otherwise be relatively small.

3.2.1 Source of Data

Data for the study was derived from the SET's Form 56-1. Form 56-1 is the required form each firm must fill out during the annual reporting period as a condition of its listing on the SET main index (SET, n.d.). The reporting requirements for firms on the Market for Alternative Investment (MAI) are different, and as a result firms listed on the MAI will not be included in this study.

Form 56-1 is the main disclosure instrument for firms listed on the SET, and as a result it "must always be full, accurate, adequate and timely for investor's investment decision-making (SET, n.d.)." Additionally, firms must file the 56-1 every

year, with firms risking suspension or even permanent delisting from the exchange if they fail to file this form. Firms do have other reporting requirements, including quarterly financial details and disclosures of material events (which must be filed within one business day of the event) (SET, n.d.). However, the Form 56-1 is the only mandatory filing that includes a full set of audited financial reporting details as well as required disclosures on board structure and ownership structure. Thus, this is the most logical source of data for the study.

The required information for the Form 56-1 includes audited financial reports for the year ending at the filing period, voluntary disclosures, corporate governance information including board structure, compensation and explanations for material changes in firm performance, such as disclosures about one-time charges, risks, and causes of financial failure to perform (SET, n.d.). The use of the Form 56-1 means that it is the official publicly available information about the firm. Of course, as agency theory implies, the firm may hoard information by engaging in tactics like earnings management or outright misreporting, even though this is contrary to corporate governance and in some cases extends to fraud (Comer, 2003). However, corporate fraud and earnings management can be difficult to spot because of their private nature, and often cannot be detected at all without access to private information such as the firm's own financial records (Comer, 2003). Thus, the issue of potential fraud is beyond the scope of this research. However, in order to mitigate this potential, the sampling process eliminates any firms that have been suspended or delisted during the trading period.

3.2.2 Sample Strategy

The population for this study is non-financial firms listed on the SET (2014 to 2015). Table 5 summarizes the number of firms listed on the SET during each of these years and their industries. This shows, briefly, that the property and construction sector has the most firms listed, followed by services, industrials, financials, agriculture and food, consumer products, technology, and resources.

Sample frames were applied in order to determine the total size of the population. 16 firms were delisted during this period, either voluntarily or as part of the action of the SET oversight board (SET, 2016b). Additionally, as shown by Table 7,

between 58 and 60 of the firms in the sample were financial firms, which were excluded from this study because they have different corporate governance characteristics (Calder, 2008). Between these two factors, this left a population size of between n = 461 firms and n = 483 firms during the two-year period. The final frame eliminated any firm that was not listed for both years, leaving an available population size of n = 461 firms. However, only 255 firms was used in this research because data from 206 firms was missing and error.

Table 3.1 Industry breakdown of SET firms, 2014 to 2015

Industry	**Total Number of Firms Listed**	
	2014	**2015**
	(SET, 2015)	**(SET, 2016c)**
Financials	60	58
Property and Construction	144	153
Technology	38	39
Services	96	99
Resources	33	38
Agriculture and Food	48	50
Industrials	77	81
Consumer Products	41	39
Total	537	557

The sample size was determined using a calculator for SEM sample sizes (Soper, 2016). This calculator determined a minimum sample size of n = 100 members. This offered n = 200 firm-years for analysis, which is the minimum acceptable sample size for SEM according to a rule of thumb and analysis of sample sizes (Westland, 2010). Since this sample size is also within the bounds of what could be accomplished within the study's resource limitations, this was accepted. Although many SEM analyses use larger sample sizes than this (Byrne, 2016), typically these analyses may include more variables and data may be more readily collected than in the present case.

The sampling strategy was stratified random sampling. Stratified random sampling is a process that breaks down a total population into segments based on a characteristic, and then selects the sample randomly from within these sub-groups (Zikmund, Babin, Carr, & Griffin, 2013). The sample that results is both randomly selected and representative of the target population based on these characteristics.

Data collection was performed using the SETSMART database. This database is a reporting tool provided by the SET, which allows access to Form 56-1 and other SET filings for each firm. The data reporting tool allows for specific selection of some key financials, although some information had to be extracted individually from the filings.

3.3 Measurement of Variables

Measurement of variables was determined following assessment of the literature in order to determine the most commonly used and most effective measurements of the proposed variables. These measurements are summarized in Table 7, including the operational definition and calculation required as well as supporting sources. All sources of data will be the firm's Form 56-1, either as part of the firm's financial reports or as part of the accompanying disclosures and analysis.

The literature was used as a direct guide to which representations of a given variable were most appropriate. In most cases, the measures selected are those that are most commonly used, in cases where all information can be found within the firm's financial reporting. Some possible measures were excluded because of insufficient information or complexity of analysis. For example, the Blau and Shannon indices used by some authors (Marinova, et al. (2016); Joecks, et al., 2013) to measure gender representation were both more complex and not much more informative than the simpler gender ratio, and thus neither were used. Similarly, Tobin's q can only be estimated and it is difficult to estimate in a fair-value reporting regime. However, the firm's stock returns are the most reliable performance measure, since this measure is based only on publicly available, accurate information and theoretically reflects all aspects of the firm's performance (Reilly & Brown, 2012). Thus, stock returns were selected as the most accurate and available reflection of the firm's performance. In some cases (ownership concentration) there was no clearly accepted best model for

measurement, and as a result the simplest model was chosen. In the case of measurement for the mediating variable, one model – abnormal accruals – was chosen. This model is commonly used as it indicates earnings management, which is a negative indicator of earnings quality (Dechow, et al., 2010). The modified Jones model is widely viewed as the most predictive variation on this model and is easy to calculate from the firm's financial reports (Dechow, Sloan, & Sweeney, 1995; Dechow, Ge, & Schrand, 2010; Jones, 1991).

There is a question of whether data on corporate governance should be collected from earlier time periods and considered as a factor in the cross-sectional performance period (2015). Lagged variables can be used in cross-sectional analysis as part of a pooled time series approach, which is useful for examining historic influences on cross-sectional performance (Mundlak, 1978). However, this approach does cause some problems, such as the serial correlation of residuals, which can make it difficult to implement (Wooldridge, 2016). There is also the question of whether considering corporate governance factors from previous reporting periods would affect outcomes. Furthermore, a review of studies that examine corporate governance and firm performance using time series or pooled approaches shows that they do not typically use lags for corporate governance variables (Black, Love, & Rachinsky, 2006; Gompers, Iishi, & Metrick, 2003). While some authors have used lagged corporate governance variables, this was in the context of a much larger study using dynamic panel GMM estimation (Wintoki, Linck, & Netter, 2012). Overall, this suggests that use of multiple years of corporate governance data to estimate 2015 cross-sectional financial performance is not required (although it is theoretically possible). Thus, only corporate governance data from 2015 will be included.

Table 3.2 Summary of variable definitions and measurements

Variable	Abbreviation	Brief Description	Measurement or Calculation	Sources
Independent Variables				
Board Structure				
Board Size	BSIZE (LogBISE)	Number of board members	Count of board members	Beekes, et al. (2004) Bradbury, et al. (2006) Coles, et al. (2008) Fich and Shivdasan (2006) Guest (2009) Jackling and Johl (2009) Marinova, et al. (2016) Ramdani and Witteloostuijn (2010)
Board Independence	BDIND (PBDIND)	Extent of independent (outside) representation on the board	Proportion between number of independent board members and total board members	Beekes, et al. (2004) Bradbury, et al. (2006) Cornett, et al. (2008) Gani and Jermias (2006) Jackling and Johl (2009) Marinova, et al. (2016) Ramdani and Witteloostuijn (2010)
CEO Duality	DUAL	Whether the CEO and Chairperson roles are held by the same person	Dummy variable (0 = CEO duality is not present, 1 = Otherwise)	Beekes, et al. (2006) Cornett, et al. (2008) García-Meca and Sánchez-Ballesta (2009) Jackling and Johl (2009) Lam and Lee (2008) Ramdani and Witteloostuijn (2010)

Table 3.2 Summary of variable definitions and measurements (Cont.)

Variable	Abbreviation	Brief Description	Measurement or Calculation	Sources
Gender Diversity	GD (PGD)	The extent of female participation on the board	Proportion between number of female directors and total board members	Campbell and Mínguez-Vera (2008) Gul, et al. (2011) Joecks, et al. (2013) Marinova, et al. (2016) Sun, et al. (2011)
Meeting Frequency	MFREQ	Frequency of board meetings	Total board meetings reported in one year	Doyle, et al. (2007) Fich and Shivdasan (2006) Jackling and Johl (2009) Ntim and Osei (2011)
CEO Compensation	CEOCOMP (LogCOMP)	The Salaries and Compensation of Executive	The Salaries and Compensation of Executive	Bergstresser and Philippon (2006) Chang and Dutta (2012) Cornett, et al. (2008) Harris and Bromiley (2007) Minnick and Rosenthal (2014) Ozkan (2011)
Ownership Structure				
Institutional Ownership	INST	The extent of institutional ownership of the firm	Ratio of institutional ownership to total ownership of the firm	Beekes, et al. (2004) Cornett, et al. (2007) Cornett, et al. (2008) Gürbüz, et al. (2010) Lee (2008)

Table 3.2 Summary of variable definitions and measurements (Cont.)

Variable	Abbreviation	Brief Description	Measurement or Calculation	Sources
Ownership Concentration	CONC	The extent of concentration under a single owner	Percentage of shares held by largest shareholder	Lee (2008) Tuan Nguyen, Stuart Locke, Krishna Reddy (2015) Attiya Y. Javid (2012) Genc Alimehmeti, Angelo Paletta (2011)
Family Ownership	FAM	The extent of family involvement in firm ownership and management	Family ownership (FOM-OWN): Percent of shares owned by the founder and/or founding family	Andres (2008) Chu (2011) Martínez, et al. (2007) Wang (2006)
Mediating Variable				
Earnings Quality	ACCRUAL	The extent of earnings quality shown by the firm		
	ACCRUAL	Abnormal accruals – indicating evidence of poor earning quality	Modified Jones (1991) model of abnormal accruals: $TA_{it} = NI_{it} - CFO_{it}$ (1) $TA_{it}/A_{it-1} = a_{1i}(1/A_{it-1}) + a_{2i}(\Delta REV_{it})/A_{it-1} + a_{3i} PPE_{it}/A_{it-1} + \varepsilon_{it}$ (2) $NDA_{it} = a_{1i}(1/A_{it-1}) + a_{2i}(\Delta REV_{it} - \Delta REC_{it})/A_{it-1}) + a_{3i}PPE_{it}/A_{it-1}$ (3)	Bradbury, et al. (2006) Cornett, et al. (2008) Doyle, et al. (2007) Dechow, et al. (1995) Dechow, et al. (2010) Gul, et al. (2011) Jones (1991) Sun, et al. (2011) Wang (2006)

Table 3.2 Summary of variable definitions and measurements (Cont.)

Variable	Abbreviation	Brief Description	Measurement or Calculation	Sources
			$DA_{it} = (TA_{it}/A_{it-1}) - NDA_{it}$ (4)	
Dependent Variable				
Stock Return	SR	Stock return	$In(\frac{P_1}{P_0})$, where P_0 = initial share price, P_1 = share price at the end of the period; Calculated daily following Brown and Warner (1985)	Armstrong, et al. (2013) Bhagat and Bolton (2008) Brown and Warner (1985) Guest (2009) Reilly and Brown (2012) Mehrnoosh, Asghar, Hamid (2015) KonanLouis, Narasimhan and Josef (2006) Fathollah Hajizadeh, Sadegh Shoaei (2014)
Control Variables				
Firm Size	SIZE	Economic size of the firm	Log(Total Assets)	Beekes, et al. (2004) Carter, et al. (2003) Chu (2011) Coles, et al. (2008) Guest (2009) Lee (2008) Marinova, et al. (2016) Ntim and Osei (2011) Ramdani and Witteloostuijn (2010)

Table 3.2 Summary of variable definitions and measurements (Cont.)

Variable	Abbreviation	Brief Description	Measurement or Calculation	Sources
Leverage	LEV (LogLEV)	Debt loading of firm	Ratio of Total Debt to Total Equity	Armitage (2005) Beekes, et al. (2004) Coles, et al. (2008) Jackling and Johl (2009) Lee (2008) Ntim and Osei (2011) Ramdani and Witteloostuijn (2010)
Large Audit Firm	BIG4	Use of a large audit firm	Dummy variable (0 if firm does not use KPMG, PwC, E&Y or Deloitte, 1 otherwise)	Beekes, et al. (2004) Haat, et al. (2008) Ntim and Osei (2011)

3.4 Data Preparation

Prior to analysis, the data was prepared and assumptions were checked to ensure that the sample was consistent with the assumptions of the analysis techniques.

3.4.1 Missing data

The first pass of data preparation was detection and if necessary handling of missing data. The dataset did not show any missing data, which was due to the sampling frames that ensured all firms included had full information. Therefore, no management of missing data was necessary.

3.4.2 Outlier detection and cleaning

Outlier detection and cleaning was done for all independent and dependent variables. For most of the variables, there were few outliers, and most did not have outliers more than six standard deviations (6SD) from the median, which is an indicator of extreme outliers (Hair, Anderson, Black, & Babin, 2016). (Box plots and normal plots are included in the Appendix to demonstrate distribution of variables.) The only variable where outliers were removed was Stock Return (SR), whose box plot is shown in Figure 3. The cleaning process removed points that were more than 6SD away from the median, following a standard rule of thumb for outlier detection and removal (Hair, et al., 2006). This resulted in the elimination of **X** data points.

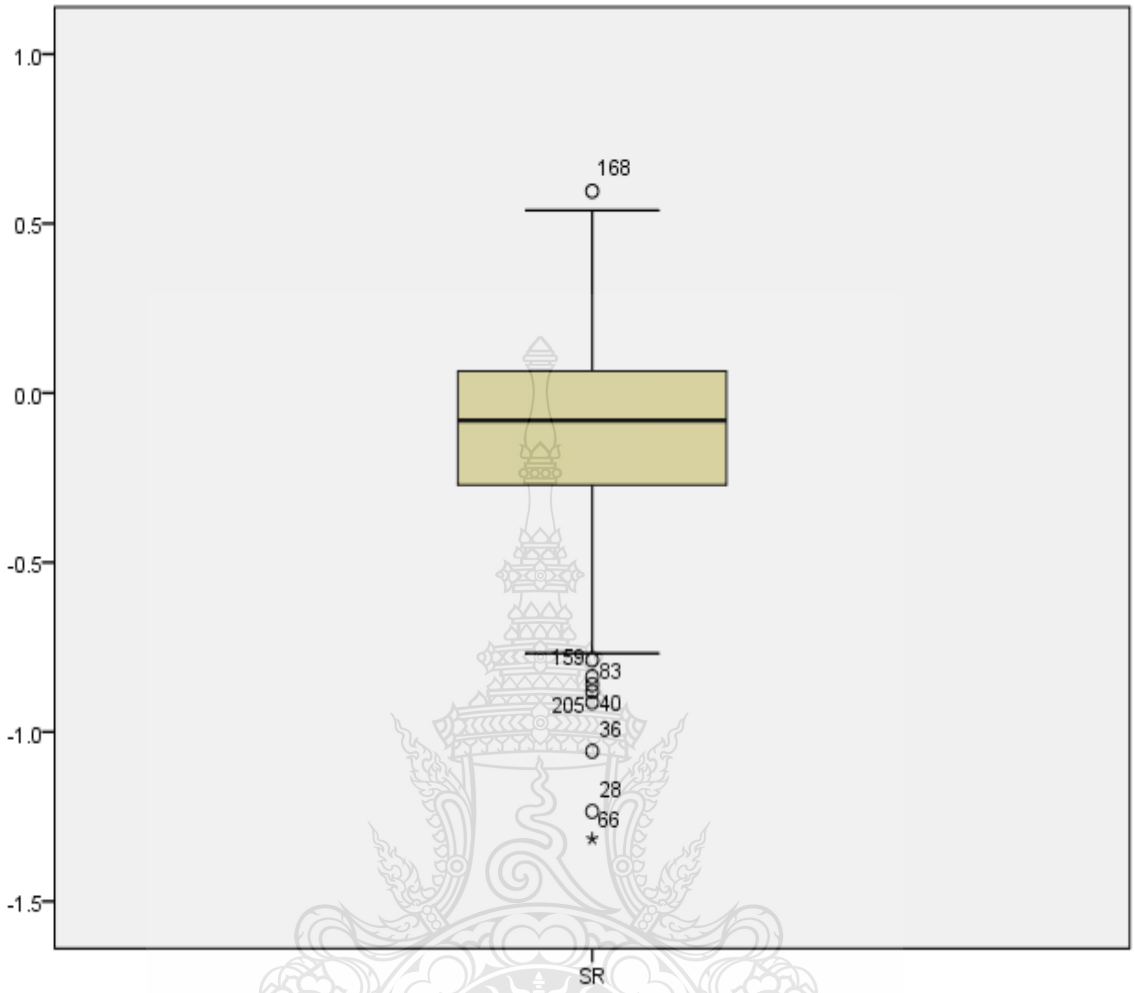

Figure 3.2 Box plot (outlier detection) for SR

3.4.3 Data transformations

Data transformations were used to modify variables as required for analysis. Log transformations were used for BSIZE, CEOCOMP, SIZE, and LEV, because of the need to produce an approximately normal distribution and to reduce scale differences in firms of very different sizes (Hair, et al., 2016). Proportional variables for board independence (PBDIND) and gender diversity (PGD) were prepared, to provide a consistent variable for comparison between firms of different sizes. These transformations were conducted using SPSS's "Compute variable" function, with the total board size used as the denominator for both calculations and outside members and female members respectively used as the numerator.

3.4.4 Normality tests

The final stage of data preparation was normality testing. One of the assumptions of SEM, the core analysis technique, is that independent and dependent variables are normally distributed (Kline, 2016). Therefore, normality was tested for each variable using visual examination of normal Q-Q plots, skewness and kurtosis, and Shapiro-Wilk (S-W) and Kolmogorov-Smirnov (K-S) tests to identify places where this relationship may not hold. Table 9 summarizes the skewness and kurtosis of the variables, while Table 10 shows the S-W and K-S results. Normal Q-Q plots are attached in the Appendix.

Visual inspection of normal Q-Q plots did not identify any significant issues with normality. Skewness and kurtosis were evaluated using a rule of thumb of -2 to 2 for normal distributions (Hair, et al., 2016). Although variables including COMP, LEV, and ACCRUAL exceeded these thresholds, these differences disappeared in the log transforms of the variables which were actually used in analysis. BDIND and PBDIND did exceed 2 on for kurtosis, but not skewness. Given that SEM is somewhat resilient to failed normality assumptions (Hair, et al., 2016), and this was only one variable, the decision was made to leave the variable in place. The K-S test outcomes suggest that only LogCOMP is a normal distribution ($p > .05$), but this result may be flawed because K-S has low power (Ghasemi & Zahediasl, 2012). The S-W results confirm that only LogCOMP is a normal distribution ($p > .05$). Thus, in examination of these variables we can state that while most are approximately normal in distribution, only LogCOMP is entirely consistent with a normal distribution.

Table 3.3 Skewness and kurtosis statistics

Variable Category	Variable	Skewness		Kurtosis	
		Value	S.E.	Value	S.E.
Board Structure	BSIZE	1.049	.153	1.606	.304
	LogBSIZE	.322	.153	.312	.304
	BDIND	1.789	.153	4.792	.304
	PBDIND	1.597	.153	3.791	.304
	DUAL	1.605	.153	.579	.304
	GD	.917	.153	.641	.304
	PGD	.771	.153	-.123	.304
	MFREQ	1.398	.153	2.283	.304
	COMP	4.051	.153	22.222	.304
	LogCOMP	.057	.153	.612	.304
Ownership Structure	INST	.499	.153	-1.009	.304
	CONC	1.162	.153	.855	.304
	FAM	.874	.153	-.148	.304
Control Variables	LEV	4.643	.153	30.873	.304
	LogLEV	-1.416	.153	3.255	.304
	BIG4	-.749	.153	-1.450	.304
Dependent Variables	SR	-.766	.153	1.746	.304
	ACCRUAL	-3.065	.153	26.091	.304

Table 3.4 Additional tests of normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
BSIZE	.185	255	.000	.918	255	.000
LogBSIZE	.171	255	.000	.962	255	.000
BDIND	.269	255	.000	.788	255	.000
PBDIND	.159	255	.000	.858	255	.000
DUAL	.496	255	.000	.476	255	.000
GD	.211	255	.000	.892	255	.000
PGD	.137	255	.000	.915	255	.000
MFREQ	.175	255	.000	.853	255	.000
COMP	.219	255	.000	.602	255	.000
LogCOMP	.042	255	.200*	.993	255	.274
INST	.142	255	.000	.911	255	.000
CONC	.140	255	.000	.882	255	.000
FAM	.166	255	.000	.871	255	.000
TotalAsset	.360	255	.000	.357	255	.000
LogSIZE	.086	255	.000	.961	255	.000
debt	.367	255	.000	.349	255	.000
Equity	.378	255	.000	.270	255	.000
LEV	.222	255	.000	.596	255	.000
LogLEV	.107	255	.000	.900	255	.000
BIG4	.430	255	.000	.591	255	.000
SR58	.326	255	.000	.434	255	.000
SR59	.332	255	.000	.430	255	.000
SR	.075	255	.001	.965	255	.000
ACCRUAL	.292	255	.000	.560	255	.000
Accrual1	.298	255	.000	.464	255	.000

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

3.5 Data Analysis

Data analysis was conducted using Structural Equation Modeling (SEM). In the following two sections, the use of SEM is explained and the analysis procedure is described.

3.5.1 Analysis Tools

The analysis tool selected for this research, SEM, is a family of modeling techniques that is designed to test a specified model against possible alternatives in order to derive the best model fit for the full equation (Byrne, 2016; Kline, 2016). The origin of SEM is in LISREL and path analysis, which emerged during the 1990s, but the analysis technique has become increasingly popular in recent years (Kaplan, 2008). The SEM family of analysis techniques includes PATH Analysis and AMOS (a proprietary modeling technique) (Kline, 2016). This is because SEM is designed to test and confirm an existing model, rather than examining constructing new models. However, SEM can be used to uncover latent variables, examine intervening (moderating or mediating) relationships, and examine the explanatory power of a set of regression relationships, rather than examining essentially one relationship at a time (Byrne, 2016). This makes it ideal for the present research, which includes a complex set of corporate governance factors, a mediating variable and several control variables.

3.5.1.1 Model Fit, Significance and Predictive Power

The significance of relationships in SEM is assessed using the standard rule of thumb of $p < 0.05$ (Byrne, 2016). However, assessment of the model fit is more complicated than assessing the model fit of simple regression, which relies on the r-squared value (Kaplan, 2008). Table 8 summarizes some of the possible goodness if fit indices that may be used. This is not an exhaustive list, and there are some serious controversies over which models may be considered best (Kline, 2016). The summary below the most common model fit indicators. Of these indicators, the model chi-squared, RMSEA, and CFI are likely to be the best fit in this research. The chi-squared fit is biased in larger samples, but in samples of around 200 members it is an accurate measure of exact fit (Kaplan, 2008). Since this research has a target sample size of n = 200, this is appropriate. Similarly, the sample size is a reason for rejecting the SRMR indicator, since it is around the threshold at which SRMR demonstrates positive bias

(Kaplan, 2008). AIC may also be used to determine whether the default model (the model specified by the researcher) or one of the other models produced is a better fit (Kaplan, 2008).

Table 3.51 SEM model fit indicators (Byrne, 2016; Kaplan, 2008; Kline, 2016)

Indicator	**Acceptance Value**	**Recommended?**
Akaike Information Criterion (AIC)	Comparative index: Model with lower AIC is better fit	Yes for comparative situations
Model chi square (β^2)	$p < 0.05$	Yes for small samples (up to 200 members) No for large samples (400+ members)
Root mean square error of approximation (RMSEA)	≤ 0.01: Excellent fit ≤ 0.05: good fit ≤ 0.08: mediocre fit > 0.08: Poor fit	Yes
Goodness of Fit index (GFI) Adjusted Goodness of Fit Index (AGFI)	> 0.90: Acceptable fit	Yes (Use AGFI to reduce effect of number of latent variables)

In addition to the overall goodness of fit, the coefficient, directionality, and significance of each individual relationship is reported by the SEM procedure (Kline, 2016). This reporting enables determination of which of the hypotheses may be accepted. Following standard practice, confidence levels of 95% ($p < 0.05$) will be used to determine which paths are significant (Byrne, 2016).

3.5.2 Analysis Procedure

The SEM analysis was conducted in SPSS AMOS, which is the specialty SEM modeling add-on for IBM SPSS (Byrne, 2016). Following initial assembly of the dataset in Excel, data was cleaned and quality checked. The dataset was exported to SPSS and appropriate names and labels were applied to variables in preparation for analysis. Outlier detection and other data inspection processes were used to determine whether any of the data was potentially flawed. However, no corrections were made during this period and no outliers were removed.

Following the data preparation process, the model was input into SPSS AMOS.

The AMOS editor is a visual editor, with relationships specified by the researcher in advance of the analysis process. Two models were input, including one designed to test the direct relationships and one including the mediating variable. The analysis produced three models for each of these, including a default model (specified by the researcher), an independence model (assuming zero internal correlation), and a saturated model (including all possible variables). These models were compared to make sure that the default model was significant and was not out-performed by the other models. Following this analysis process, the goodness of fit was assessed. Only after this assessment were individual variables assessed to determine the significance and effects size of each of the relationships and accept or reject the research hypotheses.

3.5.3 Evaluation of structural model and model fit

The structural model, including factor loadings and goodness of fit indicators, is shown in Figure 4. Because this analysis was not directed toward model reduction or identification of latent variables, there was no elimination of existing variables. Table 12 compares the structural goodness of fit indicators with established thresholds, demonstrating the overall goodness of fit of the model and whether there are any potential issues. The AIC shows that the default model is the best fitted out of the three attempted. The absolute fit tests, including model chi square and CMIN/DF, also verified that the default model is well fitted. A number of relative fit tests were also used to evaluate the model, including RMSEA, GFI/AGFI, CFI, and the Hoelter Index. The values on all of these passed the threshold for relatively good fit, although the RMSEA value did not exceed the threshold for an excellently fitted model. Based on these goodness of fit evaluations, it was accepted that the goodness of fit of the models was acceptable and the default model was used in the analysis process. The outcomes of analysis are discussed in the next chapter.

Table 3.6 Summary of model fit indicators and outcomes

Fit Indicator	Fit Criterion	Default Model	Saturated Model	Independence Model	Conclusion
Akaike Information Criterion (AIC)	Lowest AIC value is best fit	186.198	210.000	630.409	Default model is best fit
Model chi square (χ^2)	$p > .05$	.098		.000	Default model is good fit
CMIN/DF	< 2	1.320		6.620	Default model is good fit
RMSEA	≤ .01: Excellent fit ≤ .05: good fit ≤ .08: Mediocre fit > .08: Poor fit	.035		.149	Default model is good fit
GFI	> .90	.974	1.000	.724	Default model is good fit
AGFI	> .90	.921		.781	Default model is good fit
CFI	> .90	.978	1.000	.000	Default model is good fit
Hoelter Index (.05)	> 200	274		49	Default model is good fit

(Note: Model fit criteria specified by Byrne (2016) and Kline (2016))

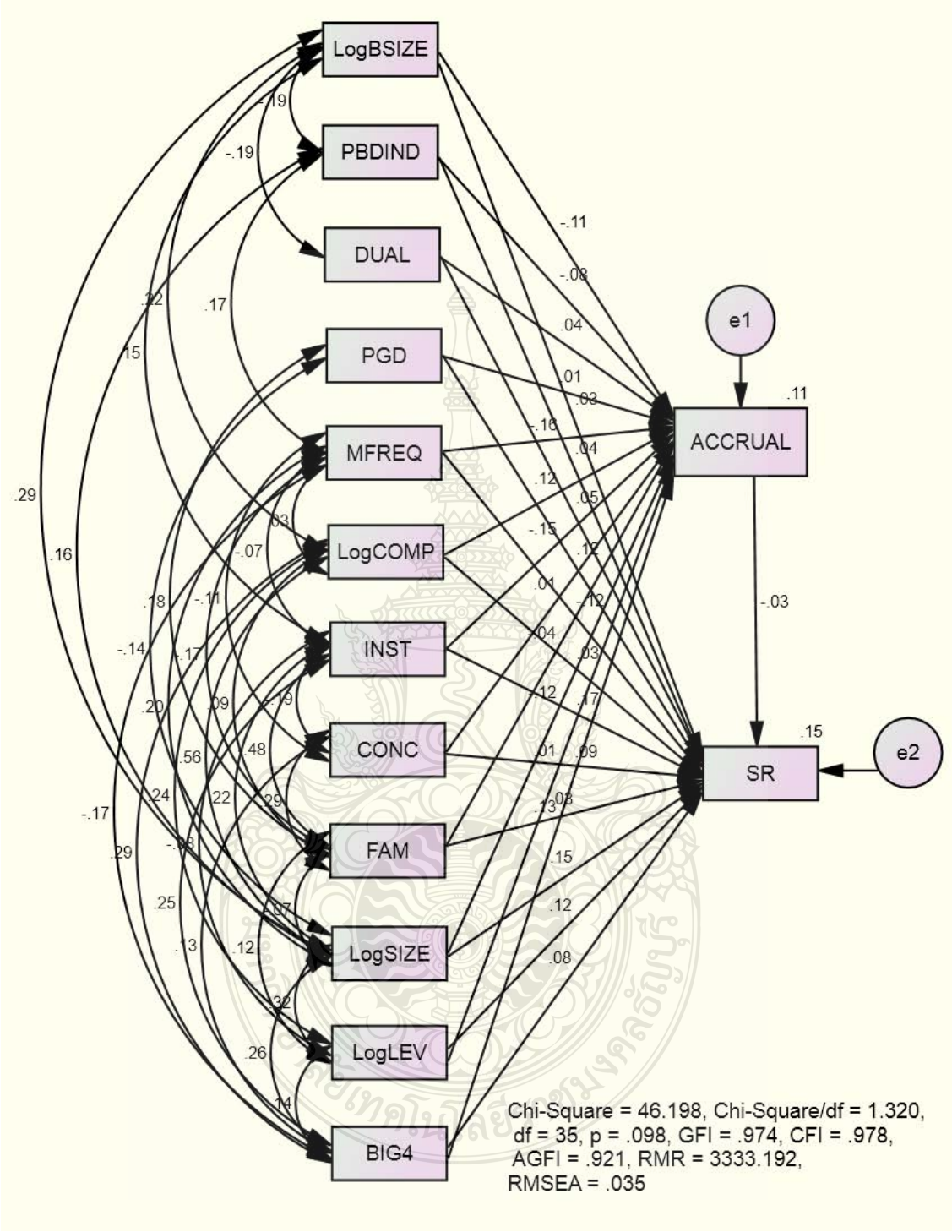

Figure 3.3 Structural model: Corporate governance - earning quality – stock returns

CHAPTER 4
RESEARCH RESULT

This chapter presents and discusses the findings of the primary research. The chapter begins with descriptive statistics for all variables. It then presents and interprets the structural equation modelling (SEM) outcomes. This presentation begins with examination of the model fit, and then proceeds to the outcomes, including covariances and regression tests. Next, the model effects are examined, which help to identify indirect and direct effects and identify mediating variables. A summary and statement of the hypothesis tests is then presented. The chapter closes on a discussion of the findings as compared to the literature review, which is organized by the hypotheses of the study.

4.1 Descriptive Statistics

Descriptive statistics for all variables are shown below (Table 13), including minimum, maximum, mean, median, and standard deviation. The final sample size was n = 255 firm-years. There were no missing values in the analysis. There are two dummy variables including DUAL and BIG4 (control variable). The DUAL dummy variable shows that 19% of firms had a dual CEO. The BIG4 dummy shows that 67% of firms used a Big Four accounting firm. The board size of firms ranged from 5 to 21 members (M = 10.37, SD = 2.412). Independent board members ranged from 3 to 11 independent members (M = 4.16, SD = 1.252), with a proportion of independent board members ranging from .27 to .85 (M = .40, SD = .088). Female board members ranged from 0 to 8 members (M =1.81, SD = 1.562), with proportion of female board members ranging from .00 to .63 (M = .17, SD = .160). Meeting frequency ranged from 4 to 25 meetings per year (M = 8.10, SD = 4.130). CEO compensation ranged from 1814000 to 435070000 baht per year (M = 41906732.05, SD = 50010011.074). Institutional ownership ranged from 0 to 99.12% (M = 34%, SD = 28.836%). Ownership concentration ranged from 0% to 74.59% (M = 18.06%, SD = 16.698%). Family ownership ranged from 0 to 84.94% (M = 21.8%, SD = 22.487%).

Stock returns ranged from -1.32% to 0.60% (M = -.12%, SD = .296%). Accruals ranged from -26973.91 to 18512.65 (M = 634.04, SD = 3631.318).

Table 4.1 Summary of descriptive statistics

	Variable Measure	Minimum	Maximum	Mean	S.D.
BSIZE	Board Size	5.00	21.00	10.37	2.412
LogBSIZE	Log (Board Size)	0.70	1.32	1.00	0.096
BDIND	Board Independence	3.00	11.00	4.16	1.252
PBDIND	Proportion (Dependent Board Members)	0.27	0.85	0.40	0.088
DUAL	Dual CEO Dummy	0.00	1.00	0.19	0.392
GD	Gender Diversity	0.00	8.00	1.81	1.562
PGD	Proportion (Female Board Members)	0.00	0.63	0.17	0.150
MFREQ	Meeting Frequency	4.00	25.00	8.10	4.103
COMP	CEO Compensation	1814000.00	435070000.00	41906732.05	50010011.074
LogCOMP	Log (CEO Compensation)	6.26	8.64	7.45	0.384
INST	Institutional Ownership %	0.00	99.12	34.00	28.836
CONC	Ownership Concentration %	0.00	74.59	18.06	16.698
FAM	Family Ownership %	0.00	84.94	21.80	22.487
TotalAsset	Total Assets (Control)	467430000.00	5332910700.00	1991058290 1.96	543527333 95.945
LogSIZE	Log (Size) (Control)	8.67	11.73	9.73	0.629
LEV	Leverage (Debt/Equity Ratio)	0.00	13.30	1.07	1.392
LogLEV	Log (Leverage)	-6.10	2.59	-0.59	1.404
BIG4	Big4 Dummy	0.00	1.00	0.67	0.469
SR	Stock Returns	-1.32	0.60	-0.12	0.296
ACCRUAL	Accruals	-26973.91	18412.65	634.04	3631.318

4.2 Structural Equation Modeling (SEM)

This research used structural equation modelling (SEM) as the main tool for evaluating the model. Since this research was not concerned with identifying latent variables from observed variables as much as determining the overall fit of the model, the exploratory factor analysis (EFA) and model reduction stages were not conducted as they would be in a model reduction effort (Kline, 2016). Instead, the analysis began from specification of the structural model.

The SEM process is evaluated in multiple stages. First, the structural model and goodness of fit is evaluated. Next, the SEM outcomes are evaluated. This evaluation includes a brief assessment of the covariances for potential violation of SEM assumptions, followed by presentation of the regression outcomes and model effects.

4.2.1 Model goodness of fit

Model squared multiple correlations (model r^2) was calculated for ACCRUAL and SR. The model squared multiple correlation for ACCRUAL (r^2 = .114) was somewhat lower than for SR (r^2 = .154). This indicates that the model is slightly less well fitted for ACCRUAL than for SR. However, in neither case was the squared multiple correlation very strong. The remaining sections discuss the additional aspects of the model fit.

4.2.2 Covariances

The covariances of the model are used to determine whether there are potentially significant cross-correlations between the variables which could disturb the assumption of independence or constrain the effectiveness of identifying latent variables (Kline, 2016). Covariances rather than correlations are used because they are considered more reliable. There were a number of significant covariances (Table 14), although many if not most of these involve control variables. Significant covariances between non-control variables include INST ↔ FAM, CONC ↔ FAM, INST ↔ CONC, MFREQ ↔ FAM, PGD ↔ FAM, LogBSIZE ↔ INST, LogBSIZE ↔ LogCOMP, LogBSIZE ↔ DUAL, LogBSIZE ↔ PBDIND, and PBDIND ↔ MFREQ. In many cases these can be explained; for example, the first three are negative covariances related to the fact that ownership shares are fixed; therefore, higher ownership share in one category reduces it for the others. Many others also make sense; for example, high institutional ownership could increase board size

because institutional owners demand roles on the board. Thus, there are no indications of unexpected covariance within these models.

Table 4.2 Covariances of the model

	Estimate	**S.E.**	**C.R.**	**P**
INST ↔ FAM	-.476	41.089	-7.317	***
LogCOMP ↔ LogSIZE	.559	.015	8.223	***
INST ↔ BIG4	.254	.715	4.652	***
CONC ↔ FAM	.288	23.400	4.610	***
INST ↔ CONC	-.187	28.418	-3.088	.002**
LogSIZE ↔ LogLEV	.316	.051	5.255	***
MFREQ ↔ LogSIZE	.198	.138	3.494	***
PBDIND ↔ LogSIZE	.156	.003	3.222	.001**
MFREQ ↔ INST	-.066	6.987	-1.077	.281
MFREQ ↔ FAM	-.169	5.498	-2.817	.005**
INST ↔ LogSIZE	.223	.852	4.414	***
LogCOMP ↔ BIG4	.292	.011	4.808	***
LogSIZE ↔ BIG4	.260	.016	4.472	***
PGD ↔ FAM	.183	.178	3.453	***
LogBSIZE ↔ INST	.150	.134	3.006	.003**
LogBSIZE ↔ LogCOMP	.219	.002	3.847	***
LogBSIZE ↔ DUAL	-.191	.002	-3.301	***
LogBSIZE ↔ PBDIND	-.194	.000	-3.287	.001**
PBDIND ↔ MFREQ	.168	.022	2.810	.005**
PGD ↔ LogSIZE	-.138	.004	-3.064	.002**
MFREQ ↔ BIG4	-.174	.116	-2.836	.005**
LogCOMP ↔ LogLEV	.236	.033	3.774	***
LogLEV ↔ BIG4	.136	.040	2.219	.026*
FAM ↔ LogSIZE	-.072	.702	-1.387	.166
LogCOMP ↔ FAM	.088	.423	1.783	.075
MFREQ ↔ LogCOMP	.031	.090	.537	.591
FAM ↔ LogLEV	.123	1.829	2.121	.034*

Table 4.2 Covariances of the model

	Estimate	S.E.	C.R.	P
MFREQ ↔ CONC	-.109	4.130	-1.800	.072
INST ↔ LogLEV	-.079	2.336	-1.329	.184
CONC ↔ BIG4	.134	.447	2.330	.020*
LogBSIZE ↔ LogSIZE	.289	.003	5.107	***

Note: * p < .05 ** p < .01 *** p < .001

BSIZE=Board Size, LogBSIZE=Log (Board Size), BDIND=Board Independence, PBDIND=Proportion (Dependent Board Members), DUAL=Dual CEO Dummy, GD=Gender Diversity, PGD=Proportion (Female Board Members), MFREQ=Meeting Frequency, COMP=CEO Compensation, LogCOMP=Log (CEO Compensation), INST=Institutional Ownership %, CONC=Ownership Concentration %, FAM=Family Ownership %, TotalAsset=Total Assets (Control), LogSIZE=Log (Size) (Control), LEV=Leverage (Debt/Equity Ratio), LogLEV=Log (Leverage), BIG4=Big4 Dummy, SR=Stock Returns, ACCRUAL=Accruals

4.2.3 Multicollinearity Test

In structural equation modelling, the predictor variables must be independent of each other. Multicollinearity occurs when there is a high degree of correlation between two or more variables, which can indicate that predictor variables may not be independent, which can weaken the results of the SEM analysis (Kline, 2016). However, in some cases this may not indicate a true dependence problem; for example, variables that are known to be related (debt and equity) are expected to have high correlations, while other correlations (such as board size and business size) may stem from mutual causes (Kline, 2016). Therefore, the only correlations we discuss are r > .500, which could indicate a significant problem with multicollinearity. Table 15 shows the correlation matrix for all predictor variables in the model. There are only a few correlations that cannot be explained due to known relationships between the variables (such as LEV-LogLEV) or shared causes. These include FAM-LogCOMP (r = -.506), debt-COMP (r = .526), and SR59-BIG4 (r = .977). Thus, in general, the model shows sufficient independence of the predictor variables.

Table 4.3 Correlation Matrix of Corporate Governance, Earnings Quality and Stock Return

	BSIZE	LogBSIZE	BDIND	PBDIND	DUAL	GD	PGD	MFREQ	COMP	LogCOMP	INST	CONC	FAM	TotalAsset	LogSIZE	debt	Equity	LEV	LogLEV	BIG4	SR58	SR59	SR	ACCRUAL
BSIZE	1																							
LogBSIZE	.987**	1																						
BDIND	.662**	.649**	1																					
PBDIND	-.160*	-.185**	.609**	1																				
DUAL	-.186**	-.190**	-.198**	-.069	1																			
GD	.199**	.221**	.048	-.147*	.046	1																		
PGD	-.018	.005	-.091	-.113	.094	.954**	1																	
MFREQ	.038	.038	.200**	.177**	.044	.020	.018	1																
COMP	.246**	.249**	.229**	.030	-.031	-.138*	-.162**	.113	1															
LogCOMP	.251**	.266**	.218**	-.004	-.020	-.119	-.153*	.043	.798**	1														
INST	.276**	.272**	.186**	-.063	-.014	.000	-.059	-.057	.134*	.143*	1													
CONC	-.100	-.106	-.142*	-.057	.063	.054	.099	-.139*	-.098	-.058	-.220**	1												
FAM	-.184**	-.177**	-.146*	.004	.069	.145*	.202**	-.167**	-.113	-.044	-.506**	.308**	1											
TotalAsset	.370**	.351**	.483**	.190**	-.077	-.147*	-.189**	.263**	.496**	.405**	.260**	-.187**	-.180**	1										
LogSIZE	.365**	.357**	.428**	.154*	-.087	-.181**	-.245**	.215**	.572**	.596**	.323**	-.150*	-.199**	.679**	1									
debt	.338**	.324**	.434**	.170**	-.082	-.160*	-.194**	.280**	.526**	.384**	.219**	-.186**	-.165**	.899**	.654**	1								
Equity	.331**	.311**	.437**	.173**	-.055	-.101	-.144*	.188**	.351**	.335**	.249**	-.151*	-.160*	.894**	.560**	.608**	1							
LEV	.090	.086	.123*	.054	-.056	-.092	-.103	.151*	.259**	.138*	-.066	-.059	.020	.273**	.365**	.462**	.008	1						
LogLEV	.075	.067	.100	.052	-.016	-.106	-.110	.033	.226**	.242**	-.029	-.062	.067	.187**	.351**	.289**	.039	.644**	1					
BIG4	.092	.095	.022	-.055	-.051	-.096	-.122	-.173**	.253**	.328**	.306**	.098	-.074	.043	.289**	.051	.025	.041	.126*	1				
SR58	.212**	.209**	.213**	.052	.015	.041	-.006	-.004	.216**	.183**	.295**	-.122	-.092	.278**	.237**	.239**	.260**	-.061	.004	.079	1			

Table 4.3 Correlation Matrix of Corporate Governance, Earnings Quality and Stock Return (Cont.)

	BSIZE	LogBSIZE	BDIND	PBDIND	DUAL	GD	PGD	MFREQ	COMP	LogCOMP	INST	CONC	FAM	TotalAsset	LogSIZE	debt	Equity	LEV	LogLEV	BIG4	SR58	SR59	SR	ACCRUAL
SR59	.226**	.223**	.221**	.047	.020	.050	.001	.005	.206**	.176**	.306**	-.119	-.119	.267**	.227**	.230**	.248**	-.055	.007	.068	.977**	1		
SR	.134*	.130*	.129*	.013	.030	.065	.058	-.101	.189**	.179**	.227**	.055	-.025	.169**	.240**	.197**	.103	.178**	.166**	.210**	.181**	.258**	1	
ACCRUAL	-.162**	-.154*	-.255**	-.104	.061	-.010	.021	-.203**	.016	.021	-.147*	.099	.109	-.496**	-.159*	-.471**	-.417**	-.179**	-.012	.102	.079	.066	-.045	1

Noted: **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

BSIZE=Board Size, LogBSIZE=Log (Board Size), BDIND=Board Independence, PBDIND=Proportion (Dependent Board Members), DUAL=Dual CEO Dummy, GD=Gender Diversity, PGD=Proportion (Female Board Members), MFREQ=Meeting Frequency, COMP=CEO Compensation, LogCOMP=Log (CEO Compensation), INST=Institutional Ownership %, CONC=Ownership Concentration %, FAM=Family Ownership %, TotalAsset=Total Assets (Control), LogSIZE=Log (Size) (Control), LEV=Leverage (Debt/Equity Ratio), LogLEV=Log (Leverage), BIG4=Big4 Dummy, SR=Stock Returns, ACCRUAL=Accruals

4.2.4 Regressions

Several of the hypotheses were tested using regression outcomes, including the relationship of board structure and earnings quality (H1), ownership structure and earnings quality (H2), board structure and stock returns (H3), ownership structure and stock returns (H4), and earnings quality and stock returns (H5). Table 16 summarizes the regression equations that are used to evaluate these effects. Significance of regressions is evaluated at a minimum of $p < .05$, with strength and direction of the standardized coefficients used to interpret the nature of the effects.

Table 4.4 Summary of regression coefficients and significance

	Unstandardized Estimate		**Standardized Estimate**	**C.R.**	**P**
	B	**S.E.**	**Beta**		
ACCRUAL ← LogBSIZE	-4324.979	2538.653	-.114	-1.704	.088
ACCRUAL ← PBDIND	-3098.111	2580.749	-.076	-1.200	.230
ACCRUAL ← DUAL	342.875	559.627	.037	.613	.540
ACCRUAL ← PGD	274.263	1494.014	.011	.184	.854
ACCRUAL ← MFREQ	-138.055	57.630	-.156	-2.396	.017*
ACCRUAL ← LogCOMP	1097.477	718.071	.115	1.528	.126
ACCRUAL ← INST	-19.872	9.719	-.155	-2.045	.041*
ACCRUAL ← CONC	1.983	13.714	.009	.145	.885
ACCRUAL ← FAM	-5.859	11.840	-.036	-.495	.621
ACCRUAL ← LogSIZE	-754.375	515.174	-.125	-1.464	.143
ACCRUAL ← LogLEV	16.756	165.709	.007	.101	.919
ACCRUAL ← BIG4	996.092	524.015	.128	1.901	.057
SR ← LogBSIZE	.107	.204	.034	.523	.601
SR ← PBDIND	.150	.207	.045	.723	.470
SR ← DUAL	.038	.045	.050	.853	.393
SR ← PGD	.242	.120	.122	2.022	.043*
SR ← MFREQ	-.009	.005	-.118	-1.846	.065
SR ← LogCOMP	.022	.058	.029	.386	.699
SR ← INST	.002	.001	.170	2.286	.022*
SR ← CONC	.002	.001	.086	1.397	.162
SR ← FAM	.000	.001	.028	.394	.694
SR ← LogSIZE	.074	.041	.149	1.782	.075

Table 4.4 Summary of regression coefficients and significance (Cont.)

		Unstandardized Estimate		Standardized Estimate	C.R.	P
		B	**S.E.**	**Beta**		
SR	☐ LogLEV	.024	.013	.116	1.840	.066
SR	☐ BIG4	.050	.042	.079	1.193	.233
SR	☐ ACCI	.000	.000	-.033	-.534	.593
SR	☐ LogLEV	.024	.013	.116	1.840	.066

Note: *p < .05

BSIZE=Board Size, LogBSIZE=Log (Board Size), BDIND=Board Independence, PBDIND=Proportion (Dependent Board Members), DUAL=Dual CEO Dummy, GD=Gender Diversity, PGD=Proportion (Female Board Members), MFREQ=Meeting Frequency, COMP=CEO Compensation, LogCOMP=Log (CEO Compensation), INST=Institutional Ownership %, CONC=Ownership Concentration %, FAM=Family Ownership %, TotalAsset=Total Assets (Control), LogSIZE=Log (Size) (Control), LEV=Leverage (Debt/Equity Ratio), LogLEV=Log (Leverage), BIG4=Big4 Dummy, SR=Stock Returns, ACCRUAL=Accruals

4.2.5 Evaluation of model effects

The final two hypotheses were tested by evaluation of model effects to determine whether there was a significant mediating effect. These hypotheses included the mediating effect of earnings quality on the relationship of board structure and stock returns (H6) and the relationship of ownership structure and stock returns (H7). Evaluation of model effects is done using the proportion of indirect effects to total effects (IE/TE) and direct effects to total effects (DE/TE), which are two ratios commonly used to assess the relative mediation effect of the proposed mediator (Preacher & Kelley, 2011). Standardized effects are shown in Table 16, while unstandardized effects are shown in Table 17. For analysis, we refer to the standardized effects because these effects can be directly compared. The IE/TE ratio for most of the relationships is small (< .05) in almost all cases, with only a few relationships showing a potentially slightly larger effect. These relationships include SR ← LogBSIZE (IE/TE = .11) and SR ← LogCOMP (IE/TE = -.16). This indicates that the effect of LogBSIZE on SR is positively mediated by ACCRUAL, while the effect of LogCOMP on SR is negatively mediated by ACCRUAL. However, in neither case did this mediation come close to being a full mediation. These results are discussed in the next sections.

Table 4.5 Summary of standardized effects

Path	Direct Effects	Indirect Effects	Total Effects	DE/TE	IE/TE
ACCRUAL ← LogBSIZE	-.114	.	-.114	.	.
ACCRUAL ← PBDIND	-.077	.	-.077	.	.
ACCRUAL ← DUAL	.037	.	.037	.	.
ACCRUAL ← PGD	-.011	.	.011	.	.
ACCRUAL ← MFREQ	-.156	.	-.156	.	.
ACCRUAL ← LogCOMP	.115	.	.115	.	.
ACCRUAL ← INST	-.155	.	-.155	.	.
ACCRUAL ← CONC	.009	.	.009	.	.
ACCRUAL ← FAM	-.036	.	-.036	.	.
ACCRUAL ← LogBSIZE	-.125	.	-.125	.	.
ACCRUAL ← LogLEV	.007	.	.007	.	.
ACCRUAL ← BIG4	.128	.	.128	.	.
SR ← ACCRUAL	-.033	.000	-.033	1.00	.
SR ← LogBSIZE	.034	.004	.038	.89	.11
SR ← PBDIND	.045	.002	.047	.96	.04
SR ← DUAL	.050	-.001	.049	1.02	-.02
SR ← PGD	.122	.000	.122	1.00	.
SR ← MFREQ	-.118	.005	-.113	1.04	-.04
SR ← LogCOMP	.029	-.004	.025	1.16	-.16
SR ← INST	.170	.005	.175	.97	.03
SR ← CONC	.086	.000	.086	1.00	.
SR ← FAM	.028	.001	.029	.97	.03
SR ← LogBSIZE	.149	.004	.153	.97	.03
SR ← LogLEV	.116	-.01	.115	1.01	-.01
SR ← BIG4	.079	-.004	.075	1.05	-.05

Noted: BSIZE=Board Size, LogBSIZE=Log (Board Size), BDIND=Board Independence, PBDIND=Proportion (Dependent Board Members), DUAL=Dual CEO Dummy, GD=Gender Diversity, PGD=Proportion (Female Board Members), MFREQ=Meeting Frequency, COMP=CEO Compensation, LogCOMP=Log (CEO Compensation), INST=Institutional Ownership %, CONC=Ownership Concentration %, FAM=Family Ownership %, TotalAsset=Total Assets (Control), LogSIZE=Log (Size) (Control), LEV=Leverage (Debt/Equity Ratio), LogLEV=Log (Leverage), BIG4=Big4 Dummy, SR=Stock Returns, ACCRUAL=Accruals

Table 4.6 Summary of unstandardized effects

Path	Direct Effects	Indirect Effects	Total Effects	DE/TE	IE/TE
ACCRUAL ← LogBSIZE	-4324.979	.	-4324.979	1.00	.
ACCRUAL ← PBDIND	-3098.111	.	-3098.111	1.00	.
ACCRUAL ← DUAL	342.875	.	342.875	1.00	.
ACCRUAL ← PGD	274.263	.	274.263	1.00	.
ACCRUAL ← MFREQ	-138.055	.	-138.055	1.00	.
ACCRUAL ← LogCOMP	1097.477	.	1097.477	1.00	.
ACCRUAL ← INST	-19.872	.	-19.872	1.00	.
ACCRUAL ← CONC	1.983	.	1.983	1.00	.
ACCRUAL ← FAM	-5.589	.	-5.859	1.00	.
ACCRUAL ← LogSIZE	-754.375	.	-754.375	1.00	.
ACCRUAL ← LogLEV	16.756	.	16.756	1.00	.
ACCRUAL ← BIG4	996.092	.	996.092	1.00	.
SR ← ACCRUAL	.000	.000	.000	.	.
SR ← LogBSIZE	.107	.012	.118	.91	.10
SR ← PBDIND	.150	.008	.158	.95	.05
SR ← DUAL	.038	-.001	.037	1.03	-.03
SR ← PGD	.242	-.001	.241	1.13	-.13
SR ← MFREQ	-.009	.000	-.008	1.16	-.16
SR ← LogCOMP	.022	-.003	.019	1.16	-.16
SR ← INST	.002	.000	.002	1.00	.
SR ← CONC	.002	.000	.002	1.00	.
SR ← FAM	.000	.000	.000	.	.
SR ← LogBSIZE	.074	.002	.076	.97	.03
SR ← LogLEV	.024	.000	.023	1.04	.000
SR ← BIG4	.050	-.003	.048	1.04	-.06

Note: BSIZE=Board Size, LogBSIZE=Log (Board Size), BDIND=Board Independence, PBDIND=Proportion (Dependent Board Members), DUAL=Dual CEO Dummy, GD=Gender Diversity, PGD=Proportion (Female Board Members), MFREQ=Meeting Frequency, COMP=CEO Compensation, LogCOMP=Log (CEO Compensation), INST=Institutional Ownership %, CONC=Ownership Concentration %, FAM=Family Ownership %, TotalAsset=Total Assets (Control), LogSIZE=Log (Size) (Control), LEV=Leverage (Debt/Equity Ratio), LogLEV=Log (Leverage), BIG4=Big4 Dummy, SR=Stock Returns, ACCRUAL=Accruals

4.3 Hypothesis Testing Results

A summary of the hypothesis testing results (Table 18) is provided below.

Earnings quality was modelled using discretionary accruals, which are a negative measure of earnings quality. Therefore, a negative relationship to accruals would indicate a positive relationship to earnings quality. In terms of board structure effects on earnings quality, board meeting frequency (H1e) was accepted, but all other hypotheses in the group of H1 sub-hypotheses were rejected. For ownership structure's effects on earnings quality, only institutional ownership (H2a) was accepted, while ownership concentration (H2b) and family ownership (H2c) were rejected due to non-significance.

Stock returns was a positive measure. For stock returns, gender diversity (H3d) was accepted, while board size (H3a), board independence (H3b), CEO duality (H3c), board meeting frequency (H3e), and CEO compensation (H3f) were rejected. Institutional ownership (H4a) was again accepted while ownership concentration (H4b) and family ownership (H4c) was rejected).

Earnings quality was not related to stock returns (H5), leading to rejection of the hyoptheses.

In terms of mediating effects of earnings quality on board structure-stock return relationships (H6), some of the proposed relationships did show a mediating effect, although in most cases it was small. Only gender diversity-earnings quality-stock returns (H6d) was not accepted from the sub-hypotheses in this group. Hypothesis 7 examined the mediating effect of earnings quality on ownership-stock return relationships. Institutional ownership (H7a) and family ownership (H7c) showed at least a small mediating effect, and these hypotheses were accepted. Ownership concentration (H7b) did not show a mediating effect, and this hypothesis was rejected.

Table 4.7 Summary of hypothesis outcomes

Hypothesis	Descriptions	Accepted?	+/-
1	Board structure is associated with earnings quality.		
1a	Board size is positively associated with earnings quality.	No	
1b	Board independence is positively associated with earnings quality.	No	
1c	CEO duality is positively associated with earnings quality.	No	
1d	Gender diversity is positively associated with earnings quality.	No	
1e	Meeting frequency is positively associated with earnings quality.	Yes*	-
1f	CEO compensation is negatively associated with earnings quality.	No	
2	Ownership structure is positively associated with earnings quality.		
2a	Institutional ownership is positively associated with earnings quality.	Yes*	-
2b	Ownership concentration is positively associated with earnings quality.	No	
2c	Family ownership is positively associated with earnings quality.	No	
3	Board structure is positively associated with stock returns.		
3a	Board size is positively associated with stock returns.	No	
3b	Board independence is positively associated with stock returns.	No	
3c	CEO duality is positively associated with stock returns.	No	
3d	Gender diversity is positively associated with stock returns.	Yes*	+
3e	Board meeting frequency is positively associated with stock returns.	No	
3f	CEO compensation is positively associated with stock returns.	No	
4	Ownership structure is positively associated with stock returns.		
4a	Institutional ownership is positively associated with stock returns.	Yes*	+
4b	Ownership concentration is positively associated with stock returns.	No	

Table 4.7 Summary of hypothesis outcomes (Cont.)

Hypothesis	Descriptions	Accepted?	+/-
4c	Family ownership is positively associated with stock returns.	No	
5	Earnings quality is related to stock returns.	No	
6	Earnings quality plays a mediating role in the relationship between the board structure and stock returns.	No	
6a	Earnings quality plays a mediating role in the relationship between board size and stock returns.	No	
6b	Earnings quality plays a mediating role in the relationship between board independence and stock returns.	No	
6c	Earnings quality plays a mediating role in the relationship between CEO duality and stock returns.	No	
6d	Earnings quality plays a mediating role in the relationship between gender diversity and stock returns.	No	
6e	Earnings quality plays a mediating role in the relationship between board meeting frequency and stock returns.	No	
6f	Earnings quality plays a mediating role in the relationship between CEO compensation and stock returns.	No	
7	Earnings quality plays a mediating role in the relationship between the ownership structure and stock returns.		
7a	Earnings quality plays a mediating role in the relationship between institutional ownership and stock returns.	No	
7b	Earnings quality plays a mediating role in the relationship between ownership concentration and stock returns.	No	
7c	Earnings quality plays a mediating role in the relationship between family ownership and stock returns.	No	

Notes: * $p < .05$ (-) negative effect observed (+) positive effect observed

4.4 Critical Analysis

The final goal of this chapter is to discuss the findings and consider them in comparison to the results of the literature review. This discussion draws on the literature summarized in Chapter 2 to explain and evaluate the findings and their implications for future research.

4.4.1 Board structure characteristics and earnings quality (Hypothesis 1)

The first hypothesis included six sub-hypotheses that proposed an effect on earnings quality by board size (H1a), board independence (H1b), CEO duality (H1c), gender diversity (H1d), board meeting frequency (H1e), and CEO compensation (H1f). Of these hypotheses, H1e was accepted (beta = -.156, $p < .05$). H1a, H1b, H1c, H1d, and H1f were all rejected.

One of the notable features of the literature on board structure and earnings quality is that it is very inconsistent in terms of direction and significance of observed effects. (Please see Table 1 for a complete summary of the literature on board structure and earnings quality.) For example, despite the positive effect of board meeting frequency on earnings quality, this effect is not what would be expected given the bulk of the literature. While the findings were consistent with those of Qi and Tian (2012) and Masahyekhi and Bazaz (2010), other studies such as those conducted by Aishah Hashim and Devi (2008) Hermawan (2016), and Kantudu and Samaila (2015) did not find that there was a significant relationship between the two. This type of inconsistency continues throughout the literature on board structure and earnings quality. For example, board size might have a negative effect (Aishah Hashim & Devi, 2008; Ahmed, et al., 2006; Bradbury, et al., 2006), but studies were also found consistent with this research that it might have no effect (Khalil & Ozkan, 2016; Prencipe & Bar-Yosef, 2011). Similarly, many studies have not found that board independence has an effect on earnings quality (Aishah Hashim & Devi, 2008; Ahmed, et al., 2006; Sarkar, et al., 2008), consistent with the current study. Despite the theoretical position, it is possible that CEO duality is perhaps the most consistent non-significant finding in the commonly studied aspects of board structure (García-Meca & Sánchez-Ballesta, 2009; Khalil & Ozkan, 2011). The most surprising finding was that gender diversity was not significant, given that many (though not all) studies have supported this finding (Arun,

et al., 2015; Buniamin, et al., 2012; Strydom, et al., 016). However, it is possible that the firms in this study, which had a low level of gender diversity, did not reach the threshold identified by Strydom, et al. (2016) for effects to occur. Thus, while these hypotheses are not accepted for the most part, they are not inconsistent with the bulk of empirical findings on the relationship of board characteristics and earnings quality.

4.4.2 Ownership structure characteristics and earnings quality (Hypothesis 2)

The second set of hypotheses (H2) examined the effects of three types of ownership blocks on earnings quality, including institutional ownership (H2a), ownership concentration (H2b), and family ownership (H2c). The theoretical role of ownership is that large ownership, particularly large involved owners, may have an effect on the management of the firm despite the theoretical separation of ownership and control in the modern firm (Bhagat & Jefferis, 2002). The findings of this study showed that institutional ownership did have a positive, negative effect on accruals (beta = -.155, p = .041), indicating that institutional ownership has a positive effect on earnings quality. (This inverse relationship is because discretionary accruals represents a negative indicator of earnings quality (Dechow, et al., 2010).) Thus, H2a was accepted. However, neither ownership concentration (H2b) or family ownership (H2c) were shown to be significant, and as a result both were rejected.

For a full summary of the literature on ownership structure and earnings quality, please see Table 2. As this shows, the effects of institutional ownership on earnings quality in the current study are very consistent with the expected findings from the literature (Aishah Hashim & Devi, 2008; Ajay & Madhumati, 2015; Cornett, et al., 2008; García-Meca & Sánchez-Ballesta, 2009; Mazumder, 2016; Prencipe & Bar-Yosef, 2011). These studies mainly found that institutional ownership influenced earnings quality, although some had limitations. For example, the findings of García-Meca & Sánchez-Ballesta (2009) only showed a small effect, while Prencipe and Bar-Yosef (2011) only observed a relationship in family firms. Thus, these findings are as expected. The significance of institutional investors, where other types of owners are not significant, may be related to the EMH, specifically the weak form of the EMH. This form of the EMH argues that historical analysis cannot be used to predict future returns because the market responds so quickly to disclosures (Bhatti, et al., 2006).

Thus, corporate governance becomes relevant because of its role in ensuring effective disclosures (Lagoarde-Segot & Lucey, 2008). Previous studies have shown that the weak form of the EMH is not supported in Thailand, potentially because of poor information efficiency or lack of investor knowledge or information access (Hamid, et al., 2010). In other words, not all investors in the Thai market are able to access or use information about the firm in order to make their investment decision, leaving investors reliant on former performance. However, institutional ownership is fundamentally different from other classes of ownership, in that institutional owners tend to hold large blocks, professionally manage their investments, and become involved in the management of the firm (Chung & Zhang, 2011). Thus, institutional investors may have access to more information about the stocks they invest in, and the professional knowledge to evaluate earnings quality. This may be different from other investors on the Thai market, who may have limited knowledge of earnings quality and thus focus on raw financial figures such as profit (Chitmunchaitham, 2002; Karuwannapat, 2005). Thus, it could be that institutional investor share has a significant relationship to earnings quality because institutional investors have lower barriers to information, including both access to information and knowledge about how to use information, than other investor classes in the study. Under the EMH, increased information access would increase market inefficiency, but here we can see that it is functioning in only one class of investors.

The findings related to ownership concentration are more surprising, since many firms had shown that ownership concentration had a significant effect on earnings management (either positive or negative) (Alves, 2011; Beuselinck & Manigart, 2007; García-Meca & Sánchez-Ballesta, 2009; Khalil & Ozkan, 2016; Yunos, et al, 2010). One possible reason for this confusion may be the different measures of ownership concentration, since there are several different measures and many firms used different ones. Similarly, family firms have routinely been shown to have higher earnings quality (Adigüzel, 2013; Aishah Hashim & Devi, 2008; Cascino, et al. 2010; Prencipe & Bar-Yosef, 2011). However, Yang (2010) did find that different shareholder groups could have different effects depending on ownership make-up, which was not studied here.

This may be part of the reason for lack of significant findings for ownership concentration or firm ownership.

4.4.3 Board structure characteristics and stock returns (Hypothesis 3)

Next, the analysis turned to board structure characteristics and their direct effects on stock returns. These hypotheses were again proposed as sub-hypotheses, including board size (H3a), board independence (H3b), CEO duality (H3c), gender diversity (H3d), board meeting frequency (H3e), and CEO compensation (H3f). Only gender diversity (beta = .122, $p = .043$) was found to be significant at $p < .05$. Thus, while H3d was accepted, H3a, H3b, H3c, H3e, and H3f were rejected.

As with earnings quality, the effects of board structure on stock returns is mixed. (Please see Table 3 for a full summary of this literature.) For example, while Behlkir (2009) and Jackling and Johl (2009) found that board size had a positive effect, Garg (2007) and Guest (2009) found it had a negative effect while Di Pietra, et al. (2008) found that it was not significant at all. One possible reason for this change is provided by Pham, et al. (2011) who found that board size had changed over the course of their decade-long study of Australian firms. This strongly suggests that one possibility for the changing and inconsistent effects of board structure on the firm's stock performance is that the board itself changes over time. However, since this study took place over only two years, it would be expected that board structure would not change too much between firms during this time. Another possibility is that stock investors in different countries have different expectations for firm performance and board oversight, and that these might not be consistent with corporate governance standards. For example, while CEO duality is commonly discouraged in corporate governance regimes (Calder, 2008), there is not really a clear body of evidence that it negatively affects investor perceptions of the firm, as shown by the complexity of the literature surrounding this area. There is also the problem that not all board members are equal in terms of skill or busyness (Jiraporn, et al., 2009). Thus, a highly skilled board or a busy board might have different effectiveness in oversight even if it has the same number of members as an unskilled or less busy board (Jiraporn, et al., 2009). Under the semi-strong form of the EMH, it is also the case that board structure would already be accounted for in the stock price, and therefore it is possible that only changes

or new information could make a difference (Bhatti, et al., 2006). However, the effect of market efficiency could be limited, according to previous studies on Thailand (Kim & Shamsuddin, 2008; Lagoarde-Segot & Lucey, 2008).

4.4.4 Ownership structure characteristics and stock returns (Hypothesis 4)

The fourth hypothesis addressed the direct relationship of ownership structure of the firm and stock returns. This hypothesis included three sub-hypotheses that separately examined the effect of institutional ownership (H4a), ownership concentration (H4b), and family ownership (H4c). Institutional ownership had a positive, significant effect on stock returns (beta = .170, p = .022), but ownership concentration and family ownership were not significant.

The existing literature on ownership structure and stock returns is less consistent than the literature on board structure and stock returns. (Please see Table 4 for a complete summary of this literature.) The effects of institutional ownership are inconsistent and complicated in previous studies. For example, Azzam (2010) found that institutional ownership affected pay-out ratios (total returns) and risk (volatility), along with other categories of stock ownership. In fact, these authors found that institutional ownership had lower effects than other categories of firms. Bohl, et al. (2009) found a negative effect on volatility, but Chuang (2015) did not find consistent effects between categories of institutional owners. Thus, the findings of this research do support a relationship of institutional ownership and stock returns, but the existing literature suggests that this relationship may be more complicated and difficult to evaluate than suggested. Explaining the significance of the institutional investor could be done similarly here as for the institutional ownership-earnings quality relationship. Simply, institutional owners may have lower barriers to information due to increased knowledge and information access, leading to a more efficient assessment of the appropriate stock price under the EMH (Bhatti, et al., 2006). While it may seem more straightforward to evaluate stock performance, in fact it may not be in a non-efficient market such as Thailand (Hamid, et al., 2010) because of the possibility of hidden information (Lagoarde-Segot & Lucey, 2008). Institutional owners, with higher levels of information access and skill, may be able to more accurately predict high-perform

stocks and invest in them than other categories of investors on the SET, which would lead to such a relationship under the EMH.

There are also complex findings relating to ownership concentration, with studies finding positive effects (Bai, et al., 2004; Perrini, et al., 2008), negative effects (Bjuggren, et al., 2007); and no effects at all (Azzam, 2010). These differences in measures may be due to the difference in measures of ownership concentration, which are inconsistent as always in ownership concentration. This lack of consistency is a general problem with the literature on ownership concentration, which was also problematic in the literature on earnings quality. The most surprising finding was in relation to earnings quality, since studies have routinely found that family-controlled firms have positive abnormal returns compared to non-family controlled firms (Bouzgarrou & Navarette, 2013; Braun & Sharma, 2007; Perrini, et al., 2008; Sraer & Thesmar, 2007). However, there are some indications that family ownership can have a negative effect, such as higher rates of abnormal short sales ahead of negative announcement (Anderson, et al., 2012) and poorer performance under crisis (Lins, et al., 2013). This could suggest that family ownership when accompanied by family management may depend on the knowledge and skill of family managers, which could be a problem for firms without professional managers. This issue was not studied in the current research, as it is not readily available in public reports. However, it is a possible opportunity for further study in the Thai stock market.

4.4.5 Earnings quality and stock returns (Hypothesis 5)

Hypothesis 5 addressed the relationship of earnings quality and stock returns. There was no significant effect of earnings quality on stock returns. This finding is contrary to the bulk of research on the relationship of earnings quality and stock returns. For example, studies have shown that earnings management increases the cost of capital and reduces excess returns (Apergis, et al., 2102), and that accruals quality reduced stock price delays (Callen, et al., 2013). In other words, under the semi-strong form of the EMH, earnings quality *should* represent a source of information that is rapidly incorporated into the firm's stock performance (Bhatti, et al., 2006). Similarly, Kim and Qi (2010) found consistent positive effects of accruals quality on monthly stock returns across different stock portfolios. These studies strongly suggested that there would be a

relationship of earnings quality and stock returns. One possible reason for this gap in the findings of the current study compared to studies on other markets is that Thailand has been shown in previous studies not to demonstrate market efficiency under the EMH. This is not unusual in developing countries, where barriers in information transmission, weak and poorly enforced disclosure requirements and weak institutions, and investor skill and preference levels can impede a fully efficient market (Kim & Shamsuddin, 2008). This means, in brief, that the market does not demonstrate the connection between firm news and information and stock returns that would be expected under the strong and semi-strong forms of the EMH (Bhatti, et al., 2006). Studying the market efficiency of the SET was outside the scope of this research, but previous studies have suggested that the Thai market is not necessarily efficient. For example, Hamid, et al. (2010) did not find that the Thai market showed weak-form efficiency, even though Munir, et al. (2012) did find some evidence for semi-strong form efficiency. The lack of effects of firm information on the stock price could also be related to the lack of effects of corporate governance on stock returns, if investors are not hearing about or considering effects of corporate governance. This is a possible opportunities for future research, for example examining evidence for the EMH directly in the SET, examining information flows for firm information, or conducting a behavioural study of investors in the SET to determine what factors they take into account.

4.4.6 Board structure characteristics, earnings quality, and stock returns (Hypothesis 6)

One of the novel contributions of this research was the examination of the possible mediating effect of earnings quality on the relationship of board structure and stock returns. This mediating relationship included initial factors of board size (H6a), board independence (H6b), CEO duality (H6c), gender diversity (H6d), board meeting frequency (H6e), and CEO compensation (H6f). Of these hypotheses, H6d was rejected, as there was no mediating effect. Minor mediating effects were seen for most variables, including board independence (H6b), CEO duality (H6c) and board meeting frequency (H6e). A few variables, including board size (H6a) and CEO compensation (H6f), had slightly larger mediating effects, although even in this case the effects were small and

only partial mediation was seen. (These studies are summarized in Table 6.) Very few studies had directly tested this relationship, and not all had positive results. For example, Cho and Rui (2009) did not find that board size had a significant role in the relationship of earnings quality and returns, but Kanagaretnam, et al. (2007) suggested that larger boards would have more information asymmetry and a larger bid-ask spread, which suggested that there could be a mediating effect. This study does suggest that earnings quality could play a mediating role between board size and stock returns, but the small size of the mediating effect could mean that it is due to sampling error. Further research is required in additional markets to examine the relationship in this area, particularly given the generally insignificant effect of earnings quality on stock returns in the Thai market (which as discussed above may be related to poor market efficiency). CEO compensation also showed a potential mediating effect of earnings management, which was supported by Cornett, et al. (2009). The role of CEO compensation is increasingly complicated, due to a lack of connection between the firm's substantive performance or stock performance and CEO compensation (Habib & Ljungqivst, 2005). This research did not have entirely positive findings related to the mediating effect of earnings quality, but the results are promising as a suggestion that earnings quality does intervene in the relationship. Further study in other markets and for longer time periods could help to refine the role of earnings quality as an intermediating variable, although it may not be observed in all markets. For example, it may not be observed in efficient markets, where information is already incorporated into the stock price (Bhatti, et al., 2006).

4.4.7 Ownership structure characteristics, earnings quality, and stock returns (Hypothesis 7)

The final hypothesis addressed the role of earnings quality in the relationship between ownership structure and stock returns, including institutional ownership (H7a), ownership concentration (H7b), and family ownership (H7c). Along with Hypothesis 6, this test was a theoretical contribution to the literature, because the intermediating role of earnings quality in these relationships has not been studied in detail. The effects analysis showed that institutional ownership had a weak mediating effect, but ownership concentration and family ownership did not show such a mediating effect.

Thus, there were only limited effects seen of earnings quality as a mediating variable for the relationships of ownership structure and stock returns. As with H6, there was limited evidence for the mediating role of earnings quality. (Please see Table 6 for a summary of these studies.) It was reasonable to test the effects, given that there was strong evidence for mutual relationships of ownership structure to earnings quality (Table 2) and of earnings quality to stock returns (Table 5), but there was limited information about a direct mediating effect. This study has provided some evidence for a mediating effect, although the effect was weak. This effect could be studied further by examining different markets or longer time periods, in order to increase the number of points of analysis. As discussed above, the market efficiency of the SET could be a factor in this relationship, and therefore comparing the SET to other markets could provide further information. For example, studying the effects in markets that are known to be efficient and comparison to non-efficient markets like Thailand in a cross-market comparison could provide more information about the mediating effect of earnings quality. This type of research should be used to develop a theoretical role of earnings quality as a mediating variable and a factor in market efficiency.

4.5 Summary

This chapter has reported on the SEM analysis that was conducted to test the relationships of corporate governance and ownership structures, earnings quality, and stock returns on firms on the SET (2014-2015) (n = 255 firm-years). The descriptive statistics were first used to evaluate the characteristics of the firms. This showed that firms have a wide range of corporate governance and ownership characteristics. Hypotheses were tested using the regression coefficients and effects ratios produced during the SEM process. The hypothesis tests showed that the effects of corporate governance and ownership on earnings quality and stock returns. Board meeting frequency and institutional ownership were positively associated with earnings quality (H1 and H2), while gender diversity and institutional ownership were positively associated with stock returns (H3 and H4). Earnings quality was not associated with stock returns (H5). The test of the mediating effects of earnings quality showed limited mediation effects, with effects above .10 (IE/TE ratio) only seen for a few relationships

(H6 and H7). Thus, the effects showed a limited amount of significant relationships. This may be due to the inefficiency of the Thai market, as identified in previous studies of the EMH in Thailand. However, this is uncertain, and there are other possible explanations that can be found in the literature as well. In the next chapter, the implications of the findings are discussed in the conclusion of the study.

CHAPTER 5
CONCLUSION AND RECOMMENDATIONS

This chapter concludes the research by summarizing the responses to the research objectives and hypotheses, offering six answers to the research questions. The first section of this chapter provides a summary of findings and conclusion, to meet this goal. The chapter also examines limitations of the study, both methodological and practical, and their implications. The chapter concludes on a comprehensive set of recommendations for different stakeholders, including firm CEOs and board members, government and regulators of public firms, the Stock Exchange of Thailand, and academics.

This research was designed to determine the effect of corporate governance principles and practices on the stock performance of Thai firms listed on the Stock Exchange of Thailand (n = 255 firms). The objectives of the study included 1) to establish the theoretical and empirical ground for the relationships expressed within the study 2) to conduct empirical study of the relationship between characteristics of the firm's board of directors (board size, board independence, CEO duality, gender diversity, and frequency of board meetings) and earning quality 3) to conduct empirical study of the relationship between characteristics of firm ownership structure (institutional ownership, ownership concentration, family ownership) on earning quality 4) to conduct empirical study of the relationship between characteristics of the firm's board of directors and stock return 5) to conduct empirical study of the relationship between characteristics of firm ownership structure on stock return and 6) to determine whether earnings quality of the firm plays an intervening role in the relationships between corporate governance and/or ownership characteristics of the stock return.

There were six research questions as follows:

Research question 1: what extent do board of directors characteristics affect the firm's earning quality?

Research question 2: what extent does firm ownership structure affect the firm's earning quality?

Research question 3: what extent do board of directors characteristics affect the firm's stock return?

Research question 4: what extent does firm ownership structure affect the firm's stock return?

Research question 5: Does earnings quality play an intervening role (moderating or mediating) between the board of directors' characteristics and the firm's stock return?

Research question 6: Does earnings quality play an intervening role (moderating or mediating) between the firm's ownership structure and the firm's stock return?

The hypothesis of the study are based on the theoretical framework. There are seven hypothesis proposed for this study.

Hypothesis 1: Board of directors structure is associated with the firm's earnings quality.

- Hypothesis 1a: Board size is associated with earnings quality.
- Hypothesis 1b: Board independence is positively associated with earnings quality.
- Hypothesis 1c: CEO duality is positively associated with earnings quality.
- Hypothesis 1d: Gender diversity is positively associated with earnings quality.
- Hypothesis 1e: Meeting frequency is positively associated with earnings quality.
- Hypothesis 1f: CEO compensation is negatively associated with earnings quality.

Hypothesis 2: Ownership structure characteristics positively associated the firm's earning quality

- Hypothesis 2a: Institutional Ownership is positively associated with earning quality.
- Hypothesis 2b: Ownership Concentration is positively associated with earning quality.

○ Hypothesis 2c: Family Ownership is positively associated with earning quality.

Hypothesis 3: Board of directors characteristics is positively associated with the firm's stock return.

○ Hypothesis 3a: Board Size is positively associated with stock return.

○ Hypothesis 3b: Board Independence is positively associated with stock return.

○ Hypothesis 3c: CEO Duality is positively associated with stock return.

○ Hypothesis 3d: Gender Diversity is positively associated with stock return.

○ Hypothesis 3e: Board Meeting Frequency is positively associated with stock return.

○ Hypothesis 3f: CEO compensation is positively associated with stock return.

Hypothesis 4: Ownership structure characteristics positively associated the firm's stick return

○ Hypothesis 4a: Institutional Ownership is positively associated with stock return.

○ Hypothesis 4b: Ownership Concentration is positively associated with stock return.

○ Hypothesis 4c: Family Ownership is positively associated with stock return.

Hypothesis 5: Earnings quality is related to stock return.

Hypothesis 6: Earnings quality plays a mediating role in the relationship between the board of director characteristics and stock return.

○ Hypothesis 6a: Earnings quality plays a mediating role in the relationship between board size and stock return.

○ Hypothesis 6b: Earnings quality plays a mediating role in the relationship between board independence and stock return.

- Hypothesis 6c: Earnings quality plays a mediating role in the relationship between CEO duality and stock return.
- Hypothesis 6d: Earnings quality plays a mediating role in the relationship between gender diversity and stock return.
- Hypothesis 6e: Earnings quality plays a mediating role in the relationship between board meeting frequency and stock return.
- Hypothesis 6f: Earnings quality plays a mediating role in the relationship between CEO compensation and stock return.

Hypothesis 7: Earnings quality plays a mediating role in the relationship between the ownership structure and stock return.

- Hypothesis 7a: Earnings quality plays a mediating role in the relationship between institutional ownership and stock return.
- Hypothesis 7b: Earnings quality plays a mediating role in the relationship between ownership concentration and stock return.
- Hypothesis 7c: Earnings quality plays a mediating role in the relationship between family ownership and stock return.

The study consisted of a cross-sectional study based on publicly available information for firms listed on the Stock Exchange of Thailand (SET) (2014-2015). Following a literature review, data was collected from the SET's SETSMART database, which provides access to firm disclosures including mandatory annual Form 56-1 disclosures. Analysis was conducted using structural equation modelling (SEM). Descriptive statistic for variable are Board director, board size (BSIZE) was 10.37 on average. The proportion independent board member (PBIND) was 0.40. The proportion female board member (PGD) was 0.17. Meeting Frequency (MFREQ) was 8.10 on average. The natural log CEO Compensation (LogCOMP) was 7.45. For Variable are Ownership, Institutional Ownership (INST) was 34%. Ownership concentration (CONC) was 18.06% and Family Ownership (FAM) was 21.80%. Stock Return (SR) variable was -.12% on average. Earnings Quality (ACCRUAL) was 634.04 on average. Control Variable is Firm Size (LogSIZE) was 9.73 on average. The natural log leverage (LogLEV) was -.59 and Two Dummy variable are CEO Duality (DUAL) was 0.19 on

average and Big 4 (BIG4) was 0.67 on average. The model squared multiple correlation for Earnings Quality (ACCRUAL) r^2 = .114 and for Stock Return (SR) r^2 = .154.

5.1 Discussion of the Research Findings

The theoretical and empirical grounds for the study were established using an academic literature review (Chapter 2) Agency theory was identified as the driving theoretical basis for corporate governance. Agency theory states that corporate governance represent monitoring and alignment costs, which are intended to ensure that the interests of the management are aligned with the firm's shareholders and that their actions are monitored to ensure they are meeting their duties. The literature review also identified corporate governance principles established by the Stock Exchange of Thailand (2013), which all publicly listed firms on the SET must either comply with or explain their variance. The literature review also identified a further factor of ownership structure, which could influence the firm's stock performance. There was no strong evidence for earnings quality as a mediating variable between corporate governance and stock return, but there was a two-sided relationship with earnings management that was suggestive. Thus, earnings quality as a mediating variable was included as an exploratory factor in the theoretical framework. The outcome of the literature review was a theoretical framework that addressed expected relationships and direction, allowing for data collection from public sources. The literature review also identified several research gaps, which justified this research.

5.1.2 Discussion of Research Question 1:

Board of Directors Characteristics and Effects on Earning Quality

Research Question 1 was measured in Hypothesis 1, which addressed the relationship of board structure and earnings quality as follows:

Hypothesis 1: Board of directors structure is associated with the firm's earnings quality.

- Hypothesis 1a: Board size is positively associated with earnings quality.
- Hypothesis 1b: Board independence is positively associated with earnings quality.

○ Hypothesis 1c: CEO duality is positively associated with earnings quality.

○ Hypothesis 1d: Gender diversity is positively associated with earnings quality.

○ Hypothesis 1e: Meeting frequency is positively associated with earnings quality.

○ Hypothesis 1f: CEO compensation is negatively associated with earnings quality.

This hypothesis was evaluated based on the regression coefficients and significance from the SEM process. The outcome variable, ACCRUAL, was an inverse measure of earnings quality (higher accruals indicates lower earnings quality). The regression model showed that there was a significant, positive relationship of BSIZE and MFREQ. Thus, H1e could be accepted. However, none of the other paths showed a significant relationship, leading to rejection of H1a, H1b, H1c, H1d, and H1f. It is possible that the quality of board members, rather than their number, is what is determining earnings quality in the case of the Thai market. It is also possible that the lack of effects of corporate governance on earnings quality is due to poor institutional frameworks, inefficient markets or some other factor. However, this research was not designed to address this possibility, and did not measure board qualifications, busyness, or other indications of board quality. Therefore, this remains an open question, and one that requires additional research.

5.1.3 Discussion of Research Question 2:

Ownership Structure and Earning Quality

Research Question 2 was explored through Hypothesis 2, which addressed the relationship of ownership structure and earnings quality as follows:

Hypothesis 2: Ownership structure characteristics positively associated the firm’s earning quality

○ Hypothesis 2a: Institutional Ownership is positively associated with earning quality.

○ Hypothesis 2b: Ownership Concentration is positively associated with earning quality.

○ Hypothesis 2c: Family Ownership is positively associated with earning quality.

As with H1, H2 was examined using regression outcomes. The regressions showed that INST had a negative effect on ACCRUAL, implying that there was a positive relationship between institutional ownership and earnings quality. Thus, H2a could be accepted There are still some questions to be asked regarding the SET and institutional ownership, including the effects of different types of institutional ownership (Mazumder, 2016) and the role of different levels of institutional ownership (Ajay & Madhumathi, 2015). However, it appears that the SET is similar to other markets in this regard.

The effects of CONC and FAM were not significant. Thus, the relationship between ownership concentration and earnings quality (H2b) and family ownership and earnings quality (H2c) were rejected. There are some possible reasons for this rejection. For example, it could be due to the relatively low level of ownership concentration (around 18%) compared to other markets, where averages as high as 45% (Khalil & Ozkan, 2016) can be observed. With a lower level of ownership concentration, it is possible that the power of institutional investors would be lower and they would not have as much effect on earnings quality. This may also be true for family ownership, as studies like that of Prencipe and Bar-Yosef (2011) only have included firms with more than 50% family ownership. Standardization of different measures for ownership blocks could improve consistency of future studies.

5.1.4 Discussion of Research Question 3:

Board of Directors Characteristics and Effects on Stock Returns

Research Question 3 was measured in Hypothesis 3. The literature review identified several board characteristics that had previously been observed to have an effect on stock returns. The hypotheses that were proposed to meet Question 3 included:

Hypothesis 3: Board of directors characteristics is positively associated with the firm’s stock return.

○ Hypothesis 3a: Board Size is positively associated with stock return.

○ Hypothesis 3b: Board Independence is positively associated with stock return.

○ Hypothesis 3c: CEO Duality is positively associated with stock return.

○ Hypothesis 3d: Gender Diversity is positively associated with stock return.

○ Hypothesis 3e: Board Meeting Frequency is positively associated with stock return.

○ Hypothesis 3f: CEO compensation is positively associated with stock return.

Hypothesis 3 was examined using regression as well. There was only one factor that were identified that had a significant relationship to stock returns. Gender diversity (H3d) had a positive relationship to stock returns. This finding is broadly consistent with the literature, which has found many ways that female representation on the board of directors improves the firm's operational and stock performance. Thus, this finding was as expected and provides valuable support for what is already known about the effects of gender diversity. This finding exposes one of the limitations of the cross-sectional study, since this cannot be verified under the current structure of the research. Other board structure factors including board size (H3a), board independence (H3b), CEO duality (H3c), board meeting frequency (H3e), and CEO compensation (H3f) did not have a significant effect on the firm's stock returns. These findings are broadly consistent with the literature, although in all cases except CEO compensation there are mixed results. The finding on CEO compensation was surprising because there is a strong body of literature pointing to a CEO compensation-stock return relationship. However, it is possible that the specification or measurement of CEO compensation in this research was insufficient to capture this effect, or that the cross-sectional study prevented measurement of long-term risk-based compensation effects. In general, it is possible that the lack of market efficiency as has been observed in Thailand previously could prevent corporate governance from directly being reflected in stock price, as would be expected under the semi-strong form of market efficiency. This remains an area for further study, as this research was not designed to study market efficiency on the SET.

5.1.5 Discussion of Research Question 4:

Ownership Structure and Stock Returns

Research Question 4 was measured in Hypothesis 4. The literature review also identified the possibility that the ownership structure of the firm could influence stock returns, which was the basis of Question 4. Agency theory suggests that large block holders, particularly those that also have managerial control (for example family owner/managers) could have an influence on the firm's management and stock returns. The hypotheses proposed in order to test Question 4 included:

Hypothesis 4: Ownership structure characteristics positively associated the firm's stick return

- Hypothesis 4a: Institutional Ownership is positively associated with stock return.
- Hypothesis 4b: Ownership Concentration is positively associated with stock return.
- Hypothesis 4c: Family Ownership is positively associated with stock return.

The relationship of ownership structure and stock returns was tested using regression. The results showed a strong positive effect of institutional ownership on stock returns (H4a). However, ownership concentration (H4b) and family ownership (H4c) did not have a significant relationship. The effects of block ownership are very complicated, interacting with factors like dividend policy (Rubin & Smith, 2009) and opportunities for insider trading that occur in family firm environments (Anderson, et al., 2012). Thus, it is not surprising that this study was only partially successful at isolating the effects of the ownership structure on the firm's stock performance. As expected given the body of literature, institutional ownership did provide a positive effect on stock returns, potentially because increased oversight reduces volatility. The lack of effect from ownership concentration and family ownership is potentially because these ownership blocks are smaller than in other studies. Overall, the SET firms in this period showed lower levels of group ownership than displayed in other studies, which could mean they have not reached critical thresholds for oversight performance. Overall, it can be stated that institutional ownership does influence stock returns

positively, but the effects of ownership concentration and family ownership are less well-explained.

5.1.6 Discussion of Research Question 5:

Earnings Quality as a Mediating Variable

Research Question 5 was measured in Hypothesis 5, which addressed the relationship of earnings quality as follows:

Hypothesis 5: Earnings quality is related to stock return.

Hypothesis 5, which was tested using regression, showed that there no significant effect of earnings quality on stock returns. While this seems surprising, it is easily explained. In particular, the lack of market efficiency, which has been observed previously, could prevent information quality from influencing stock prices, since investors may not take it into account when setting stock prices.

5.1.7 Discussion of Research Question 6:

Earnings Quality as a Mediating Variable

Research Question 6 was measured in Hypothesis 6 and 7, which addressed the relationship of earnings quality as a mediating variable, but there was evidence of a relationship on both sides.

Hypothesis 6: Earnings quality plays a mediating role in the relationship between the board of director characteristics and stock return.

- Hypothesis 6a: Earnings quality plays a mediating role in the relationship between board size and stock return.
- Hypothesis 6b: Earnings quality plays a mediating role in the relationship between board independence and stock return.
- Hypothesis 6c: Earnings quality plays a mediating role in the relationship between CEO duality and stock return.
- Hypothesis 6d: Earnings quality plays a mediating role in the relationship between gender diversity and stock return.
- Hypothesis 6e: Earnings quality plays a mediating role in the relationship between board meeting frequency and stock return.
- Hypothesis 6f: Earnings quality plays a mediating role in the relationship between CEO compensation and stock return.

Hypothesis 7: Earnings quality plays a mediating role in the relationship between the ownership structure and stock return.

- Hypothesis 7a: Earnings quality plays a mediating role in the relationship between institutional ownership and stock return.
- Hypothesis 7b: Earnings quality plays a mediating role in the relationship between ownership concentration and stock return.
- Hypothesis 7c: Earnings quality plays a mediating role in the relationship between family ownership and stock return.

Mediation effects for H6 and H7 were tested using the DE/TE and IE/TE ratios. In terms of board structure, most relationships had weak mediation effects (0% to 20% mediated). The only relationship that did not show a weak mediating effect was SR ← ACCRUALS ← PGD, but none of the other effects were significant. The strong mediating effect of earnings quality in this relationship may explain some of the surprising findings related to H3. For H7, only one relationship had a weak, negative mediating relationships (<20%), which was SR←LogACCRUAL←INST (H7a). Hypotheses H6e, H7b and H7c were rejected, because the result did not show any mediating relationship. There are some possible reasons for this lack of support for the role of earnings quality as a mediating variable that can be found in the literature, which are related to the behaviour of investors on the SET. For example, Chitmunchaitham (2002) found that investors only tend to use financial information (profit and loss) in their investment decisions, ignoring other, more complicated information such as earnings quality. This is related to a possible lack of knowledge about investing and poor information efficiency on the exchange (Chitmunchaitham, 2002). Karuwannapat (2005) also had similar findings. Thus, it is possible that earnings quality did not play the expected role because of poor information efficiency on the SET and lack of investing knowledge, combined with the complexity of evaluating earnings quality. More research in information decision making could be helpful to determine whether this is still the case.

These hypotheses were exploratory in nature, as no previous studies could be found that directly tested earnings quality as a mediating factor in the relationship of board structure and ownership structure and stock returns. Thus, this is the main novel

contribution of the research. It demonstrates that there is such a relationship, and that for some aspects of board structure and ownership structure it is substantial. It is possible that factors like market efficiency play a role in the mediating effect, which could be discovered through cross-country research. However, the weakness of existing evidence does not provide any clear or full explanation.

5.1.8 Conclusion

This study began with six objectives, which were focused on examining the nature of the relationship between board structure characteristics, ownership structure characteristics, earnings quality, and stock returns of the firm. Agency theory provided the basis for understanding the role of corporate governance in the firm and an explanation for the importance of information (earnings quality) in investor decisions and ultimately, stock returns. The empirical study included 255 non-financial firms listed on the SET (2014-2015). It used SEM to analyze the relationship of the factors. The results showed that board meeting frequency and institutional ownership influence earnings quality, while gender diversity and institutional ownership influence stock returns. The novel finding of the research is that earnings quality does act as a mediating variable between most of the board structure and ownership structure variables and stock returns. While most of these mediation effects are minor (<20%), this does raise the possibility that effects could be seen in other markets as well. Thus, earnings quality was a partial mediator for these relationships. In conclusion, it can be stated that corporate governance does influence stock returns, as does earnings quality. This relationship can be explained through agency theory, since earnings quality provides investors with information that reduces risk and stock volatility along with the price demanded. It can also be related to the EMH, since earnings quality represents a form of information that is reflected in the price of the stock. Overall, this study was successful at analyzing relationships on the SET, although there are still some issues and gaps remaining.

5.2 Limitations of the Study

There are several methodological and implementation limitations that affected the study. One of the major limitations is the use of a cross-sectional design for the

study. Cross-sectional economic and econometric research can be limited because it does not allow for long-term trend identification (using lags) or identification of calendar effects (through comparison to different periods) (Wooldridge, 2016). In this particular case, a relatively small sample (n = 255 firms) resulting from the cross-sectional study also meant that many of the variables were not normally distributed. This could have negatively affected the SEM process, for example by reducing the effects sizes of individual variables (Kline, 2016). This was not anticipated during the research design, as the nominal size of the sample should have been large enough to result in normal distribution. The choice of a cross-sectional design was made after considering the amount of time required to hand-collect data from the firms' Form 56-1, which was significant even though some of the data could be accessed from the SETSMART database and automatically formatted. The amount of time required per data point demanded a trade-off between breadth (the number of firms included) and depth (the number of years included per firm). The choice of a cross-sectional design, maximizing the number of firms that could be included, was considered best to represent the full range of Thai listed companies. However, in future an exploratory approach that examined the characteristics of the data could be more appropriate, as could a panel data analysis strategy that included multiple firm-years of data.

There were also several measurement and theoretical limitations that are inherent in this study. One of these limitations is that measures only had a certain degree of granularity, which could have affected the results. For example, studies that have focused directly on ownership structure have broken down institutional owners or block owners more finely. This could have provided a more comprehensive understanding of the effects of the ownership structure, but this had to be balanced against lack of information and time constraints of the study. The research also only examined the *quantity* of stock return (the gross return) and not its *quality* (for example, including measures like stock volatility or other aggregate measures such as Tobin's q). This limitation of the scale of the study was essential because of the time and information constraints, as above. However, using multiple dimensions of stock return quality and quantity may have provided more robust results, or may have identified relationships that were not seen in this study. This is important because previous studies

have shown that seemingly similar measures can have different outcomes. A related limitation is that this research only measured earnings quality using the modified Jones (1991) discretionary accruals model (Dechow, et al., 1995). This is a robust model and was chosen because it is one of the best supported measures of earnings quality. However, there are many different ways that earnings quality can potentially be measured (Dechow, et al., 2010). By including additional measures of earnings quality, it is possible that the results may have been more robust. A final limitation is that the study depended on the firm's financial statements as filed with the SET (Form 56-1), and did not include restatements. While this is the legal document of the firm's performance, it could be inaccurate, which would not be detectable here.

5.3 Implication for Practice and Future Research

The final stage of the research was reflection on the institutional and market context, existing literature, and the findings of the current study to generate some recommendations for stakeholder groups to improve corporate governance in Thailand. Four stakeholder groups have been identified, including firm management (CEOs and boards), government (regulatory bodies), the Stock Exchange of Thailand, and academics (recommendations for future research).

5.3.1 Implication for Academic and Practice

5.3.1.1 Recommendations for CEOs and Boards

One of the most important groups of stakeholders for this research are CEOs and firm boards, who are tasked with implementing and monitoring corporate governance strategies in accordance with best practices, principles, and regulations and market requirements (Bloomfield, 2013; Calder, 2008). These stakeholders are thus the most involved in implementing the findings of this research to benefit the firm. This research showed limited effects of corporate governance factors like board structure and ownership structure on the firm's stock returns in the Thai market. The main exception was gender diversity, which is strongly supported in the literature as a factor in market performance. The study also showed that the firm's earnings quality was positively associated to stock returns. The immediate recommendation that these findings suggest is that the gender diversity strategy and protection of earnings quality through

accounting policies, monitoring and audit oversight, should be a priority for the firm. However, just because other corporate governance factors did not have a statistically significant effect on the firm's stock returns does not mean that these measures are not important. Corporate governance best practices are put into place because they represent the best available theoretical information about the firm's management and its responsibility to shareholders and other stakeholders (Calder, 2008; Fernando, 2011). The corporate governance responsibility of the firm's CEO and board goes beyond market performance, supporting the firm and its stakeholders in a weak regulatory environment (Uyar, Kilic, & Bayyurt, 2013). Thus, it is critical for CEOs and board members to ensure that the corporate governance regime of the firm is consistent with best practices as well as regulatory requirements. The effects of implementing best practices can be seen in this sample, for example in the relatively low level of CEO duality compared to other national samples. Thus, there is clear evidence that the Principles of Good Corporate Governance have improved corporate governance. The second recommendation for CEOs and board members of publicly listed companies is that the Stock Exchange of Thailand's (2013) Principles of Good Corporate Governance should be implemented fully, and updated recommendations should be monitored and implemented when appropriate to ensure the company stays in line with corporate governance best practices.

5.3.1.2 Recommendations for Government Regulation

The second set of recommendations is for government regulation, to address the issues of this study and to ensure that corporate governance is meeting the needs of broader society. Corporate governance in Thailand is regulated on a voluntary basis, with the SET acting as oversight body (Stock Exchange of Thailand, 2013). They have been routinely updated following the implementation in 2002, and are now consistent with the OECD regulations and ASEAN requirements and are rated as generally good (The World Bank, 2013). Thus, the current principle-based corporate governance regime does provide effective oversight. However, this does not mean that there is no room for improvement. One opportunity for improvement is strengthening the general regulatory and institutional environment that Thai firms operate within, including legal protections for shareholders and so on. Strong corporate governance

principles and regulations are most needed under conditions of weak legal protections for shareholders and legal regimes that allow firms to be prosecuted or otherwise penalized for issues like environmental violations (Bloomfield, 2013). In conditions where there are stronger legal protections, there is less need for intensive corporate governance regimes (although they may still be implemented) (Rajgopal & Venkatachalam, 2011). Weak regulatory and monitoring environments are not just important for shareholder protection, but also for the protection of the rights of other stakeholders like customers, communities and the environment (Calder, 2008). Thus, the main recommendation for Thai government regulators is that there should be more effort to improve the business and legal environment and provide stronger protections for shareholders and stakeholders, outside the voluntary corporate governance framework established by the SET. This would protect not just shareholders of public firms, but many more stakeholders.

5.3.1.3 Recommendations for the Stock Exchange of Thailand (SET)

The main recommendation for the Stock Exchange of Thailand (SET) addresses the World Bank's (2013) critiques of the existing Principles of Good Corporate Governance. The principles are considered to be consistent with international standards for corporate governance and are rated as above average compared to similar regimes. In particular, the comply or disclose requirement is effective in encouraging compliance with corporate governance, while still allowing firms to make exceptions if there is a valid operational reason for doing so. The main critique that the World Bank (2013) offered of this set of principles is that the SET does not effectively disseminate or communicate about them, particularly when changes occur. This can impede the effective implementation of updated corporate governance guidelines (The World Bank, 2013). In the most extreme cases, this could lead to firms being vulnerable to shareholder lawsuits or other actions because of inadvertent lack of compliance or disclosure following the Stock Exchange of Thailand's (2013) compliance rules. However, more generally it means that firm corporate governance principles as implemented may be outdated and may not be following the best information known about the practice of corporate governance. Thus, the main recommendation this research offers for the SET is that it should improve its notification systems to distribute

information about changes in corporate governance more effectively to firms listed on the SET. One possibility is that it could implement an automated notification system, with a designated officer of each firm being assigned responsibility for receiving updates on corporate governance principles and determining how these principles should be put into practice. Also following the World Bank's (2013) recommendations, the SET could provide more thorough implementation guidelines that would help firms more effectively implement principles, especially when they change. These recommendations would help improve Thai listed firms' corporate governance implementation, as well as helping the SET achieve its oversight and monitoring goals more effectively.

5.3.2 Future Research

This research had limited scope and time constraints, as all studies do. This means that there are potential avenues for further research that could not be followed here. The first such opportunity is a more comprehensive examination of the role of earnings quality as a mediating variable in corporate governance-stock return relationships. This study has provided preliminary evidence that this relationship does exist, and further studies could expand on this relationship to understand its full dimensions, importance, whether it carries across different institutional environments, and other factors.

There are also some adaptations to the current study design that could be considered. One of these opportunities is to expand from a narrow definition of firm performance (stock returns) to include more measures of firm performance, such as quantitative measures (book-to-market ratio, stock volatility, and so on). This would help to determine whether different dimensions of firm market and operational performance are affected differently by corporate governance structures and ownership structures. Different measures of stock performance, such as Tobin's q and its variants, could also be include, which would help provide a multidimensional perspective.

Similarly, ownership structures could be defined with more granularity, for example by breaking down institutional ownership and including different measures of ownership concentration. This type of granularity would be able to model the complex and sometimes conflicting relationships between different groups of institutional

investors, which could have different effects on the firm's earnings quality and performance. Similarly, a measure for industry could be added, which would acknowledge that firms in different industries have different operating conditions, board cultures, and asset and income management practices that could create different outcomes.

An additional area for further study is considering institutional ownership as a possible mediating factor between earnings quality and stock returns. This research showed that institutional owners have different effects than family owners or general concentration of ownership on both earnings quality and stock returns. This result could stem from different behaviors on the part of institutional owners, for example buy and hold investment strategies, more involvement in the firm's management, and so on. Thus, institutional ownership could be more important than previously recognized in terms of its effects on the firm's financial reporting and its role in outcomes. This justifies re-evaluating the role of institutional ownership as suggested here.

Finally, the research could be conducted not as a cross-sectional pooled study as was performed here, but as a panel data or time series study. This would change the analysis techniques and methods. However, it would also allow for detection of effects across time; for example, to determine whether there is a two-way relationship of board meetings and stock returns. Using lagged effects would help show how corporate governance changes in response to firm performance and vice versa.

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Declaration

This work contains no material which has been accepted for the award of any other or diploma in any university or other tertiary institution and, to the best of my knowledge and beliefs, contains on material previously published or written by another person, except where due reference has been made in the text.

I give consent to this copy of my thesis, when deposited in the university library, being available for loan and photocopying.

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